

# **2020 American Control Conference**

# FINAL PROGRAM



**Sheraton Denver Downtown Hotel** 

Denver, CO July 1–July 3, 2020

**Sponsoring Organization** 

The American Automatic Control Council, in cooperation with IFAC



**Member Societies** 



# 2020 American Control Conference Sheraton Denver Downtown Hotel Denver, CO, USA

http://acc2020.a2c2.org/

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**Technical Program** 

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# WELCOME TO THE ACC 2020

#### THE AMERICAN AUTOMATIC CONTROL COUNCIL

The American Control Conference is organized under the auspices of the American Automatic Control Council (AACC), which is an association of nine professional societies:

- American Institute of Aeronautics and Astronautics (AIAA)
- American Institute of Chemical Engineers (AIChE)
- American Society of Civil Engineers (ASCE)
- American Society of Mechanical Engineers (ASME)
- Institute of Electrical and Electronics Engineers (IEEE)
- Institute for Operations Research and the Management Sciences Applied Probability Society (INFORMS APS)
- International Society of Automation (ISA)
- Society for Industrial and Applied Mathematics (SIAM)
- Society for Modeling and Simulation International (SCS)

AACC represents the United States to the global control community and supports the mission of the individual member societies in enhancing the role and contributions of automation for the benefit of humankind. AACC is also the US National Member Organization (NMO) of the International Federation of Automatic Control (IFAC), a multinational federation of NMOs, each representing the engineering and scientific societies concerned with automatic control in its country. AACC helps arrange for IFAC events in the U.S. and provides delegates for IFAC committees and leadership.

Organizing the annual, 3-day, cross-disciplinary ACC is the principal technical activity of AACC. The conference typically attracts about 1,300 participants and features about 1,000 refereed papers. The ACC is an internationally recognized control conference with substantial participation from outside the US. Academia, industry, and government are all well-represented. Additionally, AACC offers several annual awards to recognize and honor individuals who have made substantial contributions to control theory and practice. These awards are presented during the annual AACC Awards Ceremony, held at the ACC. AACC also supports control education from K-12 through post-graduate studies. AACC provides opportunities for personal and professional development and recognition to its large cast of volunteers, on whom it is crucially dependent for its operations and success.

The activities of the AACC are governed by a Board of Directors. Each AACC member society appoints a director. Operational responsibilities for the AACC rest with five officers, who report to the Board. Operating committees for ACCs, awards committees, etc., report to the officers. All directors, officers, and committee members are volunteers.

To learn more about AACC please visit <u>www.a2c2.org</u>.

#### **GREETINGS FROM THE AACC PRESIDENT**

On behalf of the American Automatic Control Council (AACC), I am pleased to welcome you to the 2020 American Control Conference (ACC) in Denver. ACC attracts participants from academia, industry, and government; from around the world; and, from a wide range of disciplines including all the engineering and control-relevant branches of applied mathematics.

AACC is a federation of nine professional societies: American Institute of Aeronautics and Astronautics (AIAA), American Institute of Chemical Engineers (AIChE), American Society of Civil Engineers (ASCE), American Society of Mechanical Engineers (ASME), Institute of Electrical and Electronics Engineers (IEEE), the International Society for Automation (ISA), the Society for Modeling & Simulation International (SCS), the Society for Industrial and Applied Mathematics (SIAM), and Applied Probability Society as a subdivision of the Institute for Operations Research and the Management Sciences (INFORMS APS). The mission of the AACC is to promote cooperation among the various segments of the automatic control profession within the U.S. and to represent the U.S. in international activities. To this end, AACC manages the ACCs, supports control-related workshops and symposia, represents the U.S. in the International Federation of Automatic Control (IFAC), provides volunteers for IFAC activities, and undertakes other initiatives that promote and coordinate developments in the automatic control field.

AACC was founded more than sixty years ago in 1957 and had its first organizational meeting that year in Chicago. Among the various AACC activities, the largest single activity is ACC organization, which begins about five years in advance. The American Control Conference has had two name changes in its history. The first conference – the National Automatic Control Conference – was held in 1959 in Dallas. The very next year the conference was renamed the Joint Automatic Control Conference, which ran until 1981. AACC decided to change the conference name to the American Control Conference during an operational change in which the conference went from being organized each year by one of its member societies (which would rotate among the societies) to being organized by an operating committee whose members are drawn from multiple societies. Each operating committee is led by a General Chair and a Program Chair. These positions as well as the operating committee members change each year.

AACC is an organization led and run by volunteers. The governing body of the AACC is its Board of Directors. Each member society appoints one Board member. The Board provides overall governance of AACC and elects the Chairs of various committees, the ACC General and Program Chairs, and the Officers who are responsible for operations and recommendations to the Board.

Each ACC is both a presentation of the latest research results in and a celebration of automatic control. In addition to the peer-reviewed papers in the conference proceedings, each ACC features workshops, special sessions, exhibits, and social events which include a banquet, opening and closing receptions, and the annual AACC Awards Ceremony.

Please join me in thanking the General Chair Santosh Devasia, the operating and program committees, the AACC Board and Officers, and many others for their volunteer contributions.

I extend my best wishes to all conference participants for an enjoyable, stimulating, and productive ACC.

*Jay A. Farrell* AACC President, 2019-2020

#### **GREETINGS AND THANKS FROM THE GENERAL CHAIR**

On behalf of the Operating Committee, it is my great pleasure to welcome you to the 2020 American Control Conference in Denver, Colorado. The success of any conference depends first and foremost on its participants, and thus we thank you sincerely for choosing ACC as a forum for disseminating your work. As part of a vital community of colleagues and friends, we are also extremely grateful for your companionship in Denver.

The 2020 ACC Operating Committee (OpComm) has brought together their diverse collective experience to develop new innovations for the conference. These include: (i) the Rapid Interactive (RI) sessions that enable participants to present to a large portion of the attendees and for attendees to get a sampling of the many research results in an area, which has been popular at other conferences, e.g., in the Robotics Community; (ii) the fifty or so late-breaking poster presentations (without the need to submit a full paper) that is becoming an increasingly preferred way to communicate emerging ideas in conferences; and (iii) incorporating Federal funding from NSF (through the efforts of our Vice-Chair for Student Affairs, Kira Barton) to increase the diversity of students participating in ACC. We welcome your remarks and comments on the effectiveness of these and potential ways to improve further.

ACC is our conference, managed by volunteers from our societies. Hence, I am very thankful to the large community of dedicated volunteers that support ACC activities, including but not limited to the conference OpComm (each of whom played a key role to 2020 ACC's success), the review team (including the Program Chair Martha Grover, the reviewers, the program committee, the Associate Editors, and the Conference Editorial Board) for maintaining the high quality of the ACC program, the American Automatic Control Council (its officers as well as the Steering Committee) for sharing their collective wisdom on the mechanics of putting together a conference, and the current and past OpComms for being generous in sharing their ideas, time, and knowledge. Finally, thanks to Bob Judd, to whom I am indebted to for helping with the hotel and site selection process and the many contracts, and in this special year for renegotiating with the hotel as we transitioned to a fully online conference.

It was heartwarming to find the strong interest in the conference from our community, in spite of the Covid-19 situation. Most of the authors of the more than 800+ papers felt sufficient value to submit their final papers to ACC and registering, while paying the full conference fees. Due to the volunteer spirit in our community, we were able to lower the overall registration rates, and refund a substantial portion of the fees back to the registrants. I am very grateful to the support and guidance from the OpComm members and the AACC board and officers all through this transition process.

We are anticipating strong participation in ACC 2020 from our community, and we hope to try and hold most of the typical events. You should expect your attendance to be both informative and enjoyable. I hope to see you online in July.

Santosh Devasia General Chair, 2020 American Control Conference

#### **TECHNICAL PROGRAM OVERVIEW**

Welcome to the 2020 American Control Conference. We are excited to bring together control researchers from a range of disciplines to discuss theoretical developments of common interest and diverse applications in engineering and science. This year we are proud to feature a new presentation format in the morning Rapid Interactive (RI) sessions. On each of the three mornings of the conference, there will be two parallel RI sessions. The intent of the RI sessions is to increase the visibility of your work and to promote more indepth discussions and interactions between authors and conference attendees. Specifically, each presenter in an RI session will be presenting to a large audience of half the conference. Each of the six sessions will begin with a keynote presentation, selected from the highly rated contributed papers. Next, 21 papers will be presented back-to-back in a rapid three-minute format. In the subsequent interactive portion of the session, authors will further share their ideas and results through a digital poster session, with large monitors provided for each presenter to promote discussion and engagement with the audience. The six RI sessions are entitled Optimization and Optimal Control, Control of Energy and Automotive Systems, Predictive Control, Control of Robotic Systems, Learning, and Control of Biological and Aerospace Systems.

The conference will also feature five plenary seminars: three morning plenaries, as well as two evening plenaries on Tuesday and Wednesday, with diverse topics on control in science and engineering. The plenary programs commence with a plenary lecture on **Control Challenges for the Laser Interferometer Gravitational-wave Observatory (LIGO)**, by Dennis Coyne, and wraps up with the Friday morning plenary by Eckman Award winner Na Li on Distributed Decision Making in Network Systems.

The 2020 ACC received 1239 paper submissions, 46 invited session proposals, 5 tutorial session proposals, and 11 pre-conference workshop proposals. After a tremendous and conscientious effort by the Society Review Chairs, the Associate Editors, and the Program Committee, together with the eleven auditors and all of the reviewers, 835 papers were selected for presentation at the conference, for an acceptance rate of 67%. In addition, 27 papers were nominated for the Student Best Paper Competition. This year the papers were reviewed in a double-blind process to reduce bias in evaluation. We encourage you to attend the Student Best Paper Session on Wednesday from 4-6 pm to hear the presentations of the five outstanding finalists for the award. Also, we encourage you to engage with the poster presenters in our Late-Breaking Results poster session, during the breaks throughout the conference.

The program was assembled in Atlanta in January, thanks to the dedication of Amir Aghdam, Santosh Devasia, Kam Leang, Ardalan Vahidi, George Chiu, Kristi Morgansen, Bonnie Ferri and Fumin Zhang, as well as the sacrifice of a large number of Post-Its. Amir's attention to detail is remarkable, and when he finally approved the program schedule, we all were confident that it was time to celebrate. The Operating Committee for the ACC has been dedicated and effective, and I appreciate their contributions to assemble all the critical pieces into the complex conference system. You can find their names in the final program and on the conference website. Please do thank them for their service when you see them online. I also gratefully acknowledge our General Chair Santosh Devasia for his leadership and vision, as well as his cheerfulness at all times.

Many thanks for your dedication to the 2020 American Control Conference, and enjoy the conference!

Martha Grover

#### **GREETINGS FROM THE IFAC PRESIDENT**

It is my great pleasure as president of the International Federation of Automatic Control (IFAC) to "welcome" you to the American Control Conference organized by the American Automatic Control Council (AACC) and co-sponsored by IFAC.

By now, it seems already standard that a welcome is independent of the location of the person "being welcomed" and the location of the person "welcoming" -- and it applies to a virtual meeting room, a virtual lecture or – you guessed it – a virtual conference. This welcome reaches you probably in an electronic version and you are not holding the usual ACC booklet in your hands. Most likely, this is one of the smaller changes that you witness when comparing this year's ACC to your past ACC experiences. The spread of the SARS-CoV-2 virus and the associated disease COVID-19 has turned many things upside down and radically changed how we participate in conferences - at least for the rest of the year and most probably way beyond. This statement is not based on my predictions on the future of the SARS-CoV-2 virus (I would not dare...), but based on my opinion that this pandemic brings lasting changes, some of which might even be for the better.

It is clear that seeing the current pandemic purely as a chance would not do justice to the many tragic losses and the restrictions we have to accept for our daily lives. No question, the spread of the SARS-CoV-2 virus is the worst disaster of worldwide impact that mankind has seen since many decades, and my greatest wish with all my heart is that you, your families and friends stay healthy. Let us try anyways to not only minimize the horrible consequences of this pandemic, but also to think beyond the crisis, actively shaping this change by envisioning a better and possibly more sustainable future.

Within IFAC, we certainly try to adapt this mindset and we are constantly thinking about change for the better of the community – especially in this difficult situation. Already the IFAC constitution states that IFAC's primary objective is to serve all those concerned with the theory and application of automatic control and systems engineering, wherever they are situated. A recent project in this respect is for example the initiative of the 'Corona Control Community Project (C3P) Website', a joint effort with IEEE CSS that you've probably already heard about (https://covid.ifac-control.org). Serving the community, of course, also includes our 'daily business': organizing and sponsoring more than 50 technical meetings every year, the publication of eight prestigious archival journals, recognizing great achievements and talent through IFAC Awards, promoting the benefits of automatic control among the public at large and many more initiatives that are carried out thanks to all the IFAC boards, committees and volunteers.

Finally, and most importantly, I want to thank the organizers of the American Control Conference, who have done a tremendous job in adapting to the difficult COVID-19 imposed circumstances in such a professional way. Even though, or maybe even because of the changes the spread of the SARS-CoV-2 virus forces on us, this ACC will be a new and exciting experience. Next to the technical program of high scientific level, it will certainly be a fruitful conference that inspires new ideas and sparks new collaborations, despite the difficult time the conference takes place in.

Last but not least, I wish us all interesting sessions, presentations and discussions, and I hope to meet many of you, at least virtually, in one or the other session over the next couple of days.

Frank Allgöwer

President of the International Federation of Automatic Control

#### **PLENARY SESSIONS**

# **Plenary Lecture**

# Control Challenges for the Laser Interferometer Gravitational-Wave Observatory (LIGO)

#### **Dennis Coyne**

California Institute of Technology, USA

Tuesday, June 30, 6:15 PM – 7:15 PM Ballroom 1

In September 2015, the Laser Interferometer Gravitational-wave Observatory (LIGO) initiated the era of gravitational wave astronomy (a new window on the universe) with the first direct detection of gravitational waves (ripples in the fabric of space-time) resulting from the merger of a pair of black holes into a single larger black hole. In August 2017 the LIGO and VIRGO collaborations announced the first direct detection of gravitational waves associated with a gamma ray burst and the electromagnetic emission (visible, infrared, radio) of the afterglow of a kilonova -- the spectacular collision of two neutron stars. This marks the beginning of multi-messenger astronomy. The kilonova discovery was made using the U.S.-based LIGO; the Europe-based Virgo detector; and 70 ground- and space-based observatories.

The Advanced LIGO gravitational wave detectors are second generation instruments designed and built for the two LIGO observatories in Hanford, WA and Livingston, LA. These two identically designed instruments employ coupled optical cavities in a specialized version of a Michelson interferometer with 4 kilometer long arms. Resonant optical cavities are used in the arms to increase the interaction time with a gravitational wave, power recycling is used to increase the effective laser power and signal recycling is used to improve the frequency response. In the most sensitive frequency region around 100 Hz, the displacement sensitivity is 10^-19 meters rms, or about 10 thousand times smaller than a proton. In order to achieve this unsurpassed measurement sensitivity Advanced LIGO employs a wide range of cuttingedge, high performance technologies, including an ultra-high vacuum system; an extremely stable laser source; multiple stages of active vibration isolation; super-polished and ion milled optics, high performance multi-layer dielectric coatings; wavefront sensing; active thermal compensation; very low noise analog and digital electronics; complex, nonlinear multi-input, multi-output control systems; a custom, scalable and easily re-configurable data acquisition and state control system; and squeezed light. The principles of operation, the numerous control challenges and future directions in control will be discussed.

More information is available at https://www.ligo.caltech.edu/

#### PLENARY SESSIONS

**Dennis Coyne** is the Chief Engineer for the LIGO Laboratory at the California Institute of Technology (Caltech) in Pasadena, California. Over the last 24 years he has led the LIGO engineering team's efforts in design and implementation of first and second generation instruments. The Laser Interferometer Gravitational-wave Observatory (LIGO) is a first of its kind instrument, capable of measuring the sub-atomic stretching of space due to cataclysmic cosmological events. The LIGO founders were awarded the Nobel Prize in Physics in 2017 for the direct detection of gravitational waves which were predicted by Albert Einstein. LIGO is now an operating observatory enabling multi-messenger astronomy. Prior to joining Caltech, Dennis worked for Kaman Sciences Corp. and Bell Laboratories. Dennis received a BSME from UMass and an MSME from UC Berkeley. He is a



fellow of the ASME, a fellow of the APS, recipient of the 2018 AAS Lancelot M. Berkeley Prize, OSA's 2016 Forman Team Engineering Excellence Award and the 2016 Breakthrough Prize in fundamental physics. More information is available at https://labcit.ligo.caltech.edu/~coyne/

ACC 2020

# **Plenary Lecture**

# Lots to Be Done: Towards Data-Informed, Real-time Coordination Algorithms That Scale Up

#### **Sonia Martinez**

University of California at San Diego

#### Wednesday, July 1, 8:00 AM – 9:00 AM Ballroom 1

Networked and robotic systems in emerging applications are required to operate safely, adaptively, and degrade gracefully while coordinating a large number of nodes. Distributed algorithms have consolidated as a means for robust coordination, overcoming the challenges imposed by the limited capabilities of each agent. However, plenty of problems still exist to break down the barriers of fast computation, make effective use of measured data, and understand large-scale limit effects. In this talk, I will present ongoing work in the control of infrastructure networks and large-swarm coordination, along with a discussion on modeling approaches, analysis tools, and architectural trade-offs going from small to large-sized robotic networks.

**Sonia Martínez** is a Professor at the Department of Mechanical and Aerospace Engineering at the University of California, San Diego. Prof. Martínez received her Ph.D. degree in Engineering Mathematics from the Universidad Carlos III de Madrid, Spain, in May 2002. Following a year as a Visiting Assistant Professor of Applied Mathematics at the Technical University of Catalonia, Spain, she obtained a Postdoctoral Fulbright Fellowship and held appointments at the Coordinated Science Laboratory of the University of Illinois, Urbana-Champaign during 2004, and the Center for Control, Dynamical systems and Computation (CCDC) of the University of California, Santa Barbara during 2005. From January 2006 to June 2010, she was an Assistant Professor with the department of Mechanical and Aerospace Engineering at the University of



California, San Diego. From July 2010 to June 2014, she was an Associate Professor with the Department of Mechanical and Aerospace Engineering at the University of California, San Diego.

Dr Martínez' research interests include networked control systems, multi-agent systems, and nonlinear control theory with applications to robotics and cyber-physical systems. In particular, she has focused on the modeling and control of robotic sensor networks, the development of distributed coordination algorithms for groups of autonomous vehicles, and the geometric control of mechanical systems. For her work on the control of underactuated mechanical systems she received the Best Student Paper award at the 2002 IEEE Conference on Decision and Control. She was the recipient of an NSF CAREER Award in 2007. For the paper "Motion coordination with Distributed Information," co-authored with Jorge Cortés and Francesco Bullo, she received the 2008 IEEE Control Systems outstanding paper award. She is a Senior Editor of the IEEE Transactions on Control of Networked Systems and an IEEE Fellow of the class of 2018.

# **Plenary Lecture**

# Advances and Opportunities of AI and Machine Learning in Industrial Process Monitoring and Control

### Leo H. Chiang

Dow, Inc.

#### Wednesday, July 1, 6:15 PM – 7:15 PM Ballroom 1

To ensure safety, reliability, and productivity of industrial processes, artificial intelligence (AI) and machine learning techniques have been widely used in process industries for decades. The benefits of process monitoring and control are well documented and employed routinely in manufacturing. This talk will go over historical perspective and recent AI and machine learning successes in the areas of real-time analytics, deep learning, reinforcement learning, visualization, and feature engineering. Complex interaction between human decision and automated control will be discussed. Humans grow expertise by quickly adapting to abnormal conditions and using domain knowledge to generate creative solutions. However, reproducing human decisions across the enterprise is a challenge. A common misconception is that AI is to replace human decisions as efficient and consistent as possible. Human decision will remain a center piece of how to operate industrial processes in a safe, reliable, and productive manner.

Leo H. Chiang is Technology Director at Dow Inc., leading Chemometrics and AI implementations for Manufacturing. Leo has developed and implemented several data analytics techniques to solve complex manufacturing problems, resulting in 11 Dow Manufacturing Technology Center Awards. In 2016 he received the Dow R&D Excellence in Science Award in recognition of his scientific achievement in industrial research.

Leo has a B.S. degree from University of Wisconsin at Madison and M.S. and Ph.D. degrees from the University of Illinois at Urbana-Champaign, all in Chemical Engineering. Leo has contributed to over 40 externally refereed journal/proceedings papers and has given over 100 conference presentations and



university lectures. Leo has co-authored two books published by Springer Verlag. His textbook Fault Detection and Diagnosis in Industrial Systems is available in English and Chinese and has received over 2,100 citations according to Google Scholar.

Leo has a long history of supporting American Institute of Chemical Engineers (AIChE), having served as 2014-2016 Computing and Systems Technology (CAST) director, 2016 CAST 10E programming chair, 2017-2018 spring meeting program chair (MPC), and recently elected to serve the 2019-2022 Executive

Board of the Program Committee (EBPC). Leo was instrumental in setting up the Big Data Analytics Topical Conference (2015 to 2017) and Industry 4.0 Topical Conference (2018-2020) at the AIChE spring meeting. He was recognized by the AIChE with the 2016 Herbert Epstein Award for his leadership on Big Data Analytics technical programming and 2016 Computing Practice Award for his world-class leadership in the development and application of methodologies in analytics for batch and continuous processes known as Big Data.

Leo is also active in the broader engineering and control community, currently serves as 2019-2021 Computer Aids for Chemical Engineering (CACHE) trustee, 2021 International Symposium on Advanced Control of Chemical Processes (ADCHEM) industry co-chair, and 2022 American Control Conference (ACC) vice chair for industrial applications.

# **Plenary Lecture**

# Control of Complex Energy and Power Systems for Electrified Mobility

# **Andrew Alleyne**

University of Illinois, Urbana-Champaign

#### Thursday, July 2, 8:00 AM – 9:00 AM Ballroom 1

Electrification of mobility and transport is a global megatrend that has been underway for decades. The mobility sector encompasses cars, trucks, busses and aircraft. These systems exhibit complex interactions of multiple modes of power flow. These modes can be thermal, fluid, electrical, or mechanical. A key challenge in working across various modes of power flow is the widely varying time scales of the subsystems which makes centralized control efforts challenging. This talk will present a particular distributed controller architecture for managing the flow of power based on on-line optimization. A hierarchical approach allows for systems operating on different time scales to be coordinated in a controllable manner. It also allows for different dynamic decision making tools to be used at different levels of the hierarchy based on the needs of the physical systems under control. Additional advantages include the modularity and scalability inherent in the hierarchy. Additional modules can be added or removed without changing the basic approach.

In addition to the hierarchical control, a particularly useful graph-based approach will be introduced for the purpose of modeling the system interactions and performing early stage design optimization. The graph approach, like the hierarchy, has benefits of modularity and scalability along with being an efficient framework for representing systems of different time scales. The graph allows design optimization tools to be implemented and optimize the physical system design for the purpose of control. Recent results will be presented representing both generic interconnected complex systems as well as specific examples from the aerospace and automotive application domains.

Andrew Alleyne received his Mechanical and Aerospace Engineering B.S.E. from Princeton University in 1989. He received his M.S. and Ph.D. degrees in Mechanical Engineering in 1992 and 1994, respectively, from UC Berkeley. He joined the University of Illinois, Urbana-Champaign in 1994. He currently holds the Ralph M. and Catherine V. Fisher Professorship in the College of Engineering and is the Director for the NSF Engineering Research Center on Power Optimization for Electro-Thermal Systems (POETS). His research focuses on the modeling, simulation and control of nonlinear mechanical systems with a current focus on transient thermal systems. He developed a commercial simulation tool, ThermosysTM, for simulation of refrigeration



systems and worked with the Air Force Research Laboratory to develop the Aircraft Transient Thermal Modeling and Optimization (ATTMO) toolbox. His academic record includes supervision of over 80 M.S. and Ph.D. students and over 400 conference and journal publications. He is the recipient of an NSF CAREER award, has been an IEEE Distinguished Lecturer, and a National Research Council (NRC) Associate. He is a Fellow of IEEE and ASME. He has received the Gustus Larson Award, the Charles Stark Draper Award for Innovative Practice, The Yasundo Takahashi Education Award and the Henry Paynter Outstanding Investigator Award from ASME. The American Automatic Control Council awarded him the Control Engineering Practice Award. He was a Fulbright Fellow to the Netherlands and has held visiting Professorships at TU Delft, University of Colorado, ETH Zurich, and Johannes Kepler University. He has held several editorial positions for ASME, IEEE, and the International Federation of Automatic Control and been active in external advisory boards for universities, industry and government including the Scientific Advisory Board for the U.S. Air Force and the National Academies Board on Army Research and Development. He chaired the ASME Dynamic Systems and Controls Division and is a member of the IEEE Controls Systems Society Board of Governors. His record of campus service includes the Associate Dean for Research in the College of Engineering and the Associate Head for Undergraduate Programs in Mechanical Science and Engineering. In addition to research and service, he has a keen interest in education and has earned the UIUC College of Engineering Teaching Excellence Award, the UIUC Campus Award for Excellence in Undergraduate Education and the UIUC Campus Award for Excellence in Graduate Student Mentoring.

# **Plenary Lecture**

# Distributed Decision Making in Network Systems: Algorithms, Fundamental Limits, and Applications

#### Na Li

#### Harvard University

#### Friday, July 3, 8:00 AM – 9:00 AM Ballroom 1

Recent radical evolution in distributed sensing, computation, communication, and actuation has fostered the emergence of cyber-physical network systems. Examples cut across a broad spectrum of engineering and societal fields. Regardless of the specific application, one central goal is to shape the network collective behavior through the design of admissible local decision-making algorithms. This is nontrivial due to various challenges such as the local connectivity, imperfect communication, model and environment uncertainty, and the complex intertwined physics and human interactions. In this talk, I will present our recent progress in formally advancing the systematic design of distributed coordination in network systems. We investigate the fundamental performance limit placed by these various challenges, design fast, efficient, and scalable algorithms to achieve (or approximate) the performance limits, and test and implement the algorithms on real-world applications.

**Na Li** is a Thomas D. Cabot associate professor in Electrical Engineering and Applied Mathematics of the J. Paulson School of Engineering and Applied Sciences at Harvard University. She received her Bachelor degree in Mathematics from Zhejiang University in 2007 and Ph.D. degree in Control and Dynamical systems from California Institute of Technology in 2013. She was a postdoctoral associate of the Laboratory for Information and Decision Systems at Massachusetts Institute of Technology 2013-2014. She has joined Harvard University since 2014. Her research lies in distributed learning, optimization, and control of cyber-physical networked systems. She received some paper awards, NSF career award (2016), AFSOR Young Investigator Award (2017), Harvard PSE Accelerator Award (2017), ONR Young Investigator Award (2019), Donald P. Eckman Award (2019).



#### **RAPID INTERACTIVE KEYNOTE ADDRESSES**

#### Sandra Hirche Anticipating learning in stochastic optimal control

Authors: Alexandre Capone and Sandra Hirche

**Sandra Hirche** holds the TUM Liesel Beckmann Distinguished Professorship and heads the Chair of Information-oriented Control in the Faculty of Electrical and Computer Engineering at Technical University of Munich (TUM), Germany (since 2013). She

received the diploma engineer degree in Aeronautical and Aerospace Engineering in 2002 from the Technical University Berlin, Germany, and the Doctor of Engineering degree in Electrical and Computer Engineering in 2005 from the Technische Universität München, Munich, Germany. From 2005-2007 she has been a PostDoc Fellow of the Japanese Society for the Promotion of Science at the Fujita Laboratory at Tokyo Institute of Technology, Japan. Prior to her present appointment she has been an Associate Professor at TUM.

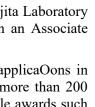
Her main research interests include learning, cooperaOve, and networked control with applicaOons in human-robot interacOon, mulO-robot systems, and general roboOcs. She has published more than 200 papers in internaOonal journals, books and refereed conferences. She has received mulOple awards such as the Rohde & Schwarz Award for her PhD thesis, the IFAC World Congress Best Poster Award in 2005 and – together with students – Best Paper Awards of IEEE WorldhapOcs and IFAC Conference of Manoeuvring and Control of Marine Crae in 2009 and the Outstanding Student Paper Award of the IEEE Conference on Decision and Control 2018. In 2013 she has been awarded with an ERC StarOng Grant on the "Control based on Human Models" and in 2019 with the ERC Consolidator Grant on "Safe data-driven control for human-centric systems". She has just been elevated to IEEE Fellow.

# Alexander Dowling Making Money in Energy Markets: Probabilistic Forecasting and Stochastic Programming Paradigms

Authors: Xian Gao and Alexander W. Dowling

Alexander W. Dowling is an Assistant Professor in Chemical and Biomolecular Engineering at the University of Notre Dame (Indiana, USA). His research combines

chemical engineering, computational optimization, and uncertainty quantification to enable principled molecular-to-systems engineering of sustainable energy and environmental technologies. Applications areas include energy markets and infrastructure, carbon sequestration, shale gas utilization, and advanced separations (membranes, ionic liquids). Prof. Dowling was recently honored with an NSF CAREER award (2020) to develop new novel Bayesian hybrid modeling paradigms for optimization and uncertainty quantification. Ongoing collaborative projects include the Institute for Advanced Design of Energy Systems (IDAES – DOE), Carbon Capture Simulation for Industrial Impact (CCSI2 – DOE) and Center for Innovative and Strategic Transformation of Alkane Resources (CISTAR – NSF). Prof. Dowling holds a B.S.E from the University of Michigan – Ann Arbor and Ph.D. from Carnegie Mellon University, all in chemical engineering. More information: dowlinglab.nd.edu.





## Demetris Coleman Backstepping Control of Gliding Robotic Fish for Trajectory Tracking in 3D Space

Authors: Demetris Coleman and Xiaobo Tan

**Demetris Coleman** is a PhD student in the Department of Electrical and Computer Engineering at Michigan State University. He earned bachelor's degrees in applied math and science from Berea College (2017) and in electrical engineering from Auburn University (2017), during which time he was inducted into the IEEE Eta Kapp Nu honor

society and the Mortar Board honor society. His dissertation research is focused on control of underwater vehicles.

# Helen Durand Delaying Cyberattack Impacts Using Lyapunov-Based Economic Model Predictive Control

Authors: Helen Durand and Matthew Wegener

**Helen Durand** is an Assistant Professor in the Department of Chemical Engineering and Materials Science at Wayne State University. She received her B.S. in Chemical

Engineering from UCLA, and upon graduation joined the Materials & Processes Engineering Department as an engineer at Aerojet Rocketdyne for two and a half years. She earned her M.S. in Chemical Engineering from UCLA in 2014 and her Ph.D. in Chemical Engineering from UCLA in 2017, and subsequently started at Wayne State. She received the Air Force Office of Scientific Research Young Investigator award, and her work has also received support from the National Science Foundation. She received a Faculty Research Excellence Award within the College of Engineering at Wayne State University and is serving as the Next-Gen Manufacturing Sessions Area Chair for the 2020 Annual Meeting of the American Institute of Chemical Engineers. Her research interests are in the area of process systems engineering with a focus on process control.

# Fumin Zhang Optimal Real-time Scheduling of Human Attention for a Human and Multi-Robot Collaboration System

Authors: Ningshi Yao and Fumin Zhang

**Fumin Zhang** is Professor in the School of Electrical and Computer Engineering at the Georgia Institute of Technology. He received the B.S. and M.S. degrees from Tsinghua University, Beijing, China, in 1995 and 1998, respectively. He received a PhD degree in

2004 from the University of Maryland (College Park) in Electrical Engineering, and held a postdoctoral position in Princeton University from 2004 to 2007. His research interests include mobile sensor networks, maritime robotics, control systems, and theoretical foundations for cyber-physical systems. He received the NSF CAREER Award in September 2009 and the ONR Young Investigator Program Award in April 2010. He is currently serving as the co-chair for the IEEE RAS Technical Committee on Marine Robotics, associate editors for IEEE Journal of Oceanic Engineering, Robotics and Automation Letters, IEEE Transactions on Automatic Control, and IEEE Transactions on Control of Networked Systems.

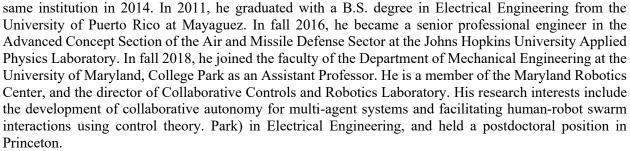




# Yancy Diaz-Mercado Multi-Agent Control Using Coverage Over Time-Varying Domains

Authors: Xiaotian Xu and Yancy Diaz-Mercado

**Yancy Diaz-Mercado** earned a Ph.D. degree in Electrical Engineering from the Georgia Institute of Technology in 2016, and a M.S. degree in Electrical Engineering from the





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# AACC AWARDS

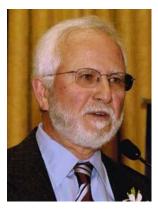
The American Automatic Control Council sponsors five awards. These awards are given to recognize excellence in scientific, technological, or educational contributions to automatic control. Congratulations to this year's winners!

#### **Richard E. Bellman Control Heritage Award A. Galip Ulsoy, University of Michigan**

*Citation: For seminal research contributions with industrial impact in the dynamics and control of mechanical systems especially manufacturing systems and automotive systems* 

**A. Galip Ulsoy** is the C.D. Mote, Jr. Distinguished University Professor Emeritus of Mechanical Engineering (ME) and the William Clay Ford Professor Emeritus of Manufacturing at University of Michigan (UM), Ann Arbor, where he served as the ME Department Chair, Deputy Director of the National Science Foundation (NSF) Engineering Research Center for Reconfigurable Manufacturing Systems, and the Director of the USA Army Ground Robotics Reliability Center. He also served as Director of Civil and Mechanical Systems at NSF and the President of the American Automatic Control Council (AACC). He received the Ph.D. from University of California at Berkeley (1979), the M.S. degree from Cornell University (1975), and the B.S. degree from Swarthmore College (1973). His research interests are in the dynamics and control of mechanical systems, and he has published 4 books, holds 3 patents, and has

published over 300 journal and conference papers. His work is highly-cited and has had major impact in industry. He has received numerous awards, including the AACC 1993 O. Hugo Schuck Best Paper Award, the 2003 and 2016 Rudolf Kalman Best Paper Awards from the J. Dynamic Systems, Measurement and Control, the 2008 Albert M. Sargent Progress Award from the Society of Manufacturing Engineers (SME), the 2008 Rufus T. Oldenburger Medal, the 2013 Charles Russ Richards Award from the American Society of Mechanical Engineers (ASME) and the 2014 Hideo Hanafusa Outstanding Investigator Award in Flexible Automation. He is a member of the USA National Academy of Engineering, received the 2012 Presidential Special Award from the Scientific and Technological Research Council of Turkey, and is a Fellow of ASME, SME, IEEE and the International Federation of Automatic Control (IFAC).



#### John R. Ragazzini Education Award Naomi Leonard, Princeton University

*Citation: For outstanding contributions to control education through dedicated mentoring of undergraduate and graduate students, integration of research and education, and innovative curriculum development combining engineering and the arts.* 

**Naomi Ehrich Leonard** is the Edwin S. Wilsey Professor of Mechanical and Aerospace Engineering and Associated Faculty in the Program in Applied and Computational Mathematics at Princeton University. She is Director of Princeton's Council on Science and Technology and affiliated faculty member of the Princeton Neuroscience Institute and Program on Quantitative and Computational Biology. Leonard is a MacArthur Fellow, a member of the American Academy of Arts and Sciences, and Fellow of the IEEE, ASME, SIAM, and IFAC. She is Editor of the Annual Review of Control, Robotics, and Autonomous Systems. Previously, she was Senior Editor of IEEE Transactions on Control of Network Systems, Associate Editor of Automatica, and Associate



Editor of SIAM Journal on Control and Optimization. She received the Hendrik W. Bode Lecture Prize (IEEE CSS, 2017), the Nyquist Lecture Award (ASME DSCD, 2014), and the Automatica Prize Paper Award (IFAC). She has also given plenary lectures at the SIAM Annual Meeting, IFAC World Congress, American Control Conference, and IEEE Conference on Robotics and Automation (ICRA).

Leonard received the B.S.E. degree in Mechanical Engineering from Princeton University in 1985 and the M.S. and Ph.D. degrees in Electrical Engineering from the University of Maryland in 1991 and 1994. From 1985 to 1989, she worked as an engineer in the electric power industry. Her current interests include decentralized control and decision making of dynamical systems on networks, autonomous vehicle and mobile robotic teams, collective animal behavior, human cognitive control, and intersections with dance. She led a multidisciplinary project that culminated in 2006 in a major field demonstration in Monterey Bay, CA of a first-of-its-kind automated and adaptive ocean observing system, featuring a coordinated network of autonomous underwater vehicles collecting data about the ocean.

#### **Control Engineering Practice Award Leo H. Chiang, The Dow Chemical Company**

*Citation: For the application of advanced data-driven algorithms for fault detection, fault diagnosis, and control in the chemical process industry* 

**Leo H. Chiang** is Technology Director at Dow Inc., leading Chemometrics and AI implementations for Manufacturing. Leo has developed and implemented several data analytics techniques to solve complex manufacturing problems, resulting in 11 Dow Manufacturing Technology Center Awards. In 2016 he received the Dow R&D Excellence in Science Award in recognition of his scientific achievement in industrial research.

Leo has a B.S. degree from University of Wisconsin at Madison and M.S. and Ph.D. degrees from the University of Illinois at Urbana-Champaign, all in Chemical Engineering. Leo has contributed to over 40 externally refereed



journal/proceedings papers and has given over 100 conference presentations and university lectures. Leo has co-authored two books published by Springer Verlag. His textbook Fault Detection and Diagnosis in Industrial Systems is available in English and Chinese and has received over 2,100 citations according to Google Scholar.

Leo has a long history of supporting American Institute of Chemical Engineers (AIChE), having served as 2014-2016 Computing and Systems Technology (CAST) director, 2016 CAST 10E programming chair, 2017-2018 spring meeting program chair (MPC), and recently elected to serve the 2019-2022 Executive Board of the Program Committee (EBPC). Leo was instrumental in setting up the Big Data Analytics Topical Conference (2015 to 2017) and Industry 4.0 Topical Conference (2018-2020) at the AIChE spring meeting. He was recognized by the AIChE with the 2016 Herbert Epstein Award for his leadership on Big Data Analytics technical programming and 2016 Computing Practice Award for his world-class leadership in the development and application of methodologies in analytics for batch and continuous processes known as Big Data.

Leo is also active in the broader engineering and control community, currently serves as 2019-2021 Computer Aids for Chemical Engineering (CACHE) trustee, 2021 International Symposium on Advanced Control of Chemical Processes (ADCHEM) industry co-chair, and 2022 American Control Conference (ACC) vice chair for industrial applications.

#### **Donald P. Eckman Award**

#### Samuel Coogan, Georgia Institute of Technology

Citation: For outstanding contributions to formal methods for control of autonomous systems with applications to transportation systems

**Sam Coogan** is an assistant professor at Georgia Tech with a joint appointment in the School of Electrical and Computer Engineering and the School of Civil and Environmental Engineering. He currently holds the Demetrius T. Paris Junior Professorship in the School of ECE. Prior to joining Georgia Tech in 2017, he was an assistant professor in the Electrical Engineering Department at UCLA from 2015 to 2017. He received the B.S. degree in Electrical Engineering from Georgia Tech and the M.S. and Ph.D. degrees in Electrical Engineering from the University of California, Berkeley. His research is in the area of dynamical systems and autonomy and focuses on developing scalable tools for verification and control of networked, cyber-physical systems with an emphasis on transportation systems. He received a Young Investigator Award from the Air Force Office of Scientific Research in 2018, a CAREER Award from the



National Science Foundation in 2018, the IEEE Transactions on Control of Network Systems Outstanding Paper Award in 2017, and the best student paper award at the 2015 Hybrid Systems: Computation and Control conference.

**O. Hugo Schuck Best Paper Awards: Theory** 

"Distributed Storage Investment in Power Networks"

Junjie Qin, Sen Li, Kameshwar Poolla, and Pravin Varaiya

Pravin Varaiya is a Professor of the Graduate School in the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley. He has been a Visiting Professor at the Institute for Advanced Study at the Hong Kong University of Science and Technology since 2010. He has coauthored four books and 350+ articles. His current research is devoted to electric energy systems and transportation networks. Varaiya has held a Guggenheim Fellowship and a Miller Research Professorship. He has received three honorary

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ACC 2020

Junjie Qin is a postdoctoral researcher at UC Berkeley, working with Prof. Kameshwar Poolla and Prof. Pravin Varaiya. He received a Bachelor of Engineering degree in Hydraulic and Hydropower Engineering and a Bachelor of Economics degree from Tsinghua University, Beijing, China. He obtained a Ph.D. degree in Computational and Mathematical Engineering (2018) from Stanford University, where he also received a M.S. degree in Civil and Environmental Engineering (2011) and a M.S. degree in Statistics (2017). His research interests include electric energy systems and transportation networks. He is a recipient of the Satre family fellowship on energy and

sustainability and a finalist for the Best Student Paper Award at the 55th IEEE Conference on Decision and Control 2016.

Sen Li is an Assistant Professor of the Department of Civil and Environmental Engineering at The Hong Kong University of Science and Technology. Between 2017-2019, he was a postdoctoral fellow at The University of California, Berkeley, working with Prof. Kameshwar Poolla and Prof. Pravin Varaiya. He received his B.S. from Zhejiang University, and Ph.D. from The Ohio State University. Previously, he was an intern at the Pacific Northwestern National Laboratory, and a visiting student at Harvard University. Dr. Li's research interest lies in the intersection of control, optimization and game theory with applications in the smart city. He is particularly interested in renewable

energy integration and intelligent transportation systems. He is a finalist of Best Student Paper Award at 2018 European Control Conference.

Kameshwar Poolla is the Cadence Distinguished Professor at UC Berkeley in EECS and ME. His current research interests include many aspects of future energy systems including economics, security, and commercialization. He served as the Founding Director of the IMPACT Center for Integrated Circuit manufacturing. Dr. Poolla cofounded OnWafer Technologies which was acquired by KLA-Tencor in 2007. He has served as a technology and mergers/acquisitions consultant for Cadence Design Systems. Dr. Poolla has been awarded a 1988 NSF Presidential Young Investigator Award, the 1993 Hugo Schuck Best Paper Prize, the 1994 Donald P. Eckman Award, the 1998 Distinguished Teaching Award of the University of California, the 2005 and 2007 IEEE

Transactions on Semiconductor Manufacturing Best Paper Prizes, and the 2009 IEEE CSS Transition to Practice Award.





doctorates, the Richard E. Bellman Control Heritage Award, the Field Medal and Bode Lecture Prize of the IEEE Control Systems Society, and the Outstanding Researcher Award of the IEEE Intelligent Transportation Systems Society. He is a Fellow of IEEE, a Fellow of IFAC, a member of the National Academy of Engineering, and a Fellow of the American Academy of Arts and Sciences.

#### **O. Hugo Schuck Best Paper Awards: Application Chao Ning and Fengqi You**

"Data-Driven Adaptive Robust Optimization Framework for Unit Commitment under Renewable Energy Generation Uncertainty"

**Chao Ning** received the B.Eng. degree in Automation from University of Electronic Science and Technology of China in 2012, and M.S. degree in Control Science and Engineering from Tsinghua University, China, in 2015. He is currently working toward the Ph.D. degree at Cornell University, USA. His research interests include data-driven optimization under uncertainty, learning for dynamics and control, big data analytics and machine learning, power systems operations, and renewable energy systems.

**Fengqi You** is the Roxanne E. and Michael J. Zak Professor at Cornell University (Ithaca, New York), and is affiliated with the Graduate Fields of Chemical Engineering, Electrical and Computer Engineering, Operations Research and Information Engineering, Systems Engineering, Mechanical Engineering, Civil and Environmental Engineering, and Applied Mathematics. He also serves as Chair of Cornell Systems Engineering PhD Studies and Associate Director of Cornell Energy Systems Institute.

He earned a B.Eng. from Tsinghua University and received his Ph.D. from Carnegie Mellon University. Fenggi was on the faculty of Northwestern University from 2011 to 2016, and worked at Argonne National Laboratory as an Argonne Scholar from 2009 to 2011. He has published more than 150 peer-reviewed journal articles, and has an h-index of 57. Some of his research results have been editorially highlighted in Science and Nature, featured on multiple journal covers, and reported by major media outlets (e.g. The New York Times, BBC, BusinessWeek, and National Geographic). His recent awards include an NSF CAREER Award, W. Curtis McGraw Research Award from ASEE, Cornell Engineering Research Excellence Award, and ACS Sustainable Chemistry & Engineering Lectureship Award, as well as W. David Smith, Jr. Publication Award, Sustainable Engineering Research Excellence Award, Environmental Division Early Career Award, Computing and Systems Technology (CAST) Outstanding Young Researcher Award, and Excellence in Process Development Research Award from AIChE. He is currently an Editor of Computers & Chemical Engineering, an Associate Editor of AAAS Journal Science Advances, a Consulting Editor of AIChE Journal, and an editorial board member of several other journals. His research focuses on novel computational models, optimization algorithms, statistical machine learning methods, and multi-scale systems analytics tools for smart manufacturing, digital agriculture, energy systems, and sustainability. For more information about his research group: www.peese.org.





#### **CONFERENCE INFORMATION**

#### REGISTRATION

All conference attendees **must register**. Access to the online sessions will be available through Paperplaza based on registration. Registration-related questions during conference should be directed to either

- the ACC 2020 Slack workspace's #registrationdesk channel (monitored periodically between 8:00am-6:00pm Mountain Daylight Time), or
- the Registration Chair via acc2020.reg@gmail.com

Due to the transition to online, all registration fees have been substantially reduced and additional student registration support has been made available. Paper and poster upload and publication in the conference proceedings for authors is available only with Member and Non-Member registration; up to 4 papers and 2 posters can be uploaded for each registration.

Registration fees are shown in the table below. Registrants who are members of any of the American Automatic Control Council Societies (AIAA, AIChE, ASCE, ASME, IEEE, INFORMS APS, ISA, SCS and SIAM) may register at the Member rate. Receipts will be provided electronically around the time of the conference.

Registration Categories	Registration Fee	Paper/Poster Upload	Proceedings (via Paperplaza)	Conference Banquet
Member	\$150	Included	Included	N/A
Non-Member	\$250	Included	Included	N/A
Student/Retiree	\$75	Not included	Included	N/A
One day registration	N/A	N/A	N/A	N/A

Workshop registration fees are shown in the table below.

Registration	Registration	
Categories	Regular	Student/Retiree
Two day workshop	N/A	N/A
Full day workshop	\$120	\$60
Half day workshop	\$120	\$60

#### **EXHIBITS**

Please take time during the conference to visit our exhibitors through the Zoom links listed in the online program on the ACC 2020 website.

#### **COFFEE BREAKS**

Coffee breaks will be held 9:00 AM - 9:30 AM and 3:30 PM - 4:00 PM on Wednesday, Thursday and Friday in the through the scheduled Zoom links provided in the online program on the ACC 2020 website.

#### **PLENARY SESSIONS**

Morning plenaries will be held 8:00 AM - 9:00 AM on Wednesday, Thursday, and Friday in Ballroom 1. Evening plenaries will be held 6:15 PM - 7:15 PM on Tuesday and Wednesday, in Ballroom 1.

#### **RAPID INTERACTIVE SESSIONS**

Rapid Interactive Sessions will be held 9:30 AM - 11:45 AM on Wednesday, Thursday, and Friday in Ballroom 1 and in Ballroom 2.

#### **LATE-BREAKING POSTER SESSIONS**

Late-breaking poster sessions will be held 9:00 AM - 9:30 AM on Wednesday, Thursday, and Friday in Ballroom 1.

#### **AWARDS CEREMONY**

All conference attendees are encouraged to attend the announcement of the annual ACC awards on Friday, July 3, 12:00 PM–1:30 PM, in Ballroom 1. Come celebrate accomplishments in our field!

#### VIRTUAL SESSIONS/COMMUNICATION: ZOOM AND SLACK

ACC 2020 will be hosted through the platform Zoom (<u>https://zoom.us</u>). Links to appropriate meeting room links are available through the online program found on the ACC website. For the best experience, attendees are encouraged to sign up for an account and familiarize themselves with Zoom. Tutorials can be found here: <u>https://support.zoom.us/hc/en-us/articles/206618765-Zoom-Video-Tutorials</u>.

A Slack workspace has been set up for the conference. Conference updates and announcements will be made through a Slack workspace. Sign up for the workspace at <u>https://join.slack.com/t/acc-2020/shared\_invite/zt-eg7cxcc1-l9SyE3vM4z~ZK2tEbxFhdA.</u> Tutorials are available at: <u>https://slack.com/resources/slack-101</u>.

Please feel free to take advantage of the workspace for conversations and to share information.

#### LOCAL INFORMATION

ACC 2020 was originally planned to take place in Denver. However, due to the impact of COVID-19, the conference will be fully online. If in the future you have an interest in traveling, do visit Denver! Denver is the capital city of Colorado with landmark 19<sup>th</sup>-century buildings and roots that date back to the Old West era. Located just east of the Front Range of the Rocky Mountains, the city's elevation of 5280 feet above sea level has earned it the nickname the Mile High City. Denver is known for sweeping views and easy access to the outdoors. In addition to the wide variety of available outdoor activities, Denver's downtown offers museums, art galleries, live music shows, water parks, restaurants and craft breweries for visitors to enjoy. Getting around downtown is easy through the free 16th Street Mall shuttle. Visit Larimer Square and the renovated Denver Union Station in historic Lower Downtown features restaurants, galleries, shops, bars, brewpubs and coffee houses. Denver Pavilions consist of shops, restaurants, bars and a movie theater.

**Local Attractions**: The Brookings Institution ranks Denver is one of the most walkable downtowns in the nation. A free shuttle bus on the 16th Street Mall is available for your convenience. Some popular places to visit include Union Station and the LoDo Historic District. You can stand 5,280 feet above sea level (one mile high!) on the west steps of the Colorado State Capitol, where a quick climb to the rotunda affords you panoramic views of snowcapped peaks to the west. Free tours are available on weekdays.

Other attractions include the Elitch Gardens Theme and Water Park and the family-owned Lakeside Amusement Park that's great for all ages. The legendary Coors Brewery in nearby Golden hosts 30-minute, self-paced tours of the brewhouse, malthouse and packaging complex. Their you'll see firsthand how more than 100 work teams make some of the most popular beer in the world. The Denver Zoo is an 80-acre zoological garden located in City Park of Denver, approximately three miles from the downtown. The Denver Zoo is the most popular paid attraction in the Denver metropolitan area, and it houses species from all over the world, including hoofed mammals, carnivorous mammals, primates, pachyderms, birds, reptiles, and fish. Laid out in a large loop, with exhibits both inside and outside the loop, the zoo's animal collection contains 3,500 specimens representing 550 unique species. For more attractions, please visit https://www.denver.org.

**Museums**: Less than a 10-minute walk from the Sheraton Hotel is the Denver Art Museum. The museum is made up of two architecturally stunning buildings – one a fortress-like structure from Italian architect Gio Ponti, the other, a structure that resembles a titanium crystal with peaks and shards designed by Daniel Libeskind. Inside, find the world's greatest collection of Native American art and 68,000 other art objects, including works from European masters, Old West classics and phenomenal traveling exhibits. Within three miles of downtown, the Denver Museum of Nature & Science is a municipal natural history and science museum. A variety of exhibitions, programs, and activities help museum visitors learn about the natural history of Colorado, Earth, and the universe. The 716,000-square-foot (66,519 m<sup>2</sup>) building houses more than one million objects in its collections including natural history and anthropological materials, as well as archival and library resources.

**Dining**: Home to award-winning chefs and restaurateurs, Denver has emerged as one of the top dining locations in the country. Denver's local culinary scene is thriving, offering everything from farm-to-table bistros to classic steakhouses to historic Denver restaurants. Whether downtown on the 16th Street Mall or looking for a unique spot in Cherry Creek, visitors have a variety of great options to choose from. For example, some local favorites include Tavernetta, Jax Fish house in Lower Downtown, the Family Jones

Spirit House, Citizen Rail, Annette, El Five, Guard and Grace, to name a few. For families, the 12,000-square-foot gastohall, located in the hip River North Art District (RiNo), offers 10 stands vending everything from cheeseburgers and spaghetti to wood-fire pizzas, hand-crafted chocolates, sugar-studded pastries and Italian beef sandwiches. Complete with an ice cream shop, a coffeehouse, butcher shop, fish counter and bar that slings progressive cocktails (and mocktails), the Denver Central Market is headlined with foodstuffs to appease all age groups and every culinary persuasion. Each of the vendors has its own seating area, but the communal dining space—the market's focal point—is where everyone seems to congregate; there's a big-screen TV, too, that showcases sporting events. For more ideas on where to dine in Denver, see <a href="https://www.denver.org/restaurants/denver-dining/">https://www.denver.org/restaurants/denver-dining/</a>

#### **EXHIBITORS AND SPONSORS**

ACC 2020 thanks all of our sponsors for their generous support of our conference. Many of our sponsors will have exhibits at ACC 2020 that we encourage everyone to visit. Exhibits will be open, and links to Zoom virtual meeting rooms and Slack channels for you to interact with exhibitors will be provided in the online program on the ACC 2020 website. Please note that several of the Gold Sponsors are holding sponsored sessions, as listed in the Special Sessions section of the program.

#### GOLD SPONSORS

#### **General Motors Co.**

We envision a future of zero crashes, zero emissions and zero congestion, and we have committed ourselves to leading the way toward this future. General Motors has been

pushing the limits of transportation and technology for over 100 years. Today, we are in the midst of a transportation revolution. And we have the ambition, the talent and the technology to realize the safer, better and more sustainable world we want. As an open, inclusive company, we're also creating an environment where everyone feels welcomed and valued for who they are. One team, where all ideas are considered and heard, where everyone can contribute to their fullest potential, with a culture based in respect, integrity, accountability and equality. Our team brings wide-ranging perspectives and experiences to solving the complex transportation challenges of today and tomorrow. At General Motors, innovation is our north star. As the first automotive company to mass-produce an affordable electric car, and the first to develop an electric starter and air bags, GM has always pushed the limits of engineering. We are General Motors. We transformed how the world moved through the last century. And we're determined to do it again as we redefine mobility to serve our customers and shareholders and solve societal challenges.

#### **MathWorks**

The MATLAB and Simulink product families are fundamental applied math and computational tools at the world's educational institutions. Adopted by more than 5000 universities and colleges, MathWorks products

accelerate the pace of learning, teaching, and research in engineering and science. MathWorks products also help prepare students for careers in industry worldwide, where the tools are widely used for data analysis, mathematical modeling, and algorithm development in collaborative research and new product development. Application areas include data analytics, mechatronics, communication systems, image processing, computational finance, and computational biology.

#### Mitsubishi Electric Research Laboratorv

Mitsubishi Electric Research Laboratory (MERL), located in Cambridge, MA, is the North American R&D organization for Mitsubishi Electric Corporation, a \$40B global manufacturer of electrical products including elevator and escalators, HVAC

systems, electrical power systems, satellites, factory automation equipment, automotive electronics and visual information systems. Controls researchers at MERL collaborate with corporate R&D





ACC 2020

GENERAL MOTORS



laboratories, business units in Japan and academic partners around the world to develop new control algorithms and control technologies that extend the performance envelope of these systems.

For students who are interested in pursuing an exciting summer of research, please check out our internship program and learn more at facebook, google, or @MERL news.

- MERL interns work closely with top researchers, and gain valuable industry experience an impressive 1:1 intern to researcher ratio.
- Internships are expected to lead to publications in major conferences and journals.
- We offer competitive compensation and relocation assistance.
- Boston is a fantastic student-oriented city, home to some of the best universities in the world. •

The summer season is especially lively as MERL and Boston are teeming with interns and visitors from all over the world.

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#### **dSPACE**

dSPACE offers universities and research institutions flexible systems that provide all the options necessary for the model-based development of mechatronic controllers in an academic environment. From architecture-based system design and block-diagram-based

function prototyping to automatic production code generation and hardware-in-the-loop (HIL) tests, dSPACE products are successfully being used in the classroom and in research projects at internationally renowned universities. To actively support high-end research at universities and the high-quality education of young talents, dSPACE offers its hardware and software products in special kits for universities at a very attractive price. Learn more at dspaceinc.com / offers for universities.

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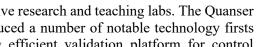
Quanser is the world leader in mechatronics, robotics, and control platforms optimized for the academic setting. Our leadership in producing innovative lab solutions makes us a trusted partner with academic

institutions to help strengthen their reputation with transformative research and teaching labs. The Quanser approach of innovation, collaboration and education has produced a number of notable technology firsts that pioneered many critical contemporary trends, including efficient validation platform for control research, and high-performance real-time control on common microcomputers.

#### SIAM

SIAM publishes textbooks and monographs in print and electronic format. Visit our booth to browse new and bestselling titles, all available at discounted

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#### **Springer Nature**

At Springer Nature, our aim is to advance discovery. For over 175 years, we've dedicated ourselves to the academic community, creating value across the publishing process. We deliver

an unmatched breadth and depth of quality information which spans top research publications (Nature), outstanding scientific journalism (Scientific American), highly specialized subject-specific journals across all the sciences and humanities, professional publications, databases, and the most comprehensive portfolio of academic books. We use our position and our influence to champion the issues that matter most to the research community – standing up for science, taking a leading role in open research, and being powerful advocates for the highest quality and ethical standards in research.

# **BRONZE SPONSORS**

#### Halliburton

Founded in 1919, Halliburton is one of the world's

largest providers of products and services to the energy industry. With 60,000 employees, representing 140 nationalities in more than 80 countries, the company helps its customers maximize value throughout the lifecycle of the reservoir – from locating hydrocarbons and managing geological data, to drilling and formation evaluation, well construction and completion, and optimizing production throughout the life of the asset. Halliburton's technology organization provides cutting edge research and innovative solutions to maximize asset value for our customers.

#### Processes

Processes (ISSN 2227-9717) provides an advanced forum for process/systems related research in chemistry, biology,

materials and allied engineering fields. The journal publishes

regular research papers, communications, letters, short notes and reviews. Our aim is to encourage researchers to publish their experimental, theoretical and computational results in as much detail as necessary. There is no restriction on paper length or number of figures and tables.

- Experimental, theoretical and computational research on process development and engineering
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- Integrated process design and scaleup
- Process modeling, simulation, optimization and control



HALLIBURTON

# **SPRINGER NATURE**

In addition to the main technical program, the conference includes lunch-time and afternoon special sessions on industry, education, emerging topics, and funding opportunities.

#### WEDNESDAY NOON SPECIAL SESSIONS

#### An Overview of NSF Programs

Sponsor:	National Science Foundation
Time:	12:00PM – 1:30 PM, Wednesday, July 1, 2020
Location:	Denver
Organizer:	Dr. Irina Dolinskaya

The National Science Foundation (NSF) offers a number of funding opportunities for investigators working in the field of controls, both within the disciplinary programs in Engineering and other directorates, and through cross-cutting initiatives that are foundation-wide. This presentation will describe opportunities that are relevant to the robotics, dynamics and controls communities. The presentation will also describe programs targeted toward junior investigators, as well as guidelines for proposal preparation and NSF's Intellectual Merit and Broader Impacts criteria. Question-and-answer session will follow the presentation.

#### **Speakers:**

**Dr. Kishan Baheti** handles the areas of Control and Sensor Networks in the Power, Controls and Adaptive Networks (PCAN) Program in ECS. Dr. Baheti received the B.S. and M.S. in Electrical Engineering in India from VRCE Nagpur, and from BITS Pilani, respectively. In 1970, he came to USA and received M.S. in Information and Computer Science from University of Oklahoma and Ph.D. in Electrical and Computer Engineering from Oregon State University. In 1976, Dr. Baheti joined the Control Engineering Laboratory of GE Corporate Research and Development Center in Schenectady, NY. His work focused on advanced multivariable control for jet engines, signal and image



processing systems, computer- aided control system design, vision-based robots for precision welding, model-based fault identification and parallel implementation of Kalman filters. Dr. Baheti and his colleagues received IR-100 award for robotic welding vision system. He has organized a series of educational workshops for GE engineers that resulted in innovative product developments and contributed to enhance university collaborations with GE business divisions. In 1989, Dr.Baheti joined NSF as a Program Director in the Division of Electrical and Communications Systems. His contributions include the development of NSF initiatives on "Combined Research and Curriculum Development", "Semiconductor Manufacturing", and NSF/EPRI Initiative on "Intelligent Control". He was instrumental in the development of NSF Initiative on "Research Experience for Teachers" to involve middle and high school teachers in engineering research that can be transferred to pre-college classrooms. Recently he is involved in networked control systems, sensor and actuator networks, imaging and computational video, micro and nano systems, medical robotics, science of learning, and dynamics and control of biological and medical systems. He has served as associate editor for IEEE Transactions on Automatic Control, member of the Control Systems

Control Council (AACC). He received "Distinguished Member Award" from the IEEE Control Systems Society. In 1997, he was elected a Fellow of IEEE.

**Dr. Jordan Berg** is Program Director in the Division of Civil, Mechanical, and Manufacturing Innovation (CMMI), in the Engineering Directorate (ENG) of the US National Science Foundation (NSF). He is Emeritus Professor of Mechanical Engineering at Texas Tech University, where he served as Co-Director of the Nano Tech Center, and Associate Director of the DISCO (Dynamic Intelligent Systems, Control and Optimization) group. His research interests are in mechatronics, nonlinear control, and robotics. He received B.S.E. and M.S.E. degrees in Mechanical and Aerospace Engineering from Princeton University in 1981 and 1984, respectively. For several years



he was an Attitude Control Analyst with RCA Astro-Electronics in East Windsor, NJ. He received a Ph. D. in Mechanical Engineering and an M. S. in Mathematics from Drexel University in 1992. He was a postdoctoral researcher at USAF Wright Laboratories in Dayton, OH, and at the Institute for Mathematics and its Applications in Minneapolis, MN. He has held numerous leadership positions, including Associate Editor of the ASME/IEEE Transactions on Mechatronics, the ASME Journal of Dynamic Systems, Measurement, and Control, and the IEEE Transactions on Automatic Control. He was Program Chair of the 2014 ASME Dynamic Systems and Control Conference, General Chair of the 2016 IEEE International Conference. He is a member of the Executive Committee of the ASME Dynamic Systems and Control Division. In 2008 he spent seven months in Sri Lanka as a Fulbright Scholar. He was selected a Fellow of the ASME in 2011. He arrived at NSF as an IPA rotator in May, 2014, and became a member of the permanent NSF staff in September 2018.

**Dr. Irina Dolinskaya** is a Program Director at the National Science Foundation (NSF) in the Division of Civil, Mechanical & Manufacturing Innovation (CMMI). Dr. Dolinskaya services Dynamics, Control and Systems Diagnostics (DCSD) program, as well as National Robotics Initiative (NRI 2.0) and Navigating the New Arctic (NNA) NSF's 10 Big Ideas. Prior to joining NSF, Irina Dolinskaya was a faculty in the Industrial Engineering and Management Sciences department at Northwestern University. She obtained M.S. and Ph.D. degrees in Industrial and Operations Engineering from the



University of Michigan, and B.S. degree in Industrial Engineering from the University of Florida. Dr. Irina Dolinskaya's research is in the field of transportation science and logistics with focus on adaptive modeling and solution approaches to integrate dynamic real-time information. Her current primary applications are in humanitarian logistics, optimal vessel performance, and electric vehicle routing. Irina Dolinskaya is the winner of the INFORMS Transportation Science & Logistics Society Dissertation Prize and the 2008 recipient of the Bonder Scholarship for Applied Operations Research in Military Applications.

**Dr. Robert G. Landers** is a Curators' Distinguished Professor of Mechanical Engineering in the Department of Mechanical and Aerospace Engineering at the Missouri University of Science and Technology (formerly University of Missouri Rolla) and served as the department's Associate Chair for Graduate Affairs for eight years. He is currently a program manager at the National Science Foundation. He received his Ph.D. degree in Mechanical Engineering from the University of Michigan in 1997. His research interests are in the areas of modeling, analysis, monitoring, and control of manufacturing processes, and in the estimation and control of lithium ion batteries and hydrogen fuel cells. He has over 200 refereed technical publications and over \$6M in



research funding. He received the Society of Manufacturing Engineers' Outstanding Young Manufacturing Engineer Award in 2004 and the *ASME Journal of Manufacturing Science and Engineering* Best Paper Award in 2014. He is a Fellow of ASME, and a senior member of IEEE and SME.

**Dr. Eduardo Misawa** has a B.Sc. and M.Sc. degrees from University of Sao Paulo (1979 and 1983) and Ph.D. degree from the Massachusetts Institute of Technology (MIT, 1988), all in Mechanical Engineering with concentration in Dynamics and Control. He is currently a Program Director in the Directorate for Engineering at the National Science Foundation, where he manages the Engineering Research Centers (ERC) and Network for Computational Nanotechnology (NCN) programs. His research experience includes Nonlinear Dynamics, Nonlinear Control, Robust Control, Vibrations, Mechatronics, Nanotechnology, Precision Engineering, Vehicle Dynamics, Fluid Power Control, Bioinformatics, Biotechnology and Biomedical Engineering.



#### Women in Control Luncheon Meeting

Sponsor:	IEEE CSS Women in Control Committee
Time:	12:00 – 1:30 Wednesday, July 1, 2020
Location:	Ballroom F
Organizers:	Dr. Linda Bushnell, University of Washington
	Dr. Afef Fekih, University of Louisiana
	Dr. Jacquelien M.A. Scherpen, University of Groningen

The IEEE CSS Women in Control committee is responsible for, but not limited to, promoting membership, gathering and disseminating appropriate information about women in IEEE CSS and the profession, and facilitating the development of mentoring and programs to promote the retention, recruitment, and growth of women IEEE CSS members. The IEEE WiC invites all ACC women attendees to join us for our traditional luncheon with interesting speakers on the first day of the conference, Wednesday, July 1<sup>st</sup>, 2020.

#### **Research with Broad Scope and High Impact in an Industrial Laboratory**

Sponsor:	Mitsubishi Electric (MERL)
Time:	12:00 PM – 1:30 PM Wednesday, July 1, 2020
Location:	Gold

Mitsubishi Electric Research Laboratories (MERL) is a leading research organization located in Cambridge,

Massachusetts, USA that conducts fundamental research for industrially-motivated problems. MERL is a subsidiary of Mitsubishi Electric Corporation, a \$41B global manufacturer of a wide range of products including industrial robots, automotive electronics and equipment, HVAC (heating, ventilation, and air conditioning) systems, factory automation equipment, electrical power systems, elevators, satellites, and information visualization systems. MERL is an active and collaborative member of both the academic and industrial communities. MERL researchers collaborate with corporate laboratories and business units in Japan, as well as academic partners from around the world to develop novel solutions to challenging problems. In particular, several researchers at MERL develops new theoretical results in control and systems theory and apply them to a wide variety of products and applications.

In this talk we will present an overview of research activities at MERL, including fundamental controls research and the application of state-of-the-art control techniques to a variety of real-world systems. We will focus on fundamental research subjects including model predictive control and the control of constrained systems, estimation and motion planning for autonomous systems, and learning for control. In addition, we will describe how these fundamental research areas impact applications such as autonomous vehicles, spacecraft guidance and control, GNSS-based positioning, energy-efficient HVAC systems, high-precision manufacturing.

We encourage students, researchers and faculty interested in collaborating with MERL to attend this talk.

### Speakers:

**Dr. Karl Berntorp's** research is on statistical signal processing, sensor fusion, and optimization-based control, with applications to automotive, aerospace, transportation, and communication systems. His work includes design and implementation of nonlinear filtering, constrained control, and motion-planning algorithms.

**Dr. Claus Danielson's** research interests are in model predictive control, constrained control, and networked control systems. His doctoral research was focused on exploiting symmetry in large-scale control and optimization problems.

**Dr. Stefano Di Cairano's** interests are model predictive control, constrained control, path planning, optimization algorithms, stochastic systems, and their applications to automotive, aerospace, and factory automation. Stefano is the Chair of IEEE CSS Technology Conferences Editorial Board, and the Vice-Chair of IFAC Technical Committee on Optimal Control.







**Dr. Rien Quirynen's** research interests are in model predictive control and moving horizon estimation, numerical algorithms for (nonlinear) dynamic optimization and real-time control applications. His doctoral research was focused on numerical simulation methods with efficient sensitivity propagation for real-time optimal control algorithms.

### WEDNESDAY AFTERNOON SPECIAL SESSIONS

### Women in Controls in Industry

Sponsor:	ASME Dynamic Systems and Control Division, Automotive and Transportation
Systems Technic	cal Committee and the Energy Systems Technical Committee
Time:	1:30 PM – 3:30 PM, and 4:00 PM -6:00 PM, Wednesday, July 1, 2020
Location:	Ballroom F
Organizers:	Dr. Selina Pan, Toyota Research Institute
	Dr. Marcello Canova, The Ohio State University
	Dr. Mahdi Shahbakhti, University of Alberta
	Dr. Yan Chen, Arizona State University
	Dr. Carrie Hall, Illinois Institute of Technology

Academic research and industry development have a symbiotic relationship. The insights gleaned from academic research can be propagated into usable products and technologies by companies. The practical problems identified in industry can also inspire and develop new academic research topics and areas and these new areas of research and development can be explored jointly. This cycle and relationship is key for researchers to understand and to participate in. To facilitate these connections, every year, the ASME Dynamic Systems and Control Division organizes an industry special session at a major controls conference.

Nowadays, both academia and industry host increasingly diverse communities. These communities consist of researchers, engineers, teachers, programmers, and managers, and their members are thriving from many different backgrounds. A historically underrepresented group has been female engineers and engineers who identify as women. (For the purposes of brevity for this proposal, we will use the term "women" going forward.)

This session seeks to bring together both the importance of exposure to parallel work happening in industry, with the diverse people who are doing the work, to the American Control Conference. Academia is taking increasingly large strides to increase diversity in both its student population as well as its faculty. Industry is doing the same, in both similar and diverging ways, with efforts ranging from recruiting, changing hiring practices, evolving performance review processes, workshops in unconscious bias, employee resource groups, and setting diversity and inclusion as a company-wide initiative.

The speakers featured in this session have a variety of technical experiences and we aim to, first and

foremost, focus on their technical work and present a wide array of different career paths. The purpose of this is twofold: 1) to showcase some of the current cutting-edge work being done in industry in controls, and 2) to demonstrate examples and inspire junior women researchers who may be looking for a broader range of career paths. The session will feature both a series of technical talks, as well as a panel discussion that will be moderated and open to questions from the audience, in order to provide room to discuss potential non-technical topics unique to the experience of being a woman in controls in industry.

This special session is sponsored by the Automotive Transportation Systems and Energy Systems Technical Committee. The proposed list of speakers consists of engineers from the following companies: RightHook Robotics, Tesla, Applied Materials, Built Robotics, Waymo (Google), Ford, Toyota Research Institute, General Motors, and a stealth robotics startup.

### **Organization and Contribution**

This session includes contributions from industry engineers who have been active in the areas of automotive, energy, and mechatronics research and development areas. The tentative list of speakers is compiled from the automotive, energy, robotics, and tech industries.

The session is roughly organized into two parts. The first part (1:30 - 4:50 PM) features technical talks from each speaker in their area of expertise. The speakers featured come from a variety of different companies. We propose to feature speakers from RightHook, Applied Materials, Waymo (Google), Tesla, Built Robotics, and Ford, with additional speakers pending company approval from Toyota, GM, and a stealth robotics startup. These companies are all leading the industry in the automotive, robotics, and controls areas.

The second part (4:50 PM - 5:30 PM) features a panel discussion with a subset of speakers, with Selina Pan (industry liaison from the Automotive Transportation Systems Technical Committee) as the moderator, welcoming questions from the audience. Being able to hear the speakers discuss their career and life experiences as women working in industry in controls has the potential to provide key insights and inspiration to aspiring junior engineers who are still seeking a career path in STEM, whether in research, academia, industry, or the start-up world. Because the session focuses on women in controls, we see great value in presenting the stories of established speakers behind their technical work.

### **Presentations:**

### Speaker: Dr. Madeline Goh, RightHook Robotics

**Abstract**: Highly Automated Driving Development and the Simulation Portability Problem - For the last several years, questions have swirled around how autonomous vehicles will be validated. The general consensus has come to a mix of on-road testing and simulation. With so many companies and stakeholders in the mix, how will standards be determined and met? We present ScenarioScript: an open, portable specification for describing scenarios used for developing, testing, and demonstrating automated vehicle systems.

### Speaker: Dr. Caroline Le Floch, Tesla

### Speaker: Dr. Raechel Tan, Applied Materials

**Abstract**: Advanced Control Applications in Semiconductor Processing Equipment - In semiconductor processing equipment, achieving the best device performance and yield requires minimal process variation.

### SPECIAL SESSIONS

Fast controls is also important, since this determines the rate at which wafers can be processed. At Applied Materials, the Common Solutions Group is working on advanced control solutions to enable greater precision and faster throughput.

### Speaker: Dr. Sarah Thor, Built Robotics

**Abstract**: From Human Algorithms to Computer Algorithms: A High-Level Planning Problem - Built Robotics is building the future of construction by developing AI guidance systems to transform construction equipment into autonomous robots. The technology combines sensors, such as GPS, cameras and lidar with proprietary software, in order to make construction machinery, such as bulldozers, excavators already possess great skill in operating heavy construction machinery, such as bulldozers, excavators and skid steers. Before an operator begins moving dirt, he or she has an inherent algorithm in mind on how to take the current terrain and transform it to meet the job specifications. Our robots must also assess the current terrain and autonomously come up with a plan to accomplish the same job specifications. As robots have different capabilities to humans, the algorithm a human uses does not strictly overlap with the robot's algorithm. In this talk, we will go over some of the techniques and considerations human operators keep in mind for high-level planning of the job and discuss how Built Robotics tackles the high-level planning problem.

### Speaker: Dr. Xin Zhou, Waymo (Google)

**Abstract**: This talk will focus on how individuals with training and expertise in control can branch into new technical disciplines, discover new research challenges at the interface of control and other fields, and explore different career options. Using my own experience, I will give several examples about how knowledge in control can help with many aspects of the development of driver-assist and autonomous driving technologies, including control and planning, object tracking, and deep learning. At the end of the talk, a brief introduction to Waymo will be given.

### Speaker: Dr. Sara Dadras, Ford

**Abstract**: According to the National Highway Traffic Safety Administration (NHTSA), in 2017 alone, the NHTSA reported 34,247 fatal crashes in the United States with 37,133 fatalities. Furthermore, as of August 1, 2019, the California DMV has received 186 Autonomous Vehicle Collision Reports. Ford Motor Company aims to help society with not only providing the safest vehicles on the road but also making the vehicles more comfortable for the customers. Automated driving is one solution that significantly improves roadway safety. This talk gives an overview of Ford Greenfield Labs at Palo Alto, California, and reviews some areas of research in automated driving systems.

### **Panel Discussion**

- Dr. Madeline Goh, RightHook Robotics
- Dr. Raechel Tan, Applied Materials
- Dr. Sarah Thornton, Built Robotics
- Dr. Sara Dadras, Ford

### **Speaker bios:**

**Dr. Madeline Goh** left Minnesota and academia after earning her PhD in mathematics to pursue a career in industry. She is particularly inspired by solving problems that impact people's daily lives, from barcodes to self-driving vehicles. Currently she is a Machine Learning Expert and Senior Engineer at San Jose based startup, RightHook, Inc. RightHook provides a simulation platform for testing and development of

autonomous vehicles. Madeline is a people person and loves spending time with her siblings, urban exploration, puppies, and supporting women in technology.

**Dr. Caroline Le Floch** leads the development of the Autobidder software at Tesla, the first automated and algorithmic bidding platform for utility scale energy storage. I obtained a Master of Science in Applied Mathematics from Ecole Polytechnique (Paris, France), and PhD in Civil and Environmental Engineering at UC Berkeley. During my PhD in the Energy Controls and Applications Lab at UC Berkeley, I focused on Smart Charging optimization methods for large fleets of electric vehicles, including distributed optimization and Plug and Play model predictive Controls. After PhD I created a startup and sold smart charging software to automakers and aggregators. In May 2018 I joined the energy optimization team at Tesla, where I have focused on utility scale projects and the development of algorithmic bidding in energy markets. I am the leading engineer for Autobidder – the money making machine – that automates bidding of energy storage assets in electricity markets.

**Dr. Raechel Tan** is a controls engineering manager in the Mechatronics Center of Excellence at Applied Materials. She leads a team to develop advanced solutions for temperature, pressure, and motion control across the company. Before starting at Applied Materials, she obtained her Ph.D. in Mechanical Engineering at UC Berkeley, where she did research on automotive engine control.

**Dr. Sarah Thornton** received her Ph.D. in mechanical engineering at Stanford University in 2018. Her thesis was on designing autonomous vehicle motion planning algorithms with ethical considerations. She obtained her Master's in mechanical engineering from MIT in 2013 and her Bachelor's in mechanical engineering from UC Berkeley in 2011. She currently works as a Senior Robotics Engineer at Built Robotics, where she has worked on an array of projects ranging from designing parts of their safety system to designing high-level planning algorithms.

**Dr. Xin Zhou** received her PhD from the University of Michigan in Mechanical Engineering in 2017 with a focus on control, estimation, dynamic system modeling and identification. Prior to joining the University of Michigan, she received her Bachelor of Engineering in Machine Design, Manufacturing, and Automation from Huazhong University of Science and Technology, Wuhan, China, in 2012. Dr. Zhou joined Aptiv immediately after receiving her doctorate to develop object tracking algorithms for advanced driver-assistance systems. In 2018, she joined Waymo as a Software Engineer/Robotics Researcher focusing on perception of the autonomous vehicle. She is the lead author of six publications and a finalist for three best student paper awards and a best paper award.

**Dr. Sara Dadras** (IEEE Senior Member, 2018) is currently an Automated Driving Senior Research Engineer at Ford Motor Company. Prior to that, she was a research engineer working on research and development of Plug-in Hybrid Electric Vehicle systems with respect to energy management. Passionate about vehicles, she worked on various projects including battery management systems, wireless power transfer systems, model based system design for advanced HEVs and PHEVs. Her current research interest areas include autonomous vehicles, advanced driver assist systems, hybrid electric vehicles, nonlinear systems and control, and application of fractional calculus in control of nonlinear systems. Dr. Dadras was the recipient of the 2019 Forest R. McFarland Award (SAE) and Ford 2018 R&A Technical Achievement Award (RARE Award). She is the Associate Editor of the IEEE Transactions on Control Systems Technology, IEEE Access, IEEE Transactions on Automation Science and Engineering, Asian Journal of Control and Conference Editorial Board member of IEEE.

## NREL's Control Research: Enabling a Clean Energy Future

Sponsor:	The Department of Energy National Renewable Energy Laboratory
Time:	1:30 PM -3:00 PM Wednesday, July 1, 2020
Location:	Gold

The National Renewable Energy Laboratory (NREL), located in Golden, Colorado, is the United States' primary laboratory for renewable energy and energy efficiency research and development. Control plays a crucial role in NREL's mission to advance the science and engineering of energy efficiency, sustainable transportation, renewable power technologies, and energy systems integration. This special session will provide an overview of NREL, followed by in-depth discussion of NREL's control research in various areas such as building, grid, wind, energy storage, and transportation. The goal of the session is to give the audience an opportunity to understand the typical control research projects at NREL and how to collaborate with NREL.

### **Presentations:**

- 1. Dr. Xin Jin, "Model Predictive Control for Grid-Interactive Efficient Buildings and Communities"
- 2. Dr. Andrey Bernstein, "Learning to Optimally Control Grid-Interactive Efficient Buildings"
- **3.** Dr. Jennifer King and Dr. Christopher Bay, "Autonomous Wind Farms: Distributed Optimization and Control for Wind"
- 4. Dr. Ying Shi, "Advanced Controls of Energy Storage Systems for Better Performance, Safety, and Life"
- 5. Dr. Myungsoo Jun, "Smart Electric Vehicle Charge Management for Demand Charge Mitigation"

**Dr. Xin Jin** is a Senior Research Engineer in the Buildings and Thermal Sciences Center at NREL. He is also the Sensors and Controls innovation area lead of NREL's Buildings program. His research focuses on building-to-grid integration, building control, machine learning with applications in buildings, and fault detection and diagnosis. Dr. Jin leads several research projects funded by the U.S. Department of Energy Building Technologies Office and Solar Energy Technologies Office. He is the lead developer of foreseeTM, a user-centric, cybersecure home energy management system. He received his Ph.D. in Mechanical Engineering from Pennsylvania State University. He has authored more than 50 peer reviewed technical publications and 10 software records and



U.S. patent. He is an ASHRAE member and IEEE member, and is a recipient of the 2018 R&D 100 Award and 2017 NREL President Award.

**Dr. Andrey Bernstein** received his B.Sc., M.Sc. (both summa cum laude), and Ph.D. degrees in Electrical Engineering from the Technion - Israel Institute of Technology. Between 2010 and 2011, he was a visiting researcher at Columbia University. During 2011-2012, he was a visiting Assistant Professor at the Stony Brook University. From 2013 to 2016, he was a postdoctoral researcher at the Laboratory for Communications and Applications of Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland.



Since October 2016 he has been a Senior Scientist at NREL. In February 2018, he became a group manager for the Energy Systems Control and Optimization Group. His research interests are in the decision and

control problems in complex environments and related optimization and machine learning methods, with particular application to power and energy systems.

**Dr. Jennifer King** is a Research Engineer at NREL working at the National Wind Technology Center on hybrid system modeling and control. This includes developing model and real-time distributed optimization capabilities for wind farm control, optimally designing and operating utility-scale hybrid power plants as well as developing

a control framework for large-scale autonomous energy systems. Jennifer obtained her Ph.D. in Aerospace Engineering and Mechanics from the University of Minnesota in 2016 where her primary focus was on reduced-order modeling for wind farm control. Her current research focus areas are in reduced-order modeling, distributed control/optimization, and flow control.

**Dr. Christopher Bay** is a Research Engineer at NREL. His current work includes wind farm control and optimization, involving distributed control and layout design to improve performance and meet secondary objectives. He is also tackling multi-system problems through developing cooperative control between wind energy plants and buildings. Christopher received his Ph.D. in Mechanical Engineering from Texas A&M University in 2017 where his research centered around scalable, distributed control of building energy systems.

**Dr. Ying Shi** is a Senior Research Engineer in Power Systems Engineering Center at NREL. She has been working on lithium-ion battery systems testing, modeling, analysis and control to improve battery performance and life, increase pack utilization and reduce upfront and lifetime cost for stationary and automotive applications. Dr. Shi received a bachelor's degree in Mechanical Engineering from Shanghai Jiao Tong University in Shanghai, China in July 2008. She received dual master's degree in electrical engineering and mechanical engineering from Pennsylvania State University in University Park, PA, USA, in May 2012 and May 2013. She received her Ph.D. degree in mechanical

engineering from Pennsylvania State University in December 2013, with focus on modeling, real-time identification and remediation of degradations in lead-acid batteries for hybrid locomotive applications

**Dr. Myungsoo Jun** has been performing research on vehicle electrification, EV charging station management, and smart transportation systems. He is currently actively conducting research on smart charge management and battery BMS for EV. He also led a project on smart intersection sensing systems. Before joining NREL in 2011, Dr. Jun had extensive experiences in the areas of autonomous ground vehicles and unmanned aerial vehicles including UAV/UGV trajectory planning, dynamic collision avoidance, and attitude estimation with vision camera sensors. He conducted projects on UAV/UGV funded by DARPA, AFRL, and JPL during his affiliation with Oshkosh Corp., University of Florida, and Cornell University.





## Workshop for Elementary, Middle and High School Students and Teachers and Parents: The Power, Beauty and Excitement of the Cross-Boundaries Nature of Control, a Field that Spans Science, Technology, Engineering & Mathematics

Sponsor:	AACC, IEEE CSS, and IEEE CSS Technical Committee on Control Education	
Time:	1:30 PM – 3:30 Wednesday, July 1, 2020	
Location:	Silver	
Organizers:	Dr. Bozenna Pasik-Duncan, University of Kansas	
	Dr. Linda Bushnell, University of Washington	
	Dr. Tyrone Duncan, University of Kansas	
	Dr. Anthony Rossiter, University of Sheffield	
Program Committee:		
	AACC Technical Comnittee on Education	
	IFAC Technical Committee on Control Education	
	IEEE CSS Technical Committee on Control Education	

This outreach event is designed to increase the general awareness of the importance of systems and control technology and its cross-disciplinary nature among students and teachers. Control is used in many common devices and systems: cell phones, computer hard drives, automobiles, and aircraft, but is usually hidden from view. The control field spans science, technology, engineering and mathematics (STEM). The success of all STEM disciplines depends on attracting the most gifted young people to science and engineering professions. Early exposure to middle and high school students and their teachers is a key factor. The goal of these outreach efforts is to promote an increased awareness of the importance and cross-disciplinary nature of control and systems technology.

Workshop activities include presentations, informal discussions, and the opportunity for teachers and students to meet passionate researchers and educators from academia and industry. The talks are designed to be educational, interactive, motivating and inspirational showing the excitement of STEM education.

### **Presentations include:**

### Speaker: Dr. Daniel Abramovitch, Agilent Technologies

Title: What Is a Control System and Why Should I Care?

Abstract: After years of teaching coaching little league trying to explain control systems to biologist and computer scientist friends, I will try the ultimate test of explaining the topic to a group of bright and easily bored high school kids. We will go through examples of feedback in everyday life, and then tease out what is common to all these examples. We will talk about how the "control" is computed, even when we don't have a computer. And we will talk about the dreaded math of control systems, and explain why we use it and what it tells us. The talk will finish with some general lessons about science and engineering, and why anyone might want to learn these intense subjects.

### Speaker: Dr. Dominique Duncan, University of Southern California

Title: Stepping Inside the Brain Using Virtual Reality

Abstract: The Epilepsy Bioinformatics Study for Antiepileptogenic Therapy (EpiBioS4Rx) is an ongoing

international, multi-site Center Without Walls that is collecting data from moderate-severe traumatic brain injury (TBI) patients and an animal model (Duncan et al., 2018a). We have been developing innovative methods to analyze the multimodal data with the goal to identify biomarkers of epileptogenesis, the development of epilepsy, after TBI. We are applying various machine learning methods as well as dimensionality reduction tools (Duncan et al., 2016), to the electrophysiology and imaging data. These theoretical techniques and associated models and optimization methods will be applicable not only to this dataset but to other multi-species or multi-domain transfer learning challenges that may arise in the context of health and medicine. We have partnered with several local high schools to hold educational workshops and research experience for K-12 students with this project. Furthermore, we have developed a virtual reality tool for visualizing neuroimaging data, including TBI lesions, and correcting segmentation errors that can be used as an educational neuroanatomy tool (Duncan et al., 2018b).

### Speaker: Dr. Tembine Hamidou, New York University

### Title: Risk-Aware Performance Metrics in STEM

Abstract: We live truly in a more and more interconnected and interactive world. In recent years, we have seen emerging technologies such as internet-of-everything, collective intelligence (including artificial intelligence), blockchains and next generation wireless networks. The quantities-of-interest in these systems involve uncertainties, volatilities and risk. In this talk we revisit how engineers and scientists incorporate, model, control and optimize societal problems under uncertainties.

### Speaker: Dr. Richard M. Murray, California Institute of Technology

### Title: How to Design a Self-Driving Car

**Abstract**: Building robots that can do things as well as humans has been the goal of scientists and engineers for decades. Despite what we see in the movies and on TV, getting a real robot to perform as well as a human can is still a challenge goal. Approximately 15 years ago, the US has sponsored a competition to spur advances in robotics, called the DARPA Grand Challenge. This competition paved the way for the advances that we see today in the development of autonomous cars. In this talk I will explain how these cars work and some of the engineering challenges that remain.

### or

### Title: Synthetic Biology: How to Program a Bacterium

Abstract: Synthetic biology is an emerging field that focuses on engineering biomolecular systems that are programmed via DNA to perform useful functions such as environmental bioremediation, diagnostics and therapeutics for human health, green manufacturing of chemicals, and production of engineered living materials and synthetic cells. In this talk I will give an introduction to synthetic biology and show how concept and tools from feedback control can help provide new methods for engineering biological systems.

### Speaker: Dr. Lucy Pao, University of Colorado Boulder

**Title:** Efficient Wind Energy Systems—How Control Methods Can Enable a Clean Energy Future Abstract: Wind energy is recognized worldwide as cost-effective and environmentally friendly and is among the fastest-growing sources of electrical energy. We will provide an overview of wind energy systems, discuss some of the challenges in the design and operation of wind turbines and wind farms, and highlight how control methods have improved the performance of these systems. We shall close by discussing continuing challenges and on-going and future research that can further facilitate the growth of wind energy.

### Speaker: Dr. Ramla Qureshi, Women Engineers Pakistan (WEP)

### Title: STEM is for Everyone!

Abstract: Within the domains of STEM education, numerous surveys across the globe have presented data where, up till grade 8, young girls have outperformed boys in science subjects. But fewer than 11% women worldwide are within engineering. This disparity begs to ask: what changes after grade 8th which makes the girls opt out of careers in engineering, technology, math, and physics? It is our belief that societal pressures and stereotypical fear of math and physics inhibits inclination to STEM education and consequent STEM careers for many young students across the globe. Planning and building games around math and physics problems helps dispel this fear, and encourages students to understand other, more complex systems in a fun manner that is easier to remember during exams and in general. The concept of game-based STEM learning sessions is not to teach rocket science in one day, rather it is to inculcate a sense of belonging within young students who feel inhibitions regarding their innate abilities in STEM subjects. This session is designed for middle school students.

### **Speaker bios:**

**Dr. Daniel Abramovitch** earned degrees in Electrical Engineering from Clemson (BS) and Stanford (MS and Ph.D.). After a brief stay at Ford Aerospace, he worked at HP Labs for 11 1/2 years, studying control issues for optical and magnetic disk drives. He moved to Agilent Labs shortly after the spinoff from HP, where he has spent 20 years working on test and measurement systems. He is currently in Agilent's Mass Spectrometry Division working on improved real-time computational architectures for

Agilent's mass spectrometers. Danny is a Senior Member of the IEEE and was Vice Chair for Industry and Applications for the 2004 American Control Conference (ACC), for Workshops at the 2006 ACC, for Special Sessions at the 2007 ACC, and for Industry and Applications for the 2009 ACC. He was Program Chair for the 2013 ACC and General Chair of the 2016 ACC in Boston. He has organized tutorial sessions on disk drives, atomic force microscopes, phase-locked loops, laser interferometry, and how business models and mechanics affect control design. He was Chair of the IEEE CSS History Committee from 2001 to 2010. Danny had the original idea for the clocking mechanism behind the DVD+RW optical disk format. He was on the team that prototyped Agilent's first 40Gbps Bit Error Rate Tester (BERT). He and Gene Franklin were awarded the 2003 IEEE Control Systems Magazine Outstanding Paper Award. He was a Keynote Lecturer at the 2015 MSC in Sydney. His recent work for Agilent was on high speed atomic force microscopes and high precision interferometers, and currently works on improving the real-time control, data collection, and signal processing chain on Agilent's Mass Spectrometers. He is part of the team that introduced the multi-award winning Ultivo Tandem Quad Mass Spec in 2017. He is the holder of over 20 patents and has published over 50 reviewed technical papers.

**Dr. Dominique Duncan** is an assistant professor of neurology at the Laboratory of Neuro Imaging of the USC Stevens Neuroimaging and Informatics Institute. Prior to her current position she was a postdoctoral scholar at the Mathematics Department at the University of California, Davis, a postdoctoral fellow at the Department of Neurology and Neurological Sciences at the Stanford University School of Medicine. She received her PhD in Electrical Engineering from Yale University in 2013 and a BS in Mathematics from the University of Chicago in 2007 as well as a BA in Polish Literature and minor

in Computational Neuroscience. During her collaborating with neurologists and neuroscientists from the Yale University School of Medicine, and mathematicians, engineers, and computer scientists. She is a





recipient of a University of Chicago Scholarship, Yale University Faculty of Engineering Fellowship, NSF REU scholarship, summer undergraduate program in engineering research scholar at the University of California, Berkeley, several travel awards from the National Science Foundation (NSF), the National Institute of Health (NIH), and the Association for Women in Mathematics (AWM) Travel Award. She is passionate about teaching international students and about community and outreach service. She has an established record of holding leadership positions that include being the Chair of the University of California, Davis Postdoctoral Scholars Association, Council Member in the Stanford University Postdoctoral Association, senator representing engineering for the Yale University Graduate and Professional Student Senate, President of the University of Chicago Polish American Student Association, Chair of the University of Chicago Committee on Recognized Student Organizations, University of Chicago Student Government Executive Committee member, American Automatic Control Council (AACC) TC on Education member, IEEE Control System Society (CSS) TC on Control Education member, and appointed member of IFAC TC on Control Education. She has been a frequent speaker on "Math & Epilepsy" at workshops for elementary, middle and high school students and teachers.

Dr. Tembine Hamidou received the M.S. degree in Applied Mathematics from Ecole Polytechnique (Palaiseau, Paris, France) in 2006 and the Ph.D. degree in Computer Science from University of Avignon in 2009. His current research interests include evolutionary games, mean-field-type games and applications. In December 2014, Tembine received the IEEE ComSoc Outstanding Young Researcher Award for his promising research activities for the benefit of the society. He was the recipient of 10

best article awards in the applications of game theory. He is author of the book on "Distributed Strategic Learning for Wireless Engineers" (published by CRC Press, Taylor & Francis 2012), and co-author of the book "Game Theory and Learning in Wireless Networks" (Elsevier Academic Press). Tembine has been co-organizer of several scientific meetings on game theory in networking, wireless communications, smart energy and transportation systems. He is a Next Einstein Fellow.

Dr. Richard Murray received the B.S. degree in Electrical Engineering from California Institute of Technology in 1985 and the M.S. and Ph.D. degrees in Electrical Engineering and Computer Sciences from the University of California, Berkeley, in 1988 and 1991, respectively. He is currently the Thomas E. and Doris Everhart Professor of Control and Dynamical Systems and Bioengineering at Caltec. Murray's research is in the application of feedback and control to network systems with applications in biology and autonomy. Current projects include design of safety-critical control systems and synthetic biology.

Dr. Lucy Pao is the Palmer Endowed Chair Professor in the Electrical, Computer, and Energy Engineering Department at the University of Colorado Boulder. She earned B.S., M.S., and Ph.D. degrees in Electrical Engineering from Stanford University. Her research has primarily focused on engineering control systems, with applications ranging from atomic force microscopes to multi-megawatt wind energy systems. She is a Fellow of the IEEE and the International Federation of Automatic Control (IFAC). Selected recent awards include the 2012 IEEE Control Systems Magazine Outstanding Paper

Award (with K. Johnson), the 2015 Society for Industrial and Applied Mathematics (SIAM) Journal on Control and Optimization Best Paper Prize (with J. Marden and H. P. Young), the 2017 Control Engineering Practice Award from the American Automatic Control Council, the Scientific Award 2017 from the







European Academy of Wind Energy, and the 2019 Nyquist Lecturer Award from the ASME Dynamic Systems & Control Division. Selected recent and current professional society activities include being a Fellow of the Renewable and Sustainable Energy Institute (2009-present), General Chair of the 2013 American Control Conference, member of the IEEE Control Systems Society (CSS) Board of Governors (2011-2013 and 2015), IEEE CSS Fellow Nominations Chair (2016-2018), member of the IFAC Fellow Selection Committee (2014-2017 and 2017-2020), and member of the IFAC Executive Board (2017-2020).

**Dr. Ramla Qureshi**, CEO of Women Engineers Pakistan (WEP), started WEP in 2013 as part of her unwavering commitment to empower women in STEM disciplines. She also asks for male participation at their university chapters. structural and earthquake engineering working on her thesis in structural damage, devising new methods for testing structural resilience against fire and earthquake hazards. WEP calls upon men to advocate for their friends and classmates–and the future. Her skills and areas of expertise



include encouraging women and young professionals to pursue engineering. She received her B.S. from National University of Sciences and Technology in Pakistan. She is a Fulbright Scholar and PhD student in Citizen's Foundation-school initiative in Pakistan. Ramla was nominated by the University of Buffalo's School of Engineering She is currently involved with ERI, ACI student member, ASCE, Engineer-in-Training. She is drawn to and passionate about charitable organizations such as and Applied Sciences to represent the school at the Advancement of Science and Association of Public and Land-grant Universities' (AAAS) Catalyzing Advocacy in Science and Engineering (CASE) workshop in Washington DC.

## **THURSDAY NOON SPECIAL SESSIONS**

## Control Design for SuperCruise Automated Driving: Systems, Algorithms, Challenges and Solutions

Sponsor:	General Motors
Time:	12:00 – 1:30 PM Thursday, July 2, 2020
Location:	Room 51

Automated vehicles are computers that perform several functions necessary to understand the world and make driving decisions. Developing such systems is challenging, since driving is a multi-variable, multi-objective, nonlinear and sometimes uncertain task, in which multiple agents including drivers, pedestrians, devices and environment interact in real-time.

This talk provides a technical review of lateral controls in GM's SuperCruise, the industry's first hands-free driving technology for the highway. Several aspects of the system are discussed, including systems and components, hardware redundancy to ensure safety, hardware/software integration, and technical aspects in vehicle dynamics, sensing, fusion, path planning and controls.

Specific case studies are provided which highlight application of controls techniques to develop various functionalities that enable operation of SuperCruise.

**Dr. Reza Zarringhalam** is Global Technical Lead for Lateral Controls at General Motors Canada Technical Center. He is currently leading the design of advanced lateral controls software at GM for various features including SuperCruise. Before joining GM Canada, Reza had more than 10 years of R&D experience in controls and automotive industry, including his MSc research on applications of AI for automated driving at K.N.T.U, Iran; and his PhD research on fault-tolerant estimation of vehicle states at University of Waterloo, Canada. Reza has made numerous contributions through patents



and publications, is a reviewer of multiple international journals and has extensive teaching experience in Controls and Mechatronics. He is passionate about technology and innovation to build a better future, today.

## Bridging the Theory-Practice Gap in Robotics on a Massive Scale in Georgia Tech's Robotarium

Sponsor:	Mathworks
Time:	12:00 PM – 1:30 PM, Thursday, July 2, 2020
Location:	Room 50

The Robotarium is a remotely accessible swarm robotics lab that allows users from all over the world to upload control code, written in MATLAB, and run experiments. Since its official launch in August 2017, over 5000 remote experiments have been conducted by users from all continents (except Antarctica). The impetus behind the Robotarium project is to provide broad, democratized access to a world-class research facility, and users span the gambit from robotics researchers to middle-school students. This talk will discuss the technical challenges associated with the Robotarium as well as a lessons learned in remote-access experimentation.

**Dr. Magnus Egerstedt**, Steve W. Chaddick School Chair and Professor in the School of Electrical and Computer Engineering at the Georgia Institute of Technology.



## **THURSDAY AFTERNOON SPECIAL SESSIONS**

## Promoting Access for Under-represented Groups in STEM Graduate Disciplines

 Time:
 1:30 PM – 3:30 PM, Thursday, July 2, 2020

 Location:
 Silver

This session consists of four presentations that addresses successful academic and professional practices that support completion of a STEM graduate education and transition to the professoriate for under-

represented groups.

A motivation for the session is that the demographics in the U.S. is changing but noticeably, the number of graduate degrees in STEM disciplines remain unpopulated by this change. To meet this rising change, professional societies and academic institutions must embrace systematic and thoughtful changes in how access is provided, how practices are implemented, and what policies are crafted.

This session is intended to serve three purposes: (i) present the challenges faced by under-represented groups at the graduate level, (ii) provide examples of programs and/or procedures that bolster graduate education in STEM disciplines, and (iii) have an open dialogue about the difficulties of instituting systemic change at the professional society, academic institution, college, and department levels.

Outline of the session:

- 1. Dr. Karlene Hoo (Gonzaga University), "Brief Opening Remarks to Introduce the Topic"
- 2. **Dr. Bozenna Pasik-Duncan** (University of Kansas), "STEM Education of Tomorrow" A collaborative effort integrating scholarship, teaching, learning and broader impacts is the key to a success in STEM education. This collaborative effort needs to include academia, industry, government as well as teachers, parents, students and scholars. By working together as partners who are all learners in the process of STEM education, we can make a difference. Best practices in this effort are shared.
- 3. Dr. Martha Grover (Georgia Institute of Technology), "Graduate Training for Equality in Underrepresented Academic Leadership"

The need to fund students on research grants may provide an unnecessary barrier to retention of PhD students from non-traditional backgrounds. Here we discuss the details of a program in the School of Chemical & Biomolecular Engineering at Georgia Tech, funded by ACS-Bridge, to expand the number of students from under-represented groups earning a PhD in the chemical sciences. The MS thesis program is utilized as a bridge from the BS to the PhD through modifications in timeline and sequencing, as well as additional mentoring.

4. **Dr. Karlene Hoo** (Gonzaga University), "Pathways to Support STEM Graduate Education for Indigenous Communities"

The NSF AGEP (Alliance for Graduate Education and the Professoriate) PNW COSMOS (Pacific NorthWest Collaborative Opportunities for Success in Mentoring of Students) Alliance's project was to address the scarcity of American Indian/Alaska Native (AI/AN) graduate students in STEM programs. In this presentation, two mentoring frameworks to promote retention and support of AI/AN graduate students will be described. The NSF-funded project resulted in the publication "Indigenous Communities and Access to Graduate Degrees in STEM," 2019 (eds: Hoo & Windchief) New Directions for Higher Education, No. 187.

5. Dr. Bonnie Ferri (Georgia Institute of Technology) and Leslie Sharp (Georgia Institute of Technology), "Hiring and Supporting a Diverse Faculty" This interactive session will explore some of the issues, challenges, and opportunities for hiring and supporting a diverse faculty in STEM disciplines. What are factors that influence the decision of under-represented groups to apply for and consider faculty positions? What are some policies, practices, and programs that support a healthy and productive culture among a diverse population? Do our promotion and advancement practices need retuning? What contributions can a professional society have to support success? Finally, what can each of us do individually to support diversity, equity, and inclusion in the faculty ranks?

Note: Bonnie Ferri will conduct the session. Leslie Sharp (Associate Vice Provost for Graduate Education and Faculty Development, and CEO of the Library) will help to prepare the presentation materials and activities but will not be present at the session.

**Dr. Bozenna Pasik-Duncan** received M.S. degree in mathematics from University of Warsaw (Poland), and Ph.D. and D.Sc. (Habilitation Doctorate) degrees from Warsaw School of Economics (Poland). She is Professor of Mathematics; Courtesy Professor of EECS & AE; Investigator at ITTC; Affiliate Faculty at Center of Computational Biology, and Chancellors Club Teaching Professor at University of Kansas (Lawrence, KS). She is 2017-2018 IEEE Women in Engineering (WIE) Global Chair, founder of IEEE CSS Women in Control, founder and faculty advisor of Student Chapters of Association for Women in Mathematics (AWM) and Society for Industrial and Applied Mathematics

(SIAM) at KU, founder and coordinator of KU and IEEE CSS Outreach Programs, a Life Fellow of IEEE, and Fellow of IFAC. She is recipient of many awards that include IREX Fellow, NSF Career Advancement Award, Louise Hay Award, Polish Ministry of Higher Education Award, H.O.P.E. Award, Kemper Fellowship, IEEE Educational Activities Board Meritorious Achievement Award, the IEEE Third Millennium Medal and IEEE Control Systems Society Distinguished Member Award. She is inducted to the KU Women's Hall of Fame. Her broad research interests are primarily in stochastic adaptive control and its applications to science and engineering, and in STEM education.

**Dr. Karlene Hoo** received her a B.S. degree from the University of Pennsylvania (Philadelphia, PA) and her M.S. and Ph.D. degrees from the University of Notre Dame (Notre Dame, IN). All her degrees are in chemical engineering. She is currently, Dean of the School of Engineering & Applied Science at Gonzaga University (Spokane, WA). She held prior academic administrative positions at Texas Tech University (Lubbock, TX) and at Montana State University (Bozeman, MT). She has government experience with the National Science Foundation (Engineering Directorate), NASA Johnson Space



Center, and Sandia National Laboratories. She also has industrial experience with Exxon and DuPont. In 2009, she served as the General Chair of the American Control Conference (St Louis, MO). Her research interests are in sustainable chemical process designs, cardiovascular research, biofuel technologies, and graduate STEM education.

**Dr. Bonnie Ferri** received her a B.S. degree in electrical engineering from the University of Notre Dame (Notre Dame, IN), her M.S. degree in mechanical and aerospace engineering from Princeton (Princeton, NJ), and her Ph.D. degree in electrical engineering from Georgia Institute of Technology (Atlanta, GA). She is currently the vice provost for Graduate Education and Faculty Development at Georgia Institute of Technology. Her research interests are in embedded control systems, engineering



education, and real-time computing. She has received many honors and awards including the 2017 IEEE Undergraduate Teaching Award and the 2016 Regent's Award for the Scholarship of Teaching and Learning. She was the co-chair of a campus-wide commission at Georgia Tech on the future of higher education, an invited speaker at a National Academy of Engineering workshop on education, and a keynote

speaker at the 2019 IFAC Advances in Control Education Symposium. She is the General Chair of the 2022 American Control Conference to be held In Atlanta, GA.

**Dr. Martha Grover** received her a B.S. degree from the University of Illinois (Champaign, IL) and her M.S. and Ph.D. degrees from the California Institute of Technology (Pasadena, CA). She is Professor and Associate Chair for Graduate Studies in Chemical & Biomolecular Engineering at Georgia Tech and co-leads the new Graduate Training for Equality in Underrepresented Academic Leadership Program funded by the American Chemical Society through the NSF INCLUDES Network. Her research interests are in control of molecular organization, with applications in feedback control of colloidal crystallization for photonic materials, chemical evolution in the origins of life, modeling and control of pharmaceutical and nuclear waste crystallization,



and process-structure-property relationships in polymer organic electronics. Martha is the Program Chair of the 2020 American Control Conference and the General Chair for ACC in 2024. She also is the incoming chair for the AIChE Computing and Systems Technology Division and the IEEE CSS Liaison to the IEEE Women in Engineering (WIE) Committee.

## **Quantum Information Systems: Communication, Control and Computing**

Time:1:30 PM - 3:30 PM, Thursday, July 2, 2020Location:GoldOrganizers:Drs. Mark Balas and James Steck

Quantum Information Systems and quantum computing are developing rapidly and will have a profound effect on Modeling, Operation, and Control of aerospace systems. Aerospace engineers need to be more aware of the new quantum systems as there is already a growing need for quantum systems engineers to deal with these new issues and to develop workable quantum machines and integrate them into the existing systems technology. In this session we will bring together prominent researchers currently working in communication and control of quantum systems and quantum computing.

Speakers: Dr. Matthew James, Australian National University; Dr. Valeri Ugrinovskii, University of New South Wales Canberra

Title: Applying Wiener Filtering to Quantum Communication Systems

Abstract: Quantum communication systems involve the transmission of classical and/or quantum information through a channel. Quantum key distribution is a well-known example, with significant security implications. Aspirational proposals for a quantum internet have been emerging, where a coherent network would allow the distribution of quantum states, including entangled states. Quantum signals, just like their classical counterparts, suffer loss and distortion as they pass through channels. This talk will examine the underlying problem of compensating for loss and distortion at a level below the abstraction of qubits and coding. In particular, we develop a general methodology that allows for the design of quantum filters that extends Wiener's well-known classical methods. This methodology involves a constrained nonlinear optimization problem, where the physical realization requirements of the filter impose non-trivial constraints. The talk will summarize the general features of the approach, and discuss some examples. Some recent experimental results will also be discussed.

## Speakers: Dr. Ashkan Balouchi, Louisiana State University; Dr. Kurt Jacobs, University of Massachusetts Boston

Title: Coherent vs. Measurement-Based Feedback for Controlling A Single Qubit

Abstract: We compare the performance of continuous coherent feedback using a single-qubit controller to that of continuous measurement-based feedback for controlling a single qubit. Here the basic dynamical resource is the ability to couple the system to a traveling-wave field (for example, a transmission line) via a system observable. To obtain a fair comparison we acknowledge that the amplification involved in measurement-based control allows the controller to use macroscopic fields to apply feedback forces to the system, so it is natural to allow these feedback forces to be much larger than the mesoscopic coupling to the transmission line that mediates both the measurement for measurement-based control and the coupling to the mesoscopic controller for coherent control. Interestingly our numerical results indicate that under this assumption coherent feedback is able to exactly match the performance of measurement-based feedback given ideal controllers. We will also discuss various properties of, and control mechanisms for, coherent feedback networks.

Speakers: Drs. Hideo Mabuchi, Edwin Ng and Ryotatsu Yanagimoto, Edward L. Ginzton Laboratory, Title: Quantum Feedback and the Coherent Ising Machine

Stanford University; Dr. Tatsuhiro Onodera, NTT Physics & Informatics Laboratories

**Abstract:** The Coherent Ising Machine (CIM) computational architecture is being investigated as a promising hybrid opto-electronic approach for solving hard instances of nonlinear optimization problems. Large-scale prototypes have been built in industrial laboratories and are being benchmarked against both conventional heuristic algorithms and commercial quantum annealers; current academic research focuses on elucidating the fundamental role of quantum physics in the operational principles of CIM and on exploring generalizations of the CIM architecture that could more substantially leverage quantum resources such as entanglement and interference of optimization trajectories. In this talk I will overview of the key role of real-time feedback in current and future CIM architectures, discuss some quantum input-output modeling challenges for CIM-type systems operating with broadband optical signals, and describe a novel feedback-based scheme for entanglement generation in next-generation CIMs.

### Speakers: Drs. Murphy Yuezhen Niu and Vadim Smelyanskiy, Google

Title: Multi-qubit Gate in Frequency Tunable Xmon Qubits

**Abstract:** We propose a framework for realizing Multi-qubit gate using top-down design harnessing the structure of the system Hamiltonian energy levels. This framework allows us to design three-qubit and fourqubit gates that are important for quantum simulation and quantum error correction. We discuss the main challenges to be overcome in the practical realization of here proposed multi-qubit gate.

## Speakers: Drs. James Steck, Elizabeth Behrman, and Nathan Thompson, Wichita State University Title: Machine Learning for Programming Quantum Computers

**Abstract:** We apply machine learning to "program" quantum computers, both in simulation and in experimental hardware. A major difficulty in quantum computing is developing effective algorithms that can be programmed on a quantum device. Our approach is to apply machine learning to learn the quantum computer parameters that will yield the desired computation instead of choosing pre-made quantum gates to do the processing. As a proof of concept, we apply machine learning to a 16-qubit quantum gate computer developed by IBM and to a topological quantum computer by Microsoft. Preliminary results are shown of machine learning results both in software simulation and on the actual IBM quantum hardware. Microsoft

results are shown only using their simulation as hardware is still being built. A second demonstration is to then port quantum machine learning to a large SQUID array of 2000 qubits originally designed to solve binary optimization problems via quantum annealing. To demonstrate quantum machine learning on this larger scale, it is programmed via machine learning to anneal to various entangled and partially entangled states; investigating a basic building block of general quantum computing. Simulation results are presented along with a method to demonstrate in hardware on a superconducting flux qubit quantum annealing machine housed at the Quantum Artificial Intelligence Laboratory (QuAIL) at NASA's Advanced Supercomputing facility. Targeted entangled states are the relatively easy GHZ states, the EPR as well as the more difficult W and other states. Using machine learning instead of programming paves the way to greatly expanding the quantum computing capabilities of quantum computing hardware currently available.

### Speaker: Dr. Mark Balas, Texas A&M University

Title: Reduction of Decoherence in Quantum Information Systems Using Direct Adaptive Control of Infinite Dimensional Systems

Abstract: Using Quantum Mechanical systems to store and retrieve information and use it in quantum computing is a new aspect of physical science. These quantum systems are inherently infinite dimensional systems and their dynamic behavior is not well known. What must be controlled, are the quantum gates that do all the computational work but should remain reversible because the gates are expected to be unitary operators in the Hilbert space of quantum system states. These gates will suffer some decoherence of this unitarity because they are open systems and subject to interaction/entanglement with other related quantum systems. Consequently, they will not operate as the ideal systems they are expected to be and will produce significant errors. Direct adaptive control does not use detailed information about the gates, but can still be used to reduce decoherence. Our overall direction is on using our research in adaptive control of infinite dimensional systems to explore how these feedback control ideas in conjunction with quantum gates and quantum error correction can reduce decoherence in quantum information and computing. It has been shown that there are decoherence -free subspaces in the Hilbert space of quantum states This presentation will focus on our current approach using adaptive control of infinite dimensional systems to guide quantum systems into these decoherence-free subspaces.

### Getting Funded by NSF: Proposal Preparation and the Merit Review Process

Sponsor:	National Science Foundation
Time:	4:00 PM – 6:00 PM, Thursday, July 2, 2020
Location:	Denver

So, you think you have a great research idea, now how do you get funding from the National Science Foundation (NSF) to do the work? A well-scoped and written proposal is instrumental to successful submission. This session targets junior faculty and researchers who might be new to NSF and describes detailed guidelines and practical advice for proposal preparation. The presenter will go over NSF review process and Intellectual Merit and Broader Impacts criteria, as well as share most common mistakes made by the Primary Investigators when submitting a proposal. Question-and-answer session will follow the presentation.

**Dr. Irina Dolinskaya** is a Program Director at the National Science Foundation (NSF) in the Division of Civil, Mechanical & Manufacturing Innovation (CMMI). Dr. Dolinskaya services Dynamics, Control and Systems Diagnostics (DCSD) program, as well as National Robotics Initiative (NRI 2.0) and Navigating the New Arctic (NNA) NSF's 10 Big Ideas. Prior to joining NSF, Irina Dolinskaya was a faculty in the Industrial Engineering and Management Sciences department at Northwestern University. She obtained M.S. and Ph.D. degrees in Industrial and Operations Engineering from the University of Michigan, and B.S. degree in Industrial Engineering from the University of Florida.



Dr. Dolinskaya's research is in the field of transportation science and logistics with focus on adaptive modeling and solution approaches to integrate dynamic real-time information. Her current primary applications are in humanitarian logistics, optimal vessel performance, and electric vehicle routing. Irina Dolinskaya is the winner of the INFORMS Transportation Science & Logistics Society Dissertation Prize and the 2008 recipient of the Bonder Scholarship for Applied Operations Research in Military Applications.

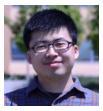
## **Student Career Advising Session**

Time:4:00 PM - 5:30 PM, Thursday, July 2, 2020Location:GoldOrganizers:Ning Tian, Ting Cai, Dr. Alireza Goshtasbi

The session will be rotating roundtable discussions. The discussion panel features a diverse group of accomplished professionals from academia, national labs and industry. They will share insights and provide advice based on their successful careers in their respective fields. Students are encouraged to come with specific questions or simply listen in. Join us for an opportunity to network and learn more about shaping your career. Light refreshments will be provided.

**Ning Tian** is a Ph.D. candidate working with Dr. Huazhen Fang at the University of Kansas, Lawrence, KS. His research interests include control theory and its application to advanced battery management. He is currently a Student Liaison of the ASME DSCD Energy Systems Technical Committee. He received the B.Eng. and M.Sc. degrees in Thermal Engineering from Northwestern Polytechnic University, Xi'an, China, in 2012 and 2015, respectively.

**Ting Cai** is a Ph.D. candidate working with Dr. Jason Siegel and Dr. Anna Stefanopoulou at the University of Michigan. His research focuses on Li-ion battery control and safety, specifically the modeling and detection of battery faults. He is a recipient of the Energy Systems Technical Committee Best Paper Award in the 2018 ASME Dynamic Systems and Control Conference. He currently serves as a student liaison of the ASME DSCD Energy Systems Technical Committee. Ting received his B.S. in Mechanical Engineering from Xi'an Jiaotong University in 2016.





**Dr. Alireza Goshtasbi** is a Research Engineer at Ford Motor Company. His research interests include modeling, estimation, and control of electrochemical energy systems with special focus on fuel cells. Alireza served as a Student Liaison for the ASME DSCD Energy Systems Technical Committee from 2017 to 2019. He completed his PhD in Mechanical Engineering at the University of Michigan in 2019, where he also obtained his MS in Applied Mathematics and MS in Mechanical Engineering in 2019 and 2016, respectively.

### **Panelists:**

**Dr. Jason B. Siegel** received his Bachelors of Electrical Engineering Summa Cum Laude from the University of Michigan in 2004 and Electrical Engineering Systems Ph.D. in 2010. After a two year post-doc, he joined the faculty as an Assistant Research Scientist in the Department of Mechanical Engineering at the University of Michigan in 2012. His research focuses on physics based modeling and control of energy storage and conversion systems including lithium-ion batteries and Proton Exchange Membrane fuel cells. Dr. Siegel was part of the team that received the 2016 IEEE Control Systems

Technology Award, "for the development of an advanced battery management system accounting for electro-thermo-mechanical phenomena." He has co/authored more than 30 journal articles with an h-index of 16, and a chapter in the control systems handbook on the application of model predictive control to fuel cells. Dr. Siegel serves as the chair of the IEEE Technical Committee on Automotive Control.

**Dr. Hamid Ossareh** obtained his BASc in Electrical and Computer Engineering from the University of Toronto in 2008, and MASc (EE), MS (Mathematics), and PhD (EE) degrees from the University of Michigan, Ann Arbor in 2010, 2012, and 2013, respectively. He was a researcher at Ford Research and Advanced Engineering from 2013 to 2016, where he investigated advanced control of automotive powertrains. Since 2016, he has been an Assistant Professor in the Department of Electrical Engineering at the University of Vermont (UVM). His research interests lie in the area of control and,

more specifically, constrained control, stochastic control, and nonlinear control with applications in automotive, aerospace, and power systems. He holds more than 35 patents and has been an author on more than 32 peer-reviewed publications, and has been a recipient of numerous awards, including the Chief Engineer's award and the Ford Technical Achievement award from Ford Motor Company, and the Faculty of the Year and Inventor of the Year awards from the IEEE GMS. He is the founding chair of the IEEE Control Systems Society Chapter of Vermont, an Associate Editor for the journal of Control Engineering Practice, and a member on the Conference Editorial Board of the IEEE CSS.

**Dr. Helen Durand** is an Assistant Professor in the Department of Chemical Engineering and Materials Science at Wayne State University. She received her B.S. in Chemical Engineering from UCLA, and upon graduation joined the Materials & Processes Engineering Department as an engineer at Aerojet Rocketdyne for two and a half years. She earned her M.S. in Chemical Engineering from UCLA in 2014 and her Ph.D. in Chemical Engineering from UCLA in 2017, and subsequently started at Wayne State. She received the Air Force Office of Scientific Research Young Investigator award, and

her work has also received support from the National Science Foundation. She received a Faculty Research







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Excellence Award within the College of Engineering at Wayne State University and is serving as the Next-Gen Manufacturing Sessions Area Chair for the 2020 Annual Meeting of the American Institute of Chemical Engineers. Her research interests are in the area of process systems engineering with a focus on process control.

Dr. Neera Jain is the Principal Investigator of the Jain Research Laboratory. She joined the School of Mechanical Engineering and Ray W. Herrick Laboratories at Purdue University as an assistant professor in January 2015. She has authored more than a dozen peer-reviewed articles on the topics of dynamic modeling and control of thermal energy systems. From May 2013 through May 2014, Dr. Jain was a visiting member of the research staff in the Mechatronics Group at Mitsubishi Electric Research Laboratories in Cambridge, MA where she designed advanced control algorithms for HVAC systems.

Before earning her doctorate in Mechanical Engineering at the University of Illinois at Urbana-Champaign in 2013, she earned her S.B. from the Massachusetts Institute of Technology in 2006 and her M.S. from the University of Illinois at Urbana-Champaign in 2009, both in Mechanical Engineering. Dr. Jain is a recipient of the Department of Energy Office of Science Graduate Fellowship (2010-2013) and the ASME Graduate Teaching Fellowship (2011-2012).

Dr. Masoud Abbaszadeh received the B.Sc. degree from the Amirkabir University of Technology, Tehran, Iran, in 2000, the M.Sc. degree from the Sharif University of Technology, Tehran, Iran, in 2002, and the Ph.D. degree from the University of Alberta, Edmonton, AB, Canada, in 2008, all in electrical and computer engineering. He is currently a Senior Research Engineer at GE Research, Niskayuna, NY, USA and an Adjunct Professor at the ECSE Department, Rensselaer Polytechnic Institute, Troy, NY, USA. From 2011 to 2013, he was a Senior Research Engineer at the United Technologies

Research Center, East Hartford, CT, USA. From 2008 to 2011, he was with Maplesoft, Waterloo, ON, Canada. He was the Principal Developer of MapleSim Control Design Toolbox and was a member of a research team working on Maplesoft-Toyota joint projects. Dr. Abbaszadeh is an Associate Editor of IEEE Transactions on Control Systems Technology and a member of IEEE Control Systems Society Conference Editorial Board. His current research interests include estimation and detection, robust and nonlinear filtering, and statistical machine learning with applications such as cyber-physical resilience and autonomous systems. He has published over 80 peer-reviewed papers and has over 40 issued/pending patents.

Mr. Rajiv Singh holds degrees in Aerospace (1998) and Mechanical (2000) Engineering and is currently a PhD candidate in Electrical Engineering at Northeastern University. His current research is focused on convex methods for nonlinear system identification. Since 2000, he has been with MathWorks where he leads the development of data based modeling software. He has been the lead developer of the System Identification Toolbox since 2010. He has also led the development effort behind launching the Predictive Maintenance Toolbox in 2018. Rajiv has authored numerous papers in the area of system identification and statistical modeling and hold 3 patents in related areas.





**Dr. Leo H. Chiang** is Technology Director at Dow Inc., leading Chemometrics and AI implementations for Manufacturing. Leo has developed and implemented several data analytics techniques to solve complex manufacturing problems, resulting in 11 Dow Manufacturing Technology Center Awards. In 2016 he received the Dow R&D Excellence in Science Award in recognition of his scientific achievement in industrial research. Leo has a B.S. degree from University of Wisconsin at Madison and M.S. and Ph.D. degrees from the University of Illinois at Urbana-Champaign, all in Chemical Engineering. Leo has contributed to over 40 externally refereed journal/proceedings

papers and has given over 100 conference presentations and university lectures. Leo has co-authored two books published by Springer Verlag. His textbook Fault Detection and Diagnosis in Industrial Systems is available in English and Chinese and has received over 2,200 citations according to Google Scholar.

Leo has a long history of supporting American Institute of Chemical Engineers (AIChE), having served as 2014-2016 Computing and Systems Technology (CAST) director, 2016 CAST 10E programming chair, 2017-2018 spring meeting program chair (MPC), and recently elected to serve the 2019-2022 Executive Board of the Program Committee (EBPC). Leo was instrumental in setting up the Big Data Analytics Topical Conference (2015 to 2017) and Industry 4.0 Topical Conference (2018-2020) at the AIChE spring meeting. He was recognized by the AIChE with the 2016 Herbert Epstein Award for his leadership on Big Data Analytics technical programming and 2016 Computing Practice Award for his world-class leadership in the development and application of methodologies in analytics for batch and continuous processes known as Big Data. Leo is also active in the broader engineering and control community, currently serves as 2019-2021 Computer Aids for Chemical Engineering (CACHE) trustee, 2021 International Symposium on Advanced Control of Chemical Processes (ADCHEM) industry co-chair, and 2022 American Control Conference (ACC) vice chair for industrial applications.

**Dr. Jennifer King (Annoni)** received her PhD in Aerospace Engineering and Mechanics from the University of Minnesota in 2016. She is currently a research engineer at the National Renewable Energy Lab (NREL) at the National Wind Technology Center. Her research spans from engineering to policy. Her expertise includes control systems, flow control, system identification, and reduced-order modeling with application to wind farm control, with specific work done on mode decomposition, optimal estimation and control, robust control, and energy policy.

**Dr. Alexander Scheinker** received a MA in mathematics in 2008 and a PhD in nonlinear adaptive control theory in 2012 at the University of California, San Diego. Alex spent the last two years of his PhD as a Graduate Researcher at Los Alamos National Laboratory (LANL) and was hired as a staff member with the RF Control Group in 2011 where he continues theoretical and applied control theory research. While traditional Extremum Seeking (ES) approaches were for the optimization of the unknown outputs of known stable/controlled systems, Alex developed a new bounded form of ES for use

as a direct feedback for the stabilization, optimization and control of unknown and unstable time-varying nonlinear systems. Alex has combined the ES feedback control method with machine learning (ML) techniques for adaptive ML of time varying systems. Alex has demonstrated this method in hardware for various particle accelerator applications: electron beam orbit control at the SLAC National Accelerator Laboratory SPEAR3 and the Brookhaven National Laboratory NSLS-II particle accelerator light sources,







beam loss minimization at the LANL LANSCE proton linear accelerator, automatic longitudinal phase space control and average pulse energy output maximization at the SLAC National Accelerator Laboratory Linac Coherent Light Source and the European X-ray free electron laser, trajectory and emittance control at CERN's plasma wakefield acceleration project AWAKE, and non-invasive longitudinal phase space diagnostics at the FACET plasma wakefield accelerator at SLAC national accelerator laboratory.

**Dr. David Schoenwald** is a Principal Member of the Technical Staff in the Electric Power Systems Research Department at Sandia National Laboratories. Dr. Schoenwald focuses on control system design to improve dynamic stability of electric power systems. He also develops performance standards for grid-scale energy storage applications. Before joining Sandia, he was with Oak Ridge National Laboratory, where he designed control systems for manufacturing applications. He was also an adjunct assistant professor in the Electrical Engineering Department, University of Tennessee, Knoxville,



where he taught a graduate course on nonlinear control systems. Dr. Schoenwald received an R&D 100 award in 2017 for development of an inter-area oscillation damping controller for the western North American power grid. He received the 2017 Outstanding Engineer Award of the Albuquerque Section of the IEEE. He served as Technical Co-Chair of the 2017 Electrical Energy Storage Applications & Technologies (EESAT) Conference. Dr. Schoenwald received his Ph.D. degree in electrical engineering from The Ohio State University.

## **STUDENT PROGRAMS**

The ACC supports students in a variety of ways. Students are offered lower registration rates and lower hotel room rates (for a limited room block). The ACC also coordinates a conference-wide Student Best Paper Award and provides Student Travel Grants.

### **STUDENT BEST PAPER AWARD**

The 2020 ACC is pleased to continue the tradition of the Student Best Paper Award. All primary, firstlisted authors of a regular contributed paper who were students at the time of submission were eligible. To be considered for the award, a blind version of the paper was nominated by the student's advisor. The nominated papers were reviewed by a special committee convened for the best study paper award competition. Based on these reviews, the following five papers were selected as finalists for the Student Best Paper Award competition.

- *"Homotopy Method for Finding the Global Solution of Post-Contingency Optimal Power Flow."* **SangWoo Park\***, Elizabeth Glista, Javad Lavaei, Somayeh Sojoudi
- *"Accuracy Prevents Robustness in Perception-based Control."* Abed AlRahman Al Makdah\*, Vaibhav Katewa, Fabio Pasqualetti
- "Coordinated Control of UAVs for Human-Centered Active Sensing of Wildfires." Esmaeil Seraj\*, Matthew Gombolay
- *"Carrots or Sticks? The Effectiveness of Subsidies and Tolls in Congestion."* **Bryce L. Ferguson\***, Philip N. Brown, Jason R. Marden
- "A fully distributed motion coordination strategy for multi-robot systems with local information." **Pian Yu\***, Dimos V. Dimarogonas

The finalist papers will be presented on Wednesday, July 1<sup>st</sup>. The winner will be selected by the Best Student Paper Awards Committee and will be presented at the ACC Awards Ceremony on Friday, July 3<sup>rd</sup>, 2020.

## **STUDENT TRAVEL GRANTS**

The 2020 American Control Conference Organizing Committee is pleased to provide student support for students registering for the virtual ACC 2020. The 2020 ACC thanks the generous sponsors who make this support possible. The option for student support was outlined on the website and sent in an email to all authors of papers accepted for the conference.

The application for student registration was made available on the 2020 ACC web site. Student eligibility conditions for support included the student status at the submission deadline (September 2019) and student registration for the conference. Support awards were in the form of complimentary student conference registration (\$75).

For more information, please contact Prof. Kira Barton (<u>bartonkl@umich.edu</u>), ACC 2020 Vice Chair for Student Affairs.

## **TUTORIAL SESSIONS**

Tutorial sessions showcase specific control topics that address real world control applications and how effective solutions are engineered by practicing engineers. This year we are pleased to offer four tutorial sessions.

### WeB21 Cooperation in Pursuit-evasion Differential Games

- Organizer: Eloy Garcia, Chair of IEEE Technical Committee on Manufacturing Automation and Robotic Control (MARC), Control Science Center of Excellence, Air Force Research Laboratory, Wright-Patterson AFB
- Co-organizers: Isaac E. Weintraub, Aerospace Systems Directorate, Air Force Research Laboratory, Wright-Patterson AFB Meir Pachter, Department of Electrical Engineering, Air Force Institute of Technology, Wright-Patterson AFB

**Time:** 13:30 – 15:30, Wednesday, July 1, 2020

### Location: Director's Row H

This session will introduce the basics of pursuit-evasion problems. Pursuit-evasion problems provide a general framework that mathematically formalizes important applications in different areas such as surveillance, navigation, analysis of biological behaviors, and conflict and combat operations. Pursuit-evasion sets up two players or autonomous agents against each other; generalizations are typical in the sense of multiple players divided into two teams – the pursuer team against the evader team.

Strategy seeking in pursuit-evasion has been approached by imposing certain assumptions on the behavior of one player or team. However, many pursuit-evasion scenarios must address the presence of an intelligent adversary which does not abide by a restricted set of actions. The desire to design strategies that optimize a certain criteria against the worst possible actions of the opponent and that also provide robustness with respect to all possible behaviors implementable by the adversary led to the emergence of differential game theory. The central problem in pursuit evasion differential games is the synthesis of saddle-point strategies that provide guaranteed performance for each team regardless of the actual strategies implemented by the adversary. This is a challenging problem as it generalizes optimal control to simultaneously minimize and maximize a performance functional while satisfying implicit robustness requirements. Many questions and open problems remain in this area where the controls community has the potential for important breakthroughs and take differential games a leap forward both in theoretical and practical terms.

Presenters:Isaac E. Weintraub, Meir Pachter, and Eloy Garcia: An introduction to pursuit-<br/>evasion differential games<br/>Shaunak D. Bopardikar: k-Capture in Multi-agent Pursuit Evasion, or the Lion and<br/>the Hyenas<br/>Meir Pachter: Multi-Player Pursuit-Evasion Differential Games<br/>Zachariah Fuchs: Singular Surfaces within a Two Evader, One Pursuer Game

## ThB21 Control of Tokamak Fusion Plasmas

Organizers: Michael L. Walker, General Atomics

**Co-organizers:** Federico Felici, EPFL Eugenio Schuster, Lehigh University Peter De Vries, ITER

**Time:** 13:30 – 15:30, Thursday, July 2, 2020

### Location: Director's Row H

Significant progress has been made in the last several decades since controlled magnetic fusion was envisioned as a potential commercial power source. The effort initially focused on achieving the necessary scientific understanding of fusion plasmas, and how best to produce energy generating fusion reactions within those plasmas. But as greater scientific understanding was gained, more attention gradually began to be paid to the technological issues associated with confining and controlling the plasmas creating these energy-producing reactions. Initial active control approaches consisted primarily of a small number of SISO PID controllers. More recently, as the number of plasma parameters desired to be controlled has increased, more sophisticated controllers have been designed, implemented, and tested on a number of experimental fusion devices worldwide.

Up to now, magnetic-fusion research devices have not been capable of hosting a plasma with the frequency of fusion reactions sufficient to produce more output power than is consumed in confining and controlling the plasma, a basic requirement for an energy-producing fusion reactor. This situation is about to change with the anticipated completion of the ITER tokamak currently under construction in southern France. ITER is projected to be able to produce approximately 10 times more energy output than it consumes when it is fully operational in approximately 20 years. Early operation of ITER will focus on learning how to produce and control plasmas that are far more energetic than in any existing magnetic-confinement device. The initial plasma control system is being designed now, including both the software architecture and the algorithms that will be used for control during ITER "first plasma" operation in approximately 2025. Energy content of plasmas produced during this phase of operation are small when compared with plasmas planned for later operation phases, which means that consequences of most possible control failures are similarly small. However, even during this early phase there are certain control failures that can lead to millions of dollars in device damage, so getting the control right is an important task.

Presenters:Michael Walker, Introduction to Tokamak Plasma Control<br/>Federico Felici, Control of magnetic fields and instabilities in tokamak fusion<br/>plasmas<br/>Eugenio Schuster, Core Kinetic and Magnetic Control in Tokamak Plasmas<br/>Peter De Vries, Exception handling by the Plasma Control Systems of Tokamaks

## ThC21 Control of Wafer Scanner: Methods and Developments

Location:	Director's Row H
Time:	16:00 - 18:00, Thursday, July 2, 2020
Co-organizers	: Hans Butler, ASML Stan van der Meulen, ASML Rahul Ahlawat, CYMER
<b>C</b>	Line Destine ACM
<b>Organizer:</b>	Marcel Heertjes, Eindhoven University of Technology
Chair:	Marcel Heertjes, Eindhoven University of Technology

This tutorial session addresses control design aspects for wafer scanners, used in the semiconductor manufacturing industry, and the challenges for control design and development to meet the ever increasing demands on accuracy and speed. The mechatronic systems that will be discussed are: (a) the light source needed to generate the ultraviolet light that is used for wafer exposure, (b) the optical and metrology systems needed for accurate measurement and imaging, and (c) the reticle and wafer stage systems needed for accurate and fast positioning. The control challenges associated with these systems mainly involve dealing with: (a) rejection of high frequency aliased disturbances, (b) large-scale or fast-updated (state) reconstruction, (c) vibration control and isolation in view of structural vibrations and disturbances, (d) inherent design tradeoffs like Bode's sensitivity integral and gain-phase relationship, (e) multivariable plant identification of (quasi-static) deformations and structural dynamics for point-of-interest control, and (f) thermal modelling, model reduction, and the control of (local) time-varying deformation.

<b>Presenters:</b>	Marcel Heertjes: General introduction wafer scanners
	Rahul Ahlawat: Light source: generation and control of light
	Hans Butler: Optics: Isolation and control of vibration
	Marcel Heertjes: Stages pt.1: control of motion
	Stan van der Meulen: Stages pt.2: control of thermal-induced deformation

## FrB21 Learning and Control: Opportunities and Challenges

Chair:	Mathukumalli Vidyasagar, Indian Institute of Technology, Hyderabad
Organizer:	Mathukumalli Vidyasagar
<b>Co-organizer:</b>	Behrouz Touri, University of California San Diego
Time:	13:30 – 15:30, Friday, July 3, 2020
Location:	Director's Row H

The recent past has witnessed an explosion of activity in Artificial Intelligence (AI) and Machine Learning (ML). AI/ML is easily the most "disruptive" technology of contemporary society. Yet much of

the claimed progress rests on simulations that are not always repeatable, or fragile against small perturbations in parameters, or both. Consequently, the AI/ML community has begun to show some interest in developing some theoretical foundations for the subject. In response to this, the organizers of this tutorial session propose a session consisting of three forty-minute talks, all of them by leading experts in control and system theory who have also made substantial contributions to learning. The objectives of the session are:

- To give the audience a sense of the opportunities for persons trained in control and system theory to contribute to the growth of AI/ML.
- To give a glimpse of the research frontier in these areas that can be successfully tackled using control / system theory, or allied approaches.

**Presenters:** Mathukumalli Vidyasagar, **Mathematical foundations of deep and reinforcement** learning

George Pappas and Manfred Morari, **Robustness analysis of neural networks via** semidefinite programming

Pramod Khargonekar, Neuro-cognitive science inspired learning control architectures and algorithms

## WORKSHOPS

The ACC will offer workshops addressing current and future topics in automatic control from experts in academia, national laboratories, and industry. The workshops at ACC 2020 will take place prior to the conference on Monday June 29 and Tuesday June 30.

Conference registrants can sign up for the workshops directly through the <u>registration site</u>. *Please note that workshops are subject to cancellation due to lack of registrants*.

## System Modeling and Control with Smooth Fuzzy Compositions

Half day (8:30am - 12:30pm)

Organizer:Ebrahim Navid Sadjadi, Universidad Carlos III de MadridLocation:Room 26

The objective of this half-day workshop is to cover the state-of-the-art in smooth fuzzy modeling and applications. properties control algorithms along their systemic and the During the last years, we have witnessed major successes of fuzzy logic systems in the academia and industries. From beating professionals at games like chess, to fast detection of diseases like cancer, classification of complex images, and generation of captions for images in the personalized media of the incomplete and noisy information. In many AI fields, fuzzy systems could outperform all existing machine learning and model-based control methods. Three major aspects of fuzzy systems make the design methodology attractive. The first is the design formulation, that they can be understood, tuned, or improved by engineer's experiences and knowledge. The second aspect is the ability to handle the system disturbances and noises soft and smoothly, which facilitate the operation of industrial processes inside their margins and operational limits. The third aspect is the ability to perform on-line decision making for the processes, considering their affordable computational complexities. Hence, the purpose of providing this workshop is to provide a detailed introduction to the fundamental developments in this field for researchers, graduate students and practitioners. The main focus of the course is on the design of smooth fuzzy models for various applications which include control, modelling, and self-learning for the dynamical systems, as well as the comprehensive study of the new achievement in study of their structural properties.

Presenters: E. N. Sadjadi, Universidad Carlos III de Madrid; M. B. Menhaj, Amirkabir University of Technology

*Prerequisite skills for participants:* Linear algebra and basic knowledge of optimization and stabilization theories. No knowledge of fuzzy logic is required.

# Secure State Estimation and Control of Cyber Physical Systems: An Unknown Input Observer Approach

Half day (1:30pm - 5:30pm)

**Organizers**: Stefen Hui, San Diego State University Stanislaw Zak, Purdue University

Location: Room 27

In this workshop, the theory, design, and applications of estimators for the states and unknown inputs of control systems will be presented in a tutorial fashion. The workshop targets both practicing engineers and graduate students. The emphasis will be on design in order to show how uncertain system control theory fits into practical applications. Observation and measurement play essential roles in achieving control objectives in many control schemes. An observer is a deterministic dynamical system that can generate an estimate of the plant's states using that plant's inputs and outputs. Observers are utilized to augment or replace sensors in a control system. The early observers required full knowledge of the inputs of the controlled plant. Observers that do not require full knowledge of the inputs have also been developed and are collectively called Unknown Input Observers (UIO). Some uncertainties, nonlinearities, and delays in the system model can be treated as unknown inputs. Methods for the estimation of the unknown inputs have been developed. One important application of UIOs of current interest is in secure state estimation of network control systems corrupted by malicious packet drops both in the communication between the sensors and the controller and that between the controller and the actuators. Another area of application of UIOs is fault detection and isolation, which is also one of the topics of this workshop. We will present an unknown input estimator architecture that reconstructs sensor and actuator faults. Novel robust discretetime (DT) observer architectures will also be presented. We will demonstrate how these observers are used in the synthesis of combined controller-observer compensators for continuous-time (CT) systems. The advantage of the compensator synthesis in the DT domain over the CT domain is that in many cases the condition for the existence of an UIO fails for a CT plant model while it holds for a discretized plant model. We will characterize a class of systems for which the existence condition for the UIO fails in the CT domain while it holds in the DT domain.

*Prerequisite skills for participants:* Basic knowledge of linear systems at the undergraduate level. No prior knowledge of observers is assumed.

### **Current Topics in Aerospace Control**

Full day (8:30am - 5:30pm)

Organizers:	Richard A. Hull, Collins Aerospace
	Naira Hovakimyan, University of Illinois
	Zhihua Qu, University of Central Florida
	Ilya V. Kolmanovsky, University of Michigan
	Heather Hussain, The Boeing Company
	Venanzio Cichella, University of Iowa
	Dimitra Panagou, University of Michigan
	Amit Sanyal, Syracuse University
	D. Brett Ridgely, Raytheon Missile Systems

### Location: Room 28

This one-day workshop will focus on current control system topics that are having an impact in the aerospace industry. The workshop will be presented by leading control systems experts from industry and academia that are involved in some of the most exciting research and development efforts in the field of Aerospace. This workshop is intended for students and professors in search of current applications in need of solutions as well as industry and government professionals interested in potential solutions from

academia and adjacent branches of the aerospace industry. This workshop is sponsored and presented by members of the IEEE CSS Technical Committee on Aerospace Controls and their collaborators. The purpose of the technical committee is to help build an international scientific community and promote awareness of outstanding achievements in the field of Aerospace Controls. In this offering, the workshop will present a sample of current topics related to the intelligent control of cooperating groups of unmanned air vehicles, spacecraft, drones and miniature projectiles. Our experts will present the theoretical background, rigorous methods and experimental results that are creating an exciting new chapter in field of Aerospace Control. Recent advances in adaptive and nonlinear robust control theory are used to form the basis for safe, resilient and certifiable systems of co-operative platforms. Future directions for research are included in discussion of the roles of artificial intelligence and augmented and virtual reality, as well as emerging applications in Aerospace Control for adversarially robust cyber resistant systems. The workshop will offer opportunities for questions and answers and provide an open forum for discussion of applications for current theoretical enabling technologies.

Please see http://aerospace-controls.ieeecss.org/home for additional information and agenda, follow the tab to TCAC Workshop on Aerospace Control – 2020 ACC.

*Presenters*: Richard A. Hull, Collins Aerospace; Naira Hovakimyan, University of Illinois; Zhihua Qu, University of Central Florida; Ilya V. Kolmanovsky, University of Michigan; Heather Hussain, The Boeing Company; Venanzio Cichella, University of Iowa; Dimitra Panagou, University of Michigan; Amit Sanyal, Syracuse University; D. Brett Ridgely, Raytheon Missile Systems; James Fisher, Raytheon Missile Systems

*Prerequisite skills for participants*: Solid foundation in classical and modern control methods plus an interest in Aerospace applications.

### Practical Methods for Real World Control Systems

Full day (8:30am – 5:30pm)

Organizers:	Daniel Abramovitch, Agilent Technologies
	Sean Andersson, Boston University
	Craig Buhr, Mathworks

Location: Room 29

A question one should ask of any advanced algorithm is, "How do we make that work in a real system?" A question one should ask of any industrial control system is, "How do we apply better algorithms to this problem?" The two questions are dual sides of the same "bridging the gap" problem that has hounded control for decades. This workshop will examine practical methods that address this problem from both sides: ways to implement advanced algorithms on real systems and ways to improve industrial control using advanced methods. We will examine which system identification methods work on which physical systems, as model-based control requires a model. We will discuss why so many industrial controllers are PIDs, present a universal framework for different PID implementations, describe how to tune the PID to the identified system model, and show how to augment these with higher order controller dynamics (a.k.a. filters). We will discuss how to make state-space models more useable in real-time systems. Speaking of which, we will explain how to program filters and PIDs in real-time control systems. We will discuss things to know about hardware implementation and tradeoffs with ADCs, DACs, and analog filters. We will talk

about the current set of real-time processing chips and the programming models that go along with them. Throughout we will offer hardware/software demonstrations of how tools like Matlab and Simulink can be used in these contexts. We won't bridge the gap in a day, but we can move the needle. A web page that holds the information from the brochure can be found <u>here</u>, and a PDF version of the workshop flyer can be found <u>here</u>.

*Prerequisites skills for participants*: Undergraduate level knowledge of feedback systems, sampled data systems, and programming. An honest interest in being able to translate control theory into physical control systems. The workshop is designed to be useful to industry practitioners wishing to apply more advanced control methods as well as academics wishing to make their algorithms more applicable to real world problems.

### **Confluence of Vision and Control**

Full day (8:30am - 5:30pm)

Organizers:	Ashwin Dani, University of Connecticut
	Nicholas Gans, University of Texas at Arlington

Location: Room 30

The use of visual sensors in feedback control has been an active topic of research for decades. As the cost of hardware lowers and computational capabilities increase, vision-based control is reaching new levels of capability and application. Recent innovations in computer vision can provide greater capabilities to control applications such as autonomous vehicles and robots. At the same time, open problems in computer vision can be solved through control theory, such as nonlinear and adaptive control. We present eleven discussions on recent work in vision-based control, the application of control to computer vision, and topics in which vision and control are uniquely intertwined. We seek to highlight recent developments and open problems that exist at the intersection of vision and control and spur further research and development in the community. Further information on the workshop can be found at https://sites.google.com/view/2020accworkshop.

*Presenters*: Randy Beard, Brigham Young University; Ashwin Dani, University of Connecticut; Warren Dixon, University of Florida; Kaveh Fathian, Massachusetts Institute of Technology; Nicholas Gans, University of Texas at Arlington; Takeshi Hatanaka, Osaka University; Guoqiang Hu, Nanyang Technological University; Romeil Sandhu, Stony Brook University; Roberto Tron, Boston University; Eddie Tunstel, University of New Mexico; Patricio Vela, Georgia Institute of Technology.

*Prerequisites skills for participants*: A basic understanding of vision-based control/estimation, nonlinear and adaptive control is beneficial. For the registrants who do not have sufficient background in these topics, basic tutorial material will be provided prior to the workshop.

## Exploring Interplay between Dynamical Systems and Function Spaces: A Unifying Presentation of Dynamics Mode Decomposition and Occupation Measures

*Full day (8:30am – 5:30pm)* 

**Organizers:** 

Rushikesh Kamalapurkar, Oklahoma State University Joel A. Rosenfeld, University of South Florida

Location: Room 31

Two different perspectives of casting problems for finite dimensional nonlinear dynamical systems into infinite dimensional linear problems have been gaining significant traction over the past decade. Specifically, these two approaches are that of Dynamic Mode Decomposition (DMD), which aims to establish "equation-free" models from snapshots of a dynamical system by exploiting properties of the Koopman operators over Hilbert function spaces, and that of Liouville operators and occupation kernels, where nonlinear optimal control problems are reformulated as infinite dimensional linear programs. The purpose of this workshop is to bring together practitioners of both fields together to enable a unifying discourse concerning nonlinear dynamical systems and their connections to infinite dimensional spaces. The presentations will include topics such as DMD, moment problems, Reproducing Kernel Hilbert spaces, and Lyapunov measures. The workshop will conclude with several talks connecting DMD with Liouville operators using newly introduced occupation kernels. This workshop aims to provide a comprehensive treatment of Dynamic Mode Decompositions and moment problems using Occupation Measures. The attendees will leave with a thorough understanding of how to cast finite dimensional nonlinear problems into infinite dimensional linear problems and will understand this approach from multiple perspectives. Attendees who are already familiar with both methods will be introduced to occupation kernels and Liouville operators which can be leveraged to blend DMD with the theory of occupation measures via a Reproducing Kernel Hilbert Space framework.

*Presenters*: Rushikesh Kamalapurkar, Oklahoma State University; Henning Lange, University of Washington; Jean B. Lasserre, LAAS-CNRS; Joel A. Rosenfeld, University of South Florida; Benjamin P. Russo, Farmingdale State College; Umesh Vaidya, Iowa State University; Ram Vasudevan, University of Michigan.

*Prerequisite skills for participants:* Experience with Banach and Hilbert space theory, including measure theory, kernel spaces, and operators as well as some experience with dynamic programming and optimization.

### **Extremum Seeking Control in Biomedical Applications**

Full day (8:30am – 5:30pm)

Organizers:	Nicholas Gans, University of Texas at Arlington
	Saurav Kumar, University of Texas at Dallas
	Robert Gregg, University of Michigan
Location:	Room 32

Biomedical systems are notoriously difficult to model. This difficulty stems from the variation in physiology between subjects. Furthermore, an individual subject will often vary over the course of a day, a week, etc. This difficulty in modeling makes it difficult to implement optimal control solutions. Extremum Seeking Control (ESC) is a method of model-free adaptive control that modifies the arguments of a cost function to guide them to a local maximum or minimum. The versatility and model-free nature of ESC makes them very well suited for biomedical control applications. We will present nine recent results in applying ESC to a wide variety of biomedical problems, including powered prosthetics and orthotics, medication delivery, rehabilitation therapy, and assistive heart pumps. We seek to highlight the strengths of ESC in biomedical applications and spur further research and development in the community who may not have considered this powerful approach. The workshop will include an introductory session for those unfamiliar with ESC, and we will provide tutorial papers on the workshop webpage, https://sites.google.com/view/esc4biomed.

*Presenters*: Victor Duenas, Syracuse University; Hosam Fathy, University of Maryland; Nicholas Gans, University of Texas at Arlington; Robert Gregg, University of Michigan; Martin Guay, Queen's University; Saurav Kumar, University of Texas at Dallas; Peiman Naseradinmousavi, San Diego State University; Miroslav Krstic, University of California San Diego; Tiago Roux Oliveira, State University of Rio de Janeiro; Yan Ting, University of Melbourne.

*Prerequisite skills for participants:* A general knowledge of adaptive and nonlinear control will be helpful. The workshop will include an introductory session for those unfamiliar with ESC, and we will provide tutorial papers on the workshop webpage.

### **Task-Oriented Autonomous Vehicular and/or Manufacturing Operations**

Full day (8:30am - 5:30pm)

Organizers:	Xiang Chen, University of Windsor
	Jay A. Farrell, University of California Riverside
	Kok-Meng Lee, Georgia Institute of Technology
	Fumin Zhang, Georgia Institute of Technology

Location: Room 33

This one-day workshop will focus on major problems facing the design framework for autonomous vehicular and manufacturing operation, involving the following topics:

- Modeling field sensing and perception such as visual, LIDAR, and soft sensor based on
- deformation and temperature field reconstruction,
- Smart actuator based on modular design and embedded field sensors,
- Visual sensor guided autonomous vehicular formation operations,
- Networked sensing and estimation for ground and underwater autonomous vehicular systems,
- Task-oriented autonomous unmanned aerial vehicular operations.

The presented talks by invited speakers are to provide updates of frontiers in these topics and to collectively present the design philosophy of task-oriented autonomous operations seen in vehicular and manufacturing systems.

*Presenters*: Kun Bai, Huazhong University of Science and Technology; Xiang Chen, University of Windsor; Jay Farrell, University of California Riverside; Jingjing Ji, Huazhong University of Science and Technology; Kok-Meng Lee, Georgia Institute of Technology; Hugh H. T. Liu, University of Toronto; Fumin Zhang, Georgia Institute of Technology.

*Prerequisite skills for participants:* Background in one or more areas of estimation, control, optimization, UAV, robotics, and field (visual, thermal, laser, etc.) sensing is preferred but not mandatory. Anyone interested in autonomous systems and operations is welcome to participate.

## **DAILY OVERVIEW**

## **Tuesday Overview**

Time	Key Events
18:15 - 19:15	Plenary Session (see <i>Plenary Sessions</i> )
	"Control Challenges for the Laser Interferometer Gravitational-Wave Observatory
	(LIGO)," Dennis Coyne, California Institute of Technology (Ballroom 1)

Please see the Workshops section for information on the many workshops on Tuesday.

## Wednesday Overview

Time	Key Events
07:45 - 08:00	2020 ACC Opening Remarks (Ballroom 1)
08:00 - 09:00	Plenary Session (see <i>Plenary Sessions</i> )
	"Lots to Be Done: Towards Data-Informed, Real-Time Coordination Algorithms
	That Scale Up," Sonia Martinez, Univ. of California at San Diego (Ballroom 1)
09:00 - 09:30	Late Breaking Poster Session (Ballroom 1)
09:00 - 09:30	Coffee Break (See online program for details)
10:00 - 12:00	Rapid Interactive Sessions (Ballroom 1)
12:00 - 13:30	Noon Special Sessions (see Special Sessions)
	An Overview of NSF Programs
	Women in Control Luncheon Meeting
	• Research with Broad Scope and High Impact in an Industrial Laboratory
	(Mitsubishi Electric Research Laboratories)
13:30 - 15:30	Mid-Day Technical Sessions
13:30 - 15:30	Mid-Day Special Sessions (see Special Sessions)
	Women in Controls in Industry
	<ul> <li>NREL's Control Research: Enabling a Clean Energy Future</li> </ul>
	• Workshop for Elementary, Middle, and High School Students, Teachers, and
	Parents
15:30 - 16:00	Late Breaking Poster Session (Ballroom 1)
16:00 - 18:00	Late Afternoon Technical Sessions
16:00 - 18:00	Late Afternoon Special Sessions (see Special Sessions)
	Women in Controls in Industry
18:15 - 19:15	Plenary Session (see Plenary Sessions)
	"Advances and Opportunities of AI and Machine Learning in Industrial Process
	Monitoring and Control," Leo Chiang, The Dow Chemical Company (Ballroom 1)

## Thursday Overview

Time	Key Events
08:00 - 09:00	Plenary Session (see <i>Plenary Sessions</i> )
	"Control of Complex Energy and Power Systems for Electrified Mobility," Andrew
	Alleyne, University of Illinois at Urbana-Champaign (Ballroom 1)
09:00 - 09:30	Late Breaking Poster Session (Ballroom 1)
09:00 - 09:30	Coffee Break (See online program for details)
09:30 - 11:45	Rapid Interactive Sessions
12:00 - 13:30	Noon Special Sessions (see Special Sessions)
	• Control Design for SuperCruise Automated Driving: Systems, Algorithms,
	Challenges and Solutions (General Motors)
	• Bridging the Theory-Practice Gap in Robotics on a Massive Scale in Georgia
	Tech's Robotarium (Mathworks)
13:30 - 15:30	Mid-Day Technical Sessions
13:30 - 15:30	Mid-Day Special Sessions (see Special Sessions)
	• Promoting Access for Underrepresented Groups in STEM Graduate Disciplines
	• Quantum Information Systems: Communication, Control and Computing
15:30 - 16:00	Coffee Break (See online program for details)
16:00 - 18:00	Late Afternoon Technical Sessions
16:00 - 18:00	Late Afternoon Evening Sessions (see Special Sessions)
	• Getting Funded by NSF: Proposal Preparation and the Merit Review Process
	Student Career Advising

## Friday Overview

Time	Key Events
08:00 - 09:00	Plenary Session (see Plenary Sessions)
	"Distributed Decision Making in Network Systems: Algorithms, Fundamental
	Limits, and Applications," Na Li, Harvard University (Ballroom 1)
09:00 - 09:30	Late Breaking Poster Session (Ballroom 1)
09:00 - 09:30	Coffee Break (See online program for details)
09:30 - 11:45	Rapid Interactive Sessions
12:00 - 13:30	ACC Awards Ceremony (Ballroom 1)
13:30 - 15:30	Mid-Day Technical Sessions
15:30 - 16:00	Coffee Break (See online program for details)
16:00 - 18:00	Late Afternoon Technical Sessions
18:30 - 19:30	Closing Reception

2020 American Control Conference

### **TECHNICAL PROGRAM**

Program at a Glance

ACC 2020 lechnical Program luesday June 30, 2020	Track T2	07:00-18:00 TuWT2	Meetings	TuWT2	18:15-19:15 TuP1	Ballroom 1	for the Laser Interferometer Gravitational-Wave Observatory (LIGO)
ACC 2020 IECHNICAI Prog	Track T1	07:00-18:00 TuWT1	Workshops	Workshops	18:12-16	Ballr	Control Challenges for the Laser Interferom

30 2020 2 Ē ò -ACC 2020 Tachi

ACC 2020 Technical Program Wednesday July 1, 2020         Track	11:00-11:45 WeB1T2 RI Interactive Session 2	Posters 'RI: Contr uT4	Meetings and WeLUT4         Meetings and WeLUT4           13:30-
ACC 2020 Technical Pr         Acc 2020 Technical Pr         Track 1       Track 2       Track 3       Track 5       Track 6       Track 7       Track 9       Track       Track 1	11:00-11:45 WeB1T1 RI Interactive Session 1	imal Control'	13:30-         13:30-<

	- o E E F E		
	16:00- 18:00 WecT3 WecT3		
Differe ntial Games	16:00- 18:00 WeC20 WeC21 Plaza Director Court 2 Row H Hybrid Best System Studen F Award Finalist s s		
	16:00- 18:00 WeC20 Plaza Court 2 Hybrid System s II		
	16:00- 18:00 WeC19 Plaza Court 3 Dptima II Control II		
BP-P02 brs	16:00- 16:00- 18:00 18:00 WeC18 WeC19 Plaza Plaza Court 4 Court 3 Constr Optima ained 1 Control Control II II	itrol	
5:30-16:00 WeLBP-PO: ACC Sponsors Meeting Space-WeP	16:00- 18:00 Director System System	and Cor	
15:30-16:00 WeLBP-P02 ACC Sponsors Meeting Space-WeP	16:00- 16:00- 18:00 18:00 WeC16 WeC17 Govern Director or's SQ s Row J 17 Delay Cooper System ative s Control II	itoring	
	16:00-       16:00-       16:00-       16:00-       16:00-       16:00-         18:00       18:00       18:00       18:00       18:00       18:00         WecT12       WecT3       WecT4       WecT6       WecT17       WecT8         Director       Plaza       Plaza       Resconding       18:00       18:00       18:00         Director       Plaza       Plaza       Resconding       NecT13       WecT18       WecT18         Director       Plaza       Plaza       Resconding       Court 4       Securt 5       NecT17       WecT18         Stew E       Court 1       Court 8       Court 5       ors SQ       Row J       Court 4         Estimat       Robust       Estimat       Sout 8       Court 4       Sout 9       Court 4         II       Control 11       Control 17       Delay       Constrined       Control 8         III       Control 17       Control 17       Sout 9       Sout 9       Control 11         SII       S II       S II       S II       S II       S II       II	18:15-19:15 WeP21 Ballroom 1 ies of AI and Machine Learning in Industrial Process Monitoring and Control	
	16:00-16:00- 18:00 18:00 WeC14 WeC15 Plaza Plaza Court 8 Court 5 Estimat Stabilit ion and y of control Nonline of PDE ar S II s II s II s II	rial Proc	
	16:00- 18:00 WeC13 Plaza Court 1 Controll II	1 i Indust	5
	16:00- 18:00 WeC12 Director s Row E Estimat ion II	18:15-19:15 WeP21 Ballroom 1 chine Learning in	19:30-21:30 WeBaT5 Meetings WeBaT5
	16:00- 18:00 WeC11 Director s Row I s II s II s II	3:15-19:15 W Ballroom 1 hine Learnin	:30-21:30 We Meetings WeBaT5
	16:00- 18:00 WeC10 WeC1 Govern Director or's SQ s Row I 11 Autono Based mous System mous System II I I I I	18 nd Macl	<del>,</del>
	16:00- 18:00 WeC09 WeC10 Goveno Govern r's SQ or's SQ 16 Adaptiv Autono Adaptiv Autono Control Robots II II II II	s of AI a	
	16:00- 18:00 Govern 10 Mechat II II	rtunities	
System s I s L BP-P01 BC	16:00-       16:00-       16:00-       16:00-       16:00-         18:00       18:00       18:00       18:00       18:00         WeC07       WeC08       WeC09       WeC10       WeC11         Plaza       Govern       Govern       Govern       Discot         Court 7       or's SQ       rs:00       18:00       18:00         Court 7       or's SQ       rs:00       Bisod       Heactor         Control       10       16       11       Agent-         for       MechatAaptiv Autono       Based       mous       System         are       II       II       II       Agent-         System       s II       s II       s II       s II	oddO br	
Anufa     System       cturing     s I       system     s I       system     s I       sistem     s I	16:00- 16:00- 16:00- 18:00 18:00 18:00 WeC05 WeC06 WeC07 Plaza Ballroo Plaza Court 6 m DE Court 7 Securit Autono Control Y & mous for Privacy Energy Healthc of System are Cyber- s: Physica Optimi Medical I zation System System and s II System and s II	Advances and Opportunit	
Control Manufa Cturing System 15:30-16 Ba Pc	16:00-         16:00-         16:00-         16:00-           18:00         18:00         18:00         18:00           WeC04         WeC05         WeC06         WeC07           Govern         Plaza         Balroo         Plaza           or's SQ         court 6         m DE         Court 7           or's SQ         court 7         m DE         Court 7           Autono         y 8         mous         for           Autono         y 8         mous         for           Motion         y 8         mous         for           Motion         y 8         mous         for           Motion         rescurit Autono         for         are           Motion         y 8         mous         for           Privacy         Energy Healthc         are           Motion         Cyber-         s; and           g         1         zation         System           g         System         and         s II	Adva	
Control	16:00- 18:00 Wec04 Govern or's SQ 14 Autono Motion Plannin g		
	16:00- 18:00 WecC03 Govern or's SQ 15 Traffic Control		
Multi- Storag Agent e Syste System ms s	16:00- 18:00 WeC02 Ballroo Ballroo Estimat ion and Diagno Stics of Batteri es		
Multi- Agent Syste ms	16:00- 18:00 WeC01 Govern or's SQ 12 Learni ng I		

am Thursday July 2, 2020	TraditioTraditioTraditioTraditioTraditioTraditioTraditioTraditioTraditionalnalnalnalnalnalnalnalnalTrackT	tems for Electrified Mobility	09:00-09:30 ThLBP-A02 ACC Sponsors Meeting Space-ThA	09:30-10:58 ThA02 Ballroom 2 RI: Control of Robotic Systems	11:00-11:45 ThB1T2	RI Interactive Session 2 Posters 'RI: Control of Robotic Systems'	0 ThLuT4 gs and uT4	13:30-       13:30-
ACC 2020 Technical Program Thursday July 2, 2020	TraditioTraditi	08:00-09:00 ThP Ballroom 1 Control of Complex Energy and Power Sys		09:30-10:58 ThA01 Ballroom 1 RI: Predictive Control	11:00-11:45 ThB1T1	RI Interactive Session 1 Posters 'RI: Predictive Control'	12:00-13:30 ThLuT4 Meetings and ThLuT4	13:30-       13:30-

		16:00- 18:00 Meeting s and ThCT3	
Fusion Plasma s		16:00- 16:00- 16:00- 18:00 18:00 18:00 ThC20 ThC21 ThCT3 Plaza Director' Meeting Court 2 s Row H s and Discret Control ThCT3 e Event of System Wafer s Canne s r: Method bevelo pments	
		16:00- 18:00 Plaza Discret Systemt S	
		16:00- 18:00 ThC19 Plaza Court 3 Optimi zation Algorit hms II hms II	
Control	BP-P02 ors e-ThP	16:00- 18:00 Plaza Stocha stic System s	
	15:30-16:00 ThLBP-P02 ACC Sponsors Meeting Space-ThP	16:00- 18:00 Director's Row J Process II II	
III	15:30-10 AC Meetir	16:00- 18:00 Govern or's SQ 17 Distrib uted I I	
÷		16:00-       16:00-       16:00-         18:00       18:00       18:00         ThC14       ThC15       ThC16         Plaza       Plaza       Govern         Court 8       Court 5       or's SQ         Estimat Observ       17       17         ion and ers for       Distrib       uted         of PDE       ar       Control         S IV       s       s	
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		16:00- 18:00 Plaza Court 1 ain System s I	L5
		16:00- 18:00 Director's Row E Estimat ion IV	19:30-21:30 ThBaT5 Meetings ThBaT5
		16:00- 18:00 Director's Row I Networ ked System s II	9:30-21:3 Mee ThB
I s		16:00- 16:00- 18:00 18:00 Goveno Govern r's SQ or's SQ 16 11 Control Autono Applica mous tions I System s II	~
H		16:00-       16:00-       16:00-       16:00-       16:00-       16:00-         18:00       18:00       18:00       18:00       18:00       18:00         7hC08       ThC09       ThC10       18:00       18:00       18:00         Govern       Govern       Govern       Director'       18:00       18:00         or's SQ       r's SQ       r's SQ       s Row Is Row E       10       10         10       16       11       Networ Estimat         Abptica       mous       System       ion IV         s II       Applica       s II       s II         s II       S II       s II       s II	
w	_BP-P01 _BC hP		
s: Estimat ion, Modeli, ng, Control	15:30-16:00 ThLBP-P01 Ballroom ABC Poster-ThP	16:00- 18:00 ThC05 Plaza Ballroo Court 6 m DE Oil and Autono Gas mous System Energy s System Modeli s: ng, Optima Estimatl Power ion, Flow and and Control Power System	
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Energy Manag ement of Connec ted and Autom ated Vehicle s			
г		16:00- 18:00 15 15 Autom otive II II	
Batteries es			
		16:00- 18:00 ThC01 Govern or's SQ 12 Learni ng III ng III	

ram Friday July 3, 2020	Traditio       Traditio <th< th=""><th>ms. Fundamental Limits. and Applications</th><th>09:00-09:30 FILBP-A02 ACC Sponsors Meeting Space-FrA</th><th>09:30-10:58 FrA02 Ballroom 2 RI: Learning</th><th></th><th>11:00-11:45 FrB1T2 RI Interactive Session 2 Posters 'RI: Learning'</th><th>0 FrLuT4 y and Meetings T4</th><th>13:30-       13:3:30-       13:3:30-       13:3:0-<!--</th--></th></th<>	ms. Fundamental Limits. and Applications	09:00-09:30 FILBP-A02 ACC Sponsors Meeting Space-FrA	09:30-10:58 FrA02 Ballroom 2 RI: Learning		11:00-11:45 FrB1T2 RI Interactive Session 2 Posters 'RI: Learning'	0 FrLuT4 y and Meetings T4	13:30-       13:3:30-       13:3:30-       13:3:0- </th
ACC 2020 Technical Program Friday July 3, 2020	TraditioTraditi	08:00-09:00 FrP- Ballroom 1 Distributed Decision Making in Network Systems: Algorith	09:00-09:30 FrLBP-A01 Ballroom ABC Poster-FrA	09:30-10:58 FrA01 Ballroom 1 RI: Control of Biological and Aerospace Systems		11:00-11:45 FrB1T1 RI Interactive Session 1 Posters 'RI: Control of Biological and Aerospace Systems'	12:00-13:30 FrLuT4 Awards Ceremony and Meetings FrLuT4	13:30-       13:30-

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	Opport	unities and	Challen ges			
					16:00- 18:00 FrC20 Plaza Court 2 Court 2 Court 2 Court 2 Court 2 Court 2 Court 1 Cormal	
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16:00- 18:00 Frc01 Govern or's SQ 12 Lterati ve ( Learni ng Contro 1	Wind 2	s and	Farms I		16:00- 18:00 FrC02 Ballroo m F Advanc ed Control of	Farms (11
					16:00- 18:00 FrC01 Govern or's SQ 12 / Iterati ve ( Learni ng	-

2020 American Control Conference

### **TECHNICAL PROGRAM**

# **Detailed Program Listing**

#### **Detailed Program Listing**

Technical Program for Tuesday June 30, 2020

TuWT1 Workshops (Tutorial Session)	Workshops
07:00-18:00	TuWT1.1
<i>W1: System Modeling and Co</i> <i>Compositions</i> , pp. 1-1.	ontrol with Smooth Fuzzy
Sadjadi, Ebrahim Navid	Carlos III
07:00-18:00	TuWT1.2
W2: Secure State Estimation Systems: An Unknown Input	and Control of Cyber Physical Observer Approach, pp. 2-2.
, Hui, Stefen	San Diego State University
Zak, Stanislaw H.	Purdue Univ
07:00-18:00	TuWT1.3
W3: Current Topics in Aeros	pace Control, pp. 3-3.
Hull, Richard A.	Collins Aerospace
Hovakimyan, Naira	University of Illinois at Urbana- Champaign
Qu, Zhihua	Univ. of Central Florida
Kolmanovsky, Ilya V.	The University of Michigan
Hussain, Heather	MIT
Cichella, Venanzio	University of Iowa
Panagou, Dimitra	University of Michigan, Ann Arbor
Sanyal, Amit	Syracuse University
Ridgely, D. Brett	Raytheon Missile Systems
07:00-18:00	TuWT1.4
4. Abramovitch, Daniel Y. Andersson, Sean B. Buhr, Craig	eal World Control Systems, pp. 4- Agilent Technologies Boston University The MathWorks
07:00-18:00	TuWT1.5
W6: Confluence of Vision and	d Control, pp. 5-5.
Dani, Ashwin	University of Connecticut
Gans, Nicholas	University of Texas at Arlington
07:00-18:00	TuWT1.6
	veen Dynamical Systems and Presentation of Dynamics Mode
Decomposition and Occupati	<i>on Measures</i> , pp. 6-6.
Kamalapurkar, Rushikesh	Oklahoma State University
Rosenfeld, Joel A.	University of South Florida
07:00-18:00	TuWT1.7
W8: Extremum Seeking Cont pp. 7-7.	trol in Biomedical Applications,
Gans, Nicholas	University of Texas at Arlington
Kumar, Saurav	University of Texas at Dallas
Gregg, Robert D.	University of Michigan
07:00-18:00	TuWT1.8
W9: Task-Oriented Autonom Manufacturing Operations, pp	
Chen, Xiang	University of Windsor
-	•

University of California Riverside

Georgia Inst. of Tech

Farrell, Jay A.

Lee, Kok-Meng

Zhang, Fumin	Georgia Institute of Technology
TuWT2 TuWT2 (Special Session)	Meetings
07:00-18:00	TuWT2.1
Meeting: Board of Governors	(from 12Noon to 5pm), pp. 9-9.
Cortes, Jorge	University of California, San Diego
07:00-18:00	TuWT2.2
Meeting: ASME DSCD ExCom 5.30pm), pp. 10-10. Yi, Jingang	<i>m Meeting (from 1.30pm to</i> Rutgers University

TuP1	Ballroom 1					
Control Challenges for the Laser Interferometer Gravitational- Wave Observatory (LIGO) (Plenary Session)						
Chair: Borrello, Michael A.	Philips Healthcare					
18:15-19:15	TuP1.1					
<i>Control Challenges for the Laser Interferometer</i> <i>Gravitational-Wave Observatory (LIGO)</i> , pp. 11-11.						

Caltech

Coyne, Dennis	
Coyne, Dennis	

#### Technical Program for Wednesday July 1, 2020

WeP11	Ballroom 1
Lots to Be Done: Towards Dat Coordination Algorithms That	Scale Up (Plenary Session)
Chair: Devasia, Santosh	Univ of Washington
08:00-09:00	WeP11.1
Lots to Be Done: Towards De	
Coordination Algorithms Tha Martinez, Sonia	University of California at San
Martinez, Sonia	Diego
WeLBP-A01 Poster-WeA (Late Breaking Pos	Ballroom ABC ster Session)
09:00-09:30	WeLBP-A01.1
Overcoming the Obstacle of Decentralized Control, pp. 13-	
Liu, Fengjiao	Yale University
Morse, A. Stephen	Yale Univ
09:00-09:30	WeLBP-A01.2
Distributed Autonomous Rob under Communication Const	
Moon, Sangwoo	University of Colorado Boulder
Frew, Eric W.	University of Colorado, Bolder
09:00-09:30	WeLBP-A01.3
<i>On-Board Capacity Fade Esti</i> <i>Learning</i> , pp. 15-15.	imation Using Supervised
Manickam, Anandha Nataraja	an The University of Texas at Dallas
Yurkovich, Stephen	University of Texas at Dallas
09:00-09:30	WeLBP-A01.4
Simulation-Guided Reachable Set Estimation for Neural Network Models of Nonlinear Dynamical Systems, pp. 16-16.	
Xiang, Weiming	Augusta University
09:00-09:30	WeLBP-A01.5
SLS-MATLAB Toolbox: Do-It Synthesis, pp. 17-17.	-Yourself System Level
Li, Jing Shuang	California Institute of Technology
Tseng, Shih-Hao	California Institute of Technology
09:00-09:30	WeLBP-A01.6
<i>Controlled Microparticle Sepa</i> <i>Mode Forces</i> , pp. 18-18.	aration Using Whispering Gallery
Chang, Yuhe	Boston University
Andersson, Sean B.	Boston University
Ekinci, Kamil L.	Boston University
Svitelskiy, Oleksiy	Gorden College
King, Alexander S.	Gorden College
Jordan, Nathan J.	Gorden College
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Choi, Jinsuk	Postech
Baek, Seungmin Lee, Hyoung-woong	POSTECH Pohang University of Science and Technology
Han, Soohee	Technology Pohang University of Science and Technology

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Gold Sponsor: General Motors, p	p. 20-20.
Eckman, Wendy	General Motors
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Gold Sponsor: Mathworks, pp. 21-	-21.
Rose, Jennifer	MathWorks
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Di Cairano, Stefano	Mitsubishi Electric Research Lab
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Rahaman, Josie	Quanser Consulting
Wang, Gemma	Quanser
09:00-09:30	WeLBP-A02.5
Silver Sponsor: SIAM, pp. 24-24.	
O'Neill, Kristin	SIAM
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Kelly, Claire	Wiley
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Darbe, Robert	Halliburton

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Chair: Grover, Martha	Georgia Institute of Technology
Co-Chair: Clayton, Garrett	Villanova University
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Zhang, Fumin	Georgia Institute of Technology
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Von Moll, Alexander	Air Force Research Laboratory
Fuchs, Zachariah E.	University of Cincinnati

Pachter, Meir	AFIT/ENG
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	ng Optimal Feedback Controls
of Unknown Systems by Tuni	
Scheinker, Alexander	Los Alamos National Lab
Scheinker, David	Massachusetts Institute of Technology
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Feng, Han	University of California, Berkeley
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Shammas, Elie	American University of Beirut
Daher, Naseem	American University of Beirut
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Bahavarnia, MirSaleh	University of Maryland, College Park
Mousavi, Hossein K.	Lehigh University
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Nagel, William	University of Utah
Leang, Kam K.	University of Utah
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Bomela, Walter	Washington University in Saint Louis
Li, Jr-Shin	Washington University in St. Louis
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Tang, Gao	UIUC
Hauser, Kris	University of Illinois at Urbana Champaign
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Benosman, Mouhacine	Mitsubishi Electric Research Laboratories
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	d Consensus Based Algorithm
for General Distributed Optim	
He, Zhiyu He, Jianping	Shanghai Jiaotong University Shanghai Jiao Tong University
Chen, Cailian	Shanghai Jiao Tong University
Guan, Xin-Ping	Shanghai Jiao Tong University
~~~~	enanginal slas rong oniversity

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Von Moll, Alexander	Air Force Research Laboratory
Garcia, Eloy	Air Force Research Laboratory
Casbeer, David W.	Air Force Research Laboratory
Demers, Zachary	Air Force Research Laboratory
Pachter, Meir	AFIT/ENG
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Tseng, Shih-Hao	California Institute of Technology
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Seiler, Peter	University of Michigan, Ann Arbor
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Fan, Chenyou	Google
Wang, Mengdi	Princeton University
Wang, Mengdi Jordan, Michael I.	Princeton University UC Berkeley
	•
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Jordan, Michael I.	UC Berkeley WeA01.17 erative Linear Exponential
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Jordan, Michael I. 10:40-10:43 On the Convergence of the Ite Quadratic Gaussian Algorithm 137.	UC Berkeley WeA01.17 Prative Linear Exponential to Stationary Points, pp. 132-
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Tau, Seth	The Pennsylvania State University
Brennan, 16802-1400	Penn State University
Reichard, Karl	Penn State University
Pentzer, Jesse	The Pennsylvania State University
Gorsich, David	U.S. Army Tank Automotive \\ Res, Dev \& Engr Center (TARDEC)

WeA01.21

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Karimi Shahri, Pouria	UNC Charlotte
izadi, Vahid	University of North Carolina Charlotte
Ghasemi, Amirhossein	University of North Carolina Charlotte
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*Observer-Based Extremum Seeking Control of Static Maps with Delays*, pp. 162-167.

Yilmaz, Cemal Tugrul	North Carolina State University
George, Jemin	U.S. Army Research Laboratory
Chakrabortty, Aranya	North Carolina State University

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Chair: Leang, Kam K.	University of Utah
Co-Chair: Devasia, Santosh	Univ of Washington
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Making Money in Energy Mar and Stochastic Programming	kets: Probabilistic Forecasting
Gao, Xian	University of Notre Dame
Dowling, Alexander	University of Notre Dame
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Valibeygi, Amir	University of California, San Diego
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Hawkins, Nicholas	University of Louisville
McIntyre, Michael	University of Louisville
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Dahlin, Nathan	University of Southern California
Jain, Rahul	University of Southern California
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Algatamin, Moath	University of Louisville

University of Louisville
University of Louisville
University of Louisville
University of Louisville
ι

McIntyre, Michael	University of Louisville
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Stochastic Resource Allocation Network Resilience, pp. 198-2	
Chang, Derek	Massachusetts Institute of Technology
Shelar, Devendra	Massachusetts Institute of Technology
Amin, Saurabh	Massachusetts Institute of Technology
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Xu, Yunjian	Chinese University of Hong Kong
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Zhang, Yuantao	Chongging University of Science
	and Technology
Hasankhani, Arezoo	Florida Atlantic University
VanZwieten, James	Florida Atlantic University
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Bardawil, Carine	American University of Beirut
Daher, Naseem	American University of Beirut
Shammas, Elie	American University of Beirut
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Korpas, Magnus	Norwegian University of Science and Technology
Botterud, Audun	MIT
O'Sullivan, Francis	MIT
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La Rue, Aleksei	Colorado School of Mines
Weddle, Peter	Colorado School of Mines
Kee, Bob	Colorado School of Mines
Vincent, Tyrone L.	Colorado School of Mines
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Kane, Michael	Northeastern University
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Investigating the Effects of I Response of Li-Ion Pouch Ce	Mechanical Damage on Electrical
Stacy, Andrew	Temple University
Gilaki, Mehdi	Temple University
Sahraei, Elham	Temple University

Soudbakhsh, Damoon	Temple University
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Schiffer, Maximilian	Technical University of Munich, TUM School of Management
Salazar, Mauro	Stanford University
Pavone, Marco	Stanford University
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R, Karthik	Indian Institute of Technology Madras
Challa, Akhil	IIT Madras
Subramanian, Shankar	Indian Institute of Technology Madras
Vivekanandan, Gunasekaran	Madras Engineering Industries Pvt. Ltd
Sivaram, Sriram	Madras Engineering Industries Pvt. Ltd
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Direen, Harry	DireenTech Inc
Direen, Randal	DireenTech Inc
Direen, James	Reel FX
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Han, Jihun	Argonne National Laboratory
Karbowski, Dominik	Argonne National Laboratory
Kim, Namdoo	NIER
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A Cylinder Deactivation Control Engines without Valve Deactiva	
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Chen, Pingen	Tennessee Technological University
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Yang, Kuo	Tennessee Technological University
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Flores Paredes, J. C.	Eindhoven University of Technology
Donkers MCE	Findboyen University of

Eindhoven University of

Donkers, M.C.F.

	l echnology
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Kidambi, Narayanan	University of Michigan
Fujii, Yuji	Ford Motor Company
Gorodetsky, Alex	University of Michigian
Wang, Kon-Well	The University of Michigan
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Bhattacharyya, Raunak	Stanford University
Senanayake, Ransalu	Stanford University
Brown, Kyle	Stanford University
Kochenderfer, Mykel	Stanford University
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Dolinskaya, Irina	National Science Foundation (NSF)
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Berntorp, Karl	Mitsubishi Electric Research Labs
Danielson, Claus	Mitsubishi Electric Research Labs
Di Cairano, Stefano	Mitsubishi Electric Research Labs
Quirynen, Rien	Mitsubishi Electric Research Laboratories (MERL)
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Bushnell, Linda	University of Washington
Fekih, Afef	University of Louisiana at Lafayette
Scherpen, Jacquelien M.A.	University of Groningen
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Tan, Xiaobo	Michigan State University
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Malikopoulos, Andreas A.	University of Delaware
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	n TC Meeting (from 12Noon to
Zheng, Minghui	University at Buffalo
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Wang, Junmin	University of Texas at Austin

WeB01	Governor's SQ 12
	i-Agent Systems (Invited Session)
Chair: Bai, He	Oklahoma State University
Co-Chair: George, Jemin	U.S. Army Research Laboratory
Organizer: Chakrabortty, Aranya	North Carolina State University
Organizer: Bai, He	Oklahoma State University
Organizer: George, Jemin	U.S. Army Research Laboratory
13:30-13:50	WeB01.1
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Mynuddin, Mohammed	Georgia Southern University
Gao, Weinan	Georgia Southern University
Jiang, Zhong-Ping	New York University
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Bedi, Amrit	US Army Research Lab
Koppel, Alec	U.S. Army Research Laboratory
Rajawat, Ketan	Indian Institute of Technology Kanpur
Sadler, Brian	ARL
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A Distributed Primal-Dual Algo Convex Optimization with Tim Constraints (I), pp. 327-332.	
Yi, Xinlei	KTH Royal Institute of Technology
Li, Xiuxian	Nanyang Technological University
Yang, Tao	Northeastern University
Xie, Lihua	Nanyang Tech. Univ
Chai, Tianyou	Northeastern University
Johansson, Karl H.	Royal Institute of Technology
14:30-14:50	WeB01.4
Approximate Equilibrium Com Linear-Quadratic Mean-Field C	
Zaman, Muhammad Aneeq uz	UIUC
Zhang, Kaiqing	University of Illinois at Urbana- Champaign (UIUC)
Miehling, Erik	University of Illinois at Urbana- Champaign
Basar, Tamer	Univ of Illinois, Urbana- Champaign
14:50-15:10	WeB01.5
Hierarchical Control of Multi-A	
Reinforcement Learning (I), p	p. 340-345.
Bai, He Goorgo, Jomin	Oklahoma State University U.S. Army Research Laboratory
George, Jemin Chakrabortty, Aranya	North Carolina State University
WeB02	Ballroom ABC
Modeling and Identification of E Session)	
Chair: Parvini, Yasha	Clemson University
Co-Chair: Moura, Scott	University of California, Berkeley

Chair: Parvini, YashaClemson UniversityCo-Chair: Moura, ScottUniversity of California, BerkeleyOrganizer: Dey, SatadruUniversity of Colorado DenverOrganizer: Moura, ScottUniversity of California, Berkeley

Organizer: Lin, Xinfan	University of California, Davis
Organizer: Kim, Youngki	University of Michigan - Dearborn
Organizer: Fang, Huazhen	University of Kansas
Organizer: Donkers, M.C.F.	Eindhoven University of Technology
Organizer: Song, Xingyong	Texas A&M University, College Station
Organizer: Siegel, Jason B.	University of Michigan
Organizer: Choe, Song-Yul (Ben)	Auburn University
Organizer: Perez, Hector E.	University of California, Berkeley
Organizer: Lotfi, Nima	Southern Illinois University Edwardsville
13:30-13:50	WeB02.1

*Optimization of Current Excitation for Identification of Battery Electrochemical Parameters Based on Analytic Sensitivity Expression (I)*, pp. 346-351.

Lai, Qingzhi	University of California, Davis
Ahn, Hyoung Jun	LG Chem
Kim, Geumbee	LG Chem
Joe, Won Tae	Battery R&D, LG Chem
Lin, Xinfan	University of California, Davis

13:50-14:10 WeB02.2 Robust Parameter Subset Selection and Optimal Experimental Design for Effective Parameterization of PEM Fuel Cell Models (I), pp. 352-358.

Goshtasbi, Alireza	University of Michigan
Chen, Jixin	University of Michigan
Waldecker, James	Ford Motor Company
Hirano, Shinichi	Ford Motor Company
Ersal, Tulga	University of Michigan

14:10-14:30WeB02.3Validation and Sensitivity Analysis of a Fractional OrderModel of a Lithium Ion Battery Via Impedance Spectra andTemporal Duty Cycles (I), pp. 359-364.

Mirzaei, Hamidreza	Clemson University	
Li, Zhan	Human Horizons Technology Co., Ltd	
Parvini, Yasha	Clemson University	
14:30-14:50	WeB02.4	
A Novel Lithium-Ion Battery Pack Modeling Framework - Series-Connected Case Study (I), pp. 365-372.		
Weaver, Trey	Stanford University	
Allam, Anirudh	Stanford University	
Onori, Simona	Stanford Univeristy	

14:50-15:10 WeB02.5 Analysis of Online Parameter Estimation for Electrochemical Li-Ion Battery Models Via Reduced Sensitivity Equations (I), pp. 373-378.

Gima, Zachary	University of California, Berkeley
Kato, Dylan	UC Berkeley
Klein, Reinhardt	Robert Bosch LLC
Moura, Scott	University of California, Berkeley
15:10-15:30	WeB02.6

*On the Structure of the Optimal Input for Maximizing Lithium-Ion Battery Thermal Parameter Identifiability*, pp. 379-385.

Doosthosseini, Mahsa

University of Maryland

Fathy, Hosam K.

University of Maryland

WeB03	Governor's SQ 15
Multivehicle Systems (Regular S	
Chair: Sipahi, Rifat	Northeastern University
Co-Chair: Al Janaideh, Mohammad	Memorial University
13:30-13:50	WeB03.1
Connected Autonomous Vehic	and Mitigation of a Network of les Using Transmissibility
Identification, pp. 386-391.	Managuial I Initian site of
Khalil, Abdelrahman	Memorial University of Newfoundland
Al Janaideh, Mohammad	Memorial University
Aljanaideh, Khaled	Jordan University of Science and Technolgoy
Kundur, Deepa	University of Toronto
13:50-14:10	WeB03.2
Cooperative Air-Ground Vehic Constrained Optimization, pp.	
Du, Bin	Purdue University
Sun, Dengfeng	Purdue University
Manyam, Satyanarayana Gupta	Air Force Research Labs
Casbeer, David W.	Air Force Research Laboratory
14:10-14:30	WeB03.3
Motion Prediction of Human-D with Connected Autonomous	Driven Vehicles in Mixed Traffic Vehicles, pp. 398-403.
Zhang, Linjun	Ford Motor Company
tseng, eric	Ford Motor Company
14:30-14:50	WeB03.4
Stability Analysis of a Large-S Vehicle Model with Multiple Se Human Reaction Delays, pp. 40	ensing, Communication, and
Wang, Duo	NORTHEASTERN UNIVERSITY
Sipahi, Rifat	Northeastern University
14:50-15:10	WeB03.5
Nonlinear Optimal Velocity Ca	
Approximation in Presence of Perturbations, pp. 410-415.	
Nick Zinat Matin, Hossein	University of Illinois at Urbana Champaign
Sowers, Richard	University Fo Illinois
15:10-15:30	WeB03.6
	r Following Dynamics (II): Rate ce of Fast Perturbation, pp. 416-
Nick Zinat Matin, Hossein	University of Illinois at Urbana Champaign
Sowers, Richard	University Fo Illinois
WeB04	Governor's SQ 14
Autonomous Vehicle Perception	n and Control (Invited Session)
Chair: Hall, Carrie	Illinois Institute of Technology

Organizer: Dadras, Sara Company

Organizer: Ghasemi, Amirhossein	University of North Carolina Charlotte
Organizer: Lotfi, Nima	Southern Illinois University Edwardsville
Organizer: Hall, Carrie	Illinois Institute of Technology
13:30-13:50	WeB04.1
Multi-Agent Control of Lane-Sv	
for Energy Efficiency (I), pp. 42	
Dollar, Robert Austin	Clemson University
Sciarretta, Antonio	IFP Energies Nouvelles
Vahidi, Ardalan	Clemson University
13:50-14:10	WeB04.2
Lane Change Control with Opti Mode in Automated Driving Ve	
Kim, Jin Sung	Hanyang University
Lee, Seung Hi	Hanyang University
Chung, Chung Choo	Hanyang University
14:10-14:30	WeB04.3
Conditions for State and Contro	
Coordination of Connected and 436-441.	Automated Vehicles (1), pp.
Mahbub, A M Ishtiaque	University of Delaware
Malikopoulos, Andreas A.	University of Delaware
14:30-14:50	WeB04.4
A Novel Vehicle Tracking Metho	
Fusion with Reinforcement Lea 447.	
Cao, Mingcong	Southeast University
Chen, Jiayi	University of Michigan
Wang, Junmin	University of Texas at Austin
14:50-15:10	WeB04.5
Vehicle Speed Prediction for Co Vehicles Using Communication 453.	
Suh, Bohoon	University of Minnesota
Shao, Yunli	University of Minnesota
Sun, Zongxuan	University of Minnesota
15:10-15:30	WeB04.6
Autonomous Vehicle Decision I on Signal Temporal Logic and I (I), pp. 454-459.	
Sahin, Yunus Emre	University of Michigan
Quirynen, Rien	Mitsubishi Electric Research Laboratories (MERL)
Di Cairano, Stefano	Mitsubishi Electric Research Labs
WeB05 Modeling and Control of Additive Session)	Plaza Court 6 e Manufacturing Systems (Invited
Chair: Barton, Kira	University of Michigan, Ann Arbor
Co-Chair: Bristow, Douglas A.	Missouri University of Science & Technology
Organizer: Barton, Kira	University of Michigan, Ann Arbor
Organizer: Bristow, Douglas A.	Missouri University of Science & Technology
Organizer: Hoelzle, David	
	Ohio State University

13:30-13:50	WeB05.1
A Learning-Based Approach t Inkjet 3D Printing (I), pp. 460	-
Invang-Udoh, Uduak	Rensselaer Polytechnic Institute
Mishra, Sandipan	Rensselaer Polytechnic Institute
13:50-14:10	
An Experimental Study on Pr	
Laser Melting (I), pp. 467-473.	-
Shkoruta, Aleksandr	Rensselaer Polytechnic Institute
Mishra, Sandipan	Rensselaer Polytechnic Institute
Rock, Stephen	Rensselaer Polytechnic Institute
14:10-14:30	WeB05.3
A Control-Oriented Model for in Fused Deposition Modeling	Bead Cross-Sectional Geometry
Aksoy, Doruk	University of Michigan
Balta, Efe C.	University of Michigan
Tilbury, Dawn M.	University of Michigan
Barton, Kira	University of Michigan, Ann Arbor
14:30-14:50	WeB05.4
<i>A Layer-To-Layer Control-Ori</i> <i>Melting (I)</i> , pp. 481-486.	ented Model for Selective Laser
Wang, Xin	Missouri University of Science and Technology
Lough, Cody	Missouri University of Science and Technology
Bristow, Douglas A.	Missouri University of Science & Technology
Landers, Robert G.	Missouri University of Science and Technology
Kinzel, Edward	University of Notre Dame
14:50-15:10	WeB05.5
A Loop-Shaping Method for F Layer-To-Layer Control for La 487-491.	
Gegel, Michelle	Missouri University of Science and Technology
Bristow, Douglas A.	Missouri University of Science 8 Technology
Landers, Robert G.	Missouri University of Science and Technology
15:10-15:30	WeB05.6
	ive Manufacturing Feedback, pp.
Limoge, Damas	Nanotronics
Nouri Gooshki, Sadegh	Nanotronics
Hough, Fabian	Nanotronics
Nirmaleswaran, Aswin	Nanotronics
Pinskiy, Vadim	Nanotronics
WeB06	Ballroom DE
Smart Grid (Regular Session) Chair: Li, Heng	Central South University
Co-Chair: Motee, Nader	Lehigh University
,	: <u> </u>
13:30-13:50	WeB06.1

d *Synergetic Value*, pp. 500-507. Qin, Junjie UC Berkeley

Poolla, Kameshwar	Univ. of California at Berkeley
Varaiya, Pravin	Univ. of California at Berkeley
13:50-14:10	WeB06.2
Delay-Aware Risk Analysis and Networks with Corrupted Measu	
Somarakis, Christoforos	Palo Alto Research Center
Motee, Nader	Lehigh University
14:10-14:30	WeB06.3
Simultaneous Allocation and Co	
<i>Resources Via Kullback-Leibler-</i> 514-520.	
CAMMARDELLA, NEIL Busic, Ana	University of Florida Inria
Meyn, Sean P.	Univ. of Florida
· · · · ·	WeB06.4
14:30-14:50	
<i>Optimal Energy Management of Distributed Actor-Critic Reinford</i> 521-526.	
Cheng, Yijun	Central South University
Peng, Jun	Central South University
Gu, Xin	Central South University
JIANG, FU	Central South University
Li, Heng	Central South University
Liu, Weirong	Central South University
Huang, Zhiwu	Central South University
	WeB06.5
14:50-15:10	
Flexibility Capacity of Thermost Cycling/lock-Out Constraints, pp	o. 527-532.
Coffman, Austin	University of Florida
CAMMARDELLA, NEIL	University of Florida
Barooah, Prabir	Univ. of Florida
Meyn, Sean P.	Univ. of Florida
15:10-15:30	WeB06.6
<i>Capacity of Flexible Loads for G</i> <i>Characterization for Long Term</i>	<i>Planning</i> , pp. 533-538.
Coffman, Austin	University of Florida
Guo, Zhong	University of Florida
Barooah, Prabir	Univ. of Florida
WeB07	Plaza Court 7
Control for Healthcare and Medica	· · · · · · · · · · · · · · · · · · ·
Chair: Rajamani, Rajesh	Univ. of Minnesota
Co-Chair: Ashrafiuon, Hashem	Villanova University
Organizer: Hahn, Jin-Oh	University of Maryland
Organizer: Zhang, Wenlong	Arizona State University
Organizer: Rajamani, Rajesh	Univ. of Minnesota
Organizer: Ashrafiuon, Hashem	Villanova University
13:30-13:50	WeB07.1
Online Model-Based Beat-By-Be pp. 539-544.	eat Heart Rate Estimation (I),
Albaba, Adnan	Uppsala University
Medvedev, Alexander V.	Uppsala University
13:50-14:10	WeB07.2
Adaptive Admittance Control of	

UC Berkeley

Porter, Jared

545-550.

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Li, Perry Y.

Univ. of Minnesota

Nivison, Scott

Khargonekar, Pramod

14:30-14:50	WeB08.4
High-Speed Large-Range D	<i>Dynamic-Mode Atomic Force</i>
Microscope Imaging: Adap Programmable Gate Array	tive Multiloop Approach Via Field
Chen, Jiarong	Rutgers University
Zou, Qingze	Rutgers, the State University of
	New Jersey
14:50-15:10	WeB08.5
A New-Designed Non-Rast Increasing AFM Imaging Sp	er Scan and Precision Control for peed, pp. 602-607.
Chen, Huang-Chih	National Taiwan University
Fu, Li-Chen	National Taiwan University
WeB09	Governor's SQ 16
Adaptive Control I (Regular S	Session)
Chair: Oliveira, Tiago Roux	State University of Rio De Janeiro
Co-Chair: Nivison, Scott	Air Force Research Laboratory
13:30-13:50	WeB09.1
	Gradient Extremum Seeking for
	Delay-Independent Convergence
<i>Rates</i> , pp. 608-613. Oliveira, Tiago Roux	State University of Rio De Janeiro
Tsubakino, Daisuke	Nagoya University
Krstic, Miroslav	University of California, San Diego
	· · ·
13:50-14:10	WeB09.2
614-619.	ation for Aerial Manipulation, pp.
Baraban, Gabriel	Johns Hopkins University
Sheckells, Matthew	Johns Hopkins University
Kim, Soowon	Johns Hopkins University
Kobilarov, Marin	Johns Hopkins University
14:10-14:30	WeB09.3
<i>Adaptive Output Servocont</i> <i>Delay</i> , pp. 620-625.	troller for MIMO System with Input
Nikiforov, Vladimir O.	ITMO University
Paramonov, Aleksei	ITMO University
Gerasimov, Dmitry	ITMO University
14:30-14:50	WeB09.4
<i>Improved Adaptive Compe</i> <i>Multisinusoidal Disturbance</i> pp. 626-632.	nsation of Unmatched es in Uncertain Nonlinear Plants,
Gerasimov, Dmitry	ITMO University
Pashenko, Artem	ITMO University
Nikiforov, Vladimir O.	ITMO University
14:50-15:10	WeB09.5
	back Adaptive Controller for
Leader-Follower Multiagen	
Jin, Xu	University of Kentucky
Haddad, Wassim M.	Georgia Inst. of Tech
15:10-15:30	WeB09.6
Improved Attention Models Network Adaptive Controlle	
Muthirayan, Deepan	University of California at Irvine
Niviaan Coatt	Air Force Desserved Laboratory

Air Force Research Laboratory

Univ. of California, Irvine

WeB10         Governor's SC           Autonomous Robots I (Regular Session)         Chair: Panagou, Dimitra         University of Michigan, Ann A           Co-Chair: Cheng, Teng-Hu         National Chiao Tung University of Michigan, Ann A           13:30-13:50         WeB           Safe and Computational Efficient Imitation Learning for           Autonomous Vehicle Driving, pp. 647-652.           Flavia, Acerbo         Siemens PLM Softw           Herman, Van der Auweraer         Siemens PLM Softw           Son, Tong         Siemens Digital Indust           Softw         Softw           13:50-14:10         WeB           ROS Based Real-Time Motion Control for Robotic Visual Ar           Exhibit Using Decawave Local Positioning System, pp. 653-658.           Gomaa, Mahmoud         Memorial Universit           De Silva, Oscar         Memorial Universit           Mann, George K. I.         Memorial Universit           Mann, George K. I.         Memorial Universit           Mann, George K. I.         Memorial Universit           Memorial Universit         Newfound           It:10-14:30         WeB           LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6           664.         University of Michi	rbor rsity 10.1 vare vare vare vare tries vare 10.2
Co-Chair: Cheng, Teng-HuNational Chiao Tung University13:30-13:50WeBSafe and Computational Efficient Imitation Learning for Autonomous Vehicle Driving, pp. 647-652.Flavia, AcerboFlavia, AcerboSiemens PLM Softw SoftwHerman, Van der AuweraerSiemens Digital Indust Softw13:50-14:10WeBROS Based Real-Time Motion Control for Robotic Visual Art Exhibit Using Decawave Local Positioning System, pp. 653- 658.Gomaa, MahmoudMemorial Universit NewfoundDe Silva, OscarMemorial Universit NewfoundMann, George K. I.Memorial Universit NewfoundHengeveld, RobertMemorial Universit Newfound14:10-14:30WeBLIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6664.Radmanesh, RezaUniversity of Micht	vare vare vare tries vare 10.2 ts
13:30-13:50       WeB         Safe and Computational Efficient Imitation Learning for         Autonomous Vehicle Driving, pp. 647-652.         Flavia, Acerbo       Siemens PLM Softw         Herman, Van der Auweraer       Siemens Digital Indust         Son, Tong       Siemens Digital Indust         13:50-14:10       WeB         ROS Based Real-Time Motion Control for Robotic Visual Ar         Exhibit Using Decawave Local Positioning System, pp. 653-658.         Gomaa, Mahmoud       Memorial Universit         De Silva, Oscar       Memorial Universit         Mann, George K. I.       Memorial Universit         Memorial Universit       Newfound         Hengeveld, Robert       Memorial Universit         14:10-14:30       WeB         LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6         664.       Radmanesh, Reza	vare vare tries vare 10.2 ts
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Autonomous Vehicle Driving, pp. 647-652.         Flavia, Acerbo       Siemens PLM Softw         Herman, Van der Auweraer       Siemens PLM Softw         Son, Tong       Siemens Digital Indust         13:50-14:10       WeB         ROS Based Real-Time Motion Control for Robotic Visual Art         Exhibit Using Decawave Local Positioning System, pp. 653-658.         Gomaa, Mahmoud       Memorial Universit         De Silva, Oscar       Memorial Universit         Mann, George K. I.       Memorial Universit         Gosine, Raymond G.       Memorial Universit         Hengeveld, Robert       Memorial Universit         14:10-14:30       WeB         LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6         664.       Radmanesh, Reza	vare tries vare 10.2 ts
Flavia, Acerbo       Siemens PLM Softw         Herman, Van der Auweraer       Siemens PLM Softw         Son, Tong       Siemens Digital Indust         Softw       Softw         13:50-14:10       WeB         ROS Based Real-Time Motion Control for Robotic Visual Arr         Exhibit Using Decawave Local Positioning System, pp. 653-658.         Gomaa, Mahmoud       Memorial Universiti         De Silva, Oscar       Memorial Universiti         Mann, George K. I.       Memorial Universiti         Gosine, Raymond G.       Memorial Universiti         14:10-14:30       WeB         LIV-LAM: LIDAR and Visual Localization and Mapping, pp. 6         664.       Radmanesh, Reza	vare tries vare 10.2 ts
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Softw         13:50-14:10       WeB3         ROS Based Real-Time Motion Control for Robotic Visual Art Exhibit Using Decawave Local Positioning System, pp. 653- 658.       Gomaa, Mahmoud         Gomaa, Mahmoud       Memorial Universit Newfound!         De Silva, Oscar       Memorial Universit Newfound!         Mann, George K. I.       Memorial Universit Newfound!         Gosine, Raymond G.       Memorial Universit Newfound!         Hengeveld, Robert       Memorial Universit Newfound!         14:10-14:30       WeB3         LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6         664.       University of Michi	vare 10.2 ts
ROS Based Real-Time Motion Control for Robotic Visual Ar         Exhibit Using Decawave Local Positioning System, pp. 653-658.         Gomaa, Mahmoud       Memorial Universiting Newfound         De Silva, Oscar       Memorial Universiting Newfound         Mann, George K. I.       Memorial Universiting Newfound         Gosine, Raymond G.       Memorial Universiting Newfound         Hengeveld, Robert       Memorial Universiting Newfound         14:10-14:30       WeBrit         LIV-LAM: LIDAR and Visual Localization and Mapping, pp. 6         664.       Radmanesh, Reza	ts
Exhibit Using Decawave Local Positioning System, pp. 653-658.         Gomaa, Mahmoud       Memorial Universition Newfound         De Silva, Oscar       Memorial Universition         Mann, George K. I.       Memorial Universition         Gosine, Raymond G.       Memorial Universition         Hengeveld, Robert       Memorial Universition         14:10-14:30       WeB         LIV-LAM: LIDAR and Visual Localization and Mapping, pp. 6         664.       Radmanesh, Reza	
Newfoundl         De Silva, Oscar       Memorial Universitive         Mann, George K. I.       Memorial Universitive         Mann, George K. I.       Memorial Universitive         Gosine, Raymond G.       Memorial Universitive         Hengeveld, Robert       Memorial Universitive         14:10-14:30       WeB         LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6         664.       Radmanesh, Reza	vof
Mann, George K. I.       Memorial Universitive         Mann, George K. I.       Memorial Universitive         Gosine, Raymond G.       Memorial Universitive         Hengeveld, Robert       Memorial Universitive         14:10-14:30       WeBrit         LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6         664.       Radmanesh, Reza	
Newfoundl         Gosine, Raymond G.       Memorial Universitive         Hengeveld, Robert       Memorial Universitive         14:10-14:30       WeB         LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6         664.       Radmanesh, Reza	
Newfound         Hengeveld, Robert       Memorial Universitive         14:10-14:30       WeB         LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6       664.         Radmanesh, Reza       University of Michiel	
Newfoundl         14:10-14:30       WeB         LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6       664.         Radmanesh, Reza       University of Michi	
LIV-LAM: LiDAR and Visual Localization and Mapping, pp. 6 664. Radmanesh, Reza University of Michi	
664. Radmanesh, Reza University of Michi	10.3
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Wang, Ziyin Indiana University-Pur University, Indianap	
Chipade, Vishnu S. University of Michigan, Ann A	
Tsechpenakis, Gavriil Indiana University-Pur University, Indianap	
Panagou, Dimitra University of Michigan, Ann A	rbor
14:30-14:50 WeB	10.4
A Nonlinear Optimal Control Method for the Ballbot Autonomous Vehicle, pp. 665-670.	
Rigatos, Gerasimos Industrial Systems Insti	tute
Abbaszadeh, Masoud GE Global Resea	arch
Pomares, Jorge University of Alicante, Departm of Systems Enginee	nont
14:50-15:10 WeB	ring
An Active Perception Approach for Mid-Water Localization Autonomous Underwater Vehicles, pp. 671-676.	ring
Chang, Dongsik University of Michi	ring 10.5
Johnson-Roberson, Matthew University of Michi	ring 10.5 of
Sun, Jing University of Michi	ring 10.5 <i>of</i> igan
15:10-15:30 WeB	inng 10.5 of gan
Cooperative Transportation of Drones without Inter-Agent Communication, pp. 677-682.	inng 10.5 of igan igan igan
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Ishii, Hideaki       Tokyo Institute of Technology         WeB12       Director's Row E         Estimation I (Regular Session)       Auburn University         Co-Chair: Wang, Jin       Auburn University         Co-Chair: Michalska, Hannah       McGill University         H.       13:30-13:50       WeB12.1         Adaptive State Estimation with Subspace-Constrained State       Correction, pp. 719-724.         Goel, Ankit       University of Michigan         Bernstein, Dennis S.       Univ. of Michigan		Tokyo Institute of Technology
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Bernstein, Dennis S. Univ. of Michigan		
	Goel, Ankit	University of Michigan
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Lee, Jangwon AUBURN UNIVERSITY	Lee, Jangwon	AUBURN UNIVERSITY
		Praxair
	s mang, on	Auburn University
r He, Qinghua Auburn University	He, Qinghua	Auburn University

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Michalska, Hannah H.	McGill Univ
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Wang, Yinsong	Texas A&M University
Shahrampour, Shahin	Texas A&M University
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Srinivasan, Neeraja	Indian Institute of Technology, Madras
Bhatt, Nirav	Indian Institute of Technology Madras
Narasimhan, Sridharakumar	IIT Madras
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Pajic, Miroslav	Duke University
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Chair: Bridgeman, Leila	Duke University
Jasmine	
Co-Chair: Matni, Nikolai	University of Pennsylvania
13:30-13:50	WeB13.1
Mixed Norm H_2/H_oo and E Convex Optimization Approa	Entropy Covariance Control: A ch, pp. 755-760.
Haddad, Wassim M.	Georgia Inst. of Tech
Chen, Yongxin	Georgia Institute of Technology
Lanchares, Manuel	Georgia Institute of Technology
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	gered Formation Control and nce to Byzantine Adversaries, pp.
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Hale, Matthew	University of Florida
Shea, John M.	University of Florida
Dixon, Warren E.	University of Florida
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Wu, Liangting	Duke University
Bridgeman, Leila Jasmine	Duke University
14:30-14:50	WeB13.4
	ne-Varying Damping: I Uniform Asymptotic Stability,
pp. 773-778. Poveda, Jorge I.	University of Colorado at Boulder
Teel, Andrew R.	Univ. of California at Santa
	Barbara
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Matni, Nikolai	University of Pennsylvania
Sarma, Anish	California Institute of Technology

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Chair: Burns, John A	Virginia Tech
Co-Chair: Guo, Bao-Zhu	North China Electric Power University
Organizer: Demetriou, Michael A.	Worcester Polytechnic Institute
Organizer: Fahroo, Fariba	AFOSR
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Nakamura-Zimmerer, Tenavi	University of California, Santa Cruz
Gong, Qi	University of California, Santa Cruz
Kang, Wei	Naval Postgraduate School
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Dower, Peter M.	University of Melbourne
McEneaney, William M.	Univ. California San Diego
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Guo, Bao-Zhu	North China Electric Power University
Meng, Tingting	Academy of Mathematics and Systems Science
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Cheung, James	Virginia Tech
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Steeves, Drew	University of California, San Diego
Camacho-Solorio, Leobardo	University of California, San Diego
Krstic, Miroslav	University of California, San Diego
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	Ilator Problem: Approximating tic-In-State Nonlinear Systems
Borggaard, Jeff	Virginia Tech
Zietsman, Lizette	Virginia Tech

WeB15	Plaza Court 5
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Chair: Surov, Maksim	Norges Teknisk-

	Naturvitenskapelige Universitet
Co-Chair: Fekih, Afef	University of Louisiana at Lafayette
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Sanyal, Amit	Syracuse University
Viswanathan, Sasi Prabhakaran	Akrobotix LLC
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Gusev, Sergei V.	St. Petersburg State University
Freidovich, Leonid	Umeå University
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Rubio Scola, Ignacio	Conicet - National University of Rosario
Garcia Carrillo, Luis Rodolfo	Texas A&M University - Corpus Christi
Hespanha, Joao P.	Univ. of California, Santa Barbara
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Reyhani, Arezoo	University of Zanjan
Mobayen, Saleh	University of Zanjan
Fekih, Afef	University of Louisiana at Lafayette
Pujol, Gisela	Univ. Politecnica De Catalunya - BarcelonaTech
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Diffeomorphic Transformation	
Tian, Dongzuo	Texas A&M University, College Station
Ke, Chong	Texas A&M University, College Station
Song, Xingyong	Texas A&M University, College Station
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Chair: Hoagg, Jesse B.	University of Kentucky
Co-Chair: Sanyal, Amit	Syracuse University
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Packard, Andrew K.	Univ. of California at Berkeley
Philbrick, Douglas	Uc Berkeley
Seiler, Peter	University of Michigan, Ann Arbor

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Lippay, Zachary	University of Kentucky
Hoagg, Jesse B.	University of Kentucky
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Maadani, Mohammad	University of Arizona
Butcher, Eric	University of Arizona
Sanyal, Amit	Syracuse University
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	peed Constraints, pp. 883-888.
Heintz, Christopher	University of Kentucky
Hoagg, Jesse B.	University of Kentucky
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Aghdam, Amir G.	Concordia University
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Chair: Nguyen, Nam	Hanoi University of Science and Technology
Co-Chair: Bitar, Eilyan	Cornell University
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Using High-Gain Observer, p	p. 897-902.
Chowdhury, Dhrubajit	Michigan State University
Khalil. Hassan K.	Michigan State Univ

Khalil, Hassan K.	Michigan State Univ
13:50-14:10	WeB17.2
<i>Fixed-Time Network Localization Measurements</i> , pp. 903-908.	n Based on Bearing
Trinh, Minh Hoang	Hanoi University of Science and Technology (HUST)
Nguyen, Truong Thanh	Hanoi University of Science and

Nguyen, Nam

Ahn, Hyo-Sung Gwangju Institute of Science and Technology (GIST) 14:10-14:30 WeB17.3 A Consensus Strategy for Decentralized Kinematic Control of Multi-Segment Soft Continuum Robots, pp. 909-916. Salimi Lafmejani, Amir Arizona State University Farivarnejad, Hamed Arizona State University Arizona State University Doroudchi, Azadeh Berman, Spring Arizona State University 14:30-14:50 WeB17.4 Decentralized Control of Constrained Linear Systems Via Assume-Guarantee Contracts, pp. 917-924. Lin, Weixuan Cornell University Bitar, Eilyan **Cornell University** 14:50-15:10 WeB17.5 Practical Frequency Synchronization in Power Systems Using Extended High-Gain Observer under Unknown Time-Varying *Power Demand*, pp. 925-930. Chowdhury, Dhrubajit Michigan State University Khalil, Hassan K. Michigan State Univ 15:10-15:30 WeB17.6 On the Effects of Collision Avoidance on Emergent Swarm Behavior, pp. 931-936. Taylor, Chris George Mason University Luzzi, Colin Department of the Navy Nowzari, Cameron George Mason University WeB18 Plaza Court 4 Constrained Control I (Regular Session) Chair: Sanfelice, Ricardo G. University of California at Santa Cruz Co-Chair: Berntorp, Karl Mitsubishi Electric Research Labs 13:30-13:50 WeB18.1 Lipschitzness of Minimal-Time Functions in Constrained Continuous-Time Systems with Applications to Reachability Analysis, pp. 937-942. MAGHENEM, Mohamed University of California Santa Cruz Adlene Sanfelice, Ricardo G. University of California at Santa Cruz 13:50-14:10 WeB18.2 Model-Free Learning for Safety-Critical Control Systems: A Reference Governor Approach, pp. 943-949. University of Michigan Liu, Kaiwen Li, Nan University of Michigan Kolmanovsky, Ilya V. The University of Michigan US Army CCDC Ground Vehicle Rizzo, Denise System Center (GVSC) Girard, Anouck University of Michigan, Ann Arbor 14:10-14:30 WeB18.3 Correct-By-Design Control Barrier Functions for Euler-Lagrange Systems with Input Constraints, pp. 950-955. Shaw Cortez, Wenceslao Royal Institute of Technology (KTH) KTH Royal Institute of Technology Dimarogonas, Dimos V. 14:30-14:50 WeB18.4

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Chakrabarty, Ankush	Mitsubishi Electric Research Laboratories (MERL)
Berntorp, Karl	Mitsubishi Electric Research Labs
Di Cairano, Stefano	Mitsubishi Electric Research Labs
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Garg, Kunal	University of Michigan-Ann Arbor
Arabi, Ehsan	University of Michigan
Panagou, Dimitra	University of Michigan, Ann Arbor
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Yu, Jing	California Institute of Technology
Ho, Dimitar	Caltech
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Chair: Dower, Peter M.	University of Melbourne
Co-Chair: Komaee, Arash	Southern Illinois University
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Li, Anjian	Simon Fraser University
Chen, Mo	Simon Fraser University
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<i>Inverse Optimal Control with S</i> <i>Function for Handling State Co</i>	
Deniz, Meryem	Missouri University of Science and Technology
Lakshnmidevinivas, Devi	Missouri University of Science and Technology
Balakrishnan, S.N.	Missouri University of Science and Technology
14:10-14:30	WeB19.3
Co-Design of Delays and Spars	se Controllers for Bandwidth-
Constrained Cyber-Physical Sy	
Negi, Nandini	North Carolina State University
Chakrabortty, Aranya	North Carolina State University
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A Two-Player Game Represent	ation for a Class of Infinite
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Basco, Vincenzo	Melbourne University
Dower, Peter M.	University of Melbourne
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Moghadam, Rohollah	Missouri University of Science and Technology
Jagannathan, Sarangapani	Missouri Univ of Science & Tech
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Optimal Control of State-Affine Dynamical Systems, pp. 1005-

1010.

Komaee, Arash	Southern Illinois University

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Chair: Sanfelice, Ricardo G.	University of California at Santa Cruz
Co-Chair: Danielson, Claus	Mitsubishi Electric Research Labs
3:30-13:50	WeB20.2
A Reference Governor for Whee	el-Slip Prevention in Railway
/ehicles with Pneumatic Brakes	s, pp. 1011-1016.
Danielson, Claus	Mitsubishi Electric Research Labs
Di Cairano, Stefano	Mitsubishi Electric Research Labs
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Bell, John	Massachusetts Institute o Technology
Asada, H. Harry	Massachusetts Inst. of Tech
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Guarro, Marcello	University of California, Santa Cruz
Sanfelice, Ricardo G.	University of California at Santa Cruz
4:30-14:50	WeB20.4
Regularity Properties of Reacha Dynamical Systems with Applic MAGHENEM, Mohamed Adlene	
Altin, Berk	University of California, Santa Cruz
Sanfelice, Ricardo G.	University of California at Santa Cruz
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Gao, Haoyue	University of California, Santa Cruz
MAGHENEM, Mohamed Adlene	University of California Santa Cruz
Sanfelice, Ricardo G.	University of California at Santa Cruz
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Murali, Vishal	Harvard University
Hyun, Nak-seung Patrick	

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Chair: Pachter, Meir AFIT/ENG			
Co-Chair: Weintraub, Isaac	Air Force Research Labs		

Organizer: Garcia, Eloy	Air Force Research Laboratory	
Organizer: Weintraub, Isaac	Air Force Research Labs	
Organizer: Pachter, Meir	AFIT/ENG	
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Weintraub, Isaac	Air Force Research Labs	
Pachter, Meir	AFIT/ENG	
Garcia, Eloy	Air Force Research Laboratory	
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Garcia, Eloy	Air Force Research Laboratory	
Weintraub, Isaac	Air Force Research Labs	
Pachter, Meir	AFIT/ENG	
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Bopardikar, Shaunak D.	Michigan State University	
14:50-15:10	WeB21.4	
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Pachter, Meir	AFIT/ENG	
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Fuchs, Zachariah E.	University of Cincinnati	

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Pan, Selina	Toyota Research Institute	
Canova, Marcello	The Ohio State University	
Shahbakhti, Mahdi	University of Alberta	
Chen, Yan	Arizona State University	
Hall, Carrie	Illinois Institute of Technology	
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Jin, Xin	National Renewable Energy Laboratory	
Bernstein, Andrey	National Renewable Energy Lab (NREL)	
King, Jennifer	National Renewable Energy Laboratory	
Bay, Christopher	National Renewable Energy Laboratory	
Shi, Ying	National Renewable Energy Laboratory	
Jun, Myungsoo	University of Florida	
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Special Session: Workshop for Elementary, Middle and High School Students and Teachers and Parents , pp. 1073-1073.

Pasik-Duncan, Bozenna	Univ. of Kansas
Bushnell, Linda	University of Washington
Duncan, Tyrone E.	Univ. of Kansas

Rossiter, John Anthony	University of Sheffield
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Dolinskaya, Irina	National Science Foundation (NSF)

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Phadnis, Mandar	University of Colorado, Boulder
Zalkind, Daniel	University of Colorado Boulder
Pao, Lucy Y.	University of Colorado Boulder
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Aldana-López, Rodrigo	Universidad De Zaragoza
Sagues, Carlos	Universidad De Zaragoza
Aragues, Rosario	Universidad De Zaragoza
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Energy Cost Based Hybrid Ver Technique, pp. 1078-1078.	hicle Control and Analysis
Shutty, John	BorgWarner Inc
Mohon, Sara	BorgWarner
Kondipati, Naga Nithin Teja	Michigan Technological University
semenov, Dmitriy	BorgWarner
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Fu, Rui	University of California, Irvine
Movilla Miangolarra, Olga	UC Irvine
Taghvaei, Amirhossein	University of Illinois at Urbana- Champaign
Chen, Yongxin	Georgia Institute of Technology
Georgiou, Tryphon T.	University of California, Irvine
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Riahi, Nayereh	Southern Illinois University
Komaee, Arash	Southern Illinois University
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Sneed, Terry-Ann	Southern Illinois University
Komaee, Arash	Southern Illinois University
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Niemann, Henrik	Technical Univ. of Denmark
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10.00-10.00	

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Eckman, Wendy	General Motors
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Rose, Jennifer	MathWorks
Ulusoy, Melda	Mathworks
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Thornton, Jay	Mitsubishi Electric Research Lab
Di Cairano, Stefano	Mitsubishi Electric Research Lab
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Rahaman, Josie	Quanser Consulting
Wang, Gemma	Quanser
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O'Neill, Kristin	SIAM
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Darbe, Robert	Halliburton
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WeC01	Governor's SQ 12
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Chair: Antunes, Duarte	Eindhoven University of Technology, the Netherlands
Co-Chair: Kamalapurkar, Rushikesh	Oklahoma State University
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Ghasemi, Mahsa	The University of Texas at Austin
Hashemi, Abolfazl	University of Texas at Austin
Vikalo, Haris	University of Texas at Austin
Topcu, Ufuk	The University of Texas at Austin
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Safety-Guaranteed, Accelerated Learning in MDPS with Loca Side Information, pp. 1099-1104.

Thangeda, Pranay

University of Illinois at Urbana-Champaign

Ornik, Melkior	University of Illinois at Urbana- Champaign
16:40-17:00	WeC01.3
<i>Mutual Learning: Part IIReinfo</i> 1110.	prcement Learning, pp. 1105-
Narendra, Kumpati S.	Yale Univ
Mukhopadhyay, Snehasis	Indiana-Purdue Univ
17:00-17:20	WeC01.4
Scheduling Dimension Reduction Neural Network Approach, pp. 11	
Koelewijn, Patrick	Eindhoven University of Technology
Tóth, Roland	Eindhoven University of Technology
17:20-17:40	WeC01.5
Online Inverse Reinforcement Le Disturbances, pp. 1118-1123.	earning for Systems with
Self, Ryan	Oklahoma State University
Abudia, Moad	Oklahoma State University
Kamalapurkar, Rushikesh	Oklahoma State University
17:40-18:00	WeC01.6
<i>Embedded Learning-Based Model Predictive Control for</i> <i>Mobile Robots Using Gaussian Process Regression</i> , pp. 1124- 1130.	
Janssen, Niels	Eindhoven University of Technology
Kools, Laurens	Eindhoven University of Technology
Antunes, Duarte	Eindhoven University of Technology, the Netherlands

WeC02	Ballroom ABC
Estimation and Diagnostics of E	Batteries (Invited Session)
Chair: Dey, Satadru	University of Colorado Denver
Co-Chair: Lotfi, Nima	Southern Illinois University Edwardsville
Organizer: Dey, Satadru	University of Colorado Denver
Organizer: Moura, Scott	University of California, Berkeley
Organizer: Lin, Xinfan	University of California, Davis
Organizer: Kim, Youngki	University of Michigan - Dearborn
Organizer: Fang, Huazhen	University of Kansas
Organizer: Donkers, M.C.F.	Eindhoven University of Technology
Organizer: Song, Xingyong	Texas A&M University, College Station
Organizer: Siegel, Jason B.	University of Michigan
Organizer: Choe, Song-Yul (Ben)	Auburn University
Organizer: Perez, Hector E.	University of California, Berkeley
Organizer: Lotfi, Nima	Southern Illinois University Edwardsville

16:00-16:20

Addressing the Observability Problem in Batteries: Algorithm Design for Electrode-Level Charge and Health Estimation (I), pp. 1131-1136.

WeC02.1

Sattarzadeh, Sara	University of Colorado Denver
Dey, Satadru	University of Colorado Denver
Colclasure, Andrew	National Renewable Energy
	Laboratory

andler National Renewable Energy Lab
WeC02.2
<i>ery Electrode Health Diagnostics Using Machine</i> (), pp. 1137-1142.
ak University of Michigan, Ann Arbor
ngki University of Michigan - Dearborn
WeC02.3
ernal Short Detection Methodology Using Cell easurements (I), pp. 1143-1148.
University of Michigan
Sravan University of Michigan
oulou, Anna G. University of Michigan
ason B. University of Michigan
WeC02.4
<i>pserver for SOC Estimation in Parallel-Connected</i> <i>n Batteries (I)</i> , pp. 1149-1154.
ong University of California, Berkeley
uis Daniel Université Libre De Bruxelles
t University of California Berkeley
, Sebastien Saft S.A
ente Total S.A
cott University of California, Berkeley
WeC02.5
<i>Cell Fault Detection for Parallel-Connected Battery</i> <i>I on the Statistical Model and Analysis (I)</i> , pp.
vou University of Michigan, Ann Arbor
gado, Fanny Adriana University of Michigan
University of Michigan
, Heath Univ. of Michigan
University of Michigan
WeC02.6
t <i>MPC-Based Algorithm for Battery Power Limit</i> pp. 1161-1166.
avier, Marcelo Ford Motor Company
de Souza, Aloisio University of Colorado at Colorado Springs
gory L. University of Colorado Colorado Springs
Michael University of Colorado, Colorado Springs
Governor's SQ 15
trol (Regular Session)
alikopoulos, Andreas University of Delaware
: Mohajerpoor, Reza CSIRO
WeC03.1
gnal Control Strategy to Avoid Spillback on Short 167-1172.
oor, Reza CSIRO
Data61, CSIRO
WeC03.2
of Dynamic Routing in the Face

*Resilience of Dynamic Routing in the Face of Recurrent and Random Sensing Faults*, pp. 1173-1178.

Xie, Qian	New York University
Xie, Qian	New York Universit

Jin, Li	New York University
16:40-17:00	WeC03.3
Variable Speed Limits Control	
Reduce Environmental Impact	
Othman, Bassel	IFP Energies Nouvelles
De Nunzio, Giovanni	IFP Energies Nouvelles
Di Domenico, Domenico	IFP New Energy
Canudas de Wit, Carlos	CNRS, GIPSA-Lab
17:00-17:20	WeC03.4
<i>Impact of Connected and Auto</i> pp. 1185-1190.	mated Vehicles in a Corridor,
Mahbub, A M Ishtiaque	University of Delaware
Malikopoulos, Andreas A.	University of Delaware
Zhao, Liuhui	University of Delaware
17:20-17:40	WeC03.5
	ized Proportional Controller for
Traffic Signal Control, pp. 1191-	1196.
Nilsson, Gustav	Georgia Institute of Technology
Como, Giacomo	Politecnico Di Torino
17:40-18:00	WeC03.6
Asymmetric Cell Transmission Connected Robust Traffic Dens Disturbances, pp. 1197-1202.	Model-Based, Ramp- sity Estimation under Bounded
Vishnoi, Suyash	The University of Texas at Austin
Nugroho, Sebastian Adi	The University of Texas at San Antonio
Taha, Ahmad	The University of Texas at San Antonio
Claudel, Christian G.	UT Austin
Banerjee, Taposh	University of Texas at San Antonio
W-004	Governor's SQ 14
WeC04 Autonomous Vehicle Motion Pla	
Chair: Borhan, Hoseinali	Cummins Inc
Co-Chair: Di Cairano. Stefano	Mitsubishi Electric Research Labs
Organizer: Borhan, Hoseinali	Cummins Inc
Organizer: Dadras, Sara	Company
Organizer: Lotfi, Nima	Southern Illinois University Edwardsville
Organizer: Hall, Carrie	Illinois Institute of Technology
16:00-16:20	WeC04.1
Integrated Obstacle Detection Planning and Predictive Contro	
pp. 1203-1208.	
Quirynen, Rien	Mitsubishi Electric Research Laboratories (MERL)
Berntorp, Karl	Mitsubishi Electric Research Labs
KAMBAM, KARTHIK	Mitsubishi Electric Research Laboratories
Di Cairano, Stefano	Mitsubishi Electric Research Labs
16:20-16:40	WeC04.2
Cooperation-Aware Lane Chan Based on Model Predictive Con	

Based on Model Predictive Control with Recurrent Neural Network (I), pp. 1209-1216.

Bae, Sangjae University of California, Berkeley Saxena, Dhruv Mauria The Robotics Institute, Carnegie Mellon University

Nakhaei, Alireza Honda Research Institute Choi, Chiho Honda Research Institute USA Fujimura, Kikuo Honda Research Institute Moura, Scott University of California, Berkeley 16:40-17:00 WeC04.3 Autonomous Overtaking Assistant for Country Road Scenarios (I), pp. 1217-1222. Sulejmani, Fisnik Johannes Kepler University Linz Reiterer, Florian Nemak Linz GmbH Assadi, Amin Johannes Kepler University Linz Del Re, Luigi Johannes Kepler University Linz 17:00-17:20 WeC04.4 Receding Horizon Motion Planning for Automated Lane Change and Merge Using Monte Carlo Tree Search and Level-K Game Theory, pp. 1223-1228. Karimi, Shahab **Clemson University** Vahidi, Ardalan **Clemson University** 17:20-17:40 WeC04.5 Robust Preview-Based Tractor-Trailer Lateral Control for Lane Keeping (I), pp. 1229-1234. Flores, Carlos UC Berkeley Lu, Xiao-Yun Univ. of California at Berkeley 17:40-18:00 WeC04.6 Motion-Planning for Unicycles Using the Invariant-Set Motion-Planner (I), pp. 1235-1240. Danielson, Claus Mitsubishi Electric Research Labs Di Cairano, Stefano Mitsubishi Electric Research Labs Berntorp, Karl Mitsubishi Electric Research Labs Weiss, Avishai Mitsubishi Electric Research Labs WeC05 Plaza Court 6 Security & Privacy of Cyber-Physical Systems (Invited Session) Chair: Ruths, Justin University of Texas at Dallas Co-Chair: Hale, Matthew University of Florida Organizer: Ruths, Justin University of Texas at Dallas 16:00-16:20 WeC05.1

Robust Software Rejuvenation for CPS with State Estimation and Disturbances, pp. 1241-1246. Romagnoli, Raffaele Carnegie Mellon University Krogh, Bruce H. Carnegie Mellon Univ Sinopoli, Bruno Washington University in St Louis 16:20-16:40 WeC05.2 Distributionally Robust Tuning of Anomaly Detectors in Cyber-Physical Systems with Stealthy Attacks (I), pp. 1247-1252 Renganathan, Venkatraman University of Texas at Dallas Hashemi, Navid University of Texas at Dallas Ruths, Justin University of Texas at Dallas Summers, Tyler H. University of Texas at Dallas 16:40-17:00

16:40-17:00WeC05.3The Dirichlet Mechanism for Differential Privacy on the Unit<br/>Simplex (I), pp. 1253-1258.

Gohari, Parham	The University of Texas at Austin
Wu, Bo	University of Texas at Austin
Hale, Matthew	University of Florida

Topcu, Ufuk	The University of Texas at Austin
17:00-17:20	WeC05.4
Parameter Privacy versus Cor	ntrol Performance: Fisher
Information Regularized Cont	trol (I), pp. 1259-1265.
Ziemann, Ingvar	KTH Royal Institute of Technology
Sandberg, Henrik	KTH Royal Institute of Technology
17:20-17:40	WeC05.5
Secure Networked Control for Software Rejuvenation (I), pp	
Griffioen, Paul	Carnegie Mellon University
Romagnoli, Raffaele	Carnegie Mellon University
Krogh, Bruce H.	Carnegie Mellon Univ
Sinopoli, Bruno	Washington University in St Louis
17:40-18:00	WeC05.6
<i>Gain Design Via LMIs to Minir</i> Attacks (I), pp. 1274-1279.	nize the Impact of Stealthy
Hashemi, Navid	University of Texas at Dallas
Ruths, Justin	University of Texas at Dallas
WeC06	Ballroom DE
Autonomous Energy Systems: (Invited Session)	
Chair: Chakraborty, Indrasis	Lawrence Livermore National Laboratory
Co-Chair: Paoletti, Simone	Universita' Di Siena
Organizer: Bay, Christopher	National Renewable Energy Laboratory
Organizer: Annoni, Jennifer	National Renewable Energy Laboratory
Organizer: Bernstein, Andrey	National Renewable Energy Lab (NREL)
Organizer: Kroposki, Ben	National Renewable Energy Laboratory
16:00-16:20	WeC06.1
On the Greedy Placement of I Distribution Grids (I), pp. 1280	
Bucciarelli, Martina	University of Siena
Paoletti, Simone	Universita' Di Siena
Dall'Anese, Emiliano	University of Colorado Boulder
Vicino, Antonio	
violito, / altorno	Univ. Di Siena
16:20-16:40	
·	WeC06.2 on of Projected Dynamical
16:20-16:40 On the Robust Implementatio	WeC06.2 on of Projected Dynamical
16:20-16:40 On the Robust Implementatic Systems with Anti-Windup Co	WeC06.2 on of Projected Dynamical ontrollers (I), pp. 1286-1291.
16:20-16:40 On the Robust Implementatic Systems with Anti-Windup Co Hauswirth, Adrian	WeC06.2 on of Projected Dynamical ontrollers (I), pp. 1286-1291. ETH Zurich Swiss Federal Institute of
16:20-16:40 On the Robust Implementatic Systems with Anti-Windup Co Hauswirth, Adrian Dörfler, Florian	WeC06.2 on of Projected Dynamical ontrollers (I), pp. 1286-1291. ETH Zurich Swiss Federal Institute of Technology (ETH) Zurich Univ. of California at Santa
16:20-16:40 On the Robust Implementation Systems with Anti-Windup Co Hauswirth, Adrian Dörfler, Florian Teel, Andrew R. 16:40-17:00	WeC06.2 on of Projected Dynamical ontrollers (I), pp. 1286-1291. ETH Zurich Swiss Federal Institute of Technology (ETH) Zurich Univ. of California at Santa Barbara WeC06.3 -Time Economic Dispatch and
16:20-16:40 On the Robust Implementation Systems with Anti-Windup Co Hauswirth, Adrian Dörfler, Florian Teel, Andrew R. 16:40-17:00 Dynamics-Aware Continuous-	WeC06.2 on of Projected Dynamical ontrollers (I), pp. 1286-1291. ETH Zurich Swiss Federal Institute of Technology (ETH) Zurich Univ. of California at Santa Barbara WeC06.3 -Time Economic Dispatch and
16:20-16:40 On the Robust Implementation Systems with Anti-Windup Co Hauswirth, Adrian Dörfler, Florian Teel, Andrew R. 16:40-17:00 Dynamics-Aware Continuous- Optimal Automatic Generation	WeC06.2 on of Projected Dynamical ontrollers (I), pp. 1286-1291. ETH Zurich Swiss Federal Institute of Technology (ETH) Zurich Univ. of California at Santa Barbara WeC06.3 -Time Economic Dispatch and n Control (I), pp. 1292-1298.
16:20-16:40 On the Robust Implementation Systems with Anti-Windup Con Hauswirth, Adrian Dörfler, Florian Teel, Andrew R. 16:40-17:00 Dynamics-Aware Continuous- Optimal Automatic Generation Chakraborty, Pratyush	WeC06.2 on of Projected Dynamical ontrollers (I), pp. 1286-1291. ETH Zurich Swiss Federal Institute of Technology (ETH) Zurich Univ. of California at Santa Barbara WeC06.3 -Time Economic Dispatch and n Control (I), pp. 1292-1298. University of Utah
16:20-16:40 On the Robust Implementatic Systems with Anti-Windup Co Hauswirth, Adrian Dörfler, Florian Teel, Andrew R. 16:40-17:00 Dynamics-Aware Continuous- Optimal Automatic Generation Chakraborty, Pratyush Dhople, Sairaj	WeC06.2 on of Projected Dynamical ontrollers (I), pp. 1286-1291. ETH Zurich Swiss Federal Institute of Technology (ETH) Zurich Univ. of California at Santa Barbara WeC06.3 -Time Economic Dispatch and n Control (I), pp. 1292-1298. University of Utah University of Minnesota

Transient Safety Filter Design for Grid-Forming Inverters (I),

pp. 1299-1304.	
Kundu, Soumya	Pacific Northwest National
	Laboratory
Kalsi, Karan	Pacific Northwest National Lab
17:20-17:40	WeC06.5
Stochastic Virtual Battery Mode	ling of Uncertain Electrical
Loads Using Variational Autoen	<i>coder (I)</i> , pp. 1305-1310.
Chakraborty, Indrasis	Lawrence Livermore National Laboratory
Nandanoori, Sai Pushpak	Pacific Northwest National Laboratory
Kundu, Soumya	Pacific Northwest National Laboratory
	Laboratory
Kalsi, Karan	Pacific Northwest National Lab
Kalsi, Karan 17:40-18:00	,
17:40-18:00 Quantification of Load Flexibility	Pacific Northwest National Lab WeC06.6 / in Residential Buildings
17:40-18:00 Quantification of Load Flexibility Using Home Energy Managemen	Pacific Northwest National Lab WeC06.6 <i>in Residential Buildings</i> <i>nt Systems (I)</i> , pp. 1311-1316.
17:40-18:00 Quantification of Load Flexibility	Pacific Northwest National Lab WeC06.6 / in Residential Buildings
17:40-18:00 Quantification of Load Flexibility Using Home Energy Managemen	Pacific Northwest National Lab WeC06.6 <i>in Residential Buildings</i> <i>nt Systems (I)</i> , pp. 1311-1316. National Renewable Energy
17:40-18:00 Quantification of Load Flexibility Using Home Energy Managemen Munankarmi, Prateek	Pacific Northwest National Lab WeC06.6 / in Residential Buildings nt Systems (I), pp. 1311-1316. National Renewable Energy Laboratory National Renewable Energy

WeC07	Plaza Court 7
<b>Control for Healthcare and Medical</b>	Systems II (Invited Session)
Chair: Hahn, Jin-Oh	University of Maryland
Co-Chair: Simaan, Marwan A.	University of Central Florida
Organizer: Hahn, Jin-Oh	University of Maryland
Organizer: Zhang, Wenlong	Arizona State University
Organizer: Rajamani, Rajesh	Univ. of Minnesota
Organizer: Ashrafiuon, Hashem	Villanova University

16:00-16:20 WeC07.1 Advantage of New Ventilation Method for Cardiopulmonary Resuscitation Qualitatively Captured by Simple Respiratory Mechanics Models (I), pp. 1317-1322.

Pigot, Henry	Lund University
Babiera Sancho, Carlos	Universitat Politècnica De València
Paskevicius, Audrius	Department of Cardiothoracic Surgery, Lund University and Skåne
Steen, Stig	Department of Cardiothoracic Surgery, Lund University and Skåne
Soltesz, Kristian	Lund University
16:20-16:40	WeC07.2

Impulsive Feedback Modeling of Levodopa Pharmacokinetics Subject to Intermittently Interrupted Gastric Emptying (I), pp. 1323-1328.

Runvik, Håkan	Uppsala University
Medvedev, Alexander V.	Uppsala University
Kjellsson, Maria	Dep of Pharmaceutical Biosciences, Uppsala Universitet
16:40-17:00	WeC07.3

Subspace Identification of a Glucose-Insulin Model Using

#### Maal Tracer Protocol Measurements (I) pp. 1320 13

Meal Tracer Protocol Measure	<i>ments (I)</i> , pp. 1329-1334.
Al-Matouq, Ali	Prince Sultan University
Alshahrani, Mohammed	King Fahd University of Petroleum and Minerals (KFUPM)
Novara, Carlo	Politecnico Di Torino
17:00-17:20	WeC07.4
<i>Virtual Patient Generation Usi through a Compressed Latent</i> 1340.	ng Physiological Models Parameterization (I), pp. 1335-
Tivay, Ali	University of Maryland
Kramer, George	University of Texas Medical Branch
Hahn, Jin-Oh	University of Maryland
17:20-17:40	WeC07.5
<i>Evaluating a Hardware-In-The</i> <i>Testing Ventricular-Assist Dev</i> <i>Algorithms (I)</i> , pp. 1341-1346.	
Rapp, Ethan	The University of Texas at Austin
Pawar, Suraj Rajendra	The University of Texas at Austin
Gohean, Jeffrey	Windmill Cardiovascular Systems
Larson, Erik	Windmill Cardiovascular Systems
Longoria, Raul	University of Texas at Austin
WeC08	Governor's SQ 10
Mechatronics II (Invited Session)	1
Chair: Rajamani, Rajesh	Univ. of Minnesota
Co-Chair: Zheng, Minghui	University at Buffalo
Organizer: Oldham, Kenn	University of Michigan, Ann Arbor
Organizer: Chen, Xu	University of Washington
16:00-16:20	WeC08.1
Electromagnetic Position Estir Control and Nonlinear Observ	
Wang, Heng	University of Minnesota
Rajamani, Rajesh	Univ. of Minnesota
16:20-16:40	WeC08.2
An Optimization-Based Iterati Method for UAV's Trajectory 1	
Adlakha, Revant	University at Buffalo
Zheng, Minghui	University at Buffalo
16:40-17:00	WeC08.3
Modeling, Identification, and I Device Using a Peristaltic Pun	
Smyth, Jason	University of Michigan
Smith, Kaylee	University of Michigan
Nagrath, Sunitha	University of Michigan
Oldham, Kenn	University of Michigan, Ann Arbor
17:00-17:20	WeC08.4
	sis Method for Quadrotors Using
<i>Convolutional Neural Network</i> 1367-1372.	and Transfer Learning (I), pp.
Liu, Wansong	University at Buffalo
CHEN, ZHU	University at Buffalo
Zheng, Minghui	University at Buffalo
17:20-17:40	WeC08.5

Oriented Pedestrian Social Interaction Modeling and Inference (I), pp. 1373-1380.

Dong, Junyi	Cornell University
Zhu, Pingping	Cornell University
Ferrari, Silvia	Cornell University
17:40-18:00	WeC08.6
Time-Delayed Tuning of Vibra	
Collocated Suppression (I), pp	. 1381-1386.
Olgac, Nejat	Univ. of Connecticut
Jenkins, Ryan	University of Connecticut
WeC09	Govenor's SQ 16
Adaptive Control II (Regular Ses	sion)
Chair: Johnson, Jeffrey Kane	Maeve Automation
Co-Chair: Schuster, Eugenio	Lehigh University
16:00-16:20	WeC09.1
Adaptive Control of Discrete-7 Unstable Zero Dynamics, pp. 1	
Islam, Syed Aseem UI	University of Michigan
Nguyen, Tam Willy	University of Michigan
Kolmanovsky, Ilya V.	The University of Michigan
Bernstein, Dennis S.	Univ. of Michigan
16:20-16:40	WeC09.2
Active Noise Control for Harm Disturbances Using RLS-Based 1393-1398.	
Mohseni, Nima	University of Michigan, Ann Arbor
Nguyen, Tam Willy	University of Michigan
Islam, Syed Aseem UI	University of Michigan
Kolmanovsky, Ilya V.	The University of Michigan
Bernstein, Dennis S.	Univ. of Michigan
16:40-17:00	WeC09.3
Adaptive Safety with Control I	Barrier Functions, pp. 1399-1405.
Taylor, Andrew	California Institute of Technology
Ames, Aaron D.	California Institute of Technology
17:00-17:20	WeC09.4
<i>Recursive Least Squares with</i> 1410.	Matrix Forgetting, pp. 1406-
Bruce, Adam	University of Michigan
Goel, Ankit	University of Michigan
Bernstein, Dennis S.	Univ. of Michigan
17:20-17:40	WeC09.5
<i>Nonlinear Adaptive Burn Cont.</i> <i>Allocation of Over-Actuated To</i> 1411-1416.	
Graber, Vincent	Lehigh University
Schuster, Eugenio	Lehigh University
17:40-18:00	WeC09.6
The Colliding Reciprocal Dance	-
<i>Strategy with Application to A</i> <i>Systems</i> , pp. 1417-1422.	utomotive Active Safety
Johnson, Jeffrey Kane	Mapless AI, Inc

WeC10	Governor's SQ 11
Autonomous Robots II (Regular Session)	
Chair: Khalil, Hassan K.	Michigan State Univ
Co-Chair: Lee, Kooktae	New Mexico Tech

16:00-16:20	WeC10.1
A Fully Distributed Motion Co Robot Systems with Local In	formation Strategy for Multi-
Yu, Pian	School of Electrical Engineering
та, т ан	and Computer Science, KTH Royal
Dimarogonas, Dimos V.	KTH Royal Institute of Technology
16:20-16:40	WeC10.2
Robust Tracking of an Unkno UAV: A High-Gain Observer	wwn Trajectory with a Multi-Rotor Approach, pp. 1429-1434.
Boss, Connor J.	Michigan State University
Srivastava, Vaibhav	Michigan State University
Khalil, Hassan K.	Michigan State Univ
16:40-17:00	WeC10.3
Design of Robust Path-Follov	ving Control System for Self-
Driving Vehicles Using Exten 1435-1440.	
Al-Nadawi, Yasir	Michigan State University
Al-Qassab, Hothaifa	Michigan State University
Kent, Daniel	Michigan State University
Pang, Su	Michigan State University
Srivastava, Vaibhav	Michigan State University
Radha, Hayder	Michigan State University
17:00-17:20	WeC10.4
Feedback Linearizing Control Parametrization, pp. 1441-144	<i>llers on SO(3) Using a Global</i> 6.
Akhtar, Adeel	University of Waterloo
Saleem, Sajid	Georgia Institute of Technology
Waslander, Steven L.	University of Waterloo
17:20-17:40	WeC10.5
Receding-Horizon Ergodic Ex Optimal Transport Theory, pr	
Kabir, Rabiul Hasan	New Mexico Institute of Mining and Technology
Lee, Kooktae	New Mexico Tech
17:40-18:00	WeC10.6
Testing-And-Evaluation Platf Manipulation with Drones, pp	orm for Haptics-Based Aerial
KIM, DONGBIN	University of Nevada, Las Vegas
Oh, Paul	University of Nevada Las Vegas
WeC11	Director's Row I
Agent-Based Systems II (Regu	lar Session)
Chair: He, Jianping	Shanghai Jiao Tong University
Co-Chair: Marden, Jason R.	University of California, Santa Barbara
16:00-16:20	WeC11.1
Attack Detection of Nonlinea pp. 1459-1464.	r Distributed Control Systems,
Zhang, Xu	Penn State University
Lu, Yang	Pennsylvania State University
Zhu, Minghui	Pennsylvania State University
16:20-16:40	
	WeC11.2

Differentially Private Interval Observer Design with Bounded Input Perturbation, pp. 1465-1470.

Degue, Kwassi Holali Ecole Polytechnique De Montreal

	and GERAD
Le Ny, Jerome	Polytechnique Montreal
16:40-17:00	WeC11.3
<i>Unpredictable Trajectory Desig</i> 1476.	<i>n for Mobile Agents</i> , pp. 1471-
Li, Jialun	Shanghai Jiao Tong University
He, Jianping	Shanghai Jiao Tong University
Li, Yushan	Shanghai Jiao Tong University
Guan, Xin-Ping	Shanghai Jiao Tong University
17:00-17:20	WeC11.4
Distributed Submodular Maxim pp. 1477-1482.	ization with Parallel Execution,
Sun, Haoyuan	California Institute of Technology
Grimsman, David	UC Santa Barbara
Marden, Jason R.	University of California, Santa Barbara
17:20-17:40	WeC11.5
Resilient Distributed Hypothesi Network Topology, pp. 1483-148	
Wu, Bo	University of Texas at Austin
Carr, Steven Paull	The University of Texas at Austin
Bharadwaj, Sudarshanan	University of Texas, Austin
Xu, Zhe	University of Texas, Austin
Topcu, Ufuk	The University of Texas at Austin
17:40-18:00	WeC11.6
An Algorithm for Multi-Objectiv pp. 1489-1494.	e Multi-Agent Optimization,
Blondin, Maude J	University of Florida
Hale, Matthew	University of Florida
WeC12	Director's Row E
Estimation II (Regular Session)	
Chair: Jorques Moreno, Carlos	Scania CV AB
Co-Chair: Daher, Naseem	American University of Beirut
16:00-16:20	WeC12.1
Analysis of Resilience for a Sta Linear Systems, pp. 1495-1500.	te Estimator for Time-Discrete
Kircher, Alexandre	Laboratoire Ampère, Ecole Centrale De Lyon
Bako, Laurent	Ecole Centrale De Lyon
Blanco, Eric	Ecole Centrale De Lyon
Benallouch, Mohamed	ECAM Lyon (École Catholique D'arts Et Métiers)
Korniienko, Anton	Ecole Centrale De Lyon, Laboratoire Ampère
16:20-16:40	WeC12.2
Toward Tractable Global Soluti	ons to Bavesian Point
Estimation Problems Via Sparse Relaxations, pp. 1501-1506. Rodrigues, Diogo	e Sum-Of-Squares

Devesion Mathed for Eval Mass	Estimation of Chart Dilat
16:40-17:00	WeC12.3
Hjalmarsson, Håkan	KTH Royal Inst. of Tech
Abdalmoaty, Mohamed	KIH

Bayesian Method for Fuel Mass Estimation of Short Pilot Injections Based on Its Misfire Probability, pp. 1507-1513. Scania CV AB

Jorques Moreno, Carlos

Tunestâl, Per       Lund University, Faculty of Engineering         17:00-17:20       WeC12.4         Pole and Residue Estimation from Impulse Response Data:       New Error Bounding Techniques, pp. 1514-1519.         Maruf, Abdullah Al       Washington State University Roy, Sandip       Washington State University Roy, Sandip         17:20-17:40       WeC12.5         Accurate Real-Time Estimation of the Inertia Tensor of Package Delivery Quadrotors, pp. 1520-1525.         Dhaybi, Mohamad       American University of Beirut         17:40-18:00       WeC12.6         Fitting a Kalman Smoother to Data, pp. 1526-1531.         Barratt, Shane       Stanford University         Boyd, Stephen       Stanford University         Co-Chair: Islam, Shafiqul       Xavier University of Beirut         Co-Chair: Islam, Shafiqul       Xavier University of Beirut         Robust Data-Driven State-Feedback Design, pp. 1532-1538.         Berberich, Julian       University of Stuttgart         Koch, Anne       University of Stuttgart         Koch, Anne       University of Stuttgart         Algöwer, Frank       University of Michigan, Ann Arbor         Optimal Selection of Basis Functions for Robust Tracking         Control of Linear Systems Using Filtered Basis Functions, pp. 1539-1544.         Ramani, Keval       University of Michigan, Ann Arb	Stenlåås, Ola	Scania CV AB
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Robust Adaptive Finite-Time Tracking Control for Unmanned	Farhood, Mazen	Virginia Tech
Islam, Shafiqul Xavier University of Louisiana	· ·	•

Dias, Jorge University of Coimbra

Xiros, Nikolas

University of New Orleans

WeC14 Estimation and Control of PDE	Plaza Court 8
Estimation and Control of PDE Chair: Demetriou, Michael A.	Worcester Polytechnic Institute
Co-Chair: Heinke, Simon	Hamburg University of Technology
Organizer: Demetriou, Michae A.	
Organizer: Fahroo, Fariba	AFOSR
16:00-16:20	WeC14.1
	for Systems Interconnected
Heinke, Simon	Hamburg University of Technology
Schug, Ann-Kathrin	Hamburg University of Technology
Werner, Herbert	Hamburg University of Technology
16:20-16:40	WeC14.2
	1-D Linear Hyperbolic PDE with Ising Boundary Sensing (I), pp.
Anfinsen, Henrik	NTNU
Holta, Haavard	NTNU
Aamo, Ole Morten	NTNU
16:40-17:00	WeC14.3
Functional Estimation of Pert Dimensional Systems Using / 1582-1587.	urbed Positive Real Infinite Adaptive Compensators (I), pp.
Demetriou, Michael A.	Worcester Polytechnic Institute
17:00-17:20	WeC14.4
Boundary Control of Coupled Dimensional Vibration Suppro Construction Vessel (I), pp. 1	<i>ession of a Deep-Sea</i> 588-1593.
Wang, Ji	University of California, San Diego
Krstic, Miroslav	University of California, San Diego
17:20-17:40	WeC14.5
<i>Prescribed-Time Stabilization</i> <i>Equation (I)</i> , pp. 1594-1599.	of the Linearized Schrödinger
Steeves, Drew	University of California, San Diego
Krstic, Miroslav	University of California, San Diego
Vazquez, Rafael	
	Offiv. De Sevilla
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17:40-18:00 Backstepping Control for a C Parabolic PDE Systems, pp. 16	WeC14.6 lass of Coupled Hyperbolic-
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17:40-18:00 Backstepping Control for a C Parabolic PDE Systems, pp. 16	WeC14.6 Iass of Coupled Hyperbolic- 600-1605. University Grenoble Alpes
17:40-18:00 Backstepping Control for a C Parabolic PDE Systems, pp. 16 GHOUSEIN, Mohammad Witrant, Emmanuel	WeC14.6 <i>lass of Coupled Hyperbolic-</i> 600-1605. University Grenoble Alpes Cnrs - Gipsa Lab
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17:40-18:00 Backstepping Control for a Co Parabolic PDE Systems, pp. 16 GHOUSEIN, Mohammad Witrant, Emmanuel WeC15 Stability of Nonlinear Systems	WeC14.6 <i>lass of Coupled Hyperbolic-</i> 600-1605. University Grenoble Alpes Cnrs - Gipsa Lab Plaza Court 5 Il (Regular Session) Queen's University
17:40-18:00 Backstepping Control for a Contr	WeC14.6 lass of Coupled Hyperbolic- 500-1605. University Grenoble Alpes Cnrs - Gipsa Lab Plaza Court 5 Il (Regular Session) Queen's University Harvard University
17:40-18:00 Backstepping Control for a Contr	WeC14.6 lass of Coupled Hyperbolic- 500-1605. University Grenoble Alpes Cnrs - Gipsa Lab Plaza Court 5 Il (Regular Session) Queen's University Harvard University WeC15.1 Erator Approach for Potential-
17:40-18:00 Backstepping Control for a C Parabolic PDE Systems, pp. 16 GHOUSEIN, Mohammad Witrant, Emmanuel WeC15 Stability of Nonlinear Systems Chair: Hudon, Nicolas Co-Chair: Li, Na 16:00-16:20	500-1605. University Grenoble Alpes Cnrs - Gipsa Lab Plaza Court 5 Il (Regular Session) Queen's University Harvard University WeC15.1 Erator Approach for Potential-
17:40-18:00 Backstepping Control for a Contr	WeC14.6 lass of Coupled Hyperbolic- 600-1605. University Grenoble Alpes Cnrs - Gipsa Lab Plaza Court 5 Il (Regular Session) Queen's University Harvard University WeC15.1 erator Approach for Potential- ar Systems, pp. 1606-1611.

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Non-Strong Convexity, pp. 1612-1618.	

Non-Strong Convexity, pp. 1612	2-1618.
Chen, Xin	Harvard University
Li, Na	Harvard University
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Continuous-Time Dynamic Rea	
Stabilization Via Control Contro	
Wang, Ruigang	The University of Sydney
Manchester, Ian R.	University of Sydney
17:00-17:20	WeC15.4
A System Level Approach to D Systems, pp. 1625-1630.	iscrete-Time Nonlinear
Ho, Dimitar	Caltech
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Jain, Ayush Kumar	Université Polytechnique Des Hauts-De-France
Fiter, Christophe	University of Lille / CRIStAL (UMR CNRS 9189)
BERDJAG, Denis	Université Polytechnique Hauts- De-France
POLET, Philippe	Université Polytechnique Hauts De France
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17:40-18:00 New Stability Conditions for Ti Systems, pp. 1637-1644.	
New Stability Conditions for Ti	
New Stability Conditions for Ti Systems, pp. 1637-1644.	me Delay Control of Nonlinear Caterpillar Inc
New Stability Conditions for Ti Systems, pp. 1637-1644. Reddy, Suresh B.	me Delay Control of Nonlinear Caterpillar Inc Governor's SQ 17
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Park Wolek, Artur University of Maryland Paley, Derek A. University of Maryland 16:40-17:00 WeC16.3 On Cooperative Control of Linear Multiagent Systems Over Networks with Limited Bandwidth, pp. 1659-1664. Koru, Ahmet Taha Pennsylvania State University

Jonnson, Eric	Pennsylvania State University
Yucelen, Tansel	University of South Florida
Sarsilmaz, Selahattin Burak	University of South Florida
17:00-17:20	WeC16.4

*A Two-Team Linear Quadratic Differential Game of Defending a Target*, pp. 1665-1670.

Garcia, Eloy Air Force	Research Laboratory
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Cashaar David W	Air Force Research Laboratory
Casbeer, David W. Pachter, Meir	Air Force Research Laboratory AFIT/ENG
Curtis, J. Willard	Air Force Research Laboratory
Doucette, Emily	AITTOICE Research Laboratory
17:20-17:40	WeC16.5
<i>Cooperative Avoidance Cont Information and Collision Se Robots</i> , pp. 1671-1677.	
Zhang, Wenxue	Harbin Institute of Technology
Stipanovic, Dusan M.	Univ of Illinois, Urbana- Champaign
Zhou, Di	Harbin Institute of Technology
17:40-18:00	WeC16.6
Robust Suboptimal Output S Heterogeneous Agents, pp. 1	<i>Synchronization of Nonlinear</i> 1678-1684.
Babazadeh, Reza	Concordia University
Roudneshin, Masoud	Concordia University
Selmic, Rastko	Concordia University
Aghdam, Amir G.	Concordia University
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Delay Systems (Regular Sessi	on)
Chair: Lin, Zongli	University of Virginia
Co-Chair: Lin, Wei	Case Western Reserve University
16:00-16:20	WeC17.1
Sampled-Data Estimator for	r Nonlinear Systems with
Arbitrarily Fast Rate of Conv	vergence, pp. 1685-1689.
Mazenc, Frederic	Inria Saclay
Malisoff, Michael	Louisiana State University
Niculescu, Silviu-Iulian	CNRS-Supelec
16:20-16:40	WeC17.2
Multiplicity-Induced-Domina Equations: Towards a Syste Rightmost Root Assignment	
Ma, Dan	Northeastern University
Boussaada, Islam	Universite Paris Saclay, CNRS- CentraleSupelec-Universite Paris S
Bonnet, Catherine	Inria Saclay-Ile-De-France
Niculescu, Silviu-Iulian	CNRS-Supelec
Chen, Jie	Department of Electrical
	Engineering University of California Ri
16:40-17:00	WeC17.3
Sequential Predictors for De Discrete Time Systems, pp. <sup>2</sup>	elay Compensation for Perturbed 1696-1700.
Mazenc, Frederic	Inria Saclay
Malisoff, Michael	Louisiana State University
17:00-17:20	WeC17.4
<i>Delay Independent Output I Discrete-Time Linear Syster</i> 1701-1706.	Feedback Stabilization of ms with Bounded Input Delay, pp.
Wei, Yusheng	University of Virginia
Lin, Zongli	University of Virginia
17:20-17:40	WeC17.5

Robust Control of Time-Delay Uncertain Systems by Delay-Free Output Feedback, pp. 1707-1712.

Zhang, Xu	Beihang University
Lin, Wei	Case Western Reserve University
17:40-18:00	WeC17.6
Predictor-Based Stabilization of Multiple Differential-Wheeled Robots under Measurement Delays: Controller Gain Design for Fast Consensus, pp. 1713-1718.	

Fan, Haonan	Northeastern University
Sipahi, Rifat	Northeastern University
Oguchi, Toshiki	Tokyo Metro. Univ

W-049	Plaza Court 4	
WeC18 Constrained Control II (Regular		
Chair: Ghaffari, Azad	Wayne State University	
Co-Chair: Zeng, Shen	Washington University in St. Louis	
16:00-16:20		
Operational Safety Control for		
Using Modular Barrier Functio		
Ghaffari, Azad	Wayne State University	
16:20-16:40	WeC18.2	
A Model Predictive Control Strategy for Finite-Time Reference Synchronization in Multi-Agent Systems with Double-Integrator Dynamics, pp. 1725-1730.		
Franze', Giuseppe	Universita' Della Calabria	
Fedele, Giuseppe	University of Calabria	
16:40-17:00	WeC18.3	
Constrained Environments, pp	<i>theses for Nonlinear Systems in</i> . 1731-1736.	
Vu, Minh	Washington University in St. Louis	
Zeng, Shen	Washington University in St. Louis	
17:00-17:20	WeC18.4	
<i>Barrier Functions in Cascaded Control</i> , pp. 1737-1742.	Controller: Safe Quadrotor	
Khan, Mouhyemen	Georgia Institute of Technology	
Chatterjee, Abhijit	Georgia Institute of Technology	
Zafar, Munzir	Georgia Institute of Technology	
17:20-17:40	WeC18.5	
A Feedback-Planning Scheme Functions, pp. 1743-1748.	for Synthesizing Control	
Tasdighi Kalat, Shadi	Worcester Polytechnic Institute	
Ghorbani Faal, Siamak	Worcester Polytechnic Institute	
17:40-18:00	WeC18.6	
Safety-Critical Adaptive Contr Model Systems, pp. 1749-1754.	ol with Nonlinear Reference	
Arabi, Ehsan	University of Michigan	
Garg, Kunal	University of Michigan-Ann Arbor	
Panagou, Dimitra	University of Michigan, Ann Arbor	
WeC19	Plaza Court 3	
Optimal Control II (Regular Sess		
Chair: Taheri, Ehsan	Auburn University	

Co-Chair: Dower, Peter M.University of Melbourne16:00-16:20WeC19.1Adaptive Dynamic Programming for Optimal Synchronization<br/>of Kuramoto Oscillator, pp. 1755-1760.

Donge, Vrushabh Veermata Jijabai Technical

	Institute, Mumbai
Kumar, Shalini	Veermata Jijabai Technological
	Institute
Kharade, Sonam	VJTI, Mumba
Wagh, Sushama	Veermata Jijabai Technologica Institute, Mumbai, India
Singh, Navdeep	Veermata Jijabai Technologica Institute (VJTI)
16:20-16:40	WeC19.2
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Makkapati, Venkata Ramana	Georgia Institute of Technology
Maity, Dipankar	Georgia Institute of Technology
Dor, Mehregan	Georgia Tech
Tsiotras, Panagiotis	Georgia Institute of Technology
16:40-17:00	WeC19.3
Risk Aware SUAS Path Plannin	g in an Unstructured Wildfire
<i>Environment</i> , pp. 1767-1772.	
Aggarwal, Rachit	The Ohio State University
Soderlund, Alexander	The Ohio State University
Kumar, Mrinal	Ohio State University
Grymin, David	Air Force Research Laboratory
17:00-17:20	WeC19.4
Optimal Control of Wave Energ Trig Regularization Method, pp	
Mall, Kshitij	Auburn University
Taheri, Ehsan	Auburn University
17:20-17:40	WeC19.5
Verification of Stationary Actic Control, pp. 1779-1784.	on Trajectories Via Optimal
Dower, Peter M.	University of Melbourne
McEneaney, William M.	Univ. California San Diego
17:40-18:00	WeC19.6
Optimal Sample-Error/Ripple T Systems with Harmonic Distur	
Mohseni, Nima	University of Michigan, Ann Arbor
Bernstein, Dennis S.	Univ. of Michigan
WeC20	Plaza Court 2
Hybrid Systems II (Regular Sessi	ion)
Chair: Altin, Berk	University of California, Santa Cruz
Co-Chair: Goyal, Manish	University of North Carolina at Chapel Hill
16:00-16:20	WeC20.1
Model Predictive Control for H Sufficient Conditions for Asym Flows or Jumps, pp. 1791-1796.	ybrid Dynamical Systems: ptotic Stability with Persistent
	University of California, Santa
Altin, Berk	(. <b>r</b> 117
Altin, Berk Sanfelice, Ricardo G.	University of California at Santa
	Cruz University of California at Santa Cruz WeC20.2

Thermodynamics, and Hybrid Consensus Protocols for Network Systems, pp. 1797-1802. Haddad, Wassim M. Georgia Inst. of Tech

	Georgia inst. or rech
Chahine, Makram	Georgia Institute of Technology

16:40-17:00	WeC20.3
Spectral Uncertainty Propagat	
<i>Hybrid Systems with Applicatio</i> 1803-1808.	ons to a Bouncing Ball, pp.
Wang, Weixin	George Washington University
Lee, Taeyoung	George Washington University
17:00-17:20	WeC20.4
Stability Analysis of Impulsive	
Delays and State-Dependent 1	
Ren, Wei	KTH Royal Institute of Technology
Yu, Tao	University of Science and Technology of China
Xiong, Junlin	University of Science and Technology of China
17:20-17:40	WeC20.5
The Nearest Polytope Problem Controlling Hybrid Systems, pr	: Algorithms and Application to
Wu, Albert	Massachusetts Institute of
Sadraddini, Sadra	Technology Massachusetts Institute of
	Technology MIT
Tedrake, Russ	
17:40-18:00	WeC20.6
Generating Longest Counterex Mixed Integer Linear Program	<i>xample: On the Cross-Roads of ming and SMT</i> , pp. 1823-1829.
Goyal, Manish	University of North Carolina at Chapel Hill
Denmark Devid	
Bergman, David	•
Bergman, David Duggirala, Parasara Sridhar	University of Connecticut University of North Carolina at Chaoel Hill
Duggirala, Parasara Sridhar WeC21	University of North Carolina at Chaoel Hill Director's Row H
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session)
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A.	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post-
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fla Park, SangWoo	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fla Park, SangWoo Glista, Elizabeth	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fla Park, SangWoo Glista, Elizabeth Lavaei, Javad	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fla Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley UC Berkeley
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fl. Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh 16:20-16:40	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley UC Berkeley WeC21.2
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fla Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley UC Berkeley WeC21.2
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fl. Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh 16:20-16:40 Accuracy Prevents Robustness	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley UC Berkeley UC Berkeley UC Berkeley UC Berkeley UC Berkeley UC Berkeley
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fla Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh 16:20-16:40 Accuracy Prevents Robustness (I), pp. 1838-1844.	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley UC Berkeley WeC21.2
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fl Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh 16:20-16:40 Accuracy Prevents Robustness (I), pp. 1838-1844. Al Makdah, Abed AlRahman	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fla Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh 16:20-16:40 Accuracy Prevents Robustness (I), pp. 1838-1844. Al Makdah, Abed AlRahman Katewa, Vaibhav	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (1), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fl. Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh 16:20-16:40 Accuracy Prevents Robustness (I), pp. 1838-1844. Al Makdah, Abed AlRahman Katewa, Vaibhav Pasqualetti, Fabio 16:40-17:00 Coordinated Control of UAVs for	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fla Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh 16:20-16:40 Accuracy Prevents Robustness (I), pp. 1838-1844. Al Makdah, Abed AlRahman Katewa, Vaibhav Pasqualetti, Fabio 16:40-17:00 Coordinated Control of UAVs for Sensing of Wildfires, pp. 1845-1	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley Secontrol
Duggirala, Parasara Sridhar WeC21 Best Student Paper Award Final Chair: Barton, Kira Co-Chair: Borrello, Michael A. 16:00-16:20 Homotopy Method for Finding Contingency Optimal Power Fl. Park, SangWoo Glista, Elizabeth Lavaei, Javad Sojoudi, Somayeh 16:20-16:40 Accuracy Prevents Robustness (I), pp. 1838-1844. Al Makdah, Abed AlRahman Katewa, Vaibhav Pasqualetti, Fabio 16:40-17:00 Coordinated Control of UAVs for	University of North Carolina at Chaoel Hill Director's Row H ists (Regular Session) University of Michigan, Ann Arbor Philips Healthcare WeC21.1 the Global Solution of Post- ow (I), pp. 1830-1837. UC Berkeley University of California, Berkeley UC Berkeley

*Carrots or Sticks? the Effectiveness of Subsidies and Tolls in Congestion Games*, pp. 1853-1858.

Ferguson, Bryce L.	University of California, Santa Barbara	
Brown, Philip N.	University of Colorado, Colorado Springs	
Marden, Jason R.	University of California, Santa Barbara	
17:20-17:40	WeC21.5	
A Fully Distributed Motion Coordination Strategy for Multi- Robot Systems with Local Information, pp. 1859-1864.		
Yu, Pian	School of Electrical Engineering and Computer Science, KTH Royal	
Dimarogonas, Dimos V.	KTH Royal Institute of Technology	

WeCT3	Meetings and
WeCT3 (Special Session)	
16:00-18:00	WeCT3.1
Special Session: Part 2 Is Cancelled, pp. 1865-1866.	
Pan, Selina	Toyota Research Institute
Canova, Marcello	The Ohio State University
Shahbakhti, Mahdi	University of Alberta
Chen, Yan	Arizona State University
Hall, Carrie	Illinois Institute of Technology
16:00-18:00	WeCT3.2
<i>NSF Program Manager Office Hours: Dr. Kishan Baheti</i> , pp. 1867-1868.	
Baheti, Radhakisan	National Science Foundation

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WeP21	Ballroom 1
Advances and Opportunities of AI and Machine Learning in Industrial Process Monitoring and Control (Plenary Session)	
Chair: Grover, Martha	Georgia Institute of Technology
18:15-19:15	WeP21.1
Advances and Opportunities of A. Industrial Process Monitoring and Chiang, Leo	

WeBaT5	Meetings
WeBaT5 (Special Session)	
19:30-21:30	WeBaT5.1
Meeting: IEEE CSS YP Meetup (from 5pm to 8pm), pp. 1871- 1871.	
Patel, Rushabh	Systems Technology, Inc
19:30-21:30	WeBaT5.2
Meeting: ASME DSCD Automotive Transportation System TC (from 6pm to 7pm), pp. 1872-1872.	
Canova, Marcello	The Ohio State University
19:30-21:30	WeBaT5.3
Meetings: ASME DSCD Mechatron to 7pm), pp. 1873-1873.	nics TC Meeting (from 6pm
Clayton, Garrett	Villanova University
19:30-21:30	WeBaT5.4
Meeting: ASME DSCD General Me 10pm), pp. 1874-1874.	eeting (from 7.30pm to
Yi, Jingang	Rutgers University

Technical Program for Thursday July 2, 2020	
ThP1	Ballroom
Control of Complex Energy and Mobility (Plenary Session)	Power Systems for Electrified
Chair: Grover, Martha	Georgia Institute of Technology
08:00-09:00	ThP1.
Control of Complex Energy and	d Power Systems for Electrified
<i>Mobility</i> , pp. 1875-1876.	
Alleyne, Andrew G.	Univ of Illinois, Urbana Champaigi
ThLBP-A01	Ballroom AB0
Poster-ThA (Late Breaking Poster	Session)
09:00-09:30	ThLBP-A01.
How Individual Pitch Control C Farm Power Production, pp. 187	
Frederik, Joeri Alexis	TU Delt
Doekemeijer, Bart Matthijs	Delft University of Technology
Mulders, Sebastiaan Paul	Delft University of Technology
van Wingerden, Jan-Willem	Delft University of Technolog
09:00-09:30	ThLBP-A01.2
<i>Learning the Globally Optimal</i> 1878-1878.	Distributed LQ Regulator, pp.
Furieri, Luca	ETH Zuricl
Zheng, Yang	Harvard Universit
Kamgarpour, Maryam	Swiss Federal Institute o Technolog
09:00-09:30	ThLBP-A01.
Security Indices for Structured	
Gracy, Sebin	KTH, Royal Institute o
Milosevic, Jezdimir	Technolog KTH Royal Institute of Technolog
Sandberg, Henrik	KTH Royal Institute of Technolog
-	,
09:00-09:30	ThLBP-A01.4
Time-Invariant Extremum See Kumar, Saurav	
Makarenkov, Oleg	University of Texas at Dalla M
Gregg, Robert D.	University of Michiga
Gans, Nicholas	University of Texas at Arlington
09:00-09:30	ThLBP-A01.
Slow down or Take a Smaller S Walking on Slippery Ground, p	Step? - Optimal Gaits for Biped
Chen, Tan	Duriversity of Notre Dame
Goodwine, Bill	University of Notre Dame
09:00-09:30	ThLBP-A01.
	THEDI -AUT.
	Shared Mobility on Demand, pp.
<i>Towards Dynamic Pricing for S</i> 1882-1882. Guan, Yue	Shared Mobility on Demand, pp. Massachusetts Institute o Technolog
1882-1882.	

09:00-09:30ThLBP-A01.7Continuous Authentication Security Games, pp. 1883-1883.SARITAS, SerkanKTH Royal Institute of TechnologyZaki, EzzeldinKTH Royal Institute of Technology

	rechnology
ThLBP-A02	ACC Sponsors
Meeting Space-ThA	
09:00-09:30	ThLBP-A02.1
Gold Sponsor: General Motors,	pp. 1884-1884.
Eckman, Wendy	General Motors
09:00-09:30	ThLBP-A02.2
Gold Sponsor: Mathworks, pp. 1	885-1885.
Rose, Jennifer	MathWorks
Ulusoy, Melda	Mathworks
09:00-09:30	ThLBP-A02.3
<i>Gold Sponsor: Mitsubishi Electri</i> 1886-1886.	<i>ic Research Lab (MERL)</i> , pp.
Thornton, Jay	Mitsubishi Electric Research Lab
Di Cairano, Stefano	Mitsubishi Electric Research Lab
09:00-09:30	ThLBP-A02.4
Silver Sponsor: Quanser, pp. 188	87-1887.
Rahaman, Josie	Quanser Consulting
Wang, Gemma	Quanser
09:00-09:30	ThLBP-A02.5
Silver Sponsor: SIAM, pp. 1888-1	
O'Neill, Kristin	SIAM
09:00-09:30	ThLBP-A02.6
Silver Sponsor: Cancelled, pp. 18	889-1889.
Kelly, Claire	Wiley
09:00-09:30	ThLBP-A02.7
Silver Sponsor: DSPACE, pp. 189	90-1890.
Johnson, Janice	DSpace
09:00-09:30	ThLBP-A02.8
Silver Sponsor: Springer Nature	e, pp. 1891-1891.
Tominich, Christopher	Springer
Jackson, Oliver	Springer
09:00-09:30	ThLBP-A02.9
Bronze Sponsor: Processes, pp.	1892-1892.
Xiang, Wency	Processes MDPI
09:00-09:30	ThLBP-A02.10
Bronze Sponsor: Halliburton, pp	
Darbe, Robert	Halliburton

Sandberg, Henrik

Dán, György

ThA01	Ballroom 1	
RI: Predictive Control (RI Session	ר)	
Chair: Grover, Martha	Georgia Institute of Technology	
Co-Chair: Clayton, Garrett	Villanova University	
09:30-09:55	ThA01.1	
Mitigating Cyberattack Impacts Using Lyapunov-Based Economic Model Predictive Control, pp. 1894-1899.		
Durand, Helen	Wayne State University	
Wegener, Matthew	Fiat Chrysler Automobiles	
09:55-09:58	ThA01.2	

#### A Supervisory Model Predictive Control Framework for Dual Temperature Setpoint Optimization, pp. 1900-1906.

on, pp. 1900-1906.
he University of Texas at Austir
University of Utal
University of Utal
ThA01.3
ol Based on Data-Driven
on, pp. 1907-1912.
Cornell University Cornell University
ThA01.4
<i>vorks Using MPC with Time</i> 1913-1918.
University of Stuttgar
University of Stuttgar
ThA01.5
l Using Output Feedback,
Michigan State University
Michigan State Univ
ThA01.6
<i>I and B-Spline Functions As pproach to MPC</i> , pp. 1925-
Università Politecnica Delle Marche
Università Politecnica Delle Marche
Carnegie Mellon University
ThA01.7
eractuated Roll Gap with a 1931-1936.
RWTH Aachen Universit
ThA01.8
C Scheme for Distributed
University of Kaiserslauterr
University of Kaiserslauter
,
ThA01.9 Thatees for Discrete Linear
ditive Disturbances with
Otto-Von-Guericke University Magdeburg
Magdeburg
Otto-Von-Guericke University Magdeburg Jilin University OVG University Magdeburg
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Magdeburg Jilin Universit OVG University Magdeburg ThA01.10 Tvatism Blending Multiples

Nonlinear Model Predictive Control for the Transient Load Share Management of a Hybrid Diesel-Electric Marine

Propulsion Plant, pp. 1955-196	0.
PLANAKIS, NIKOLAOS	National Technical University o Athen
Karystinos, Vasileios	National Technical University o Athen
Papalambrou, George	National Technical University o
Kyrtatos, Nikolaos	National Technical University o Athen
10:25-10:28	ThA01.12
Real-Time Nonlinear Model Pi Management of Hybrid Electr Framework, pp. 1961-1967.	redictive Control for the Energy ic Vehicles in a Hierarchical
Schmitt, Lukas Rudolf	RWTH Aachen Universit
Keller, Martin	RWTH Aachen Universit
Abel, Dirk	RWTH Aachen Universit
Albin, Thivaharan	RWTH Aachen University, Institut of Automatic Contro
10:28-10:31	ThA01.1
Multi-Criteria and Multivariate	e MPC Control Performance
<i>Assessment</i> , pp. 1968-1973.	
Domanski, Pawel D.	Warsaw University of Technolog
Lawrynczuk, Maciej	Warsaw University of Technolog
10:31-10:34	ThA01.1
	<i>del Predictive Control to Addres: ple Time Scales</i> , pp. 1974-1979.
Ellis, Matthew	University of California, Dav
10:34-10:37	ThA01.1
Lyapunov-Based Economic M Taylor Series State Approxim	
Kasturi Rangan, Keshav	Wayne State Universit
Durand, Helen	Wayne State Universit
10:37-10:40	ThA01.1
Efficient Greenhouse Temper Robust Model Predictive, pp. 1	ature Control with Data-Driven 1986-1991.
Chen, Wei-Han	Cornell Universit
You, Fengqi	Cornell Universi
10:40-10:43	ThA01.1
Theoretical Exploration of Irri Potential through Model Pred	<i>igation Control for Stem Water</i> <i>ictive Control</i> , pp. 1992-1997.
Chen, Wei-Han	Cornell Universi
Shang, Chao	Tsinghua Universi
Zhu, Siyu	Cornell Universi
Haldeman, Kathryn	Cornell Universi
Santiago, Michael	FloraPulse C
Stroock, Abraham	Cornell Universi
You, Fengqi	Cornell Universi
10:43-10:46	ThA01.1
Parameter System Modeled A	<i>edictive Control for a Distribute</i> As a Polytopic LPV, pp. 1998-2003
Ismail, Jawad	The Institute of Control Systems University of Kaiserslauter
Liu, Steven	University of Kaiserslauter
10.46 10.40	ThA01 1

10:46-10:49ThA01.19Convexified Contextual Optimization for On-The-Fly Control<br/>of Smooth Systems, pp. 2004-2011.

P. Vinod, Abraham The University

The University of Texas at Austin

Israel, Arie	University of Texas, Austin
Topcu, Ufuk	The University of Texas at Austin
10:49-10:52	
Accurate Trajectory Following	
Dynamic Environments, pp. 20	
Febbo, Huckleberry	University of Michigan
Isele, David	Honda Research Institute USA
10:52-10:55	ThA01.21
Enhancing Practical Tractabilit Model Predictive Control, pp. 2	<i>ty of Lyapunov-Based Economic</i> 018-2023.
Durand, Helen	Wayne State University
Messina, Dominic	Wayne State University
10:55-10:58	ThA01.22
<i>Task Decomposition for Iterat</i> <i>Control</i> , pp. 2024-2029.	ive Learning Model Predictive
Vallon, Charlott	University of California, Berkeley
Borrelli, Francesco	Unversity of California at Berkeley
ThA02	Ballroom 2
<b>RI: Control of Robotic Systems</b>	(RI Session)
Chair: Leang, Kam K.	University of Utah
Co-Chair: Devasia, Santosh	Univ of Washington
09:30-09:55	ThA02.1
Multi-Agent Control Using Cov	verage Over Time-Varying
Domains, pp. 2030-2035. Xu, Xiaotian	University of Maryland College
,	Park
Diaz-Mercado, Yancy	University of Maryland
09:55-09:58	ThA02.2
Model-Based Randomness Mo Attacks, pp. 2036-2042.	
Bonczek, Paul	University of Virginia
Gao, Shijie	University of Virginia
Bezzo, Nicola	University of Virginia
09:58-10:01	ThA02.3
2043-2048.	ential with Star Obstacles, pp.
Kumar, Harshat	University of Pennsylvania
Paternain, Santiago	University of Pennsylvania
Ribeiro, Alejandro	University of Pennsylvania
10:01-10:04	ThA02.4
A Model-Based Cascaded Con Motion Robot, pp. 2049-2054.	
Raisch, Adrian	University of Stuttgart
Mayer, Annika	University of Stuttgart
Müller, Daniel Hildebrandt, Alexander	University of Stuttgart Festo AG & Co. KG
Sawodny, Oliver	University of Stuttgart
	· · · ·
10:04-10:07 Adaptive Quasi-Static Control	ThA02.5 of Multistable Systems, pp.
2055-2060.	
Bruce, Adam Mohsoni, Nima	University of Michigan
Mohseni, Nima Goel, Ankit	University of Michigan, Ann Arbor University of Michigan
Bernstein, Dennis S.	Univ. of Michigan
	entre et menigun

10:07-10:10	ThA02.6
	mics for Cooperative Unknown ut Communication, pp. 2061-2067.
Miyano, Tatsuya	Toyota Motor North America, Inc
Romberg, Justin	Georgia Tech
Egerstedt, Magnus	Georgia Institute of Technology
10:10-10:13	ThA02.7
Decentralized Collective Tra	ansport Along Manifolds
Compatible with Holonomic Minimal Global Information	<i>Constraints by Robots with</i> , pp. 2068-2075.
Farivarnejad, Hamed	Arizona State University
Berman, Spring	Arizona State University
10:13-10:16	ThA02.8
	Data Association Framework for
Target Tracking with Groun	
Krishnaswamy, Sriram	The Ohio State University
Kumar, Mrinal	Ohio State University
Vitullo, Shane	The Ohio State University
Laidler, Will	The Ohio State University
10:16-10:19	ThA02.9
<i>Expanding Humanoid's Mat Capture Point Walking</i> , pp. 2	<i>erial-Handling Capabilities Using</i> 2082-2087.
Chagas Vaz, Jean	University of Nevada Las Vegas
Oh, Paul	University of Nevada Las Vegas
10:19-10:22	ThA02.10
Real-Time Python: Recent / Arduino Real-Time Control /	<i>Advances in the Raspberry Pi Plus</i> <i>Approach</i> , pp. 2088-2093.
Krauss, Ryan	Grand Valley State University
10:22-10:25	ThA02.11
Energy-Aware Path Plannin on Hilly Terrain, pp. 2094-209	<i>g for Skid-Steer Robots Operating</i> 99.
Gruning, Veronica	The Pennsylvania State University
Pentzer, Jesse	The Pennsylvania State University
Brennan, Sean	The Pennsylvania State University
Reichard, Karl	Penn State University
10:25-10:28	I enn State University
	ThA02.12
Impact-Aware Online Motio	ThA02.12 In Planning for Fully-Actuated
	ThA02.12 n Planning for Fully-Actuated
Impact-Aware Online Motio Bipedal Robot Walking, pp. 2	ThA02.12 In Planning for Fully-Actuated 2100-2105. University of Massachusetts
<i>Impact-Aware Online Motio Bipedal Robot Walking</i> , pp. 2 Gao, Yuan	ThA02.12 In Planning for Fully-Actuated 2100-2105. University of Massachusetts Lowell
<i>Impact-Aware Online Motio Bipedal Robot Walking</i> , pp. 2 Gao, Yuan Da, Xingye Gu, Yan	ThA02.12 In Planning for Fully-Actuated 2100-2105. University of Massachusetts Lowell Nvidia University of Massachusetts Lowell
Impact-Aware Online Motio Bipedal Robot Walking, pp. 2 Gao, Yuan Da, Xingye Gu, Yan 10:28-10:31 Decentralized Partial-Conse Vehicles Over Networks wit	ThA02.12 In Planning for Fully-Actuated 2100-2105. University of Massachusetts Lowell Nvidia University of Massachusetts Lowell
Impact-Aware Online Motio Bipedal Robot Walking, pp. 2 Gao, Yuan Da, Xingye Gu, Yan 10:28-10:31 Decentralized Partial-Conse Vehicles Over Networks wit	ThA02.12 In Planning for Fully-Actuated 2100-2105. University of Massachusetts Lowell Nvidia University of Massachusetts Lowell ThA02.13 Insus Control of Nonholonomic th Interconnection Delays, pp.
Impact-Aware Online Motio Bipedal Robot Walking, pp. 2 Gao, Yuan Da, Xingye Gu, Yan 10:28-10:31 Decentralized Partial-Conse Vehicles Over Networks wit 2106-2111. MAGHENEM, Mohamed	ThA02.12 In Planning for Fully-Actuated 2100-2105. University of Massachusetts Lowell Nvidia University of Massachusetts Lowell ThA02.13 Interconnection Delays, pp. University of California Santa Cruz
Impact-Aware Online Motio Bipedal Robot Walking, pp. 2 Gao, Yuan Da, Xingye Gu, Yan 10:28-10:31 Decentralized Partial-Conse Vehicles Over Networks wit 2106-2111. MAGHENEM, Mohamed Adlene	ThA02.12 In Planning for Fully-Actuated 2100-2105. University of Massachusetts Lowell Nvidia University of Massachusetts Lowell ThA02.13 Ensus Control of Nonholonomic
Impact-Aware Online Motio Bipedal Robot Walking, pp. 2 Gao, Yuan Da, Xingye Gu, Yan 10:28-10:31 Decentralized Partial-Conse Vehicles Over Networks wit 2106-2111. MAGHENEM, Mohamed Adlene Loria, Antonio	ThA02.12 In Planning for Fully-Actuated 2100-2105. University of Massachusetts Lowell Nvidia University of Massachusetts Lowell ThA02.13 Interconnection Delays, pp. University of California Santa Cruz CNRS

Game Theoretic Potential Field for Autonomous Water *Surface Vehicle Navigation Using Weather Forecasts*, pp. 2112-2117. Krell, Evan

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Garcia Carrillo, Luis Rodolfo	Texas A&M University - Corpus Christi
King, Scott A.	Texas A&M University - Corpus Christi
Hespanha, Joao P.	Univ. of California, Santa Barbara
10:34-10:37	ThA02.15
Distributed Command Filter Ba of Wave-Adaptive Modular Ves 2123.	
Dony, Md.	Univ of Texas Rio Grande Valley
Rafat, M.	UTRGV
Dong, Wenjie	The University of Texas Rio Grande Valley
10:37-10:40	ThA02.16
Bilateral Teleoperation of Soft	
<i>Constant Curvature Hypothesi</i> <i>Investigation</i> , pp. 2124-2129.	s: An experimental
Weerakoon, Weerakoon Mudiyanselage Lasitha Tharinda	University of Maryland
Chopra, Nikhil	University of Maryland, College Park
10:40-10:43	ThA02.17
A Norm-Regulation-Based Lim	it Cycle Control of Vertical
<i>Hoppers</i> , pp. 2130-2136.	
Lo, Chun Ho, David	The Chinese University of Hong Kong
CHU, Xiangyu	The Chinese University of Hong Kong
	itong
Au, Kwok Wai Samuel	CUHK
Au, Kwok Wai Samuel 10:43-10:46	
	CUHK ThA02.18 Explicit Model Predictive
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor	CUHK ThA02.18 Explicit Model Predictive
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142.	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot,
10:43-10:46 <i>Experimental Evaluation of an</i> <i>Controller for an Adhesion Vor</i> pp. 2137-2142. Papadimitriou, Andreas	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19
10:43-10:46 <i>Experimental Evaluation of an</i> <i>Controller for an Adhesion Vor</i> pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49 <i>Safe and Coordinated Hierarch</i> <i>for Mobile Manipulators</i> , pp. 215 Leu, Jessica	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19 nical Receding Horizon Control 43-2149. UC Berkeley
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49 Safe and Coordinated Hierarch for Mobile Manipulators, pp. 21: Leu, Jessica Lim, Rachel	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology Luleå University of Technology Luleå University of Centrol Macal Receding Horizon Control 43-2149. UC Berkeley University of California, Berkeley
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49 Safe and Coordinated Hierarch for Mobile Manipulators, pp. 21 Leu, Jessica Lim, Rachel Tomizuka, Masayoshi	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19 Dical Receding Horizon Control 43-2149. UC Berkeley University of California, Berkeley Univ of California, Berkeley
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49 Safe and Coordinated Hierarch for Mobile Manipulators, pp. 21: Leu, Jessica Lim, Rachel Tomizuka, Masayoshi 10:49-10:52	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19 Inical Receding Horizon Control 43-2149. UC Berkeley University of California, Berkeley Univ of California, Berkeley ThA02.20
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49 Safe and Coordinated Hierarch for Mobile Manipulators, pp. 21- Leu, Jessica Lim, Rachel Tomizuka, Masayoshi 10:49-10:52 A Geometric Controller for Ful a Tumbling Target, pp. 2150-21	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19 Dical Receding Horizon Control 43-2149. UC Berkeley University of California, Berkeley University of California, Berkeley Univ of California, Berkeley ThA02.20 My-Actuated Robotic Capture of 57.
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10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49 Safe and Coordinated Hierarch for Mobile Manipulators, pp. 21 Leu, Jessica Lim, Rachel Tomizuka, Masayoshi 10:49-10:52 A Geometric Controller for Full a Tumbling Target, pp. 2150-21 Mishra, Hrishik De Stefano, Marco	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19 Mical Receding Horizon Control 43-2149. UC Berkeley University of California, Berkeley Univ of California, Berkeley Univ of California, Berkeley Univ of California, Berkeley Charactuated Robotic Capture of 57. German Aerospace Center (DLR) German Aerospace Center (DLR)
10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49 Safe and Coordinated Hierarch for Mobile Manipulators, pp. 210 Leu, Jessica Lim, Rachel Tomizuka, Masayoshi 10:49-10:52 A Geometric Controller for Full a Tumbling Target, pp. 2150-21 Mishra, Hrishik De Stefano, Marco Giordano, Alessandro Massimo	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19 mical Receding Horizon Control 43-2149. UC Berkeley University of California, Berkeley Univ of California, Berkeley Univ of California, Berkeley Univ of California, Berkeley ChA02.20 My-Actuated Robotic Capture of 57. German Aerospace Center (DLR) German Aerospace Center (DLR) Technical University of Munich (TUM)
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10:43-10:46 Experimental Evaluation of an Controller for an Adhesion Vor pp. 2137-2142. Papadimitriou, Andreas Andrikopoulos, George Nikolakopoulos, George 10:46-10:49 Safe and Coordinated Hierarch for Mobile Manipulators, pp. 21- Leu, Jessica Lim, Rachel Tomizuka, Masayoshi 10:49-10:52 A Geometric Controller for Ful a Tumbling Target, pp. 2150-21 Mishra, Hrishik De Stefano, Marco Giordano, Alessandro Massimo Lampariello, Roberto Ott, Christian 10:52-10:55	CUHK ThA02.18 Explicit Model Predictive tex Actuated Climbing Robot, Luleå University of Technology Luleå University of Technology Luleå University of Technology ThA02.19 Dical Receding Horizon Control 43-2149. UC Berkeley University of California, Berkeley Univ of California, Berkeley DIR German Aerospace Center (DLR) DLR German Aerospace Center (DLR) ThA02.21

Lee, Jaemin	The University of Texas at Austin
Ahn, Junhyeok	The University of Texas at Austin

Bakolas, Efstathios Sentis, Luis	The University of Texas at Austin The University of Texas at Austin
	···· · ···· · · · · · · · · · · · · ·
ThLuT4	Meetings and
ThLuT4 (Special Session)	
12:00-13:30	ThLuT4.1
<i>Special Session: Bridging the Robotics on a Massive Scale ir</i> pp. 2166-2166.	
Egerstedt, Magnus	Georgia Institute of Technology
12:00-13:30	ThLuT4.2
	<i>ign for SuperCruise Automated Challenges and Solutions</i> , pp.
Zarringhalam, Reza	General Motors Canada
12:00-13:30	ThLuT4.3
<i>NSF Program Manager Office I</i> 2168-2169.	Hours: Dr. Jordan Berg, pp.
Berg, Jordan M.	Division of Civil, Mechanical, and Manufacturing Innovation
12:00-13:30	ThLuT4.4
<i>NSF Program Manager Office I</i> 2170-2171.	Hours: Dr. Eduardo Misawa, pp.
Misawa, Eduardo	National Science Foundation
12:00-13:30	ThLuT4.5
Meeting: WIC Advisory Board 12Noon), pp. 2172-2172.	Meeting (from 11am to
Fekih, Afef	University of Louisiana at Lafayette
12:00-13:30	ThLuT4.6
Meeting: 2020/2021 ACC Join 12Noon to 1.30pm), pp. 2173-2	
Chiu, George TC.	Purdue University
12:00-13:30	ThLuT4.7
Meeting: IEEE CSS MAB (from 2174.	12Noon to 1pm), pp. 2174-
Egerstedt, Magnus	Georgia Institute of Technology
12:00-13:30	ThLuT4.8
Meeting: IEEE CSS TAB (from	12Noon to 1pm), pp. 2175-2175.
Hespanha, Joao P.	Univ. of California, Santa Barbara

ThB01	Governor's SQ 12
Learning II (Regular Session)	
Chair: Mehta, Prashant G.	Univ of Illinois, Urbana- Champaign
Co-Chair: Lamperski, Andrew	University of Minnesota
13:30-13:50	ThB01.1
Safe Off-Policy Reinforcement Learn Functions, pp. 2176-2181.	ing Using Barrier
Marvi, Zahra	Michigan State University
Kiumarsi, Bahare	Michigan State University
13:50-14:10	ThB01.2

*Inverse Differential Games with Mixed Inequality Constraints*, pp. 2182-2187.

Awasthi, Chaitanya

University of Minnesota

Lamperski, Andrew	University of Minnesota
14:10-14:30	ThB01.3
Bio-Inspired Learning of Sense Locomotion, pp. 2188-2193.	primotor Control for
Wang, Tixian	University of Illinois at Urbana- Champaign
Taghvaei, Amirhossein	University of Illinois at Urbana- Champaign
Mehta, Prashant G.	Univ of Illinois, Urbana- Champaign
14:30-14:50	ThB01.4

For Matrix Recovery, Robust Uniform Boundedness Property Implies Robust Rank Null Space Property and the Robust Uniform Boundedness Property, pp. 2194-2196.

Ranjan, Shashank	IIT Hyderabad
Vidyasagar, Mathukumalli	Indian Institute of Technology Hyderabad
14:50-15:10	ThB01.5
<i>Communication-Aware Distributed Gaussian Process</i> <i>Regression Algorithms for Real-Time Machine Learning</i> , pp. 2197-2202.	
Yuan, Zhenyuan	Pennsylvania State University
Zhu, Minghui	Pennsylvania State University
15:10-15:30	ThB01.6
<i>Exact Completion of Rectangular N</i> <i>Bigraphs</i> , pp. 2203-2206.	latrices Using Ramanujan
Burnwal, Shantanu Prasad	Indian Institute of Technology Hyderabad
Vidyasagar, Mathukumalli	Indian Institute of Technology Hyderabad

ThB02	Ballroom ABC
Control and Estimation of Batter	ies (Invited Session)

Chair: Siegel, Jason B.	University of Michigan
Co-Chair: Lin, Xinfan	University of California, Davis
Organizer: Dey, Satadru	University of Colorado Denver
Organizer: Moura, Scott	University of California, Berkeley
Organizer: Lin, Xinfan	University of California, Davis
Organizer: Kim, Youngki	University of Michigan - Dearborn
Organizer: Fang, Huazhen	University of Kansas
Organizer: Donkers, M.C.F.	Eindhoven University of Technology
Organizer: Song, Xingyong	Texas A&M University, College Station
Organizer: Siegel, Jason B.	University of Michigan
Organizer: Choe, Song-Yul (Ben)	Auburn University
Organizer: Perez, Hector E.	University of California, Berkeley
Organizer: Lotfi, Nima	Southern Illinois University Edwardsville

13:30-13:50

State of Charge Estimation of Parallel Connected Battery Cells Via Descriptor System Theory (I), pp. 2207-2212.

Zhang, Dong	University of California, Berkeley
Couto, Luis Daniel	Université Libre De Bruxelles
Benjamin, Sebastien	Saft S.A
Zeng, Wente	Total S.A
Coutinho, Daniel	Universidade Federal De Santa

Catarina

ThB02.3

Moura, Scott	University of California, Berkeley
13:50-14:10	ThB02.2
Ageing-Aware Charging of Litl Electrochemistry-Based Model Reactions (I), pp. 2213-2218.	
Khalik, Zuan	Eindhoven University of Technology
Bergveld, Hendrik Johannes	Eindhoven University of Technology
Donkers, M.C.F.	Eindhoven University of Technology

14:10-14:30

*Real-Time Range Maximisation of Electric Vehicles through Active Cell Balancing Using Model-Predictive Control (I)*, pp. 2219-2224.

Hoekstra, Feye Sietze Johan	University of Technology Eindhoven
Wulf Ribelles, Luis Alfredo	Eindhoven University of Technology
Bergveld, Hendrik Johannes	Eindhoven University of Technology
Donkers, M.C.F.	Eindhoven University of Technology

14:30-14:50ThB02.4Distributionally Robust Surrogate Optimal Control for Large-<br/>Scale Dynamical Systems (I), pp. 2225-2231.

Kandel, Aaron	University of California, Berkeley
Park, Saehong	University of California, Berkeley
Perez, Hector E.	University of California, Berkeley
Kim, Geumbee	LG Chem
Choi, Yohwan	LG Chem
Ahn, Hyoung Jun	LG Chem
Joe, Won Tae	Battery R&D, LG Chem
Moura, Scott	University of California, Berkeley

 14:50-15:10
 ThB02.5

 Distributed Multi-Battery Coordination for Cooperative

 Energy Management Via ADMM-Based Iterative Learning, pp.

 2232-2237.

Li, Yun	New York University
Zhang, Tao	New York University
Zhu, Quanyan	New York University

15:10-15:30ThB02.6Optimal Energy and Thermal Management of Hybrid Battery<br/>Packs Using Convex Optimization (I), pp. 2238-2243.Freudiger, DannyThe Ohio State University<br/>D'Arpino, MatildeD'Arpino, MatildeThe Ohio State University

Canova, Marcello	The Ohio State University
FhB03	Governor's SQ 15

Automotive Control I (Regular Session)	
Chair: Casavola, Alessandro	Universita' Della Calabria
Co-Chair: Zuo, Lei	Virginia Tech
13:30-13:50	ThB03.1

Handling of Tire Pressure Variation in Autonomous Vehicles: An Integrated Estimation and Control Design Approach, pp. 2244-2249.

Hegedűs, Tamás

ThB02.1

Budapest University of

	Technology and Economics
Fenyes, Daniel	MTA SZTAKI
Nemeth, Balazs	SZTAKI Institute for Computer
Cooper Deter	Science and Control SZTAKI
Gaspar, Peter	
13:50-14:10	ThB03.2
LPV-Based Autonomous Vehicle Big Data Analysis on Lateral Dyr	
Fenyes, Daniel	MTA SZTAKI
Nemeth, Balazs	SZTAKI Institute for Computer Science and Control
Gaspar, Peter	SZTAKI
14:10-14:30	ThB03.3
Full-Car Multivariable Control St	rategies for Energy
<i>Harvesting by Regenerative Sus</i> 2261.	pension Systems, pp. 2256-
Casavola, Alessandro	Universita' Della Calabria
Tedesco, Francesco	Università Della Calabria
Vaglica, Pasquale	University of Calabria
14:30-14:50	ThB03.4
A Rule-Based Damping Control f Harvesting Vehicle Suspension,	
Xiong, Qiuchi	Virginia Polytechnic Institute and State University
Qin, Bonan	University of Science and Technology Beijing
Li, Xiaofan	Virginia Tech
Zuo, Lei	Virginia Tech
14:50-15:10	ThB03.5
Optimization-Based Control Allo	
Torque Vectoring in a Race Car,	
KISSAI, Moad Monsuez, Bruno	ENSTA ParisTech ENSTA ParisTech
Mouton, Xavier	Group Renault
TAPUS, Adriana	ENSTA Paris
15:10-15:30	
Robust Cooperative Adaptive Cro	uise Control of Vehicles on
Banked and Curved Roads with	
Lan, Jianglin Zhao, Dezong	Loughborough University Loughborough University
Tian, Daxin	Beihang University
	Domaing Children
ThB04	Governor's SQ 14
Eco-Driving and Energy Managem Automated Vehicles (Invited Session	ent of Connected and
Chair: HomChaudhuri,	Illinois Institute of Technology
Baisravan	
Co-Chair: Dadras, Soodeh	Utah State University
Organizer: HomChaudhuri, Baisravan	Illinois Institute of Technology
Organizer: Amini, Mohammad Reza	University of Michigan
Organizer: Dadras, Soodeh	Utah State University
Organizer: Hall, Carrie	Illinois Institute of Technology
13:30-13:50	ThB04.1
	iving under Traffic (I) pp

*A Two-Layer Approach for Ecodriving under Traffic (I)*, pp. 2282-2287.

Obereigner, Gunda	Johannes Kepler University
Polterauer, Philipp	Johannes Kepler University Linz
Del Re, Luigi	Johannes Kepler University Linz
13:50-14:10	ThB04.2
Context Aware Control of ADAS	<b>5</b> (I), pp. 2288-2293.
Holzinger, Jakob	Johannes Kepler University
Tkachenko, Pavlo	Johannes Kepler University
Obereigner, Gunda	Johannes Kepler University
Del Re, Luigi	Johannes Kepler University Linz
14:10-14:30	ThB04.3
Synchronization of Pulse-And-	
Platooning Using Cooperative A	
2294-2299.	
Shieh, Su-Yang	University of Michigan
Ersal, Tulga	University of Michigan
Peng, Huei	Univ. of Michigan
14:30-14:50	ThB04.4
Optimizing Gap Tracking Subje	ect to Dynamic Losses Via
Connected and Anticipative MP	
2300-2305.	
Ard, Tyler	Clemson University
Ashtiani, Faraz	Clemson University
Vahidi, Ardalan	Clemson University
Borhan, Hoseinali	Cummins Inc
14:50-15:10	ThB04.5
Improving Fuel Economy of He	avy-Duty Vehicles in Daily
Driving (I), pp. 2306-2311.	
He, Chaozhe	Navistar, Inc
Alan, Anil	University of Michigan
Molnar, Tamas Gabor	University of Michigan
Avedisov, Sergei S.	University of Michigan
Bell, A. Harvey	University of Michigan
Zukouski, Russell	Navistar, Inc
Hunkler, Matthew	Navistar, Inc
Yan, Jim	Navistar, Inc
Orosz, Gabor	University of Michigan
15:10-15:30	ThB04.6
A Prodictive Central Design wit	

A Predictive Control Design with Speed Previewing Information for Vehicle Fuel Efficiency Improvement (I), pp. 2312-2317.

Ozkan, Mehmet	Texas Tech University
Ma, Yao	Texas Tech University

ThB05	Plaza Court 6
Robust and Optimal Control for Session)	Building HVAC Systems (Invited
Chair: Pavlak, Gregory	The Pennsylvania State University
Co-Chair: Ghaemi, Reza	General Electric
Organizer: Rasmussen, Bryan	Texas A&M University
Organizer: Stockar, Stephanie	The Ohio State University
Organizer: Bay, Christopher	National Renewable Energy Laboratory
Organizer: Shahbakhti, Mahdi	University of Alberta
13:30-13:50	ThB05.1

Scalable Optimal Flexibility Control, Modeling and Estimation of Commercial Buildings (I), pp. 2318-2325.

Ghaemi, Reza	General Electric GE Global Research
Kumar, Aditya Bonanni, Pierino	GE Global Research
Visnevski, Nikita	McMaster University
13:50-14:10	ThB05.2
Reinforcement Learning for Co	
<i>Systems (I)</i> , pp. 2326-2332.	introl of Building HVAC
Raman, Naren Srivaths	University of Florida
Devraj, Adithya M.	University of Florida
Barooah, Prabir	Univ. of Florida
Meyn, Sean P.	Univ. of Florida
14:10-14:30	ThB05.3
Optimizing HVAC Operations in	_
Demand Response (I), pp. 2333	
Naqvi, Syed Ahsan Raza	Rensselaer Polytechnic Institute
Kar, Koushik	Rensselaer Polytechnic Institute
Bhattacharya, Saptarshi	Pacific Northwest National Laboratory
Chandan, Vikas	Pacific Northwest National Lab
14:30-14:50	ThB05.4
Two-Stage Stochastic Planning	
	plios with Transactive Controls
<i>(I)</i> , pp. 2339-2344.	
Yu, Min Gyung	The Pennsylvania State University
Pavlak, Gregory	The Pennsylvania State University
14:50-15:10	ThB05.5
Fast Adaptation of Thermal Dy	
Control of HVAC and Natural V Learning with Deep Neural Neural	
Chen, Yujiao	Harvard University
Zheng, Yang	Harvard University
Samuelson, Holly	Harvard University
15:10-15:30	ThB05.6
Dynamic Mode Decomposition Study of a 2D Turbulent Bouss	
Vijavshankar, Sanjana	University of Minnesota
Nabi, Saleh	Mitsubishi Electric Research
	Laboratories (MERL)
Chakrabarty, Ankush	Mitsubishi Electric Research
	Laboratories (MERL)
GROVER, PIYUSH	University of Nebraska-Lincoln Mitsubishi Electric Research
Benosman, Mouhacine	Laboratories
ThB06	Ballroom DE
Autonomous Energy Systems: E	
Control (Invited Session)	in a second s
Chair: Bernstein, Andrey	National Renewable Energy Lab (NREL)
Co-Chair: Moura, Scott	University of California, Berkeley
Organizer: Bay, Christopher	National Renewable Energy
Organizer: Annoni, Jennifer	Laboratory National Renewable Energy
Organizer: Bernstein, Andrey	Laboratory
• •	National Renewable Energy Lab
Organizer: Kroposki, Ben	National Renewable Energy Lab (NREL) National Renewable Energy Laboratory

12:20 12:50	
13:30-13:50	ThB06.1 Ind Field Characteristics Using
	ta Acquisition Measurements (I),
Sinner, Michael Nelson	University of Colorado Boulder
Pao, Lucy Y.	University of Colorado Boulder
Annoni, Jennifer	National Renewable Energy Laboratory
13:50-14:10	ThB06.2
Data-Driven Linear Parameter-Varying Modeling and Control of Flexible Loads for Grid Services (I), pp. 2363-2369.	
Chen, Yue	National Renewable Energy Laboratory
Bernstein, Andrey	National Renewable Energy Lab (NREL)
14:10-14:30	ThB06.3
Distributed Minimization of the Power Generation Cost in	
	n Networks (I), pp. 2370-2375.
Cavraro, Guido	National Renewable Energy Laboratory
Bernstein, Andrey	National Renewable Energy Lab (NREL)
Carli, Ruggero	University of Padova
Zampieri, Sandro	Univ. Di Padova
14:30-14:50	ThB06.4
A Sum-Of-Squares Optimization Method for Learning and Controlling Photovoltaic Systems (I), pp. 2376-2381.	
zhang, xinwei	University of Minnesota Twin Cities
Purba, Victor	University of Minnesota
Hong, Mingyi	Iowa State University
Dhople, Sairaj	University of Minnesota
14:50-15:10	ThB06.5

Mixed Voltage Angle and Frequency Droop Control for Transient Stability of Interconnected Microgrids with Loss of PMU Measurements (I), pp. 2382-2387.

Sivaranjani, S	University of Notre Dame
Agarwal, Etika	General Electric Research
Xie, Le	Texas A&M University
Gupta, Vijay	University of Notre Dame
Antsaklis, Panos J.	University of Notre Dame

15:10-15:30ThB06.6Inducing Human Behavior to Alleviate Overstay at PEV<br/>Charging Station (I), pp. 2388-2394.

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Bae, Sangjae	University of California, Berkeley
Zeng, Teng	University of California, Berkeley
Travacca, Bertrand	UC BERKELEY
Moura, Scott	University of California, Berkeley

TI D07	
ThB07	Plaza Court 7
Predictive Control Systems (Regular	Session)
Chair: Makarow, Artemi	TU Dortmund University
Co-Chair: Dubljevic, Stevan	University of Alberta
13:30-13:50	ThB07.1
<i>Output-Feedback RLS-Based Mode</i> 2395-2400.	el Predictive Control, pp.
Nguyen, Tam Willy	University of Michigan

Islam, Syed Aseem UI	University of Michigan
Bruce, Adam	University of Michigan
Goel, Ankit	University of Michigan
Bernstein, Dennis S.	Univ. of Michigan
Kolmanovsky, Ilya V.	The University of Michigan
13:50-14:10	ThB07.2
<i>Linear Model Predictive Contro</i> 2401-2406.	ol for Time Delay Systems, pp.
Humaloja, Jukka-Pekka	Tampere University
Dubljevic, Stevan	University of Alberta
14:10-14:30	ThB07.3
Indirect Adaptive MPC for Disc	crete-Time LTI System with
Robust Constraint Satisfaction	
Dhar, Abhishek	Indian Institute of Technology Delhi
Bhasin, Shubhendu	Indian Institute of Technology Delhi
14:30-14:50	ThB07.4
Incorporating Structural Proce	
Neural Network Modeling of No 2418.	2
Wu, Zhe	University of California, Los Angeles
Rincon, David	University of California, Los Angeles
Christofides, Panagiotis D.	Univ. of California at Los Angeles
14:50-15:10	ThB07.5
Single Degree of Freedom Mod	del Predictive Control with
Variable Horizon, pp. 2419-2425	
Makarow, Artemi	TU Dortmund University
Rösmann, Christoph	TU Dortmund University
Bertram, Torsten	TU Dortmund
15:10-15:30	ThB07.6
MPC Performances for Nonline Linearization Models, pp. 2426-2	
Igarashi, Yusuke	Tokyo Institute of Technology
Yamakita, Masaki	Tokyo Inst. of Tech
Ng, Jerry	Massachusetts Institute of
Asada, H. Harry	Technology Massachusetts Inst. of Tech
Asada, H. Harry	
ThB08	Governor's SQ 10
Robotics I (Regular Session)	
Chair: Caverly, Ryan James	University of Minnesota
Co-Chair: Saldana, David	Lehigh University
·	<u>,                                </u>
13:30-13:50	ThB08.1
Passivity-Based Control Alloca Parallel Robotic Manipulator w. 2432-2437.	tion of a Redundantly-Actuated ith a Point-Mass Payload, pp.
Hayes, Alex	University of Minnesota
Caverly, Ryan James	University of Minnesota
13:50-14:10	
Disassembly Sequence Plannir	
Collaboration, pp. 2438-2443.	ig considering numun Robot
Lee, Meng-Lun	University at Buffalo, Mechanical Engineering
Behdad, Sara	University at Buffalo

Liang, Xiao	University at Buffalo
Zheng, Minghui	University at Buffalo
14:10-14:30	ThB08.3
An Inverse Dynamics Approach	
<i>Functions</i> , pp. 2444-2451.	
Reher, Jenna	California Institute of Technology
Kann, Claudia	California Institute of Technology
Ames, Aaron D.	California Institute of Technology
14:30-14:50	ThB08.4
A Novel Path Following Schem 2452-2457.	e for Robot End-Effectors, pp.
Wen, Yalun	Texas A&M University
Pagilla, Prabhakar R.	Texas A&M University
14:50-15:10	ThB08.5
Directional Compliance in Obst	cacle-Aided Navigation for
<i>Snake Robots</i> , pp. 2458-2463. Wang, Tianyu	Carnegie Mellon University
Whitman. Julian	Carnegie Mellon University
Travers, Matt	Carnegie Mellon
Choset, Howie	Carnegie Mellon University
15:10-15:30	ThB08.6
Modular Robot Formation and	
<i>Consensus</i> , pp. 2464-2471.	Nouting for Nesment
Yu, Xi	University of Pennsylvania
Shishika, Daigo	University of Pennsylvania
Saldana, David	Lehigh University
Hsieh, M. Ani	University of Pennsylvania
ThB09	Governor's SQ 16
Adaptive Control III (Regular Ses	sion)
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin	sion) New York University
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel	sion) New York University University of South Florida
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50	sion) New York University University of South Florida ThB09.1
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lee Adaptive Model Reduction with Interpolation, pp. 2472-2477.	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice	sion) New York University University of South Florida ThB09.1 ann Basis Updates for Online Adaptive Empirical EPFL
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin	sion) New York University University of South Florida ThB09.1 ann Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 <i>Quasi-Optimal Sampling to Lea</i> <i>Adaptive Model Reduction with</i> <i>Interpolation</i> , pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 <i>Impedance Modulation for Neg</i>	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 potiating Control Authority in a
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 Impedance Modulation for Neg Haptic Shared Control Paradig	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 Indiating Control Authority in a m, pp. 2478-2483.
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Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 Impedance Modulation for Neg Haptic Shared Control Paradig	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 ThB09.2 Intiating Control Authority in a m, pp. 2478-2483. University of North Carolina Charlotte
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 Impedance Modulation for Neg Haptic Shared Control Paradigu izadi, Vahid	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 rotiating Control Authority in a m, pp. 2478-2483. University of North Carolina
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 Impedance Modulation for Neg Haptic Shared Control Paradig izadi, Vahid Bhardwaj, Akshay	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 ThB09.2 ThB09.2 Inviersity of North Carolina Charlotte University of Michigan
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 Impedance Modulation for Neg Haptic Shared Control Paradig izadi, Vahid Bhardwaj, Akshay	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 ThB09.2 ThB09.2 ThB09.2 Inviversity of North Carolina Charlotte University of North Carolina
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 Impedance Modulation for Neg Haptic Shared Control Paradig izadi, Vahid Bhardwaj, Akshay Ghasemi, Amirhossein	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 notiating Control Authority in a m, pp. 2478-2483. University of North Carolina Charlotte University of North Carolina Charlotte University of North Carolina Charlotte ThB09.3 e Time Modified State
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 Impedance Modulation for Neg Haptic Shared Control Paradig izadi, Vahid Bhardwaj, Akshay Ghasemi, Amirhossein 14:10-14:30 Neural Network Based Discrete	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 notiating Control Authority in a m, pp. 2478-2483. University of North Carolina Charlotte University of North Carolina Charlotte University of North Carolina Charlotte ThB09.3 e Time Modified State
Adaptive Control III (Regular Ses Chair: Peherstorfer, Benjamin Co-Chair: Yucelen, Tansel 13:30-13:50 Quasi-Optimal Sampling to Lea Adaptive Model Reduction with Interpolation, pp. 2472-2477. Cortinovis, Alice Kressner, Daniel Massei, Stefano Peherstorfer, Benjamin 13:50-14:10 Impedance Modulation for Neg Haptic Shared Control Paradiga izadi, Vahid Bhardwaj, Akshay Ghasemi, Amirhossein 14:10-14:30 Neural Network Based Discrete Observer: Stability Analysis ar	sion) New York University University of South Florida ThB09.1 arn Basis Updates for Online Adaptive Empirical EPFL EPF Lausanne EPFL New York University ThB09.2 rotiating Control Authority in a m, pp. 2478-2483. University of North Carolina Charlotte University of North Carolina Charlotte University of North Carolina Charlotte University of North Carolina Charlotte University of North Carolina Charlotte ThB09.3 e Time Modified State ad Case Study, pp. 2484-2489. Missouri University of Science and

Technology

ThB09.5

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<i>Prob2Vec: Mathematical Semantic Embedding for Problem</i> <i>Retrieval in Adaptive Tutoring</i> , pp. 2490-2495.	
Su, Du	University of Illinois at Urbana- Champaign
Yekkehkhany, Ali	University of Illinois at Urbana- Champaign
Lu, Yi	University of Illinois at Urbana- Champaign
Lu, Wenmiao	University of Illinois at Urbana- Champaign

On Asymptotic System Error Convergence of Model Reference Adaptive Control Architectures in the Presence of Unmeasurable Coupled Dynamics, pp. 2496-2501.

14:50-15:10

Dogan, Kadriye Merve	University of South Florida
Yucelen, Tansel	University of South Florida
Muse, Jonathan	Wright Patterson Air Force Base

ThB10	Governor's SQ 11	
Autonomous Systems I (Regular Session)		
Chair: Zheng, Minghui	University at Buffalo	
Co-Chair: Vamvoudakis,	Georgia Inst. of Tech	
Kyriakos G.		
13:30-13:50	ThB10.1	
Autonomous Water Surface V		
Planning Using Self-Generated Forecasts, pp. 2502-2507.	d Goals and Environmental	
Krell, Evan	Texas A&M University - Corpus Christi	
King, Scott A.	Texas A&M University - Corpus Christi	
Garcia Carrillo, Luis Rodolfo	Texas A&M University - Corpus Christi	
13:50-14:10	ThB10.2	
Bounded Rational Unmanned Adversarial Target Tracking, p	<i>Aerial Vehicle Coordination for</i> p. 2508-2513.	
Kokolakis, Nick-Marios	Georgia Institute of Technology	
Kanellopoulos, Aris	Georgia Institute of Technology	
Vamvoudakis, Kyriakos G.	Georgia Inst. of Tech	
14:10-14:30	ThB10.3	
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Dai, Andong	University of Central Florida	
Xu, Yunjun	University of Central Florida	
14:30-14:50	ThB10.4	
Vision-Based Autonomous Dri	ving: A Model Learning	
<i>Approach</i> , pp. 2520-2525.		
Baheri, Ali	West Virginia University	
Kolmanovsky, Ilya V.	The University of Michigan	
Girard, Anouck	University of Michigan, Ann Arbor	
tseng, eric	Ford Motor Company	
Filev, Dimitre P.	Ford Motor Company	
14:50-15:10	ThB10.5	

Vehicle-Human Interactive Behaviors in Emergency: Data Extraction from Traffic Accident Videos, pp. 2526-2531.

Liu, Wansong	University at Buffalo
Luo, Danyang	University at Buffalo
Wu, Changxu	University of Arizona
Zheng, Minghui	University at Buffalo
15:10-15:30	ThB10.6
Navigation Functions with Non-Po Moving Obstacles, pp. 2532-2537.	int Destinations and
Chen, Chuchu	University of Delaware
Li, Caili	University of Delaware
Tanner, Herbert G.	University of Delaware

ThB11	Director's Row I
Networked Systems I (Regula	
Chair: Tang, Choon Yik	University of Oklahoma
Co-Chair: Butail, Sachit	Northern Illinois University
13:30-13:50	ThB11.1
Distributed Algorithms for S	Solving Modular Congruences
Over Networks, pp. 2538-254	
Li, Xiang	University of Oklahoma
Tang, Choon Yik	University of Oklahoma
13:50-14:10	ThB11.2
	ness through Edge Augmentation ructural Controllability, pp. 2544-
Abbas, Waseem	Vanderbilt University
Shabbir, Mudassir	Information Technology University
Jaleel, Hassan	Lahore University of Management Sciences
Koutsoukos, Xenofon	Vanderbilt University
14:10-14:30	ThB11.3
Network Reconstruction from pp. 2550-2555.	m a Single Information Cascade,
Chwistek, Katherine	Northern Illinois University
Butail, Sachit	Northern Illinois University
14:30-14:50	ThB11.4
Analysis, Online Estimation, Virus Model, pp. 2556-2561.	and Validation of a Competing
Pare, Philip E.	KTH Royal Institute of Technology
Vrabac, Damir	KTH Royal Institute of Technology
Sandberg, Henrik	KTH Royal Institute of Technology
Johansson, Karl H.	Royal Institute of Technology
14:50-15:10	ThB11.5
Analysis of Free Recall Dyna Memory Model (I), pp. 2562-2	amics of an Abstract Working 2567.
Gianluca, Villani	University of Toronto
Jafarian, Matin	KTH Royal Institute of Technology
Lansner, Anders	KTH Royal Institute of Technology
Johansson, Karl H.	Royal Institute of Technology
15:10-15:30	ThB11.6
Stealthy Local Covert Attack 2568-2573.	ks on Cyber-Physical Systems, pp.
Mikhaylenko, Dina	University of Kaiserslautern
Zhang, Ping	University of Kaiserslautern
	Dissetado Deux E
ThB12	Director's Row E

Estimation III (Regular Session)	
Chair: Spall, James C.	Johns Hopkins Univ
Co-Chair: Mazenc, Frederic	Inria Saclay
13:30-13:50	ThB12.1
Control and Estimation for Mo with Distance-Dependent Nois	
Nagy, Zoltan	Technical University of Cluj Napoca
Lendek, Zsofia	Technical University of Cluj- Napoca, VAT RO22736939
Busoniu, Lucian	Technical University of Cluj- Napoca
13:50-14:10	ThB12.2
<i>Rigid Body Dynamics Estimati</i> <i>Estimation Neural Networks</i> , p	on by Unscented Filtering Pose
Avant, Trevor	University of Washington
Morgansen, Kristi A.	University of Washington
14:10-14:30	ThB12.3
Distributed Adaptive State Est	timation and Tracking Scheme
	Active Passive Sensor Networks,
RAJ, AKHILESH	Missouri S & T
Jagannathan, Sarangapani	Missouri Univ of Science & Tech
Yucelen, Tansel	University of South Florida
14:30-14:50	ThB12.4
Nonlinear Attitude Estimation Microprocessors, pp. 2593-2598	for Small UAVs with Low Power
Kim, Sunsoo	Texas A&M University
Tadiparthi, Vaishnav	Texas A&M University
Bhattacharya, Raktim	Texas A&M
14:50-15:10	ThB12.5
<i>Confidence Intervals with Exp</i> <i>Information in the Scalar Case</i>	
Yuan, Xiangyu	Johns Hopkins University
Spall, James C.	Johns Hopkins Univ
15:10-15:30	ThB12.6
<i>On Fixed-Time Interval Estima</i> <i>Nonlinear Time-Varying Syste</i> 2610.	ation of Discrete-Time ms with Disturbances, pp. 2605-
Dinh, Thach N.	CNAM Paris
Mazenc, Frederic	Inria Saclay
Wang, Zhenhua	Harbin Institute of Technology
Raïssi, Tarek	Conservatoire National Des Arts Et Métiers
ThB13 Robust Control III (Regular Sess	Plaza Court 1 ion)
Chair: Arcak, Murat	University of California, Berkeley
Co-Chair: Seiler, Peter	University of Minnesota
13:30-13:50	ThB13.1
Active Disturbance Rejection ( Tracking, pp. 2611-2616.	Control for Grasping Force
zuo, wenyu	University of Houston
song, gangbing	University of Houston
Chen, Zheng	University of Houston
13:50-14:10	ThB13.2

## *Robust Controller Design for Automatic Voltage Regulation*, pp. 2617-2622.

pp. 2617-2622.	
Mandali, Anusree	Cleveland State University
Dong, Lili	Cleveland State University
Morinec, Allen	FirstEnergy Corporation
14:10-14:30	ThB13.3
Design of ADRC for Second-Or without Time-Derivatives in the 2628.	rder Mechanical Systems ne Tracking Controller, pp. 2623-
Ramirez-Neria, Mario	Universidad Politécnica De Valle De Mexico
Madonski, Rafal	Jinan University
Luviano-Juarez, Alberto	UPIITA - IPN Mexico
Gao, Zhiqiang	Cleveland State Univ
Sira-Ramirez, Hebertt	CINVESTAV
14:30-14:50	ThB13.4
Data-Driven Reachable Set Co Gaussian Process Classification 2629-2634.	omputation Using Adaptive n and Monte Carlo Methods, pp.
Devonport, Alex	University of California, Berkeley
Arcak, Murat	University of California, Berkeley
14:50-15:10	ThB13.5
Rebalancing in Vehicle-Sharing Availability Guarantees, pp. 263	
Cap, Michal	CTU in Prague
Roun, Tomáš	CTU Prague
15:10-15:30	ThB13.6
Construction of an Uncertainty Multiple Frequencies, pp. 2643- Patartics, Bálint	
	Control, Hungarian Academy Of
Seiler, Peter	University of Michigan, Ann Arbor
Vanek, Balint	SZTAKI
ThB14	Plaza Court 8
Estimation and Control of PDE S	Systems III (Invited Session)
Chair: Demetriou, Michael A.	Worcester Polytechnic Institute
Co-Chair: Bentsman, Joseph	University of Illinois at Urbana- Champaign
Organizer: Demetriou, Michael A.	Worcester Polytechnic Institute
Organizer: Fahroo, Fariba	AFOSR
13:30-13:50	ThB14.1
Delayed Multivariable Extremu Predictors (I), pp. 2649-2653.	Im Seeking with Sequential
Malisoff, Michael	Louisiana State University
Krstic, Miroslav	University of California, San Diego
13:50-14:10	ThB14.2
Optimal Communication Topol Feedback of Networked Colloc Distributed Parameter System	rated Actuator/Sensor Pairs in os (I), pp. 2654-2660.
Demetriou, Michael A.	Worcester Polytechnic Institute
Hadjicostis, Christoforos N.	University of Cyprus
14:10-14:30	ThB14.3
Enthalpy-Based Output Feedb Problem with Hysteresis (I), p	
Chen, Zhelin	

Bentsman, Joseph	University of Illinois at Urbana- Champaign
Thomas, Brian G.	Colorado School of Mines
14:30-14:50	ThB14.4
<i>PIETOOLS: A Matlab Toolbox for Manipulation and Optimization of Partial Integral Operators (I)</i> , pp. 2667-2672.	
Shivakumar, Sachin	Arizona State University
Das, Amritam	Eindhoven University of Technology
Peet, Matthew M.	Arizona State University
14:50-15:10	ThB14.5

Adaptive Detection and Accommodation of Communication Attacks on Infinite Dimensional Systems with Multiple Interconnected Actuator/sensor Pairs (I), pp. 2673-2678. Demetriou Michael A Worcester Polytechnic Institute

Demethou, Michael A.	worcester Polytechnic Institute
15:10-15:30	ThB14.6
Sensor Planning for Model-Based Identification, pp. 2679-2684.	Acoustic Source
Calkins, Luke	Duke University
Khodayi-mehr, Reza	Duke University
Aquino, Wilkins	Duke University
Zavlanos, Michael M.	Duke University

Nonlinear Output Feedback (Regular Session)Chair: Khorrami, FarshadNYU Tandon School of Engineering Co-Chair: Su, Shanwei13:30-13:50ThB15.1Control of Semilinear Dissipative Distributed Parameter Systems with Minimum Feedback Information, pp. 2685-2691. Babaei Pourkargar, DavoodKansas State University13:50-14:10ThB15.2Adding Virtual Measurements by PWM-Induced Signal Injection, pp. 2692-2698. Surroop, DilshadMines Paristech Combes, PascalSurroop, DilshadMines Paristech University14:10-14:30ThB15.3A Time-Delayed Lur'e Model with Biased Self-Excited Oscillations, pp. 2699-2704. Paredes, JuanUniversity of Michigan Islam, Syed Aseem UI University of Michigan Islam, Syet Aseem VI Nonlinear Systems with Unknown Time Delays, pp. 2705-2710. Krishnamurthy, PrashanthNYU Tandon School of Engineering Khorrami, Farshad14:50-15:10ThB15.5	ThB15	Plaza Court 5
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Motee, Nader	Lehigh University

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Simkoff, Jodie	University of Texas at Austin
Baldea, Michael	The University of Texas at Austin
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Castillo, Ivan	The Dow Chemical Company
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Lang, Xun	Yunnan University
Xie, Lei	National Key Laboratory of Industrial Control Technology
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Su, Hongye	Zhejiang Univ
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Leung, Henry	University of Calgary
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Poveda, Jorge I.	University of Colorado at Boulder
Krstic, Miroslav	University of California, San Diego

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Li, Yichuan	University of Illinois Urbana Champaign
Freris, Nikolaos M.	University of Science and Technology of China (USTC)
Voulgaris, Petros G.	Univ of Illinois, Urbana- Champaign
Stipanovic, Dusan M.	Univ of Illinois, Urbana- Champaign
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Ajalloeian, Amirhossein	University of Colorado Boulder
Simonetto, Andrea	IBM Research Ireland
Dall'Anese, Emiliano	University of Colorado Boulder
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Markovian Jump Linear Systems, pp. 2882-2887.		
Jansch-Porto, Joao Paulo	University of Illinois at Urbana- Champaign	
Hu, Bin	University of Illinois at Urbana- Champaign	
Dullerud, Geir E.	Univ of Illinois, Urbana-	

#### 14:50-15:10 ThB20.5 Switching Model Predictive Control of Switched Linear Systems with Average Dwell Time, pp. 2888-2893. Yuan, Chengzhi University of Rhode Island Gu, Yan University of Massachusetts Lowell Zeng, Wei South China University of Technology Stegagno, Paolo University of Rhode Island 15:10-15:30 ThB20.6 Uniform Exponential Stability in Switched Linear Systems: A Lagrange Duality Approach, pp. 2894-2900.

Najson, Federico

ThB19.4

Champaign

Sistema Nacional De Investigadores - ANII

ThB21	Director's Row H	
Control of Tokamak Fusion Plasmas (Tuto	orial Session)	
Chair: Walker, Michael L.	General Atomics	
Co-Chair: Felici, Federico	EPFL	
Organizer: Walker, Michael L.	General Atomics	
Organizer: Felici, Federico	EPFL	
Organizer: Schuster, Eugenio	Lehigh University	
Organizer: De Vries, Peter	ITER Organization	
13:30-13:31	ThB21.1	
Introduction to Tokamak Plasma Control (I), pp. 2901-2918.		
Walker, Michael L.	General Atomics	
De Vries, Peter	ITER Organization	
Felici, Federico	EPFL	
Schuster, Eugenio	Lehigh University	
13:31-14:30	ThB21.2	
Control of Magnetic Fields and Instabilities in Tokamak Fusion Plasmas (I)*.		
Felici, Federico	EPFL	
14:30-14:50	ThB21.3	
Integrated Core Kinetic and Magnetic Control in Tokamak Plasmas $(I)^*$ .		
Schuster, Eugenio	Lehigh University	
14:50-15:10	ThB21.4	
Exception Handling by the Plasma Control Systems of Tokamaks (I)*.		
De Vries, Peter	ITER Organization	

ThBT3 ThBT3 (Special Session)	Meetings and	
13:30-15:30	ThBT3.1	
<i>Special Session: Promoting Access for Under-Represented Groups in STEM Graduate Disciplines</i> , pp. 2919-2920.		
Ferri, Bonnie	Georgia Inst. of Tech	
Grover, Martha	Georgia Institute of Technology	
Hoo, Karlene	Gonzaga University	
Pasik-Duncan, Bozenna	Univ. of Kansas	
13:30-15:30	ThBT3.2	
Cancelled Special Session:	Quantum Information Systems:	

Cancelled Special Session: Quantum Information Systems: Communication, Control and Computing, pp. 2921-2921. Balas, Mark

Embry-Riddle Aeronautical

University

Steck, James	Wichita State University
13:30-15:30	ThBT3.3
NSF Program Manager Office of pp. 2922-2923.	Hours: Dr. Robert G. Landers,
Landers, Robert G.	Missouri University of Science and Technology

ThLBP-P01	Ballroom ABC	
Poster-ThP (Late Breaking Pos	ster Session)	
15:30-16:00	ThLBP-P01.1	
Dynamic Control Allocation of Redundantly-Actuated Cable-		
Driven Parallel Robots, pp. 2	924-2924.	
Cheah, Sze Kwan	University of Minnesota	
Hayes, Alex	University of Minnesota	
Caverly, Ryan James	University of Minnesota	
15:30-16:00	ThLBP-P01.2	
<i>Conic Controller Synthesis with Gain-Scheduled Internal</i> <i>Models for Robust Trajectory Tracking</i> , pp. 2925-2925.		
Chakraborty, Manash	University of Minnesota	
Caverly, Ryan James	University of Minnesota	
15:30-16:00	ThLBP-P01.3	
Handelman Representation As an Alternative to SOS for Safety Verification, pp. 2926-2926.		
Morovati, Samaneh	University of Tennessee, Knoxville	
Zhang, Yichen	Argonne National Laboratory	
Djouadi, Seddik, M.	University of Tennessee	
Tomsovic, Kevin	University of Tennessee	
15:30-16:00	ThLBP-P01.4	
Controller Development for a Morphing, Underwater Robot, pp. 2927-2927.		
Adibi, Sierra A.	University of Washington	
Morgansen, Kristi A.	University of Washington	
15:30-16:00	ThLBP-P01.5	
Analysis and Measurement of Heat Sources of Lithium-Ion Polymer Battery Using Electrochemical and Thermal Model		

Analysis and Measurement of Heat Sources of Lithium-Ion Polymer Battery Using Electrochemical and Thermal Model and Calorimeter, pp. 2928-2928.

Song, Minseok	Auburn University
Hu, Yang	Auburn University
Choe, Song-Yul (Ben)	Auburn University
15:30-16:00	ThLBP-P01.6

*Time-Distributed Optimization for Real-Time Model Predictive Control*, pp. 2929-2929.

Liao-McPherson, Dominic	The University of Michigan	
Nicotra, Marco M	University of Colorado Boulder	
Kolmanovsky, Ilya V.	The University of Michigan	
15:30-16:00	ThLBP-P01.7	
<i>A Vision-Based Lane Keeping System Using a Cascaded</i> <i>Adaptive Controller</i> , pp. 2930-2930.		
Bryan, William	Auburn University	
Boler, Matthew	Auburn University	
Bevly, David M.	Auburn University	

hLBP-P02	ACC Sponsors
Martin, Scott	Auburn University
Bevly, David M.	Auburn University
Poulu Douid M	Auburn University

ThLBP-P02	ACC Sponso
Meeting Space-ThP	

15:30-16:00	ThLBP-P02.1
Gold Sponsor: General Motors,	pp. 2931-2931.
Eckman, Wendy	General Motors
15:30-16:00	ThLBP-P02.2
Gold Sponsor: Mathworks, pp. 2	2932-2932.
Rose, Jennifer	MathWorks
Ulusoy, Melda	Mathworks
15:30-16:00	ThLBP-P02.3
Gold Sponsor: Mitsubishi Electri 2933-2933.	ric Research Lab (MERL), pp.
Thornton, Jay	Mitsubishi Electric Research Lab
Di Cairano, Stefano	Mitsubishi Electric Research Lab
15:30-16:00	ThLBP-P02.4
Silver Sponsor: Quanser, pp. 29	034-2934.
Rahaman, Josie	Quanser Consulting
Wang, Gemma	Quanser
15:30-16:00	ThLBP-P02.5
Silver Sponsor: SIAM, pp. 2935-	2935.
O'Neill, Kristin	SIAM
15:30-16:00	ThLBP-P02.6
Silver Sponsor: Cancelled, pp. 2	2936-2936.
Kelly, Claire	Wiley
15:30-16:00	ThLBP-P02.7
Silver Sponsor: DSPACE, pp. 29	37-2937.
Johnson, Janice	DSpace
15:30-16:00	ThLBP-P02.8
Silver Sponsor: Springer Natur	e, pp. 2938-2938.
Tominich, Christopher	Springer
Jackson, Oliver	Springer
15:30-16:00	ThLBP-P02.9
Bronze Sponsor: Processes, pp.	. 2939-2939.
Xiang, Wency	Processes MDPI
15:30-16:00	ThLBP-P02.10
Bronze Sponsor: Halliburton, p	p. 2940-2940.
Darbe, Robert	Halliburton
15:30-16:00	ThLBP-P02.11
Meeting: 2021 CDC OPCOM (fr 2941.	<i>rom 3pm to 4pm)</i> , pp. 2941-
Egerstedt, Magnus	Georgia Institute of Technology

ThC01	Governor's SQ 12
Learning III (Regular Session)	
Chair: Yong, Sze Zheng	Arizona State University
Co-Chair: Powell, Kody	University of Utah
16:00-16:20	ThC01.1
Deep Learning for Control: A Nor View, pp. 2942-2948.	n-Reinforcement Learning
Matei, Ion	Palo Alto Research Center
Minhas, Raj	PARC
Zhenirovskyy, Maksym	Palo Alto Research Center
de Kleer, Johan	Palo Alto Research Center
Rai, Rahul	University at Buffalo, SUNY

16:20-16:40	ThC01.2
Learning Physical Laws: The (	Case of Micron Size Particles in
<i>Dielectric Fluid</i> , pp. 2949-2954.	
Matei, Ion	Palo Alto Research Center
Zhenirovskyy, Maksym	Palo Alto Research Center
de Kleer, Johan	Palo Alto Research Center
Somarakis, Christoforos	Palo Alto Research Center
Baras, John S.	University of Maryland
16:40-17:00	ThC01.3
Dynamic Economic Optimizati Tank Reactor Using Reinforce	
Machalek, Derek	University of Utah
Quah, Titus	University of Utah
Powell, Kody	University of Utah
17:00-17:20	ThC01.4
Learning Pose Estimation for ( and Landing Using Visual-Ine	UAV Autonomous Navigation rtial Sensor Data, pp. 2961-2966.
Baldini, Francesca	California Institute of Technology
Anandkumar, Animashree	University of California, Irvine
Murray, Richard M.	California Inst. of Tech
17:20-17:40	ThC01.5
A Computational Model for De	ecision-Making and Assembly
Optimization in Manufacturing	7, pp. 2967-2974.
Sundstrom, Andrew	Nanotronics
Kim, Eun-Sol	Nanotronics
Limoge, Damas	Nanotronics
Pinskiy, Vadim	Nanotronics
Putman, Matthew	Nanotronics
17:40-18:00	ThC01.6
Data-Driven Model Invalidatio Continuous Systems Via Absti	
Jin, Zeyuan	Arizona State University
Khajenejad, Mohammad	Arizona State University
Rhajenejau, wonanniau	Anzona State Oniversity
Yong, Sze Zheng	,
	Arizona State University
Yong, Sze Zheng ThC02	Arizona State University
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session)	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui Organizer: Lian, Jianming	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory Pennsylvania State University Pacific Northwest National Laboratory
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory Pennsylvania State University Pacific Northwest National Laboratory Pennsylvania State University
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui Organizer: Lian, Jianming	Arizona State University Ballroom ABC
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui Organizer: Lian, Jianming Organizer: Zhu, Minghui	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory Pennsylvania State University Pacific Northwest National Laboratory Pennsylvania State University Pennsylvania State University
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui Organizer: Lian, Jianming Organizer: Zhu, Minghui Organizer: Lu, Yang	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory Pennsylvania State University Pacific Northwest National Laboratory Pennsylvania State University Pennsylvania State University ChC02.1
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui Organizer: Lian, Jianming Organizer: Zhu, Minghui Organizer: Lu, Yang 16:00-16:20 On Data-Driven Attack-Resilie	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory Pennsylvania State University Pacific Northwest National Laboratory Pennsylvania State University Pennsylvania State University Pennsylvania State University ChC02.1 Ent Gaussian Process ems (I), pp. 2981-2986. University of Illinois Urbana-
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui Organizer: Lian, Jianming Organizer: Zhu, Minghui Organizer: Lu, Yang 16:00-16:20 On Data-Driven Attack-Resilie Regression for Dynamic System	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory Pennsylvania State University Pacific Northwest National Laboratory Pennsylvania State University Pennsylvania State University ChC02.1
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui Organizer: Lian, Jianming Organizer: Zhu, Minghui Organizer: Lu, Yang 16:00-16:20 On Data-Driven Attack-Resilie Regression for Dynamic Systee Kim, Hunmin	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory Pennsylvania State University Pacific Northwest National Laboratory Pennsylvania State University Pennsylvania State University Pennsylvania State University Chent Gaussian Process ems (I), pp. 2981-2986. University of Illinois Urbana- Champaign
Yong, Sze Zheng ThC02 Cyber-Physical Privacy and Sec Session) Chair: Lian, Jianming Co-Chair: Zhu, Minghui Organizer: Lian, Jianming Organizer: Lu, Yang 16:00-16:20 On Data-Driven Attack-Resilie Regression for Dynamic Syste Kim, Hunmin Guo, Pinyao	Arizona State University Ballroom ABC curity in Energy Systems (Invited Pacific Northwest National Laboratory Pennsylvania State University Pacific Northwest National Laboratory Pennsylvania State University Pennsylvania State University Pennsylvania State University ThC02.1 ent Gaussian Process ems (1), pp. 2981-2986. University of Illinois Urbana- Champaign Pennsylvania State University

Zhang, Zhenyong	Zhejiang Univesity
Deng, Ruilong	Zhejiang University
Yau, David	Singapore University of Technology and Design
Cheng, Peng	Zhejiang University
Chen, Jiming	Zhejiang University
16:40-17:00	ThC02.3
	tructured Systems (I), pp. 2993-
2998.	
Gracy, Sebin	KTH, Royal Institute of Technology
Milosevic, Jezdimir	KTH Royal Institute of Technology
Sandberg, Henrik	KTH Royal Institute of Technology
17:00-17:20	ThC02.4
Localizing Data Manipulators i Identification of Power Systen	
Kar, Jishnudeep	North Carolina State University
Chakrabortty, Aranya	North Carolina State University
17:20-17:40	ThC02.5
Privacy-Preserving Transactiv	
3010.	Donnovlyonia State University
Lu, Yang Lian, Jianming	Pennsylvania State University Pacific Northwest National
Lian, Jianining	Laboratory
Zhu, Minghui	Pennsylvania State University
17:40-18:00	ThC02.6
A Binary Decision Diagram Ba	
Scheme for Power Systems (1	
Chhokra, Ajay	Vanderbilt University
Hasan, Saqib	Vanderbilt University
Dubey, Abhishek	Vanderbilt University
Karsai, Gabor	Vanderbilt University
ThC03	Governor's SQ 15
Automotive Control II (Regular S	
Chair: Mrochen, Michael Alexander	University of Stuttgart
Co-Chair: Rajamani, Rajesh	Univ. of Minnesota
16:00-16:20	ThC03.1
Joined Plant and Control Desig Transmission Systems, pp. 301	
Fahdzyana, Chyannie	Eindhoven University of
· · · · · · · · · · · · · · · · · · ·	Technology
van raemdonck, stefan	Punch Powertrain
Vergote, Karel	Punch Powertrain
Hofman, Theo	Technische Universiteit Eindhoven
16:20-16:40	ThC03.2
Vehicle Lateral Velocity and La Estimation Based on Switched 3028.	
lfqir, Sara	IBISC Laboratory, Paris-Saclay University
Ichalal, Dalil	Université d'Evry Val d'Essonne, IBISC Lab
Ait Oufroukh, Naima	
	IBISC, Université D'Evry
Mammar, Said	IBISC, Université D'Evry Université d'Evry IBISC
	•

# Energy-Efficient Autonomous Vehicle Control Using Reinforcement Learning and Interactive Traffic Simulations, pp. 3029-3034.

pp. 3029-3034.	
Li, Huayi	University of Michigan, Ann Arbor
Li, Nan	University of Michigan
Kolmanovsky, Ilya V.	The University of Michigan
Girard, Anouck	University of Michigan, Ann Arbor
17:00-17:20	ThC03.4
Autonomous Parking of Vehicl pp. 3035-3040.	le Fleet in Tight Environments,
Shen, Xu	University of California, Berkeley
Zhang, Xiaojing	UC Berkeley
Borrelli, Francesco	Unversity of California at Berkeley
17:20-17:40	ThC03.5
Analysis and Control of Hybrid Dual-Clutch Transmissions, pp	
Mrochen, Michael Alexander	University of Stuttgart
Sawodny, Oliver	University of Stuttgart
· · · · · · · · · · · · · · · · · · ·	· •
17:40-18:00	ThC03.6
Vehicle Motion Estimation Usi Observer, pp. 3047-3052.	ng a Switched Gain Nonlinear
Rajamani, Rajesh	Univ. of Minnesota
Jeon, Woongsun	University of Minnesota
Movahedi, Hamidreza	University of Minnesota
Zemouche, Ali	CRAN UMR CNRS 7039 & Inria:
	EPI-DISCO
ThC04	Governor's SQ 14
Energy Management Optimizati Session)	on for Intelligent Vehicles (Invited
Session)	on for Intelligent Vehicles (Invited
Session) Chair: Kim, Youngki	on for Intelligent Vehicles (Invited University of Michigan - Dearborn
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC (	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 Il Management of Connected I), pp. 3053-3058.
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC (	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 Il Management of Connected I), pp. 3053-3058.
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC (20 Hu, Qiuhao	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 Illinois Institute of Technology ThC04.1 Illinois Jostian States University of Michigan
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC (M Hu, Qiuhao Amini, Mohammad Reza	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 Il Management of Connected I), pp. 3053-3058. University of Michigan University of Michigan
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC (A Hu, Qiuhao Amini, Mohammad Reza Wang, Hao	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 In Management of Connected I), pp. 3053-3058. University of Michigan University of Michigan University of Michigan
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC ( Hu, Qiuhao Amini, Mohammad Reza Wang, Hao Kolmanovsky, Ilya V.	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 In Management of Connected I), pp. 3053-3058. University of Michigan University of Michigan University of Michigan The University of Michigan
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC ( Hu, Qiuhao Amini, Mohammad Reza Wang, Hao Kolmanovsky, Ilya V. Sun, Jing 16:20-16:40 An Iterative and Hierarchical A Velocity Profile and Power-Spi	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 Illinois Institute of Technology University of Michigan University of Michigan
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC ( Hu, Qiuhao Amini, Mohammad Reza Wang, Hao Kolmanovsky, Ilya V. Sun, Jing 16:20-16:40 An Iterative and Hierarchical J Velocity Profile and Power-Spi Vehicles (I), pp. 3059-3064.	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 Illinois Institute of Technology ThC04.1 Illinois Institute of Technology University of Michigan University of Michigan University of Michigan University of Michigan The University of Michigan University of Michigan
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC ( Hu, Qiuhao Amini, Mohammad Reza Wang, Hao Kolmanovsky, Ilya V. Sun, Jing 16:20-16:40 An Iterative and Hierarchical J Velocity Profile and Power-Spi Vehicles (I), pp. 3059-3064. Chen, Di	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 Il Management of Connected I), pp. 3053-3058. University of Michigan University of Michigan University of Michigan The University of Michigan University of Michigan University of Michigan The University of Michigan University of Michigan University of Michigan ThC04.2 Approach to Co-Optimizing the lit of Plug-In Hybrid Electric
Session) Chair: Kim, Youngki Co-Chair: Dadras, Sara Organizer: Amini, Mohammad Reza Organizer: Kim, Youngki Organizer: Dadras, Sara Organizer: Dadras, Sara Organizer: Lotfi, Nima Organizer: Hall, Carrie 16:00-16:20 Integrated Power and Therma HEVs Via Multi-Horizon MPC ( Hu, Qiuhao Amini, Mohammad Reza Wang, Hao Kolmanovsky, Ilya V. Sun, Jing 16:20-16:40 An Iterative and Hierarchical J Velocity Profile and Power-Spi Vehicles (I), pp. 3059-3064.	on for Intelligent Vehicles (Invited University of Michigan - Dearborn Ford Motor Company University of Michigan University of Michigan - Dearborn Company Southern Illinois University Edwardsville Illinois Institute of Technology ThC04.1 Illinois Institute of Technology ThC04.1 Illinois Institute of Technology University of Michigan University of Michigan University of Michigan University of Michigan The University of Michigan University of Michigan

Stefanopoulou, Anna G.

16:40-17:00

# A Robust MPC-Based Hierarchical Control Strategy for Energy Management of Hybrid Electric Vehicles in Presence of Uncertainty (I), pp. 3065-3070.

University of Michigan

ThC04.3

Sotoudeh, Seyedeh Mahsa HomChaudhuri, Baisravan	Illinois Institute of Technology Illinois Institute of Technology
17:00-17:20	ThC04.4
MPC-Based Vibration Control a an Electromagnetic Vibration A Nonlinearity (I), pp. 3071-3076.	nd Energy Harvesting Using
Chen, Kaian	Michigan State University
Li, Zhaojian	Michigan State University
Tai, Wei-Che	Michigan State University
Wu, Kai	Ford Motor Company
Wang, Yan	Ford Research and Advanced Engineerintg, Ford Motor Company
17:20-17:40	ThC04.5
Energy Management of Hybrid Networks (I), pp. 3077-3082.	Electric Vehicles Via Deep Q-
Zhu, Zhaoxuan	The Ohio State University
Liu, Yuxing	The Ohio State University
Canova, Marcello	The Ohio State University
17:40-18:00	ThC04.6
<i>Optimal Operation of a Plug-In</i> <i>Thermal and Degradation Mod</i>	
Kim, Jongho	Stanford University
Park, Youngsuk	Stanford University
Fox, John	Stanford University
Boyd, Stephen	Stanford University
Dally, William	Stanford University
ThC05 Oil and Gas Systems Modeling, I Session)	Plaza Court 6 Estimation, and Control (Invited
Oil and Gas Systems Modeling, I	
Oil and Gas Systems Modeling, I Session)	Estimation, and Control (Invited
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman	Estimation, and Control (Invited University of Calgary
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin ThC05.1
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling N	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin ThC05.1
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling M Applications (I), pp. 3091-3096.	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin ThC05.1 Model for Real-Time
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling N Applications (I), pp. 3091-3096. Auriol, Jean	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin ThC05.1 Model for Real-Time CNRS, Centrale Supelec
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling M Applications (I), pp. 3091-3096. Auriol, Jean Aarsnes, Ulf Jakob Flø	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin ThC05.1 Model for Real-Time CNRS, Centrale Supelec Norwegian Research Centre
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling N Applications (I), pp. 3091-3096. Auriol, Jean Aarsnes, Ulf Jakob Flø Shor, Roman	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin ThC05.1 Model for Real-Time CNRS, Centrale Supelec Norwegian Research Centre University of Calgary ThC05.2
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling N Applications (I), pp. 3091-3096. Auriol, Jean Aarsnes, Ulf Jakob Flø Shor, Roman 16:20-16:40 Power-Preserving Interconnect	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin ThC05.1 Model for Real-Time CNRS, Centrale Supelec Norwegian Research Centre University of Calgary ThC05.2
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling N Applications (I), pp. 3091-3096. Auriol, Jean Aarsnes, Ulf Jakob Flø Shor, Roman 16:20-16:40 Power-Preserving Interconnect Flow Models for Managed Press	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin The University of Texas at Austin (Intersection Contraction) CNRS, Centrale Supelec Norwegian Research Centre University of Calgary ThC05.2 Con of Single and Two-Phase Sure Drilling (I), pp. 3097-3102. Eindhoven University of
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling N Applications (I), pp. 3091-3096. Auriol, Jean Aarsnes, Ulf Jakob Flø Shor, Roman 16:20-16:40 Power-Preserving Interconnect Flow Models for Managed Press Abbasi, Mohammad Hossein	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin The University of Texas at Austin (Intersity of Texas at Austin ThC05.1 (Intersity of Texas at Austin ThC05.1 (Intersity of Texas at Austin ThC05.1 (Intersity of Calgary ThC05.2 (Intersity of Calgary) ThC05.2 (Intersity of Calgary) ThC05.2 (Intersity of Calgary) Eindhoven University of Technology Eindhoven University of
Oil and Gas Systems Modeling, I Session) Chair: Shor, Roman Co-Chair: Chen, Dongmei Organizer: Song, Xingyong Organizer: Zalluhoglu, Umut Organizer: Chen, Dongmei 16:00-16:20 Self-Tuning Torsional Drilling N Applications (I), pp. 3091-3096. Auriol, Jean Aarsnes, Ulf Jakob Flø Shor, Roman 16:20-16:40 Power-Preserving Interconnect Flow Models for Managed Press Abbasi, Mohammad Hossein Bansal, Harshit	Estimation, and Control (Invited University of Calgary The University of Texas at Austin Texas A&M University, College Station Halliburton The University of Texas at Austin ThC05.1 Model for Real-Time CNRS, Centrale Supelec Norwegian Research Centre University of Calgary ThC05.2 Citon of Single and Two-Phase Sure Drilling (1), pp. 3097-3102. Eindhoven University of Technology Eindhoven University of Technology

Van De Wouw, Nathan	Eindhoven University of Technology
16:40-17:00	ThC05.3
Control of Stick-Slip Vibration i Frequencies (I), pp. 3103-3108.	
Sun, Zhijie	Halliburton Energy Services
Huang, Sujian	Halliburton
17:00-17:20	ThC05.4
Down-Hole Directional Drilling	Dynamics Modeling Based on
a Hybrid Modeling Method with pp. 3109-3113.	
Ke, Chong	Texas A&M University, College Station
Tian, Dongzuo	Texas A&M University, College Station
Song, Xingyong	Texas A&M University, College Station
17:20-17:40	ThC05.5
Design of Online Pumping Sche	edules in Naturally Fractured
Shale Formations to Enhance 7 pp. 3114-3119.	Total Fracture Surface Area (I),
Siddhamshetty, Prashanth	Texas A&M University
Bhandakkar, Parth	Texas A&M University
Kwon, Joseph	Texas A&M University
17:40-18:00	ThC05.6
Combining Formation Seismic PDE-ODE Observer to Improve Estimation (I), pp. 3120-3125.	
Auriol, Jean	CNRS, Centrale Supelec
Kazemi, Nasser	University of Calgary
Innanen, Kristopher	University of Calgary
Shor, Roman	University of Calgary
ThC06	Ballroom DE
Autonomous Energy Systems: O Systems (Invited Session)	
Chair: Sojoudi, Somayeh	UC Berkeley
Co-Chair: Chen, Lijun	University of Colorado at Boulder
Organizer: Bay, Christopher	National Renewable Energy Laboratory
Organizer: Annoni, Jennifer	National Renewable Energy Laboratory
Organizer: Bernstein, Andrey	National Renewable Energy Lab (NREL)
Organizer: Kroposki, Ben	National Renewable Energy Laboratory
16:00-16:20	ThC06.1
Homotopy Method for Finding t	the Global Solution of Post-
Contingency Optimal Power Flo	ow (I), pp. 3126-3133.
Park, SangWoo	UC Berkeley
Glista, Elizabeth	University of California, Berkeley
Lavaei, Javad	UC Berkeley
Sojoudi, Somayeh	UC Berkeley
16:20-16:40	ThC06.2
Considering Integer Chance Co	
Flexible Line Flow Ratings (I), p	
Garifi, Kaitlyn	University of Colorado Boulder

Gann, Kaluyn	University of Colorado Boulder
Baker, Kyri	University of Colorado Boulder

#### ThC06.3 16:40-17:00 Model-Free Primal-Dual Methods for Network Optimization with Application to Real-Time Optimal Power Flow (I), pp. 3140-3147. Chen, Yue National Renewable Energy Laboratory National Renewable Energy Lab Bernstein, Andrey (NREL) University of Florida Devraj, Adithya M. Meyn, Sean P. Univ. of Florida 17:00-17:20 ThC06.4 Solving Optimal Power Flow for Distribution Networks with State Estimation Feedback (I), pp. 3148-3155. University of Texas at Dallas Guo, Yi Zhou, Xinyang National Renewable Energy Laboratory Zhao, Changhong The Chinese University of Hong Kong Chen, Yue National Renewable Energy Laboratory Summers, Tyler H. University of Texas at Dallas Chen, Lijun University of Colorado at Boulder 17:20-17:40 ThC06.5 Worst-Case Sensitivity of DC Optimal Power Flow Problems (I), pp. 3156-3163. Anderson, James Columbia University Zhou, Fengyu California Institute of Technology Low, Steven California Institute of Technology 17:40-18:00 ThC06.6 Dynamic Equivalence of Large-Scale Power Systems Based on Boundary Measurements (I), pp. 3164-3169. tong, ning University of Tennessee, Knoxville jiang, zhihao University of Tennessee, Knoxville University of Tennessee, Knoxville you, shutang University of Tennessee, Knoxville zhu, lin deng, xianda University of Tennessee, Knoxville Xue, Yaosuo Oak Ridge National Laboratory Liu, Yilu The University of Tennessee

ThC07	Plaza Court 7
Fault Detection (Regular Session)	
Chair: Bollas, George	University of Connecticut
Co-Chair: Yuan, Chengzhi	University of Rhode Island
16:00-16:20	ThC07.1
Joint Decision and Fault Estimation for Formation Control of Interconnected UAVs, pp. 3170-3175.	
Lee, Woo-Cheol	Korea Advanced Institute of Science and Technology
Choi, Han-Lim	KAIST
16:20-16:40	ThC07.2
Similar Fault Isolation of Discrete-Time Nonlinear Uncertain Systems Using Smallest Residual Principle, pp. 3176-3181.	
Zhang, Jingting	University of Rhode Island
Yuan, Chengzhi	University of Rhode Island
Stegagno, Paolo	University of Rhode Island
16:40-17:00	ThC07.3

#### *Least-Squares and Information-Theory-Based Inferential Sensor Design for Fault Diagnostics*, pp. 3182-3187.

Hale, William	University of Connecticut
Bollas, George	University of Connecticut
7:00-17:20	ThC07.4
<i>Nonlinear Fault Detection Scl</i> 188-3192.	heme for PV Applications, pp.
Hawkins, Nicholas	University of Louisville
Jewell, Nicholas	LG&E-KU
Alqatamin, Moath	University of Louisville
Bhagwat, Bhagyashri	University of Louisville
McIntyre, Michael	University of Louisville
7:20-17:40	ThC07.5
ault Detection and Isolation fo	
Ouyang, Hupo	Beihang University
Lin, Yan	Beijing University of Aeronautics and Astronautics

ThC08	Governor's SQ 10
Robotics II (Regular Session)	
Chair: Antunes, Duarte	Eindhoven University of Technology, the Netherlands
Co-Chair: Garofalo, Gianluca	German Aerospace Center (DLR)
16:00-16:20	ThC08.1
Density Functions for Guarant Systems, pp. 3199-3204.	eed Safety on Robotic
Chen, Yuxiao	California Institute of Technology
Singletary, Andrew	Georgia Institute of Technology
Ames, Aaron D.	California Institute of Technology
16:20-16:40	ThC08.2
Model Predictive Tracking Controller for Quadcopters with Setpoint Convergence Guarantees, pp. 3205-3210.	
Andrien, Alex Rudolf Petrus	Eindhoven University of Technology
Kremers, Demy	Eindhoven University of Technology
Kooijman, Dave	Eindhoven University of Technology
Antunes, Duarte	Eindhoven University of Technology, the Netherlands
16:40-17:00	ThC08.3
Optimal Trajectory Tracking for Microswimmer, pp. 3211-3216.	or a Magnetically Driven
Buzhardt, Jake	Clemson University
Tallapragada, Phanindra	Clemson University
17:00-17:20	ThC08.4
Performance Satisfaction in M Bipedal Robot, pp. 3217-3223.	idget, a Thruster-Assisted
Dangol, Pravin	Northeastern University
Ramezani, Alireza	Northeastern University
Jalili, Nader	Northeastern University
17:20-17:40	ThC08.5
A Smooth Uniting Controller for	or Robotic Manipulators: An

A Smooth Uniting Controller for Robotic Manipulators: An Extension of the Adaptive Variance Algorithm (AVA), pp. 3224-3229.

Garofalo, Gianluca

German Aerospace Center (DLR)

Mesesan, George	German Aerospace Center (DLR)
17:40-18:00	ThC08.6
Design of Smooth Path Base η^3 Spline and Bezier Curve	<i>d on the Conversion between</i> , pp. 3230-3235.
Hsu, Ting-Wei	Academia Sinica Institute of Information
Liu, Jing-Sin	Academia Sinica
ThC09	Govenor's SQ 16
Control Applications I (Regular	Session)
Chair: You, Fengqi	Cornell University
Co-Chair: Pisu, Pierluigi	Clemson University
16:00-16:20	ThC09.1
A Novel Phasor Control Desig Gyroscopes, pp. 3236-3241.	gn Method: Application to MEMS
Saggin, Fabricio	Ecole Centrale De Lyon
Scorletti, Gerard	Ecole Centrale De Lyon
Korniienko, Anton	Ecole Centrale De Lyon, Laboratoire Ampère
16:20-16:40	ThC09.2
	m for End-To-End Autonomous
Song, Wenjie	Beijing Institute of Technology
Liu, Shixian	Beijing Institute of Technology
Li, Yujun	Shanghai Jiao Tong University
Yang, Yi	Beijing Institute of Technology
xiang, changle	Beijing Institute of Technology
16:40-17:00	ThC09.3
	ement of Engine Speed fferentiator in the Crank-Angle
<i>Domain</i> , pp. 3249-3254.	
Wang, Runzhi	Harbin Engineering University
Li, Xuemin	Harbin Engineering University
Ahmed, Qadeer	The Ohio State University
Wang, Zhongwei Ma, Xiuzhen	Harbin Engineering University College of Power and Energy,
	Harbin Engineering University
17:00-17:20	ThC09.4
<i>Optimal Operation of a Hybri</i> (HHEA) for Off-Road Vehicles Decisions, pp. 3255-3260.	<i>id Hydraulic Electric Architecture s Over Discrete Operating</i>
Siefert, Jacob	University of Minnesota
Li, Perry Y.	Univ. of Minnesota
17:20-17:40	ThC09.5
	of Electric Taxicab for Urban
Yao, Jiwei	Cornell University
You, Fengqi	Cornell University
17:40-18:00	, ThC09.6
Real-Time False Data Injection	
	with PDE Modeling, pp. 3267-3272.
A.Biroon, Roghieh	Clemson University
Abdollahi Biron, Zoleikha	University of Florida
Pisu, Pierluigi	Clemson University

ThC10	Governor's SQ 11
Autonomous Systems II (Regu	ular Session)
Chair: Panagou, Dimitra	University of Michigan, Ann Arbor
Co-Chair: Richards, Christopher	University of Louisville
16:00-16:20	ThC10.1
More Consensus Is Not Alwa	ays Beneficial, pp. 3273-3278.
Wang, Xuan	Purdue University
Mou, Shaoshuai	Purdue University
16:20-16:40	ThC10.2
<i>On the Phase Margin of Net</i> <i>Fabricated Attacks of an Int</i>	worked Dynamical Systems and ruder, pp. 3279-3284.
Bhusal, Rajnish	The University of Texas at Arlington
Taner, Baris	University of Texas at Arlington
Subbarao, Kamesh	The University of Texas, Arlington
16:40-17:00	ThC10.3
Resilient Finite-Time Conser Perspective (I), pp. 3285-3290	nsus: A Discontinuous Systems D.
Usevitch, James	University of Michigan-Ann Arbor
Panagou, Dimitra	University of Michigan, Ann Arbor
17:00-17:20	ThC10.4
Tensor-Train-Based Algorith	ms for Aggregate State
Estimation of Swarms with 1	Interacting Agents, pp. 3291-3298.
Miculescu, David	Massachusetts Institute of Technology
Karaman, Sertac	Massachusetts Institute of Technology
17:20-17:40	ThC10.5
Dynamic Anti-Windup Comp Systems with Input Saturati	
Richards, Christopher	University of Louisville
Zhang, Haopeng	University of Louisville
17:40-18:00	ThC10.6
Risk-Averse Planning under	Uncertainty, pp. 3305-3312.
Ahmadi, Mohamadreza	California Institute of Technology
Ono, Masahiro	Jet Propulsion Laboratory, California Institute of Technology
Ingham, Michel D.	NASA Jet Propulsion Laboratory
Ames. Aaron D.	California Institute of Technology
Murray, Richard M.	California Inst. of Tech
ThC11	Director's Row I
Networked Systems II (Regula	r Session)
Chair: She, Zhikun	Beihang University
Co-Chair: Zhang, Meirong	Gonzaga University
16:00-16:20	ThC11.1
Edge Centrality Matrix: Imp Gramian Controllability Metr	act of Network Modification on rics, pp. 3313-3318.
Chanekar, Prasad Vilas	University of California, San Diego
Cortes, Jorge	University of California, San Diego
16:20-16:40	ThC11.2
	ization for Multi-Agent Systems

Semi-Global State Synchronization for Multi-Agent Systems Subject to Actuator Saturation and Unknown Nonuniform Input Delay, pp. 3319-3324.

Zhang, Meirong

Gonzaga University

Saberi, Ali	Washington State Univ
Stoorvogel, Anton A.	University of Twente
16:40-17:00	ThC11.3
Conic System Analysis of Netv	
Human Controller, pp. 3325-333	
McCourt, Michael J.	University of Washington Tacoma
Doucette, Emily	AFRI
Curtis, J. Willard	Air Force Research Laboratory
17:00-17:20	ThC11.4
LMI-Based Output Feedback C of Sporadic Measurements, pp	<i>Control Design in the Presence</i> 3331-3336.
Merco, Roberto	Clemson University
Ferrante, Francesco	GIPSA-lab/CNRS and Universite Grenoble Alpes
Sanfelice, Ricardo G.	University of California at Santa Cru:
Pisu, Pierluigi	Clemson University
17:20-17:40	ThC11.5
Higher-Order Cluster Consens	us in Continuous-Time
Networks, pp. 3337-3342.	
Develer, Ümit	Bogazici University
Akar, Mehmet	Bogazici University
17:40-18:00	ThC11.6
3343-3348. Liang, Quanyi	Static Diffusive Controllers, pp.
Ong, Chong-Jin	
• •	National University of Singapore
Ong, Chong-Jin	National University of Singapore Beihang University
Ong, Chong-Jin She, Zhikun ThC12	National University of Singapore Beihang University Director's Row E
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session)	National University of Singapore Beihang University Director's Row E University of Missour
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST.	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. Dimensional Filters with Non-
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. <sup>2</sup> Dimensional Filters with Non- ebra, pp. 3349-3354.
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D Maximal Rank Estimation Alge	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. <sup>2</sup> Dimensional Filters with Non- ebra, pp. 3349-3354. Tsinghua University
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D Maximal Rank Estimation Alge Dong, Wenhui	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. <sup>2</sup> Dimensional Filters with Non- ebra, pp. 3349-3354. Tsinghua University Tsinghua University
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D Maximal Rank Estimation Alge Dong, Wenhui Chen, Xiuqiong	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. <sup>2</sup> Dimensional Filters with Non- ebra, pp. 3349-3354. Tsinghua University Tsinghua University
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D Maximal Rank Estimation Alge Dong, Wenhui Chen, Xiuqiong Yau, Stephen ST. 16:20-16:40 Real-Time Cubature Kalman F Blood Pressure Response Cha Drugs Administration, pp. 3355	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. <sup>2</sup> Dimensional Filters with Non- ebra, pp. 3349-3354. Tsinghua University Tsinghua University Tsinghua University Tsinghua University Tsinghua University Tsinghua University ThC12. <sup>2</sup>
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D Maximal Rank Estimation Alge Dong, Wenhui Chen, Xiuqiong Yau, Stephen ST. 16:20-16:40 Real-Time Cubature Kalman F Blood Pressure Response Cha Drugs Administration, pp. 3355 Tasoujian, Shahin	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. <sup>2</sup> Dimensional Filters with Non- ebra, pp. 3349-3354. Tsinghua University Tsinghua University Tsinghua University Tsinghua University Tsinghua University ThC12.2 Filter Parameter Estimation of racteristics under Vasoactive i-3362. University of Houstor
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D Maximal Rank Estimation Alge Dong, Wenhui Chen, Xiuqiong Yau, Stephen ST. 16:20-16:40 Real-Time Cubature Kalman F Blood Pressure Response Cha Drugs Administration, pp. 3355 Tasoujian, Shahin Salavati Dezfuli, Saeed	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. <sup>2</sup> Dimensional Filters with Non- ebra, pp. 3349-3354. Tsinghua University Tsinghua University Tsinghua University ThC12.2 Filter Parameter Estimation of racteristics under Vasoactive i-3362. University of Houstor University of Houstor
Ong, Chong-Jin She, Zhikun ThC12 Estimation IV (Regular Session) Chair: Xin, Ming Co-Chair: Yau, Stephen ST. 16:00-16:20 Novel Classification of Finite D Maximal Rank Estimation Alge Dong, Wenhui Chen, Xiuqiong Yau, Stephen ST. 16:20-16:40 Real-Time Cubature Kalman F Blood Pressure Response Cha Drugs Administration, pp. 3355 Tasoujian, Shahin	National University of Singapore Beihang University Director's Row E University of Missour Tsinghua University ThC12. <sup>2</sup> Dimensional Filters with Non- ebra, pp. 3349-3354. Tsinghua University Tsinghua University Tsinghua University Tsinghua University ThC12.2 Filter Parameter Estimation of racteristics under Vasoactive i-3362. University of Houstor University of Houstor
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Darouach, Mohamed	Université De Lorraine, CRAN- CNRS UMR 7039
Messaoud, Hassani	Ecole Nationale d'Ingénieurs De Monastir
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Process Control II (Regular Ses Chair: Detroja, Ketan P. Co-Chair: El-Farra, Nael H. 16:00-16:20 Design an Optimal Blending Chance-Constrained Optimize dela Rosa, Loren Chow, Tsz Yuet Matthew Yang, Yu 16:20-16:40 Real-Time Optimal Resource Symbiotic Network Using Tra 3541-3546. Krishnamoorthy, Dinesh Valli, Carlo Skogestad, Sigurd 16:40-17:00 Performance Characterization Measurement Delays and Act Fault Accommodation, pp. 354	ssion) Indian Institute of Technolo Hyderab University of California, Day ThC17 Recipe Via Scenario-Based ation, pp. 3535-3540. California State University Lo Bea University of Michigan, Ann Arb California State University Lo Bea ThC17 Allocation in an Industrial ansient Measurements (I), pp. Norwegian University of Science and Technolo Politecnico Di Mila Norwegian Univ. of Science Te ThC17 n of Sampled-Data Systems wi tuator Faults: Implications for 47-3552.
Process Control II (Regular Ses Chair: Detroja, Ketan P. Co-Chair: El-Farra, Nael H. 16:00-16:20 Design an Optimal Blending of Chance-Constrained Optimized dela Rosa, Loren Chow, Tsz Yuet Matthew Yang, Yu 16:20-16:40 Real-Time Optimal Resource Symbiotic Network Using Tra 3541-3546. Krishnamoorthy, Dinesh Valli, Carlo Skogestad, Sigurd 16:40-17:00 Performance Characterization Measurement Delays and Act Fault Accommodation, pp. 354 Allen, James	ssion) Indian Institute of Technolo Hyderabi University of California, Dav ThC17 Recipe Via Scenario-Based ation, pp. 3535-3540. California State University Loo Bea University of Michigan, Ann Arb California State University Loo Bea University of Michigan, Ann Arb California State University Loo Bea ThC17 Allocation in an Industrial ansient Measurements (I), pp. Norwegian University of Science and Technolo Politecnico Di Milai Norwegian Univ. of Science Te ThC17 n of Sampled-Data Systems wittuator Faults: Implications for 47-3552. University of California, Dav
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Qin, S. Joe	University of Southern California
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Pappas, losif	Texas A&M University
Avraamidou, Styliani	Imperial College Londor
Pistikopoulos, Efstratios N.	Texas A&M University
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Khandelwal, Shubham	Indian Institute of Technology Hyderabad
Detroja, Ketan P.	Indian Institute of Technology Hyderabad
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Chair: Maldonado, Bryan	University of Michigan
Co-Chair: Halder, Abhishek	University of California, Santa Cruz
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Theodorou, Evangelos A.	Georgia Institute of Technology
Chen, Yongxin	Georgia Institute of Technology
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Caluya, Kenneth	University of California, Santa Cruz
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Dutreix, Maxence	Georgia Institute of Technology
Santoyo, Cesar	Georgia Institute of Technology
Abate, Matthew	Georgia Institute of Technology
Coogan, Samuel	Georgia Institute of Technology
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Maldonado, Bryan	Oak Ridge National Laboratory
Stefanopoulou, Anna G.	University of Michigar
Hoard, John	University of Michigar
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Bakolas, Efstathios	The University of Texas at Austin
Tsolovikos, Alexandros	The University of Texas at Austin

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do Val, Joao B.R.	Unicamp - Fee
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Chair: Granichin, Oleg	Saint Petersburg State Universi
Co-Chair: Speranzon, Alberto	Honeywell Aerospace - Advance Technolo
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Sahoo, Avimanyu	Oklahoma State Universi
Chang, Liang	Guangxi Key Laboratory Trusted Software, Guilin Universi
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Halsted, Trevor	Stanford Universi
Schwager, Mac	Stanford Universi
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Granichin, Oleg	Saint Petersburg State Universi
Granichina, Olga	Herzen State Pedagogic Universi
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De Marchi, Alberto	Bundeswehr University Munic
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Speranzon, Alberto	Honeywell Aerospace - Advance Technolo
Shivkumar, Shashank	Honeywell Aerospace
Ghrist, Robert	Univ of Illinois, Urban Champaig
	. <u></u>
ThC20	Plaza Court
Discrete Event Systems (Regula Chair: Yin, Xiang	r Session) Shanghai Jiao Tong Universi

Chair: Yin, Xiang	Shanghai Jiao Tong University
Co-Chair: Cervin, Anton	Lund University
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Wang, Le Yi	Wayne State University
Chen, Wen	Wayne State University
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He, Shuaipeng	University of Texas at San Antonio
Qian, Chunjiang	University of Texas at San Antonio
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Zhang, Jiachen	University of Toronto
Wonham, W. Murray	Univ. of Toronto
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Supervisory Control of Discret Step Opacity, pp. 3665-3671. Xie, Yifan Yin, Xiang 17:20-17:40 Tracking Controller Design for Outputs, pp. 3672-3677. Fritz, Raphael Zhang, Ping 17:40-18:00 LQG-Optimal versus Simple E	te-Event Systems for Infinite- Shanghai Jiao Tong University Shanghai Jiao Tong University ThC20.5 r Petri Nets with Inputs and University of Kaiserslautern University of Kaiserslautern ThC20.6
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ThC21	Director's Row H	
Control of Wafer Scanner: Methods and Developments (Tutorial Session)		
Chair: Heertjes, Marcel	Eindhoven University of Technology	
Co-Chair: Butler, Hans	ASML	
Organizer: Heertjes, Marcel	Eindhoven University of Technology	
Organizer: Butler, Hans	ASML	
Organizer: van der Meulen, Stan	ASML	
Organizer: Ahlawat, Rahul	CYMER	
16:00-16:01	ThC21.1	

16:00-16:01

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Introduction To: Control of Wafer Scanner: Methods and Developments (I), pp. 3685-3685.

Heertjes, Marcel	Eindhoven University of Technology
	rechnology
Butler, Hans	ASML
Dirkx, Nic	ASML
van der Meulen, Stan	ASML
Simonelli, James	ASML
16:01-16:40	ThC21.2

16:01-16:40ThC21.Control of Wafer Scanners: Methods and Developments (I),<br/>pp. 3686-3703.Perelopments (I),<br/>perelopments (I),<br/>perelopmen

Heertjes, Marcel	Eindhoven University of Technology
Ahlawat, Rahul	CYMER
Butler. Hans	ASML
Dirkx, Nic	ASML
van der Meulen, Stan	ASML
O'Brien, Kevin	Cymer Light Source LLC
Simonelli, James	ASML
Teng, Kuo-Tai	UCLA
Zhao, Yingbo	University of California, San Diego
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Ahlawat, Rahul	CYMER
O'Brien, Kevin	Cymer Light Source LLC
Simonelli, James	ASML
Teng, Kuo-Tai	ASML
Zhao, Yingbo	ASML
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Butler, Hans	ASML
17:20-17:40	ThC21.5
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Heertjes, Marcel	Eindhoven University of Technology
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Stages Part 2: Control of Therma	al-Induced Deformation (I)*.
van der Meulen, Stan	ASML
Dirkx, Nic	ASML
Heertjes, Marcel	Eindhoven University of Technology

ThCT3	Meetings and
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Tian, Ning	University of Kansas
Cai, Ting	University of Michigan
Goshtasbi, Alireza	University of Michigan
16:00-18:00	ThCT3.2
Special Session: Getting Funded	by NSF: Proposal
Preparation and the Merit Review	<i>Process</i> , pp. 3708-3708.
Dolinskaya, Irina	National Science Foundation (NSF)

ThBaT5	Meetings
ThBaT5 (Special Session)	
19:30-21:30	ThBaT5.1
Meetings: TC Smart Grid (from 6pm to	o <i>7pm)</i> , pp. 3709-3709.
Hiskens, lan	University of Michigan
19:30-21:30	ThBaT5.2
Meeting: TC Automotive Controls (from pp. 3710-3710.	m 6.30pm to 7.30pm),
Siegel, Jason B.	University of Michigan

#### Technical Program for Friday July 3, 2020

FrP1 Ballroom 1 Distributed Decision Making in Network Systems: Algorithms, Fundamental Limits, and Applications (Plenary Session)		
Chair: Devasia, Santosh	Univ of Washington	
08:00-09:00	FrP1.1	
Distributed Decision Making in Algorithms, Fundamental Limits 3711.		
Li, Na	Harvard University	
FrLBP-A01 Poster-FrA (Late Breaking Poster S	Ballroom ABC Session)	
09:00-09:30	FrLBP-A01.1	
Scalable Reinforcement Learnin Multi-Agent Networked Systems		
Qu, Guannan	Caltech	
Wierman, Adam	California Institute of Technology	
Li, Na	Harvard University	
09:00-09:30	FrLBP-A01.2	
<i>Transition Motion Control of Hy</i> <i>Architecture</i> , pp. 3713-3713.	brid Hydraulic Electric	
Chatterjee, Arpan	University of Minnesota	
Li, Perry Y.	Univ. of Minnesota	
09:00-09:30	FrLBP-A01.3	
Multi-Robot Guided Policy Searce Control, pp. 3714-3714.	ch for Decentralized Swarm	
Jiang, Chao	University of Wyoming	
Guo, Yi	Stevens Institute of Technology	
09:00-09:30	FrLBP-A01.4	
Mechanisms for Ensuring Stabil Optimization for Model Predictiv		
Leung, Jordan	University of Michigan	
Skibik, Terrence	University of Colorado Boulder	
Liao-McPherson, Dominic	The University of Michigan	
Kolmanovsky, Ilya V.	The University of Michigan	
Nicotra, Marco M	University of Colorado Boulder	
09:00-09:30	FrLBP-A01.5	
Accelerated-Gradient-Based Fle Decentralized Robot Networks,	pp. 3716-3716.	
Gombo, Yoshua	University of Washington	
Tiwari, Anuj	University of Washington	
Devasia, Santosh	Univ of Washington	
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Rapid Robust State Transitions Networks with A-DSR, pp. 3717-3	3717.	
Tiwari, Anuj	University of Washington	
Devasia, Santosh	Univ of Washington	
09:00-09:30	FrLBP-A01.7	
Bayesian Multimodal Fusion for 3718-3718.		
Kanlapuli Rajasekaran, Ramya	University of Colorado Boulder	
Ahmed, Nisar Frew, Eric W.	University of Colorado Boulder University of Colorado, Bolder	
, Ello II.		

09:00-09:30	FrLBP-A01.8
Safety and Stability Analysis of	
Wave Dampening Controller, pp	
Kreienkamp, Chris	University of Notre Dame
Fishbein, Daniel	Missouri State University
Bhadani, Rahul	University of Arizona
Sprinkle, Jonathan	University of Arizona
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Meeting Space-FrA	
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Rose, Jennifer	MathWorks
Ulusoy, Melda	Mathworks
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Thornton, Jay	Mitsubishi Electric Research Lab
Di Cairano, Stefano	Mitsubishi Electric Research Lab
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Wang, Gemma	Quanser
09:00-09:30	FrLBP-A02.5
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Kelly, Claire	Wiley
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Tominich, Christopher	Springer
Jackson, Oliver	Springer
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Xiang, Wency	Processes MDPI
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Bronze Sponsor: Halliburton, pp	
Darbe, Robert	Halliburton
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FrA01	Ballroom 1
<b>RI: Control of Biological and Aer</b>	rospace Systems (RI Session)
Chair: Grover, Martha	Georgia Institute of Technology
Co-Chair: Clayton, Garrett	Villanova University
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Backstepping Control of Gliding Robotic Fish for Trajectory

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Colomon Domotrio	
Coleman, Demetris Tan, Xiaobo	Michigan State University Michigan State University
09:55-09:58	FrA01.2
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Stochastically Produced Com	
Xu, Zikai	University of Delaware
Ghusinga, Khem Raj	University of North Carolina at Chapel Hill
Singh, Abhyudai	University of Delaware
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Abhishek, Vishal	Michigan State University
Srivastava, Vaibhav	Michigan State University
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Hasnain, Aqib	University of California, Santa Barbara
Boddupalli, Nibodh	University of California Santa Barbara
Manjaly Joshy, Dennis	UC Santa Barbara
Egbert, Robert	University of Washington
Yeung, Enoch	University of California Santa Barbara
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Schweidel, Katherine	UC Berkeley
Packard, Andrew K.	Univ. of California at Berkeley
Arcak, Murat	University of California, Berkeley
Seiler, Peter	University of Michigan, Ann Arbor
Philbrick, Douglas	Uc Berkeley
10:07-10:10	FrA01.6
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Pandey, Ayush	California Institute of Technology
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Engelbert Illian, Mathias	RWTH Aachen University
Liu, Lin	RWTH Aachen University
Leonhardt, Steffen	RWTH Aachen University
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Kumar, Shashi Ranjan	Indian Institute of Technology Bombay
Mukherjee, Dwaipayan	Indian Institute of Technology Bombay
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Stationary Targets, pp. 3782-37		
Sinha, Abhinav	Indian Institute of Technology Bombay	
Kumar, Shashi Ranjan	Indian Institute of Technology Bombay	
Mukherjee, Dwaipayan	Indian Institute of Technology Bombay	
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Dasgupta, Ranjan	TCS	
Basu Roy, Sayan	Indraprastha Institute of Information Technology Delhi	
Bhasin, Shubhendu	Indian Institute of Technology Delhi	
10:22-10:25	FrA01.11	
Deviated Pursuit Based Coope		
Interception against Moving Ta		
Sinha, Abhinav	Indian Institute of Technology Bombay	
Mukherjee, Dwaipayan	Indian Institute of Technology Bombay	
Kumar, Shashi Ranjan	Indian Institute of Technology Bombay	
10:25-10:28	FrA01.12	
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Kumar, Shashi Ranjan	Indian Institute of Technology Bombay	
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Misra, Gaurav	Rutgers University	
Bai, Xiaoli	Rutgers, the State University of New Jer	
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Nilsson, Petter	California Institute of Technology	
Ames, Aaron D.	California Institute of Technology	
Murray, Richard M.	California Inst. of Tech	
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Casau, Pedro	Instituto Superior Técnico, University of Lisbon	
Cunha, Rita	Instituto Superior Técnico, Universidade De Lisboa	
Silvestre, Carlos	Instituo Superior Técnico	
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Bhargavapuri, Mahathi	IIT Kanpur		
Deshpande, Aditya Milind University of Cinc			
Sridhar, Siddharth University of Cinc			
Cohen, Kelly University of Cinc			
Kumar, Manish	University of Cincinnati		
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Sadegh, Nader	Georgia Inst. of Tech		
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Henrion, Didier	LAAS-CNRS		
Hromcik, Martin	Czech Technical University, FEE		
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Dumon, Jonathan	CNRS, Gipsa-Lab		
Meslem, Nacim	GIPSA-LAB, CNRS		
Hably, Ahmad	GIPSA-Lab		
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ZHU, Xuan-Zhi	Instituto Superior Técnico, Universidade De Lisboa		
Casau, Pedro	Instituto Superior Técnico, University of Lisbon		
Silvestre, Carlos	Instituo Superior Técnico		
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Integral Sliding Mode Based N Over-Actuated Hybrid UAV Us pp. 3858-3864.			
Prochazka, Karl Frederik	Technische Universität Darmstadt		
Stomberg, Gösta	Technische Universität Darmstadt		
FrA02	Ballroom 2		
RI: Learning (RI Session)	Baillooni 2		
Chair: Leang, Kam K.	University of Utah		
Co-Chair: Devasia, Santosh	Univ of Washington		
	Ű.		
09:30-09:55	FrA02.1		
Anticipating the Long-Term En Control, pp. 3865-3872.	-		
Capone, Alexandre	Technical University of Munich		
Hirche, Sandra	Technische Universität München		
09:55-09:58	FrA02.2		
Online, Model-Free Motion Pla Environments: An Intermitter Continuous-Time Q-Learning,	nt, Finite Horizon Approach with		
Kontoudis, George	Virginia Tech		
Vu Zirui	Coorgia Institute of Toobhology		

	•	0
Xu, Zirui		Georgia Institute of Technology

Vamvoudakis, Kyriakos G.	Georgia Inst. of Tech
09:58-10:01	FrA02.3
<i>Transfer Learning for HVAC Sy</i> 3885.	vstem Fault Detection, pp. 3879-
Dowling, Chase	University of Washington
Zhang, Baosen	University of Washington
10:01-10:04	FrA02.4
Towards Nominal Stability Cer Based Controllers, pp. 3886-389	
Nguyen, Hoang Hai	Otto-Von-Guericke University Magdeburg
Matschek, Janine	OvG University Magdeburg
Zieger, Tim	Otto-Von-Guericke University Magdeburg
Savchenko, Anton	OvG University Magdeburg
Noroozi, Navid	Otto Von Guericke Universität Magdeburg
Findeisen, Rolf	OVG University Magdeburg
10:04-10:07	FrA02.5
A Data-Driven Model of Huma Falsification, pp. 3892-3899.	n Driver Behavior Using
Sohani, Nauman	University of Michigan
Oh, Geunseob	University of Michigan
WANG, XINPENG	University of Michigan
10:07-10:10	FrA02.6
Automata Guided Semi-Decen Reinforcement Learning, pp. 39	
Sun, Chuangchuang	Ohio State University
Li, Xiao	Boston University
Belta, Calin	Boston University
10:10-10:13	FrA02.7
Extended Dynamic Mode Decc Koopman Eigenfunctions for P 3913.	mposition with Learned rediction and Control, pp. 3906-
Folkestad. Carl	California Institute of Technology
Pastor, Daniel	California Institute of Technology
Mezic, Igor	University of California, Santa Barbara
Mohr, Ryan	University of California, Santa Barbara
Fonoberova, Maria	AIMDyn, Inc
Burdick, Joel W.	California Inst. of Tech
10:13-10:16	FrA02.8
On Robust Model-Free Reduce Learning Control for Singularly 3919.	
Mukherjee, Sayak	North Carolina State University
Bai, He	Oklahoma State University
Chakrabortty, Aranya	North Carolina State University
10:16-10:19	FrA02.9
Zap Q-Learning for Optimal St	
Chen, Shuhang	University of Florida
Devraj, Adithya M.	University of Florida
Busic, Ana	Inria
Meyn, Sean P.	Univ. of Florida
10:19-10:22	FrA02.10
	11,102.10

### Quadratic Control Problem, pp. 3926-3931.

Quadratic Control Problem, pp	. 5520-5551.
Asghari, Seyed Mohammad	University of Southern California
Gagrani, Mukul	University of Southern California
Nayyar, Ashutosh	University of Southern California
10:22-10:25	FrA02.11
<i>The Driver and the Engineer: Robust Control</i> , pp. 3932-3939.	Reinforcement Learning and
Bernat, Natalie	Caltech
Chen, Jiexin	California Institute of Technology
Matni, Nikolai	University of Pennsylvania
Doyle, John C.	Caltech
10:25-10:28	FrA02.12
Accuracy Prevents Robustness pp. 3940-3946.	s in Perception-Based Control,
Al Makdah, Abed AlRahman	University of California Riverside
Katewa, Vaibhav	University of California Riverside
Pasqualetti, Fabio	University of California, Riverside
10:28-10:31	FrA02.13
<i>Confidence Regions for Simula</i> <i>Probabilistic Models</i> , pp. 3947-3	
Lederer, Armin	Technical University of Munich
Hao, Qing	SAIC Volkswagen Automotive Co., Ltd
Hirche, Sandra	Technische Universität München
10:31-10:34	FrA02.14
Toward Resilient Multi-Agent / Distributed Reinforcement Lea	
Lin, Yixuan	Stony Brook University
Gade, Shripad	University of Illinois at Urbana Champaign
Sandhu, Romeil	Stony Brook University
Liu, Ji	Stony Brook University
10:34-10:37	FrA02.15
Robustifying Reinforcement Le Space Adversarial Training, pp	5 5
Tan, Kai Liang	Iowa State University
Esfandiari. Yasaman	Iowa State University
Lee, Xian Yeow	lowa State University
-, Aakanksha	ہ Amity University Uttar Pradesh
Sarkar, Soumik	Iowa State University
10:37-10:40	FrA02.16
Measuring Similarity of Intera Matrix Profile, pp. 3965-3970.	
Lin, Qin	Carnegie Mellon University
Wang, Wenshuo	Carnegie Mellon University
Zhang, Yihuan	Tongji University
Dolan, John	Carnegie Mellon University
10:40-10:43	FrA02.17
Exchangeable Input Represen Learning, pp. 3971-3976.	
Mern, John	Stanford University
Sadigh, Dorsa	Stanford University
Kochenderfer, Mykel	Stanford University
· · ·	-
10:43-10:46	FrA02.18 Expedite the Gradient-Descent
THE ALVE FLEET ODDITIONING TO B	-xDeGUE THE GLACIENT-DESCENT

*Iterative Pre-Conditioning to Expedite the Gradient-Descent Method*, pp. 3977-3982.

Chakrabarti, Kushal	University of Maryland
Gupta, Nirupam	Georgetown University
Chopra, Nikhil	University of Maryland, College Park
10:46-10:49	FrA02.19
Towards Scalable Koopman C Rates and a Distributed Learn	<i>Operator Learning: Convergence ning Algorithm</i> , pp. 3983-3990.
Liu, Zhiyuan	University of Colorado, Boulder
Ding, Guohui	University of Colorado Boulder
Chen, Lijun	University of Colorado at Boulder
Yeung, Enoch	University of California Santa Barbara
10:49-10:52	FrA02.20
<i>Learning Minimum-Energy Co</i> <i>Data</i> , pp. 3991-3996.	ontrols from Heterogeneous
Baggio, Giacomo	University of California, Riverside
Pasqualetti, Fabio	University of California, Riverside
10:52-10:55	FrA02.21
<i>Learning and Optimization wi</i> 3997-4002.	<i>th Bayesian Hybrid Models</i> , pp.
Eugene, Elvis	University of Notre Dame
Gao, Xian	University of Notre Dame
Dowling, Alexander	University of Notre Dame
10:55-10:58	FrA02.22
<i>Optimal Control Inspired Q-Le Systems</i> , pp. 4003-4010.	earning for Switched Linear
Chen, Hua	Southern University of Science and Technology
Zheng, Linfang	Southern University of Science and Technology
Zhang, Wei	Southern University of Science and Technology
FrLuT4 FrLuT4 (Special Session)	Awards Ceremony and Meetings
12:00-13:30	FrLuT4.1
Awards Ceremony, pp. 4011-40	
Barton, Kira	University of Michigan, Ann Arbor
12:00-13:30	FrLuT4.2
<i>Meeting: Hybrid Systems TC</i> 4012-4012.	(from 11.30am to 1pm), pp.
Zamani, Majid	University of Colorado Boulder
12:00-13:30	FrLuT4.3
Meeting: ASME DSCD Energy 12Noon to 1pm), pp. 4013-401	
Moura, Scott	University of California, Berkeley
12:00-13:30	FrLuT4.4
<i>Meeting: TC Power Generatio</i> 4014-4014.	n (from 12Noon to 1pm), pp.
Scruggs, Jeff	University of Michigan
12:00-13:30	FrLuT4.5
Meeting: MARC TC Meeting (1 4015.	from 12Noon to 1pm), pp. 4015-
Garcia, Eloy	Air Force Research Laboratory

FrB01 Learning IV (Regular Session)	Governor's SQ 12
Chair: Li, Jr-Shin	Washington University in St. Louis
Co-Chair: Soroush, Masoud	Drexel University
13:30-13:50	FrB01.1
Availability-Resilient Control on Networked Control Systems,	of Uncertain Linear Stochastic op. 4016-4021.
Bhowmick, Chandreyee	Missouri University of Science and Technology
Jagannathan, Sarangapani	Missouri Univ of Science & Tech
13:50-14:10	FrB01.2
Learning from Having Learner Parking Space Detection Meth	
Yang, Yi	Beijing Institute of Technology
Jiang, Sitan	Beijing Institute of Technology
Zhang, Lu	The Hong Kong University of Science and Technology
Wang, Jianhang	Beijing Institute of Technology
14:10-14:30	FrB01.3
<i>Learning to Control Neurons (</i> <i>Measurements (I)</i> , pp. 4028-40	
Yu, Yao-Chi	Washington University in St. Louis
Narayanan, Vignesh	Washington University in St. Louis
Ching, ShiNung	Washington University in St. Louis
Li, Jr-Shin	Washington University in St. Louis
14:30-14:50	FrB01.4
<i>Reinforcement Learning for E</i> <i>Waves in Excitable Media</i> , pp.	<i>limination of Reentrant Spiral</i> 4034-4039.
Senter, James	University of Tennessee
Wilson, Dan	University of Tennessee
Sadovnik, Amir	University of Tennessee
14:50-15:10	FrB01.5 mendation with Weight Learning
through Deep Neural Network	
Jia, Huiwen	University of Michigan, Ann Arbor
Fang, Jun	Didi Chuxing
Tan, Naiqiang	Didi Chuxing
Liu, Xinyue	Didi Chuxing
Huo, Zengwei	Didi Chuxing
Ma, Nan	Didi Chuxing
Wu, Guobin	Didi Chuxing
Chai, Hua	Didi Chuxing
Qie, Xiaohu	Didi Chuxing
Zhang, Bo	Didi Chuxing
Yin, Yafeng	University of Michigan
Shen, Siqian	University of Michigan
15:10-15:30	FrB01.6
Surrogate Modeling of Dynam Maximum Entropy Basis Func	<i>tions</i> , pp. 4046-4051.
Deshpande, Vedang M.	Texas A&M University
Bhattacharya, Raktim	Texas A&M
FrB02	Ballroom F
Advanced Control of Wind Turk	Delft University of Technology

Chair: van Wingerden, Jan- Delft University of Technology Willem

C	Co-Chair: Bay, Christopher	National Renewable Energy
		Laboratory
	Drganizer: Doekemeijer, Bart Aatthijs	Delft University of Technology
	Drganizer: Scholbrock, Andrew	National Renewable Energy Laboratory
C	Organizer: Bay, Christopher	National Renewable Energy Laboratory
C	Drganizer: Fleming, Paul	National Renewable Energy Laboratory
	Drganizer: van Wingerden, Ian-Willem	Delft University of Technology

FrB02.1

FrB02.3

#### 13:30-13:50

Wind Farm Wake-Steering Exploration During Grid Curtailment (I), pp. 4052-4057. Hoyt, Jordan University of Minnesota Twin Cities Seiler, Peter University of Michigan, Ann Arbor 13:50-14:10 FrB02.2 Distributed Learning for Wind Farm Optimization with Gaussian Processes (I), pp. 4058-4064. Andersson, Leif Erik Norwegian University of Science and Technology Bradford, Eric Norwegian University of Science and Technology Imsland, Lars Norwegian University of Science and Technology

#### 14:10-14:30

A Distributed Reinforcement Learning Yaw Control Approach for Wind Farm Energy Capture Maximization (I), pp. 4065-4070.

4070.	
Stanfel, Paul	Colorado School of Mines
Johnson, Kathryn	Colorado School of Mines
Bay, Christopher	National Renewable Energy Laboratory
Annoni, Jennifer	National Renewable Energy Laboratory
14:30-14:50	FrB02.4
Mahila Canalas fan Mind Eis	I.I. Estimation in Minut Estimat (T)

Mobile Sensing for Wind Field Estimation in Wind Farms (I), pp. 4071-4076. Pasley David University of Colorado Boulder

Fasiey, Daviu	University of Colorado Boulder
Nicotra, Marco M	University of Colorado Boulder
Pao, Lucy Y.	University of Colorado Boulder
King, Jennifer	National Renewable Energy Laboratory
Bay, Christopher	National Renewable Energy Laboratory
14:50-15:10	FrB02.5

Adaptive Fault Accommodation of Pitch Actuator Stuck Type of Fault in Floating Offshore Wind Turbines: A Subspace Predictive Repetitive Control Approach (I), pp. 4077-4082.

Liu, Yichao	Delft University of Technology
Frederik, Joeri Alexis	TU Delft
Fontanella, Alessandro	Politecnico Di Milano
Ferrari, Riccardo M.G.	Delft University of Technology
van Wingerden, Jan-Willem	Delft University of Technology
15:10-15:30	FrB02.6

Signed-Distance Fuzzy Logic Controller Adaptation

Mechanism Based MRAS Observer for Direct-Drive PMSG Wind Turbines Sensorless Control, pp. 4083-4089.

BENZAOUIA, Soufyane	LGEM - Université Mohamed Premier - Oujda / MIS - Université
	De
rabhi, abdelhamid	MIS
ZOUGGAR, Smail	University Mohammed First Oujda

FrB03	Governor's SQ 15
Smart Mobility Systems (Invited	
Chair: Su, Rong	Nanyang Technological University
Co-Chair: Rastgoftar, Hossein	University of Michigan Ann Arbor
Organizer: Su, Rong	Nanyang Technological University
Organizer: Malikopoulos, Andreas A.	University of Delaware
13:30-13:50	FrB03.1
Decentralized Optimal Merging Automated Vehicles with Optim pp. 4090-4095.	g Control for Connected and mal Dynamic Resequencing (I),
рр. 4030-4035. Xiao, Wei	Boston University
Cassandras, Christos G.	Boston University
13:50-14:10	FrB03.2
A Dynamic Optimization Mode	I for Bus Schedule Design to
Mitigate the Passenger Waiting Platoon (I), pp. 4096-4101.	
Zhang, Yi	Nanyang Technological University
Su, Rong	Nanyang Technological University
Zhang, Yicheng	Nanyang Technological University
14:10-14:30	FrB03.3
Secure Traffic Networks in Sm of Cyber-Attack Detection Algo	art Cities: Analysis and Design prithms (I), pp. 4102-4107.
Roy, Tanushree	University of Colorado, Denver
Dey, Satadru	University of Colorado Denver
14:30-14:50	FrB03.4
A Dynamical Game Approach Path Tracking for Autonomous	<i>for Integrated Stabilization and Vehicles (I)</i> , pp. 4108-4113.
Hashemi, Ehsan	University of Waterloo
He, Xingkang	KTH Royal Institute of Technology
Johansson, Karl H.	Royal Institute of Technology
14:50-15:10	FrB03.5
Optimal Traffic Control for Roa and Human-Driven Vehicles, p	
Mohajerpoor, Reza	CSIRO
cai, Chen	Data61, CSIRO
15:10-15:30	FrB03.6
<i>Resilient Physics-Based Traffic</i> 4125.	Congestion Control, pp. 4120-
Rastgoftar, Hossein	University of Michigan Ann Arbor
Girard, Anouck	University of Michigan, Ann Arbor
FrB04	Governor's SQ 14
Energy Management in Vehicle	Systems (Invited Session)

Energy Management in Vehicle	Systems (Invited Session)
Chair: Pangborn, Herschel	University of Illinois at Urbana- Champaign
Co-Chair: Jain, Neera	Purdue University
Organizer: Pangborn, Herschel	Pennsylvania State University
Organizer: Koeln, Justin	University of Texas at Dallas

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Terminal Costs (I), pp. e University of Texas at Dallas University of Texas at Dallas University of Texas at Dallas University of Texas at Dallas University of Texas at Dallas FrB04.2 For an Autonomous rvesting Kite (I), pp. 4134- North Carolina State University North Carolina State University FrB04.3 North Carolina Scheduling in
e University of Texas at Dallas University of Texas at Dallas University of Texas at Dallas University of Texas at Dallas TrB04.2 FrB04.2 For an Autonomous rvesting Kite (I), pp. 4134- North Carolina State University North Carolina State University FrB04.3
University of Texas at Dallas University of Texas at Dallas University of Texas at Dallas FrB04.2 For an Autonomous rvesting Kite (I), pp. 4134- North Carolina State University North Carolina State University FrB04.3
University of Texas at Dallas University of Texas at Dallas FrB04.2 For an Autonomous rvesting Kite (I), pp. 4134- North Carolina State University North Carolina State University North Carolina State University North Carolina State University North Carolina State University FrB04.3 FrB04.3
University of Texas at Dallas FrB04.2 For an Autonomous rvesting Kite (I), pp. 4134- Jorth Carolina State University Jorth Carolina State University Jorth Carolina State University Jorth Carolina State University Jorth Carolina State University FrB04.3 FrB04.3 Inic Load Scheduling in
FrB04.2 For an Autonomous rvesting Kite (I), pp. 4134- North Carolina State University North Carolina State University North Carolina State University North Carolina State University FrB04.3 Nic Load Scheduling in
For an Autonomous rvesting Kite (I), pp. 4134- North Carolina State University North Carolina State University North Carolina State University North Carolina State University FrB04.3 Nic Load Scheduling in
rvesting Kite (I), pp. 4134- North Carolina State University North Carolina State University North Carolina State University North Carolina State University North Carolina State University FrB04.3 Nic Load Scheduling in
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ic Load Scheduling in
United States Naval Academy
United States Naval Academy
FrB04.4
ement of Distributed rage (I), pp. 4147-4153.
Pennsylvania State University
Jniversity of Illinois at Urbana- Champaign
Univ of Illinois, Urbana- Champaign
FrB04.5
<i>Validation for a Series</i> ), pp. 4154-4160.
Jniversity of Illinois at Urbana- Champaign
Univ of Illinois, Urbana- Champaign
FrB04.6
ween Electrified 1-Electric Heavy-Duty
Daimler Truck AG
Daimler AG

FrB05	Plaza Court 6	
Aerospace Systems I (Regular Session)		
Chair: Taheri, Ehsan	Auburn University	
Co-Chair: Ergöçmen, Burak	Middle East Technical University	
13:30-13:50	FrB05.1	
Active Hybrid Fault Tolerant Flight Control of an UAV under Control Surface Damage, pp. 4169-4174.		

Ergöçmen, Burak	Middle East Technical University
Yavrucuk, İlkay	Middle East Technical University

13:50-14:10	 FrB05.2
State-Dependent LQR Control	
4181.	
Willis, Jacob	Brigham Young University
Johnson, Jacob Collin	Brigham Young University
Beard, Randal W.	Brigham Young Univ
14:10-14:30	FrB05.3
Entry Trajectory Optimization Class Missions Using Indirect ( Method, pp. 4182-4187.	
Mall, Kshitij	Auburn University
Taheri, Ehsan	Auburn University
· · · ·	· · · · · ·
14:30-14:50	FrB05.4
Longitudinal Short-Period Airc Loadcase Variation, pp. 4188-41	
Gossmann, Felix	University of the German Federal Armed Forces Munich
Gabrys, Agnes	Frau
Svaricek, Ferdinand	Univ. of German Armed Forces Munich
14:50-15:10	FrB05.5
Orbital Uncertainty Propagatic 4200.	on with PC-Kriging, pp. 4195-
Jia, Bin	Intelligent Fusion Technology
Xin, Ming	University of Missouri
15:10-15:30	FrB05.6
Numerical Solver for LQR Prob	
Connected Systems Using Ritz	z Method and Laguerre
<i>Functions</i> , pp. 4201-4206.	
Radmanesh, Reza	University of Michigan
Kumar, Manish Nemati. Alireza	University of Cincinnati
French, Donald	University of Toledo University of Cincinnati
French, Donald	University of University
FrB06	Ballroom DE
Energy Systems I (Regular Sessi	
Chair: Scruggs, Jeff	University of Michigan University of Oklahoma
Co-Chair: CAI, JIE	,
13:30-13:50	FrB06.1
Distributed Adaptive Control of Interconnected Building Zones	s, pp. 4207-4212.
Lymperopoulos, Georgios	University of Southern California
Papadopoullos, Panayiotis	University of Cyprus
Ioannou, Petros A.	Univ. of Southern California
Polycarpou, Marios M.	University of Cyprus
13:50-14:10	FrB06.2
An Autonomous MPC Scheme Building HVAC Systems, pp. 42	for Energy-Efficient Control of 13-4218.
Zeng, Tingting	University of Florida
Barooah, Prabir	Univ. of Florida
14:10-14:30	FrB06.3
Predictive Control of Building in Energy and Regulation Mark	<i>Thermal Loads for Participation</i> <i>kets</i> , pp. 4219-4224.
CAI, JIE	University of Oklahoma
Zhang, Hao	University of Oklahoma

Jiang, Zhimin	The University of Oklahoma
CAI, JIE	University of Oklahoma
Zhang, Hao	University of Oklahoma
14:50-15:10	FrB06.5
A Dynamic Strategy for Cyber Scale Power Systems Via Out <sub>l</sub>	
Jevtic, Ana	Massachusetts Institute of Technology
Ilic, Marija	Massachusetts Inst. of Tech
15:10-15:30	FrB06.6
Robust Control of Wave Energ	
Unstructured Uncertainty, pp.	
Lao, Yejun	University of Michigan
Scruggs, Jeff	University of Michigan
FrB07	Plaza Court 7
Biosystems I (Regular Session)	
Chair: Gyorgy, Andras	New York University Abu Dhabi
Co-Chair: Yeung, Enoch	University of California Santa Barbara
13:30-13:50	FrB07.1
	Controlled Nonlinear Systems
Via Deep Dynamic Mode Deco	
Hasnain, Aqib	University of California, Santa Barbara
Boddupalli, Nibodh	University of California Santa Barbara
Balakrishnan, Shara	University of California Santa Barbara
Yeung, Enoch	University of California Santa Barbara
13:50-14:10	FrB07.2
Robust Optimal Scheduling of Immunotherapy: Consideration	ons on Chemotherapy
<i>Detrimental Effects</i> , pp. 4252-4 Moussa, Kaouther	257. Univ. Grenoble Alpes, CNRS, Grenoble INP, GIPSA-Lab
Fiacchini, Mirko	CNRS, Univ. Grenoble Alpes
Alamir, Mazen	CNRS / University of Grenoble
14:10-14:30	FrB07.3
Oxygen Ratio Control in Critic	
	ver Gas Sources, pp. 4258-4263.
Borrello, Michael A.	Philips Healthcare
14:30-14:50	FrB07.4
Scarcity of Cellular Resources Toggle Switches to Noise, pp. 4	Decreases the Robustness of
Gyorgy, Andras	New York University Abu Dhabi
14:50-15:10	FrB07.5
Noise Suppression by Stochas	stic Delays in Negatively
Autoregulated Gene Expression	on, pp. 4270-4275.
Smith, Madeline	University of Delaware
Singh, Abhyudai	University of Delaware

Optimized Control of PCM-Based Storage Integrated in

14:30-14:50

15:10-15:30

FrB06.4

FrB07.6

### Trade-Offs in Robustness to Perturbations of Bacterial Population Controllers, pp. 4276-4282.

Population Controllers, pp. 427	6-4282.
McBride, Cameron	Massachusetts Institute of Technology
Del Vecchio, Domitilla	Massachusetts Institute of Technology
FrB08	Governor's SQ 10
Mechatronic Systems (Regular S	
Chair: Ren, Juan	Iowa State University
Co-Chair: Heertjes, Marcel	Eindhoven University of Technology
13:30-13:50	FrB08.1
Low-Cost DC Motor System fc pp. 4283-4288.	or Teaching Automatic Controls,
Cook, Michael	Milwaukee School of Engineering
Bonniwell, Jennifer	Milwaukee School of Engineering
Rodriguez, Luis	Milwaukee School of Engineering
Williams, Daniel	Milwaukee School of Engineering
Pribbernow, Jacob	Kohler Company
13:50-14:10	FrB08.2
A Voltage Control Paradigm fo Motor Control, pp. 4289-4294.	or Economic Brushless DC
White, Warren N.	Kansas State Univ
Patterson, Eric	University
Uzzaman, Nahid	Kansas State University
14:10-14:30	FrB08.3
Homotopy Continuation for Fe Noncontact Magnetic Manipula	
Riahi, Nayereh	Southern Illinois University
Tituaña, Luis R	Southern Illinois University
Komaee, Arash	Southern Illinois University
14:30-14:50	FrB08.4
Towards Improving the Perfor Inversion Model in Output Tra	acking Control, pp. 4301-4306.
Xie, Shengwen	Iowa State University
Ren, Juan	Iowa State University
14:50-15:10	FrB08.5
Experimental Demonstration of	
<i>Control Design Using Multiple</i> <i>Elements</i> , pp. 4307-4312.	Hybriu Integrator-Gain
van den Eijnden, Sebastiaan	Eindhoven University of Technology
Heertjes, Marcel	Eindhoven University of Technology
Nijmeijer, Hendrik	Eindhoven University of Technology
15:10-15:30	FrB08.6
Observer Based Sliding Mode Classical Frequency Domain C	
Sira-Ramirez, Hebertt	CINVESTAV
Zurita-Bustamante, Eric William	Cinvestav
Aguilar-Orduña, Mario Andres	CINVESTAV
FrB09	Governor's SQ 16

Control Applications II (Regular Session)

Chair: Chen, Xudong	University of Colorado, Boulder
Co-Chair: Kwon, Joseph	Texas A&M University
13:30-13:50	FrB09.1
Fuel-Balanced Formation Flig	ht Control of Underactuated
Satellites, pp. 4319-4324.	
Dearing, Thomas	University of Colorado Boulder
Petersen, Christopher	Air Force Research Laboratory
Nicotra, Marco M	University of Colorado Boulder
Chen, Xudong	University of Colorado, Boulder
13:50-14:10	FrB09.2
A Frequency Domain Analysis	
<i>Navier-Stokes Equations in a Flow</i> , pp. 4325-4330.	Hypersonic Compression Ramp
Dwivedi, Anubhav	University of Minnesota, Twin Cities
Candler, Graham V.	University of Minnesota, Twin Cities
Jovanovic, Mihailo R.	University of Southern California
14:10-14:30	FrB09.3
Modeling of CsPbBr3 Perovski	
Equilibrium-Based Crystal Siz	
Sitapure, Niranjan	Texas A&M University
Qiao, Tian	Texas A&M University
Son, Dong Hee	Texas A&M University
Kwon, Joseph	Texas A&M University
14:30-14:50	FrB09.4
<i>Open Loop Safe Trajectory De Rendezvous</i> , pp. 4337-4342.	esign for Cislunar NRHO
Innocenti, Mario	University of Pisa
Bucchioni, Giordana	University of Pisa
14:50-15:10	FrB09.5
<i>Multiscale Modeling and Control Digester</i> , pp. 4343-4348.	rol of Fiber Length in Pulp
Choi, Hyun-Kyu	Texas A&M University
Kwon, Joseph	Texas A&M University
FrB10	Governor's SQ 11
Modeling and Control for Huma Session)	In-Robot Interaction (Invited
Chair: Ersal, Tulga	University of Michigan
Co-Chair: Wang, Yue	Clemson University
Organizer: Jain, Neera	Purdue University

Experimental Evaluation of Human Motion Prediction TowardSafe and Efficient Human Robot Collaboration (I), pp. 4349-4354.ZHAO, WEIYESun, LitingLiu. ChangliuCarnegie Mellon UniversityCarnegie Mellon University

Eld, Offang	ina				oun	nogio mone		worony
Tomizuka,	Masayo	shi			Univ	of Califorr	nia, B	erkeley
13:50-14:10							F	rB10.2
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Autonomous Driving Using Safe Reinforcement Learning by Incorporating a Regret-Based Human Lane-Changing Decision Model (I), pp. 4355-4361.

Chen, Dong

Organizer: Wang, Yue

13:30-13:50

Michigan State University

**Clemson University** 

FrB10.1

Jiang, Longsheng	Clemson University
Wang, Yue	Clemson University
Li, Zhaojian	Michigan State University
14:10-14:30	
Efficient Behavior-Aware Contr	
<i>Crosswalks Using Minimal Info</i> <i>Model (I)</i> , pp. 4362-4368.	
Jayaraman, Suresh Kumaar	University of Michigan
Robert Jr., Lionel	University of Michigan
Yang, Xi Jessie	University of Michigan
Pradhan, Anuj	University of Massachusetts
Tilbury, Dawn M.	University of Michigan
14:30-14:50	FrB10.4
Design and Human-In-The-Loc Adaptive Haptic Shared Contro Autonomous Driving (I), pp. 43	ol Framework for Semi-
Weng, Yifan	University of Michigan
Luo, Ruikun	University of MIchigan
Jayakumar, Paramsothy	U.S. Army RDECOM-TARDEC
Brudnak, Mark	TARDEC
Paul, Victor	U.S. Army Ground Vehicle Systems Center
Desaraju, Vishnu	Carnegie Mellon University
Stein, Jeffrey L.	Univ. of Michigan
Yang, Xi Jessie	University of Michigan
Ersal, Tulga	University of Michigan
14:50-15:10	FrB10.5
Subgoal Learning Via Operator	
Jin, Zongyao	ol Task Modeling, pp. 4375-4380. Texas A&M University
Pagilla, Prabhakar R.	Texas A&M University
15:10-15:30	FrB10.6
	yber-Physical-Human Systems
Sun, Jieming	Florida State University
Li, Lichun	FAMU-FSU College of Engineering
FrB11 Networked Systems III (Regular S	Director's Row I Session)
Chair: Shim, Hyungbo	Seoul National University
Co-Chair: Touri, Behrouz	University of California San Diego
13:30-13:50	FrB11.1
<i>Resilient Vector Consensus in I</i> <i>Centerpoints</i> , pp. 4387-4392.	Multi-Agent Networks Using
Shabbir, Mudassir	Information Technology University
Li, Jiani	Vanderbilt University
Abbas, Waseem	Vanderbilt University
Koutsoukos, Xenofon	Vanderbilt University
13:50-14:10	FrB11.2
State Estimation of Networked by Unknown Input and Output	
Zhang, Mukai	Purdue University
Alenezi, Badriah	Purdue University

Zhang, Mukai	Purdue University
Alenezi, Badriah	Purdue University
Hui, Stefen	San Diego State University
Zak, Stanislaw H.	Purdue Univ

14:10-14:30	
14.10-14.30	FrB11.3
Byzantine-Resilient Distribute	
Dimensional Functions (I), pp.	
Kuwaranancharoen, Kananart	Purdue University
Xin, Lei Sundaram, Shravaa	Purdue University
Sundaram, Shreyas	Purdue University
14:30-14:50	FrB11.4
Weighted Averaged Behavior Heterogeneous Agents in a Sa 4410.	of Synchronization among ampled-Data Setting, pp. 4405-
NAM, JIYEON	ASRI, Seoul National University
Kim, Taekyoo	ASRI, Seoul National University
Park, Gyunghoon	Korea Institute of Science and Technology
Shim, Hyungbo	Seoul National University
14:50-15:10	FrB11.5
A New Event-Triggering Appro Data Transmissions in Networ 4416.	ked Control Systemsy, pp. 4411-
Ristevski, Stefan	University of South Florida
Dogan, Kadriye Merve	University of South Florida
Yucelen, Tansel	University of South Florida
Muse, Jonathan	Wright Patterson Air Force Base
15:10-15:30	FrB11.6
On Ergodicity of Time-Varying Dynamics, pp. 4417-4422.	
Aghajan, Adel Touri, Bebrouz	, ,
Touri, Behrouz	University of California San Diego University of California San Diego
Touri, Behrouz	University of California San Diego
	University of California San Diego
Touri, Behrouz FrB12	University of California San Diego Director's Row E
Touri, Behrouz FrB12 Filtering (Regular Session)	University of California San Diego Director's Row E George Washington University
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan	, ,
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan 13:30-13:50 Error Bounds and Guidelines f	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan 13:30-13:50 Error Bounds and Guidelines f	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428.
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan 13:30-13:50 Error Bounds and Guidelines f Differentially Private Kalman I	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan 13:30-13:50 Error Bounds and Guidelines f Differentially Private Kalman I Yazdani, Kasra	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida University of Florida
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan 13:30-13:50 Error Bounds and Guidelines f Differentially Private Kalman I Yazdani, Kasra Hale, Matthew 13:50-14:10 Matrix Fisher-Gaussian Distrib	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida University of Florida FrB12.2 pution on SO(3) X R^n for
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan 13:30-13:50 Error Bounds and Guidelines f Differentially Private Kalman I Yazdani, Kasra Hale, Matthew 13:50-14:10 Matrix Fisher-Gaussian Distrib Attitude Estimation with a Gyu	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida University of Florida University of Florida ErB12.2 pution on SO(3) X R^n for ro Bias, pp. 4429-4434.
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan 13:30-13:50 Error Bounds and Guidelines f Differentially Private Kalman I Yazdani, Kasra Hale, Matthew 13:50-14:10 Matrix Fisher-Gaussian Distrib Attitude Estimation with a Gyn Wang, Weixin	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida University of Florida ErB12.2 Dution on SO(3) X R^n for ro Bias, pp. 4429-4434. George Washington University
Touri, Behrouz FrB12 Filtering (Regular Session) Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan 13:30-13:50 Error Bounds and Guidelines f Differentially Private Kalman I Yazdani, Kasra Hale, Matthew 13:50-14:10 Matrix Fisher-Gaussian Distrib Attitude Estimation with a Gyu	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida University of Florida ErB12.2 Dution on SO(3) X R^n for ro Bias, pp. 4429-4434. George Washington University
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Touri, Behrouz  FrB12  Filtering (Regular Session)  Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan  13:30-13:50  Error Bounds and Guidelines f Differentially Private Kalman f Yazdani, Kasra Hale, Matthew  13:50-14:10  Matrix Fisher-Gaussian Distrib Attitude Estimation with a Gyu Wang, Weixin Lee, Taeyoung  14:10-14:30  Optimal Measurement Project Kalman Filtering for GNSS Pos Greiff, Marcus Carl Berntorp, Karl  14:30-14:50	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida University of Florida University of Florida ErB12.2 Dution on SO(3) X R^n for ro Bias, pp. 4429-4434. George Washington University George Washington University FrB12.3 ions with Adaptive Mixture Sitioning, pp. 4435-4441. Lund University Mitsubishi Electric Research Labs FrB12.4
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Touri, Behrouz  FrB12  Filtering (Regular Session)  Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan  13:30-13:50  Error Bounds and Guidelines f Differentially Private Kalman I Yazdani, Kasra Hale, Matthew  13:50-14:10  Matrix Fisher-Gaussian Distribt Attitude Estimation with a Gyu Wang, Weixin Lee, Taeyoung  14:10-14:30  Optimal Measurement Project Kalman Filtering for GNSS Pos Greiff, Marcus Carl Berntorp, Karl  14:30-14:50  Adaptive Learning Kalman Filt	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida University of Florida University of Florida ErB12.2 pution on SO(3) X R^n for ro Bias, pp. 4429-4434. George Washington University George Washington University George Washington University FrB12.3 ions with Adaptive Mixture sitioning, pp. 4435-4441. Lund University Mitsubishi Electric Research Labs FrB12.4 ter with Gaussian Process, pp.
Touri, Behrouz  FrB12  Filtering (Regular Session)  Chair: Lee, Taeyoung Co-Chair: Kassarian, Ervan  13:30-13:50  Error Bounds and Guidelines f Differentially Private Kalman I Yazdani, Kasra Hale, Matthew  13:50-14:10  Matrix Fisher-Gaussian Distrib Attitude Estimation with a Gyn Wang, Weixin Lee, Taeyoung  14:10-14:30  Optimal Measurement Project Kalman Filtering for GNSS Pos Greiff, Marcus Carl Berntorp, Karl  14:30-14:50  Adaptive Learning Kalman Filt 4442-4447.	University of California San Diego Director's Row E George Washington University ISAE-Supaero FrB12.1 for Privacy Calibration in Filtering, pp. 4423-4428. University of Florida University of Florida University of Florida ErB12.2 Dution on SO(3) X R^n for ro Bias, pp. 4429-4434. George Washington University George Washington University FrB12.3 ions with Adaptive Mixture Sitioning, pp. 4435-4441. Lund University Mitsubishi Electric Research Labs FrB12.4

*Lunar Terrain Relative Navigation Using a Convolutional Neural Network for Visual Crater Detection*, pp. 4448-4453.

Downes, Lena	Massachusetts Institute of Technology
Steiner, Ted	Draper
How, Jonathan, P.	MIT
15:10-15:30	FrB12.6

15:10-15:30FConvergent EKF-Based Control Allocation: General<br/>Formulation and Application to a Control Moment Gyro<br/>Cluster, pp. 4454-4459.

Kassarian, Ervan	ISAE-Supaero
Rognant, Mathieu	ONERA
Evain, Hélène	CNES
Alazard, Daniel	ISAE-SUPAERO
Chauffaut, Corentin	ISAE Research Center

FrB13	Plaza Court 1	
Uncertain Systems II (Regular Session)		
Chair: Halder, Abhishek	University of California, Santa Cruz	
Co-Chair: Martinez, Sonia	University of California at San Diego	
13:30-13:50	FrB13.1	
Nonlinear Model Reduction Base pp. 4460-4465.	ed on Stochastic Obsevability,	
Kawamura, Taijiro	Tokyo Institute of Technology	
Yamakita, Masaki	Tokyo Inst. of Tech	
13:50-14:10	FrB13.2	
The Convex Geometry of Integr 4471.	rator Reach Sets, pp. 4466-	
Haddad, Shadi	University of California, Santa Cruz	
Halder, Abhishek	University of California, Santa Cruz	
14:10-14:30	FrB13.3	
Robust LQR for Uncertain Discr Polynomial Chaos, pp. 4472-4477		
Tadiparthi, Vaishnav	Texas A&M University	
Bhattacharya, Raktim	Texas A&M	
14:30-14:50	FrB13.4	
A Convex Optimization Approach to Improving Suboptimal Hyperparameters of Sliced Normal Distributions, pp. 4478- 4483.		
Colbert, Brendon	Arizona State University	
Crespo, Luis G	NASA	
Peet, Matthew M.	Arizona State University	
14:50-15:10	FrB13.5	
<i>Non-Bayesian Social Learning v</i> <i>Models</i> , pp. 4484-4490.	vith Gaussian Uncertain	
Hare, James	Army Research Laboratory	
Uribe, Cesar	Massachusetts Institute of Technology	
Kaplan, Lance	Army Research Laboratory	
Jadbabaie, Ali	MIT	
15:10-15:30	FrB13.6	
Data-Driven Ambiguity Sets for Linear Systems under Disturbances and Noisy Observations, pp. 4491-4496.		

Disturbances and Noisy Obser	r <i>vations</i> , pp. 4491-4496.
Boskos, Dimitris	UCSD
Cortes, Jorge	University of California, San Diego

Martinez, Sonia

University of California at San Diego

FrB14	Plaza Court 8
Control and Estimation in Flow S	<b>,</b>
Chair: Tang, Shuxia	Texas Tech University
Co-Chair: Zhang, Liguo	Beijing University of Technology
Organizer: Tang, Shuxia	Texas Tech University
Organizer: Diagne, Mamadou	Rensselaer Polytechnic Institute
13:30-13:50	FrB14.1
Distributed Consensus-Based B Freeway Traffic Estimation with 4497-4502.	
Zhang, Liguo	Beijing University of Technology
Lu, Yusheng	Beijing University of Technology
13:50-14:10	FrB14.2
Robust State Estimation for a C	
with Boundary Sensor Uncertai	
Xu, Xiaodong	University of Texas at Austin
Yin, Xunyuan	University of Alberta
Yuan, Yuan	University of Alberta
Dubljevic, Stevan	University of Alberta
14:10-14:30	FrB14.3
Adaptive Control of Reaction-Ad Distributed Actuation and Unkn 4514.	
Wang, Shanshan	Donghua University
Diagne, Mamadou	Rensselaer Polytechnic Institute
Qi, Jie	Donghua University
14:30-14:50	FrB14.4
Regulator Design for a Congest with App-Routing Instability (I)	
Chen, Stephen	University of California, San Diego
Yu, Huan	University of California San Diego
Krstic, Miroslav	University of California, San Diego
14:50-15:10	FrB14.5
<i>Linear Model Predictive Control</i> <i>System</i> , pp. 4521-4526.	for a Cascade ODE-PDE
Khatibi, Seyedhamidreza	University of Alberta
Ozorio Cassol, Guilherme	University of Alberta
Dubljevic, Stevan	University of Alberta
15:10-15:30	FrB14.6
Investigating the Underlying Dy Supersonic Flows Using Effectiv 4527-4532.	
Wilson, Dan	University of Tennessee
Sahyoun, Samir	University of Tennessee
Kreth, Phil	University of Tennessee Space Institute
Djouadi, Seddik, M.	University of Tennessee
F-D45	
FrB15	Plaza Court 5

Nonlinear Systems Identification (Regular Session)	
Chair: Taha, Ahmad	The University of Texas at San
	Antonio
Co-Chair: Kwon, Joseph	Texas A&M University

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<i>paces: Parallel</i> 4550.
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<i>dratically</i> p. 4558-4563.
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Governor's SQ 1

FLB10	Governor's SQ 17	
Distributed Control II (Regular Session)		
Chair: Liu, Fengjiao	Yale University	
Co-Chair: Casavola, Alessandro	Universita' Della Calabria	
13:30-13:50	FrB16.1	
<i>Turn-Based Command Governor Strategies for</i> <i>Interconnected Dynamical Systems with Time-Varying</i> <i>Couplings</i> , pp. 4564-4569.		
Tedesco, Francesco	Università Della Calabria	
Casavola, Alessandro	Universita' Della Calabria	
13:50-14:10	FrB16.2	
Distributed H∞ Mean-Square Finite-Time Control for Large- Scale Systems under Gossip Communication Protocol, pp. 4570-4575.		
Yu, Tao	University of Science and Technology of China	
Xiong, Junlin	University of Science and	

Technology of China

#### 14:10-14:30 FrB16.3 Distributed Control of Linear Multi-Channel Systems: Summary of Results, pp. 4576-4581. Wang, Lili Yale University Fullmer, Daniel Yale University Liu, Fengjiao Yale University Morse, A. Stephen Yale Univ FrB16.4 14:30-14:50 Instant Distributed Model Predictive Control for Constrained Linear Systems, pp. 4582-4587. Figura, Martin University of Notre Dame Su, Lanlan University of Leicester Gupta, Vijay University of Notre Dame Inoue, Masaki Keio University 14:50-15:10 FrB16.5 First Order Methods for Globally Optimal Distributed Controllers Beyond Quadratic Invariance, pp. 4588-4593. Furieri, Luca ETH Zurich Kamgarpour, Maryam Swiss Federal Institute of Technology 15:10-15:30 FrB16.6 On the Gap between System Level Synthesis and Structured Controller Design: The Case of Relative Feedback, pp. 4594-4599. University of California, Santa Jensen, Emily Barbara Bamieh, Bassam Univ. of California at Santa Barbara FrB17 Director's Row J Linear Systems I (Regular Session) Ohio Univ Chair: Lawrence, Douglas A. Co-Chair: Choi, Chiu H. Univ. of North Florida 13:30-13:50 FrB17.1 A Geometric Approach to Ensemble Control Analysis and Design, pp. 4600-4605. Miao, Wei Washington University in St. Louis Li, Jr-Shin Washington University in St. Louis 13:50-14:10 FrB17.2 Evaluation of Backward Differentiation Methods for Computing Controllability Gramians, pp. 4606-4611.

Choi, Chiu H. Univ. of North Florida 14:10-14:30 FrB17.3 Continuous-Time Signal Temporal Logic Planning with Control Barrier Functions, pp. 4612-4618. Yang, Guang **Boston Universitv** Belta, Calin **Boston University** Tron, Roberto **Boston University** 14:30-14:50 FrB17.4 Frequency Response Analysis of Parametric Resonance and Vibrational Stabilization, pp. 4619-4624. Chikmagalur, Karthik University of California Santa Barbara Bamieh, Bassam Univ. of California at Santa Barbara 14:50-15:10 FrB17.5

#### Stability Analysis of Linear Impulsive Systems Using Lie-Algebraic Methods, pp. 4625-4631. Lawrence, Douglas A. Ohio

<i>Algebraic Methods</i> , pp. 4625-463 Lawrence, Douglas A.	31. Ohio Univ
FrB18	Plaza Court 4
Game Theory I (Regular Session)	
Chair: Vamvoudakis, Kyriakos G.	Georgia Inst. of Tech
Co-Chair: Brown, Philip N.	University of Colorado, Colorado Springs
13:30-13:50	FrB18.1
When Showing Your Hand Pay. Intentions in Colonel Blotto Ga	
Chandan, Rahul	University of California, Santa Barbara
Paarporn, Keith	University of California, Santa Barbara
Marden, Jason R.	University of California, Santa Barbara
13:50-14:10	FrB18.2
Exploiting an Adversary's Inter	
Coordination Games, pp. 4638-4	
Collins, Brandon	University of Colorado Colorado Springs
Brown, Philip N.	University of Colorado, Colorado Springs
14:10-14:30	FrB18.3
Passive Fault-Tolerant Estimat	ion under Strategic Adversarial
<i>Bias</i> , pp. 4644-4651.	
Sarıtaş, Serkan	KTH Royal Institute of Technology
Dán, György	KTH - Royal Institute of Technology
Sandberg, Henrik	KTH Royal Institute of Technology
14:30-14:50	FrB18.4
Beating Humans in a Penny-M. Cognitive Hierarchy Theory an 4657.	
Tian, Ran	University of Michigan
Li, Nan	University of Michigan
Kolmanovsky, Ilya V.	The University of Michigan
Girard, Anouck	University of Michigan, Ann Arbor
14:50-15:10	FrB18.5
Constrained Differential Game against Stealthy Attacks, pp. 46	
Fotiadis, Filippos	Georgia Institute of Technology
Kanellopoulos, Aris	Georgia Institute of Technology
Vamvoudakis, Kyriakos G.	Georgia Inst. of Tech
15:10-15:30	FrB18.6
Games on Networks with Com Uniqueness and Stability of Eq	<i>munity Structure: Existence,</i> <i>wilibria</i> , pp. 4664-4670.
Jin, Kun	University of Michigan, Ann Arbor
Khalili, Mohammad mahdi	University of Michigan, Ann Arbor
Liu, Mingyan	University of Michigan
FrB19	Plaza Court 3

FrB19	Plaza Court 3
Optimization (Regular Session)	
Chair: Dadras, Sara	Ford Motor Company

Co-Chair: Pequito, Sergio	Rensselaer Polytechnic Institute
13:30-13:50	FrB19.1
	ogeneous Complex Dynamical
Networks with Long-Term Me	
Kyriakis, Panagiotis	University of Southern California
Pequito, Sergio	Rensselaer Polytechnic Institute
Bogdan, Paul	University of Southern California
13:50-14:10	FrB19.2
Implicit Trajectory Planning f Systems: A Time-Varying Op 4682.	or Feedback Linearizable timization Approach, pp. 4677-
Zheng, Tianqi	Johns Hopkins University
Simpson-Porco, John W.	University of Waterloo
Mallada, Enrique	Johns Hopkins University
14:10-14:30	FrB19.3
LQR Via First Order Flows, pp.	. 4683-4688.
Bu, Jingjing	University of Washington
Mesbahi, Afshin	University of Washington
Mesbahi, Mehran	University of Washington
14:30-14:50	FrB19.4
	for Distributed Optimization in
Directed Multi-Agent Network	
Khatana, Vivek	University of Minnesota, Twin- Cities
Saraswat, Govind	Univseristy of Minnesota, Minneapolis
Patel, Sourav	University of Minnesota
Salapaka, Murti V.	University of Minnesota, Minneapolis
14:50-15:10	FrB19.5
Light Energy Saving Method ( MISO FO Newton-Based ES, p	
Yin, Chun	University of Electronic Science and Technology of China
Dadras, Sara	Ford Motor Company
Cheng, Yuhua	University of Electronic Science and Technology of China
Huang, Xuegang	Aerodynamics Institute, China Aerodynamics Research and Developm
Chen, Kai	School of Automation Engineering, University of Electronic Scien
Dadras, Soodeh	Utah State University
15:10-15:30	FrB19.6
	of Transportation Networks, pp.
Zhang, Tianyun	Syracuse University
Fardad, Makan	Syracuse University
FrB20	Plaza Court 2
Formal Verification I (Regular S	
Chair: Ozay, Necmiye	Univ. of Michigan
Co-Chair: Jeannin, Jean- Baptiste	University of Michigan

*Efficient Automata-Based Planning and Control under Spatio-Temporal Logic Specifications*, pp. 4707-4714.

FrB20.1

13:30-13:50

Lindemann, Lars	Royal Institute of Technology, KTH
Dimarogonas, Dimos V.	KTH Royal Institute of Technology
13:50-14:10	FrB20.2
Scalable Zonotope-Ellipsoid C Zonotope Norm, pp. 4715-4721	Conversions Using the Euclidean
Gaßmann, Victor	Technische Universität München
Althoff, Matthias	Technische Universität München
14:10-14:30	FrB20.3
Scalable Computation of Con Discrete-Time Linear System 4728.	
Liu, Zexiang	University of Michigan
Yang, Liren	University of Michigan
Ozay, Necmiye	Univ. of Michigan
14:30-14:50	FrB20.4
Avoidance, pp. 4729-4736.	ng Maneuvers for Car Collision
Abhishek, Aakash	University of Michigan, Ann Arbor
Sood, Harry	University of Michigan
Jeannin, Jean-Baptiste	University of Michigan
14:50-15:10	FrB20.5
Via Value Iteration, pp. 4737-4	
Yang, Liren	University of Michigan
Rizzo, Denise	US Army CCDC Ground Vehicle System Center (GVSC)
Castanier, Matthew	US Army Tank Automotive Research, Development, and Engineering C
Ozay, Necmiye	Univ. of Michigan
15:10-15:30	FrB20.6
Differentially Private Controll Temporal Logic Specifications	
Xu, Zhe	University of Texas, Austin
Yazdani, Kasra	University of Florida
Hale, Matthew	University of Florida
Topcu, Ufuk	The University of Texas at Austin
FrB21 Learning and Control: Opportu	Director's Row H
Session)	intes and onanenges (Tutonal
Chair: Vidyasagar, Mathukumalli	Indian Institute of Technology Hyderabad
Co-Chair: Touri, Behrouz	University of California San Diego
Organizer: Vidyasagar, Mathukumalli	Indian Institute of Technology Hyderabad
Organizer: Touri, Behrouz	University of California San Diego
13:30-13:31	FrB21.1
Introduction To: Learning and Co ( <i>I</i> )*.	ntrol: Opportunities and Challenges
Vidyasagar, Mathukumalli	Indian Institute of Technology Hyderabad
Touri, Behrouz	University of California San Diego
13:31-14:10	FrB21.2
Mathematical Foundations of	Deep and Reinforcement

Mathematical Foundations of Deep and Reinforcement Learning (I), pp. 4751-4756.

Vidyasagar, Mathukumalli	Indian Institute of Technology Hyderabad
14:10-14:50	FrB21.3
Safety and Robustness in Deep Learning Using Semidefinite Programming (I)*.	
Pappas, George J.	University of Pennsylvania
Morari, Manfred	University of Pennsylvania
14:50-15:30 FrB21.	
<i>Cognitive Cyber-Physical Systems: Cognitive Neuroscience,</i> <i>Machine Learning, and Control (I)</i> , pp. 4757-4758.	

FrBT3	Meetings
FrBT3 (Special Session)	
13:30-15:30	FrBT3.1
NSF Program Manager Office (Friday), pp. 4759-4760.	Hours: Dr. Robert Landers
Landers, Robert G.	Missouri University of Science and Technology
13:30-15:30	FrBT3.2
<i>NSF Program Manager Office Hours: Dr. Eduardo Misawa</i> ( <i>Friday</i> ), pp. 4761-4762.	
Misawa, Eduardo	National Science Foundation

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Poster-FrP (Late Breaking Poster S	ession)
15:30-16:00	FrLBP-P01.1
<i>Generic Controller Development for Distributed Aerodynamic Control Devices on Large Wind Turbine Blades</i> , pp. 4763-4763.	
Abbas, Nikhar	University of Colorado Boulder
Feil, Roland	National Renewable Energy Laboratory
Pao, Lucy Y.	University of Colorado Boulder
15:30-16:00	FrLBP-P01.2
A Derivative-Free Optimization Method with Application to Functions with Exploding and Vanishing Gradients, pp. 4764- 4764.	
Al-Abri, Said	Georgia Institute of Technology
Lin, Tony	Georgia Institute of Technology
Tao, Molei	Georgia Institute of Technology
Zhang, Fumin	Georgia Institute of Technology
15:30-16:00	FrLBP-P01.3
Proportional Power Sharing Control of Distributed Generators in Microgirds, pp. 4765-4765.	
Aalipour, Farzad	University of Central Florida
Das, Tuhin	University of Central Florida
15:30-16:00	FrLBP-P01.4
<i>Spacecraft Trajectory Control Using Higher-Order State Transition Tensors</i> , pp. 4766-4766.	
Boone, Spencer	University of Colorado Boulder
McMahon, Jay	University of Colorado
15:30-16:00	FrLBP-P01.5
<i>Sliding Mode Control of an Ionic Polymer-Metal Composite</i> ( <i>IPMC</i> ) <i>Actuator</i> , pp. 4767-4767.	

Lapins, Chantel K.

Nagel, William	University of Utah
Leang, Kam K.	University of Utah
15:30-16:00	FrLBP-P01.6
Learning Passive Linear Mod	lels of Nonlinear Systems from
<i>Data</i> , pp. 4768-4768.	
Sivaranjani, S	University of Notre Dame
Agarwal, Etika	General Electric Research
Gupta, Vijay	University of Notre Dame
15:30-16:00	FrLBP-P01.7
Macroscopic Network Circula 4769.	ation for Planar Graphs, pp. 4769-
Askarzadeh, Zahra	University of California, Irvine
Ariaei, Fariba	University of Southern California
Georgiou, Tryphon T.	University of California, Irvine
Chen, Yongxin	Georgia Institute of Technology
FrLBP-P02	ACC Sponsors
Meeting Space-FrP	
15:30-16:00	FrLBP-P02.1
Gold Sponsor: General Moto	ors, pp. 4770-4770.
Eckman, Wendy	General Motors
15:30-16:00	FrLBP-P02.2
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Rose, Jennifer	MathWorks
Ulusoy, Melda	Mathworks
15:30-16:00	FrLBP-P02.3
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Thornton, Jay	Mitsubishi Electric Research Lab
Di Cairano, Stefano	Mitsubishi Electric Research Lab
15:30-16:00	FrLBP-P02.4
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Rahaman, Josie	Quanser Consulting
-	0
Wang, Gemma	Quanser

	Quantier contouring
Wang, Gemma	Quanser
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O'Neill, Kristin	SIAM
15:30-16:00	FrLBP-P02.6
Silver Sponsor: Cancelled, pp. 4775-4775.	
Kelly, Claire	Wiley
15:30-16:00	FrLBP-P02.7
Silver Sponsor: DSPACE, pp. 4776-4776.	
Johnson, Janice	DSpace
15:30-16:00	FrLBP-P02.8
Silver Sponsor: Springer Nature, pp. 4777-4	777.
Tominich, Christopher	Springer
Jackson, Oliver	Springer
15:30-16:00	FrLBP-P02.9
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Xiang, Wency	Processes MDPI
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Bronze Sponsor: Halliburton, pp. 4779-4779.	

Darbe, Robert

FrC01	Governor's SQ 12
Iterative Learning Control (Regu	lar Session)
Chair: Alleyne, Andrew G.	Univ of Illinois, Urbana- Champaign
Co-Chair: Vamvoudakis, Kyriakos G.	Georgia Inst. of Tech
16:00-16:20	FrC01.1
Constrained Crane Load Trans	
Uncalm Sea Conditions Using	Adaptive Iterative Learning
<i>Control</i> , pp. 4780-4785. Jin, Xu	University of Kentucky
	· · ·
16:20-16:40 Continuous-Time Safe Learnin	FrC01.2
Constraints in Adversarial Envi	
Sun, Chuangchuang	Massachusetts Institute of Technology
Vamvoudakis, Kyriakos G.	Georgia Inst. of Tech
16:40-17:00	FrC01.3
A Flexible-Time Iterative Learn	
Linear, Time-Based Performan	
Wu, Maxwell	University of Michigan
Cobb, Mitchell	North Carolina State University
Vermillion, Christopher	North Carolina State University
Barton, Kira	University of Michigan, Ann Arbor
17:00-17:20	FrC01.4
<i>Random Search for Learning to</i> pp. 4798-4803.	he Linear Quadratic Regulator,
Mohammadi, Hesameddin	University of Southern California
Soltanolkotabi, Mahdi	USC
Jovanovic, Mihailo R.	University of Southern California
17:20-17:40	FrC01.5
Iterative Learning Control for I Repetitive Reference Trajector	
Lengths, and Asymmetric Out	<i>put Constraints</i> , pp. 4804-4809.
Jin, Xu	University of Kentucky
17:40-18:00	FrC01.6
An Improved Iterative Learnin Axis Systems, pp. 4810-4816.	g Control for Uncertain Multi-
Armstrong, Ashley	University of Illinois at Urbana- Champaign
Alleyne, Andrew G.	Univ of Illinois, Urbana- Champaign
FrC02	Ballroom F
Advanced Control of Wind Turbi Session)	nes and Farms II (Invited
Chair: Bottasso, Carlo Luigi	Technical University of Munich
Co-Chair: Doekemeijer, Bart Matthijs	Delft University of Technology
Organizer: Doekemeijer, Bart Matthijs	Delft University of Technology
Organizer: Scholbrock, Andrew	National Renewable Energy Laboratory
Organizer: Bay, Christopher	National Renewable Energy Laboratory
One on the Classican David	

Organizer: Fleming, Paul

Halliburton

National Renewable Energy Laboratory

Organizer: van Wingerden, Jan-Willem	Delft University of Technology
16:00-16:20	FrC02.1
Wake Deflection Control with W Tunnel Comparison of Different pp. 4817-4823.	
Campagnolo, Filippo	Technische Universitaet Muenchen
Bottasso, Carlo Luigi	Technical University of Munich
Schreiber, Johannes	Wind Energy Institute, Technical
	University of München
16:20-16:40	FrC02.2
Stochastic Dynamic Programmi Maximization (I), pp. 4824-4829.	ng for Wind Farm Power
Guo, Yi	University of Texas at Dallas
Rotea, Mario	University of Texas at Dallas
Summers, Tyler H.	University of Texas at Dallas
16:40-17:00	FrC02.3
Real-Time Energy Market Arbitr Storage in Wind Farms (I), pp. 4	
Shapiro, Carl	Johns Hopkins University
Ji, Chengda	Johns Hopkins University
Gayme, Dennice	The Johns Hopkins University
17:00-17:20	FrC02.4
Resilient Autonomous Wind Far	<i>ms (I)</i> , pp. 4836-4842.
Barker, Aaron	National Renewable Energy Laboratory
Annoni, Jennifer	National Renewable Energy Laboratory
Anderson, Benjamin	National Renewable Energy Laboratory
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Distributed Control of Wind Far Minimise Fatigue Loads (I), pp. 4	
Stock, Adam	University of Strathclyde
Cole, Matthew	University of Strathclyde
Leithead, William	University of Strathclyde
Amos, Lindsey	University of Strathclyde
FrC03	Governor's SQ 15
Safety and Security of Vehicle Sy	stems (Invited Session)
Chair: Chen, Yan	Arizona State University
Co-Chair: Tomáš, Haniš	Czech Technical University in Prague, Faculty of Electrical Engineering
Organizer: Dadras, Soodeh	Utah State University
Organizer: Ahmed, Qadeer	The Ohio State University
Organizer: Hall, Carrie	Illinois Institute of Technology
16:00-16:20	FrC03.1
A Two-Layer Predictive Emerge	
Assistant (I), pp. 4849-4855.	, <u>y</u> <u>_</u> ocope
Adelberger, Daniel	Johannes Kepler University Linz
Del Re, Luigi	Johannes Kepler University Linz
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Adaptive Nonlinear Model Predictive Control for Collision Imminent Steering with Uncertain Coefficient of Friction (I), pp. 4856-4861.

Wurts, John	University of Michigan
Dallas, James	University of Michigan
Stein, Jeffrey L.	Univ. of Michigan
Ersal, Tulga	University of Michigan
16:40-17:00	FrC03.3
<i>Shared Steering Control of T</i> ( <i>I</i> ), pp. 4862-4867.	ire Blowout for Ground Vehicles
Li, Ao	Arizona State University
Chen, Yan	Arizona State University
Lin, Wen-Chiao	General Motors Company
Du, Xinyu	General Motors Global R&D
17:00-17:20	FrC03.4
<i>Effect of Roll Motion Control</i> <i>Rollover Avoidance</i> , pp. 4868-	<i>on Vehicle Lateral Stability and</i> 4874.
Chokor, Abbas	Université De Technologie De Compiègne
Talj, Reine	Heudiasyc, UTC
Doumiati, Moustapha	Université De Technologie De Compiègne
Charara, Ali	Umr Cnrs 6599
17:20-17:40	FrC03.5
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Efremov, Denis	Czech Technical University in Prague, Faculty of Electrical Engi
Klauco, Martin	Slovak University of Technology in Bratislava
Tomáš, Haniš	Czech Technical University in Prague, Faculty of Electrical Engi
Hromcik, Martin	Czech Technical University, FEE
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	ons Conscious Cruise Controller Privacy Considerations (I), pp.
Huang, Chunan	University of Michigan, Ann Arbor
Zhang, Xueru	University of Michigan - Ann Arbor
Salehi, Rasoul	University of Michigan
Ersal, Tulga	University of Michigan
Stefanopoulou, Anna G.	University of Michigan
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Engine and Powertrain Contro	
Chair: Ossareh, Hamid	University of Vermont
Co-Chair: Salehi, Rasoul	University of Michigan
Organizer: Chen, Pingen	Tennessee Technological University
Organizer: Hall, Carrie	Illinois Institute of Technology
Organizer: Ossareh, Hamid	University of Vermont
Organizer: Salehi, Rasoul	University of Michigan
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	m Timing Multirate Control Via
Ontimal Output Filtering (I)	nn 4887-4892

 Optimal Output Filtering (I), pp. 4887-4892.

 Sumer, Dogan
 Ford Motor Comp

Sumer, Dogan	Ford Motor Company
Wang, Yan	Ford Research and Advanced Engineerintg, Ford Motor
	Company
Filev, Dimitre P.	Ford Motor Company

16:20-16:40	FrC04.2
Multi-Objective Stochastic Baye	sian Optimization for
Iterative Engine Calibration (I),	pp. 4893-4898.
Pal, Anuj	Michigan State University
Zhu, Ling	Ford Motor Company
Wang, Yan	Ford Research and Advanced Engineerintg, Ford Motor Company
Zhu, Guoming	Michigan State University
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Jain, Kaushal Kamal	Purdue University
Hiremath, Jagdish	Cummins Inc
Meckl, Peter H.	Purdue Univ
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Design and Evaluation of EV Dri Management Control System (I,	
Ravichandran, Maruthi	Ford Motor Company
Doering, Jeff	Ford Motor Company
Johri, Rajit	Ford Motor Company
Ruybal, Kevin	Ford Motor Company
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Park, Jinrak	Korea Advanced Institute of Science and Technology
Choi, Seibum Ben	KAIST
17:40-18:00	FrC04.6
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Han, Kyoungseok	University of Michigan
Li, Nan	University of Michigan
Kolmanovsky, Ilya V.	The University of Michigan
Girard, Anouck	University of Michigan, Ann Arbor
Wang, Yan	Ford Research and Advanced Engineerintg, Ford Motor Company
Filev, Dimitre P.	Ford Motor Company
Dai, Edward	
	Ford Motor Company
Dai, Edward	Ford Motor Company Plaza Court 6
Dai, Edward FrC05 Aerospace Systems II (Regular Se	Ford Motor Company Plaza Court 6 ssion)
Dai, Edward FrC05 Aerospace Systems II (Regular Se	Ford Motor Company Plaza Court 6 ssion) Mitsubishi Electric Research Labs
Dai, Edward FrC05 Aerospace Systems II (Regular Se Chair: Di Cairano, Stefano	Ford Motor Company Plaza Court 6 ssion) Mitsubishi Electric Research Labs University of Kentucky
Dai, Edward FrC05 Aerospace Systems II (Regular Se Chair: Di Cairano, Stefano Co-Chair: Hoagg, Jesse B.	Ford Motor Company Plaza Court 6 ssion) Mitsubishi Electric Research Labs University of Kentucky FrC05.1
Dai, Edward FrC05 Aerospace Systems II (Regular Se Chair: Di Cairano, Stefano Co-Chair: Hoagg, Jesse B. 16:00-16:20 Fail-Safe Rendezvous Control of	Ford Motor Company Plaza Court 6 ssion) Mitsubishi Electric Research Labs University of Kentucky FrC05.1 n Elliptic Orbits Using
Dai, Edward FrC05 Aerospace Systems II (Regular Se Chair: Di Cairano, Stefano Co-Chair: Hoagg, Jesse B. 16:00-16:20 Fail-Safe Rendezvous Control of Reachable Sets, pp. 4920-4925. Aguilar Marsillach, Daniel	Ford Motor Company Plaza Court 6 ssion) Mitsubishi Electric Research Labs University of Kentucky FrC05.1
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Li, Qiang

University of Central Florida

Xu, Yunjun	University of Central Florid
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Chavan, Roshan A.	University of Kentuck
Seigler, Thomas M.	University of Kentuck
Hoagg, Jesse B.	University of Kentuck
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Constrained Admissible Sets,	op. 4938-4944.
Berning, Andrew	The University of Michiga
Li, Nan	University of Michiga
Girard, Anouck	University of Michigan, Ann Arbo
Leve, Frederick	AFOSI
Petersen, Christopher	Air Force Research Laborator
Kolmanovsky, Ilya V.	The University of Michiga
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a Directed/Undirected Graph	<i>Topology</i> , pp. 4945-4950.
Mark, August	University of Central Florid
Xu, Yunjun	University of Central Florid
Dickinson, Benjamin	US Air Force Research Laborator
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Relative-Position Formation Co	
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Abbasi, Zahra	University of Kentuck
Sunny, Ajin Hoagg, Jesse B.	University of Kentuck University of Kentuck
Seigler, Thomas M.	University of Kentuck
FrC06	Ballroom D
Energy Systems II (Regular Sess	sion)
Chair: Lin, Xianke	Linius miter of Ontonia In atitute .
	University of Untario Institute of
	Technolog
Co-Chair: Schoenwald, David A.	Technolog
	Technolog Sandia National La
Α.	Technolog Sandia National La FrC06.
A. 16:00-16:20 A Data-Driven Power Consum	Technolog Sandia National La FrC06. <i>ption Model for Electric UAVs</i> , University of Ontario Institute of
A. 16:00-16:20 <i>A Data-Driven Power Consum</i> pp. 4957-4962.	Technolog Sandia National La FrC06. ption Model for Electric UAVs, University of Ontario Institute of Technolog University of Ontario Institute of
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A. 16:00-16:20 <i>A Data-Driven Power Consum</i> , pp. 4957-4962. She, Xu Ting Pamela Lin, Xianke	Technolog Sandia National La FrC06. ption Model for Electric UAVs, University of Ontario Institute o Technolog University of Ontario Institute o Technolog University of Ontario Institute o Technolog
A. 16:00-16:20 <i>A Data-Driven Power Consum</i> , pp. 4957-4962. She, Xu Ting Pamela Lin, Xianke Lang, Haoxiang 16:20-16:40 <i>An Optimal Control Approach</i>	Technolog Sandia National La FrC06. ption Model for Electric UAVs, University of Ontario Institute o Technolog University of Ontario Institute o Technolog University of Ontario Institute o Technolog Enco6. to Nudging Via Default Setting
A. 16:00-16:20 <i>A Data-Driven Power Consum</i> , pp. 4957-4962. She, Xu Ting Pamela Lin, Xianke Lang, Haoxiang 16:20-16:40	Technolog Sandia National La FrC06. ption Model for Electric UAVs, University of Ontario Institute of Technolog University of Ontario Institute of Technolog University of Ontario Institute of Technolog University of Ontario Institute of Technolog Erc06. to Nudging Via Default Setting mal Comfort, pp. 4963-4968. University of Illinois at Urbana
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A. 16:00-16:20 <i>A Data-Driven Power Consum</i> , pp. 4957-4962. She, Xu Ting Pamela Lin, Xianke Lang, Haoxiang 16:20-16:40 <i>An Optimal Control Approach</i> <i>in the Context of Indoor Therr</i> Cheng, Yijie	Technolog Sandia National La FrC06. ption Model for Electric UAVs, University of Ontario Institute of Technolog University of Ontario Institute of Technolog Erc06. to Nudging Via Default Setting mal Comfort, pp. 4963-4968. University of Illinois at Urbana Champaig

4969-4974.	
A.Biroon, Roghieh	Clemson University
Pisu, Pierluigi	Clemson University
Schoenwald, David A.	Sandia National Lab
17:00-17:20	FrC06.4
On-Board Supercapacitors Coo	perative Charging Algorithm:
Stability Analysis and Weight (	
Luo, Xiaoyu	Shanghai Jiao Tong University
He, Jianping	Shanghai Jiao Tong University
Zhu, Shanying	Shanghai Jiao Tong University
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Wu, Xinyu	Massachusetts Institute of
Wu, Dan	Technology MIT
Modiano, Eytan	MIT
17:40-18:00	FrC06.6
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Nurkanović, Armin	Siemens AG
Mesanovic, Amer	Siemens AG, Munich; Otto-Von-
	Guericke University Magdeburg,
Zanelli, Andrea	University of Freiburg
Frison, Gianluca	University of Freiburg
Frey, Jonathan	University of Freiburg
Albrecht, Sebastian Diehl, Moritz	Siemens AG
Dieni, Montz	University of Freiburg
FrC07	Plaza Court 7
FrC07 Biosystems II (Regular Session)	Plaza Court 7
	Plaza Court 7 Agilent Technologies
Biosystems II (Regular Session)	
Biosystems II (Regular Session) Chair: Abramovitch, Daniel Y.	Agilent Technologies
Biosystems II (Regular Session) Chair: Abramovitch, Daniel Y. Co-Chair: Hui, Qing 16:00-16:20 Fractional-Order Model Predict	Agilent Technologies University of Nebraska-Lincoln FrC07.1 ive Control for
Biosystems II (Regular Session) Chair: Abramovitch, Daniel Y. Co-Chair: Hui, Qing 16:00-16:20	Agilent Technologies University of Nebraska-Lincoln FrC07.1 ive Control for sical Systems: A Case Study
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National Chiao Tung University

National Chiao Tung University

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Andriamanalimanana, Bruno	State University of New York Polytechnic Institute
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Chiang, Chen-Fu	State University of New York Polytechnic Institute
Novillo, Jorge	SUNY Polytechnic Institute
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	FrB1T2.8	
Bai, Xiaoli	FrA01.13	
Baker, Kyri		
Bakolas, Efstathios		
Polokrichnon S N		
Balakrishnan, S.N Balakrishnan, Shara		
Balas, Mark		
Baldea, Michael		
Baldini, Francesca		
Bamieh, Bassam	FrB16.6	
	FrB17.4	
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Bansal, Harshit	ThC05.2	
Baras, John S.		
Barker, Aaron Barooah, Prabir		
Barton, Kira		
Basu Roy, Sayan		
Batista, Pedro	FrC14	CC
	FrC14.4	
Battilotti, Stefano	ThB18.3	~
Bay, Christopher		0
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	FrC02	0
Beard, Randal W	FrB05.2	
Behdad, Sara		
Bekiroglu, Korkut		
Bell, A. Harvey		
Bell, Zachary I		
Belta, Calin		
Benjamin, Sebastien		
Benosman, Mouhacine		

Bentsman, Joseph	
Benzaouia, Soufyane	FrB02.6
Berg, Jordan M.	
Bergveld, Hendrik Johannes	ThB02.2
Berman, Spring	
Bernat, Natalie	
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Berning, Andrew	
Bernstein, Andrey	
	ThB06.2
	ThB06.3
	ThC06
	ThC06.3
Bernstein, Dennis S	
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	.ThB07.1
	.ThB15.3
	FrC17.4
Berntorp, Karl	FrB12.3
Bertram, Torsten	ThB07.5
Bethge, Johanna	ThA01.9
Bevly, David M.	ThLBP-P01
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Bezzo, Nicola	
Bhadani, Rahul	FrLBP-A01.
Rhan at Rhan ask i	8
Bhagwat, Bhagyashri	
Bhandakkar, Parth	
Bhardwaj, Akshay Bhargavapuri, Mahathi	
Bhasin, Shubhendu	
Bhattacharya, Raktim	
Bhattacharya, Saptarshi	
Bhowmick, Chandreyee	
Bhusal, Rajnish	
Bieniek, Mitchell	
Bindlish, Rahul	
Boddupalli, Nibodh	
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Bogdan, Paul	FrB19.1
Boler, Matthew	ThLBP-P01
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Bollas, George	
Bonanni, Pierino	
Bonczek, Paul	
Bonniwell. Jennifer	
Boone, Spencer	4
Borhan, Hoseinali	
Borrelli, Francesco	
Borrello, Michael A.	
Boskos, Dimitris	
Bottasso, Carlo Luigi	
Boyd, Stephen	.ThC04.6
Braatz, Richard D.	.ThB17.5

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	ThC13 3	
Bradford. Eric		
Brennan, Sean		
Brown, Philip N	FrB18	CC
	FrB18.2	
		CC
Bruce, Adam		
Drudpale Mark		
Brudnak, Mark Bryan, William		
Diyali, Willialli	111LDF-FU1	
Bryant, Matthew		
Bu, Jingjing		
Bucchioni, Giordana		
Buckner, Gregory		
Bujarbaruah, Monimoy		
Burdick, Joel W	FrA02.7	
Burnwal, Shantanu Prasad		
Busic, Ana		
Busoniu, Lucian		66
Butail, Sachit		CC
Butler, Hans		СС
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	ThC21.4	
Buzhardt, Jake	ThC08.3	
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Cacace, Filippo		
Cai, Chen		~~
Cai, Jie		CC
	FrB06.4	
Cai, Ting	FrB06.4 ThCT3.1	
	FrB06.4 ThCT3.1 ThB14.6	
Cai, Ting Calkins, Luke	FrB06.4 ThCT3.1 ThB14.6 ThC18.2	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V.	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V Canova, Marcello	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V Canova, Marcello Cao, Zhefeng	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC04.5 ThC18.1 ThB13.5	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cao, Michal Capone, Alexandre Cappel, Henry	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrC10.6	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrC10.6 ThB06.3	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrC10.6 ThB06.3 FrA01.15	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cao, Zhefeng Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrC10.6 ThB06.3 FrA01.15 FrA01.20 FrB1T1.15	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Canoler, Graham V Canova, Marcello Cao, Zhefeng Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrC10.6 ThB06.3 FrA01.15 FrA01.20 FrB1T1.15 FrB1T1.20	
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Canoler, Graham V Canova, Marcello Cao, Zhefeng Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrC10.6 ThB06.3 FrA01.15 FrA01.20 FrB1T1.15 FrB1T1.20 FrB1T1.20 ThB03	С
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V Canova, Marcello Cao, Zhefeng Cao, Zhefeng Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThC04.5 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T1.15 FrA01.20 FrB1T1.15 FrB1T1.20 ThB03 ThB03.3	-
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThC04.5 ThC18.1 ThC18.1 ThC18.1 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T1.20 FrB1T1.20 FrB1T1.20 ThB03 ThB03.3 FrB16	C CC
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrC10.6 ThB06.3 FrA01.15 FrB1T1.15 FrB1T1.20 FrB1T1.20 ThB03 ThB03.3 FrB16 FrB16.1	-
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrC10.6 ThB06.3 FrA01.15 FrB1T1.20 FrB1T1.20 FrB1T1.20 ThB03 ThB03.3 FrB16.1 ThB16.1	-
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cao, Zhefeng Cao, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro Cassandras, Christos G.	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrC10.6 ThB06.3 FrB1T1.15 FrB1T1.20 FrB1T1.20 FrB1T1.20 ThB03.3 FrB16 ThB16.1 ThB16.1 FrB03.1	-
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro Casavola, Alessandro	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrC10.6 ThB06.3 FrB1T1.15 FrB1T1.20 FrB1T1.20 ThB03.3 FrB16 FrB16.1 FrB16.1 FrB03.1 FrB03.1 FrC14.1	-
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Canoler, Graham V Canova, Marcello Cao, Zhefeng Cao, Zhefeng Cappel, Henry Carli, Ruggero Carli, Ruggero Casau, Pedro Casavola, Alessandro Cassandras, Christos G Castanier, Matthew Castillo, Ivan	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrA01.15 FrA01.15 FrB1T1.20 FrB1T1.15 FrB1T1.20 FrB16.3 FrB16.1 FrB16.1 FrB03.1 FrB03.1 FrB20.5 ThB17.2	СС
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro Cassandras, Christos G Castanier, Matthew Castillo, Ivan Caverly, Ryan James	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThB02.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrA01.20 FrB1T1.15 FrA01.20 FrB1T1.15 FrB1T1.20 ThB03.3 FrB16.1 ThB16.1 FrB03.1 FrB03.1 FrB03.1 FrB20.5 ThB17.2 ThB08	-
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V Canova, Marcello Cao, Zhefeng Cap, Michal Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro Cassandras, Christos G Castanier, Matthew Castillo, Ivan Caverly, Ryan James	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThC04.5 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T1.15 FrB1T1.15 FrB1T1.15 FrB1T1.15 FrB1T1.20 ThB03.3 FrB16.1 ThB16.1 FrB20.5 ThB17.2 ThB08 ThB08.1	СС
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro Cassandras, Christos G Castanier, Matthew Castillo, Ivan Caverly, Ryan James	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThC18.6 FrB09.2 ThC04.5 ThC18.1 ThC18.1 ThC18.1 FrB172.1 FrB172.1 FrB172.1 FrB172.1 FrB171.15 FrA01.15 FrA01.15 FrB171.20 ThB06.3 FrB16.1 FrB16.1 ThB16.1 FrB20.5 ThB17.2 ThB17.2 ThB08.1 ThLBP-P01	cc
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry. Carli, Ruggero Casau, Pedro Casau, Pedro Casavola, Alessandro Casavola, Alessandro Castanier, Matthew Castanier, Matthew Casterly, Ryan James	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 ThC18.2 ThC18.6 FrB09.2 ThC04.5 ThC18.1 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T1.20 FrB1T1.20 ThB06.3 ThB03.3 ThB03.3 ThB03.3 FrB16.1 ThB16.1 FrB16.1 FrB20.5 ThB17.2 ThB08.1 ThLBP-P01 .1	cc
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V Canova, Marcello Cao, Zhefeng Cap, Michal Cappel, Henry Carli, Ruggero Casau, Pedro Casavola, Alessandro Cassandras, Christos G Castanier, Matthew Castillo, Ivan Caverly, Ryan James	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 ThC18.2 ThC18.6 FrB09.2 ThC04.5 ThC18.1 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T1.20 FrB1T1.20 ThB06.3 FrB1T1.20 FrB1T1.20 ThB03.3 FrB16.1 ThB16.1 FrB16.1 FrB16.1 FrB20.5 ThB08 ThB08.1 ThB08.1 ThLBP-P01 .1 ThLBP-P01	cc
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry. Carli, Ruggero Casau, Pedro Casau, Pedro Casavola, Alessandro Casavola, Alessandro Castanier, Matthew Castanier, Matthew Casterly, Ryan James	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 ThC18.2 ThC18.6 ThC18.6 ThC04.5 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T1.20 FrB1T1.15 FrB1T1.20 ThB06.3 ThB06.3 FrB1T1.15 FrB1T1.20 FrB1T1.20 ThB03 ThB03 ThB03 ThB03 ThB03 ThB03 ThB03 ThB03 ThB03 ThB08.1 ThB08.1 ThLBP-P01 .1 ThLBP-P01 .2	cc
Cai, Ting Calkins, Luke Caluya, Kenneth Campagnolo, Filippo Campos, Daniel Candler, Graham V. Canova, Marcello Cao, Zhefeng Cap, Michal Capone, Alexandre Cappel, Henry Carli, Ruggero Casau, Pedro Casau, Pedro Casavola, Alessandro Cassandras, Christos G. Castanier, Matthew Castillo, Ivan Caverly, Ryan James.	FrB06.4 ThCT3.1 ThB14.6 ThC18.2 FrC02.1 ThB02.6 ThB02.6 ThB02.6 ThC18.1 ThB13.5 FrA02.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB1T2.1 FrB10.6 ThB06.3 FrA01.15 FrA01.15 FrA01.15 FrB1T1.120 FrB1T1.120 ThB03.3 FrB16 FrB16.1 FrB16.1 FrB16.1 FrB16.1 FrB16.1 FrB16.1 FrB16.1 FrB16.1 FrB16.1 FrB16.1 FrB16.1 FrB17.2 ThB17.2 ThB08.1 ThLBP-P01 .2 FrC08	с

Cavraro, Guido Cervin, Anton		С
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Chagas Vaz, Jean		
Chai, Hua		
Chakrabarti, Kushal	FrA02.18	
	FrB1T2.18	
Chakrabarty, Ankush	ThB05.6	
Chakrabortty, Aranya		
Chakraborty, Manash	.2	
Chandan, Rahul	FrB18.1	
Chandan, Vikas		
Chanekar, Prasad Vilas	ThC11.1	
Chang, Chen-Hao	FrC13.2	
Chang, Dongsik		
Chang, Liang		
Charara, Ali		
Chatterjee, Arpan	2	
Chatterjee, Sarthak	FrC07.1	
Chauffaut, Corentin	FrB12.6	
Chavan, Roshan A.		
Cheah, Sze Kwan		
	.1	
Chen, Chuchu		
Chen, Di		
Chen, Dong	FrB10.2	
Chen, Dongmei	ThC05	C
-	ThC05	
Chen, Hua		
Chen, Jiexin		
Chen, Jiming		
Chen, Jun		
Chen, Junghui		
Chen, Kai		
Chen, Kaian		
Chen, Lijun		C
	ThC06.4	
	FrB1T2.19	
Chen, Pingen	FrC04	
Chen, Qiming Chen, Shangcheng	ThB16.2	
Chen, Shuhang	ErA02.0	
Chen, Stephen		
Chen, Tan		
	.5	
Chen, Wei-Han	ThA01.16	
Chen, Wei-Han		
	ThA01.17	
	ThA01.17 ThB1T1.16	
	ThA01.17 ThB1T1.16 ThB1T1.17	
Chen, Wen	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1	
Chen, Wen Chen, Wentao	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6	
Chen, Wen Chen, Wentao Chen, Xiuqiong	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1 FrC03	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan	ThA01.17 ThB1T1.16 ThB1T1.17 FrC20.1 FrC0.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan	ThA01.17 ThB1T1.16 ThB1T1.17 FrC20.1 FrC0.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan Chen, Yongxin	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3 ThC18.1	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3 ThC18.1	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan Chen, Yan	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3 ThC18.1 FrLBP-P01. 7	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan Chen, Yongxin Chen, Yue	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3 ThC18.1 FrLBP-P01. 7 ThB06.2	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan Chen, Yan Chen, Yongxin	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3 ThC18.1 FrC18.1 FrLBP-P01. 7 ThB06.2 ThC06.3	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan Chen, Yongxin Chen, Yue	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3 ThC18.1 FrLBP-P01. 7 ThB06.2 ThC06.3 ThC06.4	
Chen, Wen Chen, Wentao Chen, Xiuqiong Chen, Xudong Chen, Yan Chen, Yan Chen, Yongxin	ThA01.17 ThB1T1.16 ThB1T1.17 ThC20.1 FrC20.6 ThC12.1 FrB09 FrB09.1 FrC03 FrC03.3 ThC18.1 FrLBP-P01. 7 ThB06.2 ThC06.3 ThC06.4 ThB05.5	

Chen, Zhelin		
	ThB14.3	
Chen, Zheng	ThB13.1	
Cheng, Ching-Hungc		
Cheng, Peng		
Cheng, Sheng		
Cheng, Yijie		
Cheng, Yuhua	FrB19.5	
Chhokra, Ajay		
Chiang, Chen-Fu		
Chiang, Leo		
Chikmagalur, Karthik		
Ching, ShiNung		
Chiu, George TC	ThLuT4.6	
Choe, Song-Yul (Ben)	ThB02	0
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Choi, Chiu H		CC
	FrB17.2	
Choi, Han-Lim	ThC07.1	
Choi, Hyun-Kyu	FrB09.5	
Choi, Seibum Ben		
Choi, Yohwan		
Chokor, Abbas		
Chopra, Nikhil	ThA02.16	
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Choset, Howie		
Chow, Tsz Yuet Matthew	ThC17.1	
Christofides, Panagiotis D.	ThB07.4	
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Chu, Xiangyu		
Chwistek, Katherine	ThB11.3	
Clayton, Garrett	ThA01	CC
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Cobb, Mitchell		00
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Cohen, Kelly	FrA01.16	
	FrB1T1.16	
Colbert, Brendon	FrB13.4	
Cole, Matthew		
Coleman, Demetris		
	FrB111.1	
Coleman, Kevin		
Coleman, Kevin Collins, Brandon	FrB18.2	
Coleman, Kevin Collins, Brandon Combes, Pascal	FrB18.2 ThB15.2	CC
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel	FrB18.2 ThB15.2 ThB20	сс
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel	FrB18.2 ThB15.2 ThB20 ThB20.3	сс
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel	FrB18.2 ThB15.2 ThB20 ThB20.3 ThC18.3	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel	FrB18.2 ThB15.2 ThB20 ThB20.3 ThC18.3 FrC17	сс
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel	FrB18.2 ThB15.2 ThB20 ThB20.3 ThC18.3 FrC17 FrC17.1	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel	FrB18.2 ThB15.2 ThB20 ThB20.3 ThC18.3 FrC17 FrC17.1	
Coleman, Kevin Collins, Brandon Combes, Pascal. Coogan, Samuel Cook, Michael	FrB18.2 ThB15.2 ThB20 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1	
Coleman, Kevin Collins, Brandon Combes, Pascal. Coogan, Samuel Cook, Michael Cortes, Jorge	FrB18.2 ThB15.2 ThB20 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 ThC11.1	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge	FrB18.2 ThB15.2 ThB20 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 ThC11.1 FrB13.6	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge	FrB18.2 ThB15.2 ThB20 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrF08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Couto, Luis Daniel	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1	
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Couto, Luis Daniel Coyne, Dennis	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 TuP1.1	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 TuP1.1 FrB13.4	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 ThC14.2	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Corspo, Luis G Crespo, Luis G Cristofaro, Andrea Cunha, Rita	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17.1 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 TuP1.1 FrB13.4 ThC14.2 FrA01.15	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17.1 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 TuP1.1 FrB13.4 ThC14.2 FrA01.15	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Corspo, Luis G Crespo, Luis G Cristofaro, Andrea Cunha, Rita	FrB18.2 ThB15.2 ThB20.3 ThB20.3 ThC18.3 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 TuP1.1 FrB13.4 FrA01.15 FrB1T1.15	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortinovis, Alice Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea Curtis, J. Willard	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17.1 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 FrB13.4 FrA01.15 FrB1T1.15 FrB1T1.15	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea Cunha, Rita	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17.1 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 FrB13.4 FrA01.15 FrB1T1.15 FrB1T1.15	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortinovis, Alice Cortinovis, Alice Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Couto, Luis Daniel Correspo, Luis G Cristofaro, Andrea Cunha, Rita Curtis, J. Willard	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17.1 FrC17.1 FrB08.1 ThC11.1 FrB13.6 FrB15.3 ThB09.1 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 FrB13.4 FrB13.4 FrB1T1.15 FrB1T1.15 FrB1T1.15 ThC11.3 ThC15.6	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortinovis, Alice Cortinovis, Alice Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea Cunha, Rita Curtis, J. Willard D	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrC17.1 FrB13.6 FrB15.3 ThB09.1 ThB09.1 ThB02.1 ThB02.1 ThB02.1 FrB13.4 FrB13.4 FrB13.4 FrB1T1.15 FrB1T1.15 FrB1T1.15 FrB1T1.15 ThC11.3 ThC15.6	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortinovis, Alice Cortinovis, Alice Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea Curtis, J. Willard D D'Angelo, Massimiliano D'Arpino, Matilde	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrC17.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 FrB13.4 FrB13.4 FrB17.15 FrB1T.15 FrB1T.15 ThC11.3 ThC15.6	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea Cunha, Rita Curtis, J. Willard D D'Angelo, Massimiliano D'Arpino, Matilde D'Souza, Rollen S	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 ThC14.2 FrB13.4 FrB171.15 FrB1T1.15 FrB1T1.15 ThC15.6 ThB18.3 ThB02.6 FrC15.2	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortinovis, Alice Cortinovis, Alice Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea Curtis, J. Willard D D'Angelo, Massimiliano D'Arpino, Matilde	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 ThC14.2 FrB13.4 FrB171.15 FrB1T1.15 FrB1T1.15 ThC15.6 ThB18.3 ThB02.6 FrC15.2	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Coyne, Dennis Crespo, Luis G Cristofaro, Andrea Cunha, Rita Curtis, J. Willard D D'Angelo, Massimiliano D'Arpino, Matilde D'Souza, Rollen S	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 FrB13.6 FrB13.6 FrB13.6 FrB13.4 ThB02.1 ThB02.1 ThB02.1 ThB13.4 ThC14.2 FrB13.4 FrB17.15 FrB17.15 FrB17.15 ThC11.3 ThC15.6 ThB18.3 ThB02.6 FrC15.2 ThA02.12	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Coutinho, Daniel Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Courto, Dennis Crespo, Luis G Cristofaro, Andrea Cunha, Rita Curtis, J. Willard D'Angelo, Massimiliano D'Angelo, Massimiliano D'Angelo, Massimiliano D'Angue Da, Xingye	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 TrC14.2 FrB171.15 FrB1T1.15 FrB1T1.15 ThC11.3 ThC15.6 ThB18.3 ThB18.3 ThB02.6 FrC15.2 ThA02.12 ThB1T2.12	СС
Coleman, Kevin Collins, Brandon Combes, Pascal Coogan, Samuel Cook, Michael Cortes, Jorge Cortinovis, Alice Coutinho, Daniel Couto, Luis Daniel Couto, Luis Daniel Couto, Luis Daniel Couto, Luis G Cristofaro, Andrea Curtis, J. Willard D D'Angelo, Massimiliano D'Arpino, Matilde D'Souza, Rollen S Da, Xingye	FrB18.2 ThB15.2 ThB20.3 ThC18.3 FrC17 FrC17.1 FrB08.1 FrB13.6 FrB15.3 ThB09.1 ThB02.1 ThB02.1 ThB02.1 ThB02.1 ThB13.4 TrC14.2 FrB171.15 FrB1T1.15 FrB1T1.15 ThC11.3 ThC15.6 ThB18.3 ThB18.3 ThB02.6 FrC15.2 ThA02.12 ThB1T2.12	СС

Dadras, Sara	ThC04	СС
		0
		С
Dadraa Saadah		сс
Dadras, Soodeh		0
		0
		0
Dai, Andong		
Dai, Edward		
Dall'Anese, Emiliano		С
Dallas, James Dally, William		
Dames, Philip		
Dán, György		
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	FrB18.3	
Dangol, Pravin	ThC08.4	
Daniels, Joshua		
Darbe, Robert		
	.10	
	INLBP-P02	
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	FrLBP-P02.	
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Darouach, Mohamed		
Das, Amritam		
Das, Tuhin		
Dasgupta, Ranjan	3 ErA01 10	
Dave, Aditya		
De Castro, Ricardo	FrC13	С
de Kleer, Johan		
De Marchi, Alberto		
De Stefano, Marco		
De Vries, Peter		0
	ThB21.4	
Dearing, Thomas		
Del Re, Luigi		
Del Vecchio, Domitilla		
dela Rosa, Loren		
Dellermann, Matthias		
Demetriou, Michael A.	ThB14	С
		0
		0
Deng, Ruilong		0
Deng, Xianda		
Desaraju, Vishnu		
Deshpande, Aditya Milind		
Deshpande, Vedang M		~
Detroja, Ketan P.		С
Devasia, Santosh		сс
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Develer, Ümit		CC
Develer, Omit Devonport, Alex		
Devraj, Adithya M.		
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	ThC06.3	
		0
Dey, Satadru		0
Dey, Supravat		
Dhar, Abhishek	ThB07.3	
Dhople, Sairaj		
Di, Bolei Di Cairano, Stefano		
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		С
Diagne, Mamadou	FrB14	0
Diaz-Mercado, Yancy		
Dickinson, Benjamin		
Diehl, Moritz		
Dimarogonas, Dimos V		
Ding, Guohui		
Ding, Yufang		
Dinh, Thach N.		
Dirkx, Nic	ThC21.1	
Dixon, Warren E		
, 	FrC15.6	
Djouadi, Seddik, M		
	INLBP-P01	
	FrB14.6	
do Val, Joao B.R.	ThC18.6	
	ThC18.6 ThLBP-A01	
do Val, Joao B.R.	ThC18.6 ThLBP-A01 .1	0
do Val, Joao B.R Doekemeijer, Bart Matthijs	ThC18.6 ThLBP-A01 .1 FrB02 FrC02	CC
do Val, Joao B.R Doekemeijer, Bart Matthijs	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02	-
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4	CC
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff Doeser, Ludvig.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14	CC
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff Doeser, Ludvig. Dogan, Kadriye Merve	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 ThB09.5	CC
do Val, Joao B.R Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 ThB09.5 ThC16.1	CC
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff Doeser, Ludvig. Dogan, Kadriye Merve	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrB1T1.14 FrB1T1.14 ThB09.5 ThC16.1 FrB11.5	CC
do Val, Joao B.R Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 ThB09.5 ThC16.1 FrB11.5 FrB11.5 FrB1T2.16	CC
do Val, Joao B.R Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrB1T1.14 FrB1T1.14 ThB09.5 ThC16.1 FrB11.5 FrB11.5 FrB11.5 FrA02.16 FrB1T2.16 ThCT3.2	CC
do Val, Joao B.R Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrB1T1.14 FrB1T1.14 FrB11.5 FrB11.5 FrB11.5 FrB11.2.16 FrB172.16 ThCT3.2 ThA01.13	CC
do Val, Joao B.R. Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrB11.5 FrB115.16 FrB172.16 ThCT3.2 ThA01.13 ThB1T1.13 ThB13.2	CC
do Val, Joao B.R. Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D. Dong, Lili Dong, Wenhui	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrB11.5 FrB112.16 FrB1T2.16 ThCT3.2 ThA01.13 ThB1T1.13 ThB13.2 ThC12.1	CC
do Val, Joao B.R. Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrB11.5 FrA02.16 FrB1T2.16 ThCT3.2 ThCT3.2 ThB13.2 ThB13.2 ThC12.1 ThA02.15	CC
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff Doeser, Ludvig. Dogan, Kadriye Merve Dolan, John. Dolinskaya, Irina Domanski, Pawel D. Dong, Lili Dong, Wenhui Dong, Wenjie	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB115 FrA02.16 FrB1T2.16 FrB1T2.16 ThCT3.2 ThA01.13 ThB13.2 ThA12.1 ThA02.15 ThA02.15 ThB1T2.15 ThC17.4	CC O
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff Doeser, Ludvig. Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D. Dong, Lili Dong, Wenhui Dong, Wenhui Dong, Wenjie Dong, Yining Donkers, M.C.F.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB115 FrA02.16 FrB1T2.16 FrB1T2.16 ThCT3.2 ThA01.13 ThB13.2 ThA01.21 ThA02.15 ThB1T2.15 ThC17.4 ThB02	CC
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff Doeser, Ludvig. Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Dolinskaya, Irina Domanski, Pawel D. Dong, Lili Dong, Wenhui Dong, Wenhui Dong, Wenhui Dong, Wenhui Dong, Yining Donkers, M.C.F.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrA02.16 FrB1T2.16 FrB1T2.16 ThCT3.2 ThA01.13 ThB13.2 ThA01.13 ThB13.2 ThC12.1 ThA02.15 ThB1T2.15 ThB1T2.15 ThB172.15 ThB02 ThB02.2	CC O
do Val, Joao B.R. Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D Dong, Lili Dong, Wenhui Dong, Wenhui Dong, Wenhui Dong, Yining Donkers, M.C.F.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrB11.5 FrB112.16 FrB1T2.16 ThA01.13 ThB1T1.13 ThB1T1.13 ThB13.2 ThA02.15 ThC17.4 ThB02 ThB02.3 ThB02.3 ThA02.15	CC O
do Val, Joao B.R. Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D Dong, Lili Dong, Wenhui Dong, Wenhui Dong, Wenhui Dong, Yining Donkers, M.C.F.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrB11.5 FrB11.5 FrB112.16 FrB1T2.16 ThCT3.2 ThA01.13 ThB13.2 ThA01.13 ThB13.2 ThB13.2 ThC12.1 ThB12.15 ThB02.3 ThB02.3 ThB02.15 ThB1T2.15	CC O
do Val, Joao B.R. Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D. Dong, Lili Dong, Wenhui Dong, Mc. F.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.5 FrB1T2.16 FrB1T2.16 ThCT3.2 ThA01.13 ThB1T1.13 ThB1T1.13 ThB1T1.13 ThB1T2.15 ThC17.4 ThB02.2 ThB02.3 ThB02.3 ThB1T2.15 ThB1T2.15 ThB1T2.15 ThB1T2.15 ThB1T2.15 ThC11.3	CC O
do Val, Joao B.R. Doekemeijer, Bart Matthijs Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D Dong, Lili Dong, Wenhui Dong, Wenhui Dong, Wenhui Dong, Yining Donkers, M.C.F.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T2.16 FrB1T2.16 FrB1T2.16 ThCT3.2 ThC13.2 ThB13.2 ThB13.2 ThB13.2 ThB13.2 ThC12.1 ThB13.2 ThC12.1 ThB172.15 ThB172.15 ThB172.15 ThB172.15 ThB172.15 ThB172.15 ThC11.3 ThC13.6	CC O
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff Doeser, Ludvig. Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Domanski, Pawel D. Dong, Lili Dong, Wenhui Dong, Wenhui Dong, Wenhie Dong, Yining Donkers, M.C.F. Dony, Md. Doucette, Emily. Douwiati, Moustapha Dower, Peter M.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T2.16 FrB1T2.16 FrB1T2.16 FrB1T2.16 ThCT3.2 ThC13.2 ThA01.13 ThB13.2 ThB13.2 ThC12.1 ThB13.2 ThC12.1 ThB172.15 ThC17.4 ThB02.3 ThB02.3 ThC13.3 ThB172.15 ThC11.3 ThC15.6 FrC03.4 ThB18.5	CC O
do Val, Joao B.R. Doekemeijer, Bart Matthijs. Doering, Jeff Doeser, Ludvig Dogan, Kadriye Merve Dolan, John Dolinskaya, Irina Dolinskaya, Irina Domanski, Pawel D. Dong, Lili Dong, Wenhui Dong, Wenhui Dong, Wenhui Dong, Wenjie Dong, Yining Donkers, M.C.F. Dony, Md. Doucette, Emily.	ThC18.6 ThLBP-A01 .1 FrB02 FrC02 FrC02 FrC04.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T2.16 FrB1T2.16 FrB1T2.16 FrB1T2.16 ThCT3.2 ThC13.2 ThA01.13 ThB13.2 ThB13.2 ThC12.1 ThB13.2 ThC12.1 ThB172.15 ThC17.4 ThB02.3 ThB02.3 ThC13.3 ThB172.15 ThC11.3 ThC15.6 FrC03.4 ThB18.5	CC O

Dowling, Chase		
Downes, Lena		
Doyle, John C.		
Du, Xinyu		
Dubey, Abhishek	ThC02.6	
Dubljevic, Stevan		CC
Duenas, Victor H	FrC13	CC
Dullerud, Geir E		
Dumon, Jonathan		
Durand, Helen		
	ThB1T1.1	
	ThB1T1.15	
Dutreix, Maxence		
Dwivedi, Anubhav E	FrB09.2	
Eckman, Wendy	ThLBP-A02	
,	.1	
	ThLBP-P02	
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	FrLBP-A02.	
	T Frl BP-P02	
	11LDI -I 02.	
Efremov, Denis	FrC03.5	
Egbert, Robert		
-	FrA01.4 FrB1T1.4	
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6	
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6	
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1	
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLuT4.7	
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 .11	
Egerstedt, Magnus El-Farra, Nael H.	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 .11 ThC14.1	
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC14.1	СС
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 11 ThC14.1 ThC17.3	сс
Egerstedt, Magnus El-Farra, Nael H.	FrA01.4 FrB1T1.4 FrB1T2.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThA01.14	сс
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew	FrA01.4 FrB1T1.4 FrB1T2.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14	сс
Egerstedt, Magnus El-Farra, Nael H.	FrA01.4 FrB1T1.4 FrB1T1.6 ThB1T2.6 ThLuT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC14.1 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05	
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak Ersal, Tulga	FrA01.4 FrB1T1.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLUT4.7 ThLBP-P02 11 ThC14.1 ThC14.1 ThC17.3 ThC17.3 ThA01.14 FrB05 FrB05.1 FrB04.3	сс
El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak. Ersal, Tulga	FrA01.4 FrB1T1.4 FrB1T1.4 ThA02.6 ThL172.6 ThLUT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 FrB05 FrB05.1 ThB04.3 FrB10	
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak Ersal, Tulga	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4	сс
Egerstedt, Magnus	FrA01.4 FrB1T1.4 FrB1T1.6 ThB1T2.6 ThLuT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrC03.2	сс
Egerstedt, Magnus	FrA01.4 FrB1T1.4 FrB1T1.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrC03.2 FrC03.6	сс
Egerstedt, Magnus	FrA01.4 FrB1T1.4 FrB1T1.6 ThB1T2.6 ThLUT4.1 ThLUT4.7 ThLBP-P02 11 ThC14.1 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrA02.15	сс
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak. Ersal, Tulga Esfandiari, Yasaman Espitia, Nicolas	FrA01.4 FrB1T1.4 FrB1T1.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 FrB10 FrB10 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrC03.6 FrA02.15 FrB1T2.15 ThC14.3	сс
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak Ersal, Tulga Esfandiari, Yasaman Espitia, Nicolas Eugene, Elvis	FrA01.4 FrB1T1.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThC17.3 ThA01.14 FrB05 FrB05.1 FrB05.1 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrA02.15 FrB172.15 ThC14.3 FrA02.21	сс
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak Ersal, Tulga Esfandiari, Yasaman Espitia, Nicolas Eugene, Elvis	FrA01.4 FrB1T1.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThA01.14 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrC03.6 FrA02.15 FrA12.15 ThC14.3 FrB1T2.21	сс
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak Ersal, Tulga Esfandiari, Yasaman Espitia, Nicolas Eugene, Elvis Evain, Hélène	FrA01.4 FrB1T1.4 FrB1T1.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB12.5 	сс
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak Ersal, Tulga Esfandiari, Yasaman Espitia, Nicolas Eugene, Elvis	FrA01.4 FrB1T1.4 FrB1T1.6 ThB1T2.6 ThLuT4.1 ThLuT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB12.5 	сс
Egerstedt, Magnus Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak Ersal, Tulga Esfandiari, Yasaman Espitia, Nicolas Eugene, Elvis Evain, Hélène Ezzine, Montassar	FrA01.4 FrB1T1.4 FrB1T2.6 ThLUT4.1 ThLUT4.7 ThLBP-P02 11 ThC14.1 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrB10.4 FrB12.15 ThC14.3 FrB172.21 FrB12.26 	сс
Egerstedt, Magnus Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak Ersal, Tulga Esfandiari, Yasaman Espitia, Nicolas Eugene, Elvis Evain, Hélène Ezzine, Montassar F Fadali, Mohammed Sami Fahdzyana, Chyannie	FrA01.4 FrB1T1.4 FrB1T1.6 ThLUT4.7 ThLUT4.7 ThLBP-P02 11 ThC14.1 ThC14.1 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10.4 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrC03.6 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrC03.6 FrB172.15 FrB172.21 FrB12.6 FrB12.6 	сс
Egerstedt, Magnus	FrA01.4 FrB1T1.4 FrB1T1.6 ThLB1T2.6 ThLUT4.1 ThLUT4.7 ThLBP-P02 11 ThC14.1 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrC03.6 FrB172.15 ThC14.3 FrB172.21 FrB12.6 FrB12.6 	cc c
Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak. Ersal, Tulga Esfandiari, Yasaman Espitia, Nicolas. Eugene, Elvis Evain, Hélène Ezzine, Montassar	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLUT4.1 ThLUT4.7 ThLBP-P02 11 ThC14.1 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrC03.6 FrA02.15 FrB1T2.15 ThC14.3 FrB12.6 FrB12.6 FrB12.6 FrB12.4 FrB12.4 FrB20.2 ThC03.1 ThB14 ThC14	сс
Egerstedt, Magnus	FrA01.4 FrB1T1.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLUT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrB10.4 FrC03.2 FrC03.6 FrC03.6 FrA02.15 FrB1T2.15 ThC14.3 FrB172.21 FrB12.6 ThC12.4 ThB20.2 ThC03.1 ThB14 ThC14 ThB02	cc c
Egerstedt, Magnus Egerstedt, Magnus El-Farra, Nael H. Ellis, Matthew Ergöçmen, Burak. Ersal, Tulga Essiandiari, Yasaman Espitia, Nicolas Eugene, Elvis Evain, Hélène Ezzine, Montassar F Fadali, Mohammed Sami Fahroo, Fariba Fang, Huazhen Fang, Jun	FrA01.4 FrB1T1.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLUT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThA01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10 FrB10.4 FrB10.4 FrB10.4 FrC03.2 FrC03.2 FrC03.6 FrB172.15 ThC14.3 FrB172.21 FrB172.21 FrB12.6 ThC12.4 ThB20.2 ThC03.1 ThB14 ThC14 ThB02 ThB02 FrB01.5	cc c
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLuT4.1 ThLuT4.1 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThR01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB12.21 FrB1T2.21 FrB1T2.21 FrB12.6 ThC14.3 ThB20.2 ThC3.1 ThB14 ThC14 ThC14 ThB14 ThC14 ThB14 ThC15 FrB19.6	cc c
Egerstedt, Magnus	FrA01.4 FrB1T1.4 ThA02.6 ThB1T2.6 ThLUT4.1 ThLUT4.7 ThLBP-P02 .11 ThC14.1 ThC17.3 ThC17.3 ThC17.3 ThB01.14 ThB1T1.14 FrB05 FrB05.1 ThB04.3 FrB05.1 ThB04.3 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB10.4 FrB12.21 FrB1T2.215 ThC14.3 FrB172.21 FrB12.6 ThC14.3 FrB12.6 ThC14.3 FrB12.6 ThC14.3 FrB12.6 ThC12.4 	cc c

Fathian, Kaveh Febbo, Huckleberry	ThA01.20	
Fedonyuk, Vitaliy Feil, Roland	FrC15.3	
Fekih, Afef	ThLuT4.5	
Felici, Federico	ThB21	CC
		0
	ThB21.2	
Fenyes, Daniel		
Ferguson, Bryce L.		
Feron, Eric		
Ferrante, Francesco		0
		С
Ferrari, Riccardo M.G.		
Ferri, Bonnie Fiacchini, Mirko		
Figura, Martin Filev, Dimitre P		
Findeisen, Rolf		
· · · · · · · · · · · · · · · · · · ·	ThA01.10	
	FrA02.4	
Fishbein, Daniel		
Fleming, Paul	8 FrB02	0
Folkestad, Carl		0
· · · · · · · · · · · · · · · · · · ·	FrB1T2.7	
Fonoberova, Maria		
Fontanella, Alessandro		
Fotiadis, Filippos Fox, John	ThC04.6	
Franchek, Matthew A Frederik, Joeri Alexis		
	.1	
Freeman, Christopher T	FrB02.5 ThB16 2	
French, Donald	FrB05.6	~ ~
Freris, Nikolaos M		CC
Freudiger, Danny	ThB02.6	
Frew, Eric W.	FrLBP-A01. 7	
Frey, Jonathan		
Frison, Gianluca Fritz, Raphael		
Fullmer, Daniel Furieri, Luca		
	.2	
G	FrB16.5	_
Gabrys, Agnes		
Gade, Shripad		
Gagrani, Mukul	ThB18.1	
Gans, Nicholas		
	••	
Gao, Shijie	ThA02.2	

Gao, Yuan         Fr61T2.21           Gao, Zhiqiang.         ThB1T3.3           Garcia, Antonio.         FrC09.1           Garcia, Antonio.         FrC09.1           Garcia, Antonio.         FrC11.14.5           Garcia Carrillo, Luis Rodolfo         ThA02.14           ThB1T2.14         ThB10.1           Garfi, Kaitlyn.         ThC06.2           Garoia Carrillo, Cianluca         ThC08.5           Gabran, Victor         Fr820.2           Gaspar, Peter         ThB03.1           ThB03.2         Gayme, Dennice           Ge, Zyun         FrC14.5           Genrig, Ottmar.         FrB03.6           Georgiou, Tryphon T.         FrLBP-P01.           Germani, Afredo         ThB18.3           Ghadaly, Hasan         ThC16.3           Ghadaly, Hasan         ThC16.3           Ghaemi, Reza         ThB05.1           Choreishi, Seyede Fatemeh         ThC13.4           ThB11.5         Ghusinga, Khem Raj           FrA01.2         Fr81T1.2           Gianluca, Villani         ThB11.5           Giuriad, Anouck         ThB10.4           FrC03.6         Fr818.4           FrC04.6         FrC3.4           Goody, Boris I. </th <th>Gao, Xian</th> <th></th> <th></th>	Gao, Xian		
ThB1T2.12           Gao, Zhiqiang.         ThB13.3           Garcia, Antonio.         FrC09.1           Garcia, Eloy         FrLuT4.5           Garcia, Carrillo, Luis Rodolfo         ThA02.14           ThB10.1         Garcia, Carrillo, Luis Rodolfo         ThB10.1           Garfi, Kaittyn         ThC06.2         CC           Garofalo, Gianluca         ThC08.5         CC           Gaspar, Peter         ThB03.2         Gaspar, Peter           ThB03.2         Gayme, Dennice         FrC02.3           Gey, Ziyun         FrC14.5         Gehring, Ottmar           Gehring, Ottmar         FrB04.6         Georgiou, Tryphon T.           7         F         F           Ghaemi, Afredo         ThB165.1         Ghaemi, Reza           ThB09.2         Ghoreishi, Seyede Fatemeh         ThC13.4           Ghist, Robert         ThC17.6         Ghist, Robert           ThB11.5         Gianluca, Villani         ThB11.5           Giordano, Alessandro Massimo         ThA02.20           Giordano, Alessandro Massimo         ThA02.3           FF618.4         FrC04.6           FrC05.4         Gioday, Gois I.           Giordano, Alessandro Massimo         ThA02.5			
Gao, Zhiqiang.         ThB13.3           Garcia, Eloy.         FrLuT4.5           Garcia, Eloy.         FrLuT4.5           Garcia, Eloy.         ThLT2.14           ThB12.14         ThB12.14           Garofalo, Gianluca         ThC08.2           Garofalo, Gianluca         ThC08.5           Galman, Victor         FrB20.2           Gaspar, Peter         ThB03.1           Gayme, Dennice         FrC02.3           Ge, Zlyun.         FrC14.5           Gehring, Ottmar.         FrB04.6           Georgiou, Tryphon T.         FrB97.6           Ghaemi, Reza         ThB05.1           Ghasemi, Alfredo         ThB11.3           Ghaemi, Reza         ThB05.1           Ghasemi, Robert         ThC13.4           Ghoreishi, Seyede Fatemeh         ThC13.5           Ghusing, Khem Raj         FrA01.2           FrB171.2         Gianluca, Villani         ThB11.5           Gindano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB10.4           FrC03.4         FrC03.3           Giodano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB17.5           ThB11.5         Gintasth      <	,		
Garcia, Antonio.         FrC09.1           Garcia Eloy			
Garcia, Eloy.         FrLuT4.5           Garcia Carrillo, Luis Rodolfo         ThA02.14           ThB1T2.14         ThB1T2.14           Gaffi, Kaitlyn.         ThC06.2           Garofalo, Gianluca         ThC08.5           Gaßmann, Victor         Fr820.2           Gaspar, Peter         ThB03.1           ThC08.5         Gagme, Dennice.           Gelving, Ottmar.         Fr1804.6           Georgiou, Tryphon T.         Fr1804.6           Georgiou, Tryphon T.         Fr1805.1           Ghaemi, Reza         ThB05.1           Ghaemi, Reza         ThB05.1           Ghaemi, Reza         ThC13.3           Ghorish, Robert         ThC13.5           Ghrist, Robert         ThC13.6           Ghusinga, Khem Raj         Fr401.2           Giordano, Alessandro Massimo         ThA02.20           Fref 80.6         Fr618.4           FrC05.4         Gody, Sorial.           Gody, Sorial.         FrC12.3           Gordano, Alessandro Massimo         ThA02.20           FraB18.4         FrC05.4           Gilsta, Elizabeth         ThC06.1           Gody, Borial.         FrC12.3           Goel, Ankur         FrC05.4           <			
Garcia Carrillo, Luis Rodolfo         ThA02.14           ThB172.14         ThB172.14           ThB10.1         Gardfalo, Gianluca         ThC06.2           Garofalo, Gianluca         ThC08.5           Gaßmann, Victor         FrB20.2           Gaspar, Peter         ThB03.1           Gayme, Dennice         FrC02.3           Ge, Ziyun         FrC14.5           Gerdigu, Tryphon T.         FrLBP-P01.           Zerdan, Alfredo         ThB05.5           Ghaaemi, Alfredo         ThB05.5           Ghaaemi, Reza         ThB05.5           Ghasemi, Amirhossein         ThB09.2           Ghoreishi, Seyede Fatemeh         ThC13.4           ThC13.5         FrB01.2           Gim, Juhui         ThB11.5           Gim, Juhui         ThB14.2           Giordano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB10.4           Fr603.6         Fr818.4           FrC04.6         FrC04.6           FrC05.4         Godoy, Boris I.           Giard, Anouck         ThB10.4           FrC05.4         Fr603.6           Girard, Anouck         ThC13.1           Godoy, Boris I.         FrC12.3 <td< td=""><td>Garcia, Eloy</td><td>.FrLuT4.5</td><td></td></td<>	Garcia, Eloy	.FrLuT4.5	
TheB10.1           Garofalo, Gianluca         ThC06.2           Garofalo, Gianluca         ThC08         CC           Gaspar, Peter         ThB03.1           Gayme, Dennice         FrC02.3           Ge, Ziyun         FrC14.5           Gebraing, Ottmar         FrB04.6           Georgiou, Tryphon T.         FrLBP-P01.           7         Germani, Alfredo         ThB18.3           Ghadialy, Hasan         ThC16.3           Ghaemi, Reza         ThB05.1           Ghasemi, Amirhossein         ThB05.1           Ghasemi, Amirhossein         ThB05.1           Ghasemi, Robert         ThC13.4           ThC13.5         Ghrist, Robert         ThC13.5           Ghrist, Robert         ThA12.2           Gianluca, Villani         ThB11.5           Giordano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB17.2           Girard, Anouck         Fr014.4           Fr603.6         FrC05.4           Godoy, Boris I.         FrC12.3           Gordono, Alessandro Massimo         ThA02.5           ThB17.2         ThB07.1           Fr617.1         C           Grand, Ankut         FrC17.4 <tr< td=""><td>Garcia Carrillo, Luis Rodolfo</td><td>ThA02.14</td><td></td></tr<>	Garcia Carrillo, Luis Rodolfo	ThA02.14	
Garifi, Kaitlyn         ThC06.2           Garofalo, Gianluca         ThC08.5           Gamann, Victor         FrB20.2           Gaspar, Peter         ThB03.1           ThB03.2         Gayme, Dennice           Ge, Ziyun         FrC14.5           Gehring, Ottmar         FrB04.6           Georgiou, Tryphon T.         FrLBP-P01.           7         Germani, Alfredo         ThB18.3           Ghadialy, Hasan         ThC14.5           Ghaemi, Reza         ThB05.1           Ghasemi, Amirhossein         ThB11.2           Ghardin, Seyede Fatemeh         ThC13.4           Ghrist, Robert         ThC14.3           Girdano, Alessandro Massimo         ThA02.20           Girdano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB11.2           Gianluca, Villani         ThB148.4           FrC04.6         FrC04.6           FrC04.6         FrC04.6           Gords and, Alessandro Massimo         ThA02.5           Gel, Ankit         ThA02.5           Godol, Ankit         ThA07.1           Godol, Soris I         FrC12.3           Godol, Marit         Solos.1           Godol, Ankit         ThA02.5			
Garofalo, Gianluca         ThC08         CC           Gaßmann, Victor         FrB20.2         Gaspar, Peter         ThB03.1           ThR08.2         Gayme, Dennice         FrC02.3         Ge, Ziyun         FrC14.5           Gehring, Ottmar.         FrB04.6         Georgiou, Tryphon T.         FrE18.3         Ghadialy, Hasan         ThC16.3           Ghami, Alfredo         ThB18.3         Ghadialy, Hasan         ThC16.3         Ghaemi, Reza         ThB05.1           Ghasemi, Amirhossein         ThE05.1         Ghasemi, Amirhossein         ThC13.4         Ghoreishi, Seyede Fatemeh         ThC13.5           Ghrusinga, Khem Raj         FrA01.2         FrB171.2         Giordano, Alessandro Massimo         ThA02.20           Giard, Anouck         ThB10.4         ThC03.3         FrB03.6         FrB18.4           FrC04.6         FrC04.6         FrC04.6         Giordano, Alessandro Massimo         ThA02.20           Giard, Anouck         ThB17.2         ThB17.2         Giordano, Alessandro Massimo         ThA02.20           Giard, Anouck         ThB17.2         FrB18.4         FrC04.6           Gista, Elizabeth         ThC06.1         Godoy, Boris I.         FrC17.2         Godoy, Boris I.         FrC17.4         Godowi, Bill         So         So         G			
ThC08.5           Gaßmann, Victor         FrB20.2           Gaspar, Peter         ThB03.1           ThB03.2         Gayme, Dennice           Ge, Ziyun         FrC04.5           Gernig, Ottmar         FrB04.6           Georgiou, Tryphon T.         FrLBP-P01.           7         Gernani, Alfredo           ThB18.3         Ghadialy, Hasan           Ghaemi, Reza         ThB05.1           Ghasemi, Amirhossein         ThC13.5           Ghrist, Robert         ThC13.4           ThC13.5         Ghoreishi, Seyede Fatemeh           ThC12.3         Giordano, Alessandro Massimo           ThAB1.5         Giordano, Alessandro Massimo           ThAB1.5         Giordano, Alessandro Massimo           ThAB2.20         FrB18.4           FrC05.4         Gioda, Georgio, Boris I.           Gordano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB10.4           FrB18.4         FrC05.4           Glista, Elizabeth         ThC06.1           Gordoy, Boris I.         FrC12.3           Goody, Boris I.         FrC17.4           Goed, Ankur         FrC05.4           Gracy, Sebin         ThC19.4           Gracy, Se			~~
Gaßmann, Victor         FrB20.2           Gaspar, Peter         ThB03.1           ThB03.2         ThB03.2           Gayme, Dennice         FrC02.3           Ge, Ziyun         FrC04.5           Gebring, Ottmar         FrB04.6           Georgiou, Tryphon T.         FrLBP-P01.           7         Germani, Alfredo         Th           Ghadialy, Hasan         ThC16.3           Ghaemi, Reza         ThB05.1           Ghasemi, Amirhossein         ThB05.1           Ghasemi, Kobert         ThC13.4           Ghoreishi, Seyede Fatemeh         ThC13.6           Ghusinga, Khem Raj         FrA01.2           Gianluca, Villani         ThB11.5           Gim, Juhui         ThC13.3           Giordano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB11.2           Giard, Anouck         ThB10.4           Fr603.6         Fr818.4           FrC05.4         Gilsta, Elizabeth           Gilsta, Elizabeth         ThC06.1           Goody, Boris I.         FrC12.3           Goel, Ankur         FrC05.4           Gilsta, Elizabeth         ThC06.1           Goodwine, Bill         ThLBP-A01           <	· · · · · · · · · · · · · · · · · · ·		CC
Gaspar, Peter         ThB03.1           Gayme, Dennice         FrC02.3           Ge, Ziyun         FrC14.5           Georgiou, Tryphon T         FrB04.6           Georgiou, Tryphon T         FrB04.8           Ghadialy, Hasan         ThC16.3           Ghaemi, Reza         ThB05.1           Chasemi, Amirhossein         ThB05.1           Ghasemi, Amirhossein         ThB05.1           Ghasemi, Amirhossein         ThC13.4           ThC13.4         ThC13.4           Ghrist, Robert         ThC13.4           Gianluca, Villani         ThB11.5           Ginvisinga, Khem Raj         FrA01.2           Gianduca, Villani         ThB10.3           Giordano, Alessandro Massimo         ThA02.20           ThB10.4         ThC03.3           FrB03.6         FrB18.4           FrC04.6         FrC05.4           Glista, Elizabeth         ThC06.1           Gody, Boris I         FrC17.2           Goody, Koris I         FrC05.4           Goshtasbi, Alireza         ThC13.1           Goswann, Felix         FrB05.4           Goody, Soris I         S           Goody, Goris I         S           Goody, Goris I         S			
ThB03.2           Gayme, Dennice         FrC02.3           Ge, Ziyun         FrC14.5           Gehring, Ottmar         FrB04.6           Georgiou, Tryphon T.         FrLBP-P01.           7         Germani, Alfredo           Ghaemi, Reza         ThB05.1           Ghaemi, Reza         ThB05.2           Ghoreishi, Seyede Fatemeh         ThC13.4           ThC13.5         Ghrist, Robert           Ghusinga, Khem Raj         FrA01.2           Gianluca, Villani         ThB11.5           Gim, Juhui         ThC13.3           Giordano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB10.4           FrB17.2         Giordano, Alessandro Massimo           FrB18.4         FrC04.6           FrC04.6         FrC05.4           Gista, Elizabeth         ThC03.3           FrC17         C           Goody, Boris I         FrC12.3           Goody, Boris I         FrC17.4           Goel, Ankur         FrC05.4           Gista, Elizabeth         ThC3.1           Gosoman, Felix         FrB05.4           Grozon, Orshua         FrL12.3           Goel, Ankur         FrC08.5			
Gayme, Dennice         FrC02.3           Ge, Ziyun         FrC14.5           Gehring, Ottmar.         FrB04.6           Georgiou, Tryphon T.         FrLBP-P01.           7         Germani, Alfredo           Ghadialy, Hasan         ThC16.3           Ghadialy, Hasan         ThC16.3           Ghasemi, Reza         ThB05.1           Ghasemi, Amirhossein         ThB05.1           Ghasemi, Seyede Fatemeh         ThC13.4           Ghrist, Robert         ThC13.5           Ghrist, Robert         ThC13.6           Ghuista, Rhem Raj         FrA01.2           Gianluca, Villani         ThB11.5           Giordano, Alessandro Massimo         ThA02.20           ThB12.20         Girard, Anouck           FrB03.6         FrB18.4           FrC05.4         FrC05.4           Gody, Boris I         FrC05.4           Gody, Boris I         FrC17.2           Goel, Ankit         ThA02.5           Gombo, Yoshua         FrLBP-A01           5         Goody, Boris I           GrC17.4         Geol, Ankur           Goel, Ankur         FrC05.4           Gracy, Sebin         ThC13.1           Gossmann, Felix         FrC17.			
Ge, Ziyun       FrC14.5         Georgiou, Tryphon T.       FrB04.6         Georgiou, Tryphon T.       FrLBP-P01.         7       Germani, Alfredo       ThB18.3         Ghadialy, Hasan       ThC16.3         Ghaemi, Reza       ThB05.1         Chasemi, Amirhossein       ThB05.1         Ghasemi, Amirhossein       ThC13.4         ThC13.5       Ghrist, Robert         Ghrist, Robert       ThC13.5         Ghrist, Robert       ThC13.6         Ginuca, Villani       ThB15.1         Gim, Juhui       ThC12.3         Giordano, Alessandro Massimo       ThA02.20         Girard, Anouck       ThB10.4         Fr603.6       Fr618.4         FrC04.6       FrC05.4         Glista, Elizabeth       FrC05.4         Glista, Elizabeth       FrC05.4         Gilsta, Elizabeth       FrC17.2         Gordov, Boris I.       FrC17.2         Gordov, Boris I.       FrC17.4         Goedy, Boris I.       FrC17.4         Gordov, Poshua       FrC17.4         Gordov, Poshua       FrB05.4         Gracy, Sebin       ThLBP-A01         5       Goodwine, Bill       ThC13.1         Go			
Gehring, Ottmar.         FrB04.6           Georgiou, Tryphon T.         FrLBP-P01.           7         FrLBP-P01.           7         Germani, Alfredo           Ghadialy, Hasan         ThC16.3           Ghaemi, Reza         ThB05.           CC         ThB05.1           Ghasemi, Amirhossein         ThB09.2           Ghoreishi, Seyede Fatemeh         ThC13.4           ThC13.5         Ghrist, Robert           Ghusinga, Khem Raj         FrA01.2           FrB1T1.2         Gianluca, Villani           Gianduca, Villani         ThB11.5           Giordano, Alessandro Massimo         ThA02.20           ThB10.4         ThC03.3           FrB03.6         FrB18.4           FrC04.6         FrC04.6           Goldy, Ancuck         ThB10.4           FrC05.4         Glista, Elizabeth           ThC03.3         FrC17.2           Goel, Ankut         FrC05.4           Gordano, Yoshua         FrLBP-A01.           Soombo, Yoshua         FrLBP-A01.           Soombo, Yoshua         Soombo, Yoshua           ThC17.1         Gela, Ankur           Goody, Goris I.         FrC04.5           Gordano, Alessando         So			
Germani, Alfredo         Th           Ghadialy, Hasan         ThC16.3           Ghadialy, Hasan         ThB05         CC           ThB05.1         ThB09.2           Ghoreishi, Amirhossein         ThB09.2           Ghoreishi, Seyede Fatemeh         ThC13.4           ThC13.5         Ghusinga, Khem Raj         FrA01.2           Gianluca, Villani         ThB11.5         Giordano, Alessandro Massimo         ThA02.20           Giarda, Anouck         ThB10.4         ThC03.3         FrB10.4           FrB18.4         FrC04.6         FrC04.6           Gody, Boris I.         FrC12.3         Goel, Ankit.           ThB07.1         FrC12.3         Goel, Ankit.         ThB07.1           Geracy, Ankit.         ThB07.1         FrC17.4           Goody, Boris I.         FrC12.3         Goel, Ankit.           Goel, Ankur         FrC05.4         Gostasb.           Gordy, Soris I.         FrC17.4         Goody, Soris I.           Gody, Soris I.         FrC17.4         Goody, Soris I.           Gracy, Sebin.         ThLBP-A01         5           Goodyne, Bill         ThC19.4         Gracy, Sebin.           Gravell, Benjamin         FrC12.4         Gravell, Benjamin	Gehring, Ottmar	FrB04.6	
Germani, Alfredo         ThB18.3           Ghadaily, Hasan         ThC16.3           Ghaemi, Reza         ThB05.1           Ghasemi, Amirhossein         ThB09.2           Ghoreishi, Seyede Fatemeh         ThC13.4	Georgiou, Tryphon T.		
Ghadialy, Hasan       ThC16.3         Ghaeemi, Reza       ThB05.1         Ghasemi, Amirhossein       ThB09.2         Ghoreishi, Seyede Fatemeh       ThC13.4         ThC13.5       Ghrist, Robert         Ghusinga, Khem Raj       FrA01.2         FirB1T1.2       Gianluca, Villani         Gianluca, Villani       ThB11.5         Gim, Juhui       ThC13.3         Giordano, Alessandro Massimo       ThB11.2         Giard, Anouck       ThB11.2         Giard, Anouck       ThB14.2.20         Girard, Anouck       ThB14.4         FrB03.6       FrB03.6         FrB03.6       FrB18.4         FrC04.6       FrC04.6         Giordano, Alessandro Massimo       ThB17.2         Giard, Anouck       ThB17.2         Gista, Elizabeth       ThC03.3         FrB18.4       FrC03.4         Gista, Elizabeth       ThC06.1         Godoy, Boris I       FrC17.3         Goel, Ankut       ThB17.5         Goodwine, Bill       ThLBP-A01         S       5         Goodwine, Bill       ThLBP-A01         Gracy, Sebin       S         Granichina, Olga       ThC19.4			
Ghaemi, Reza         ThB05         CC           ThB09.1         ThB09.2         Ghoreishi, Seyede Fatemeh         ThC13.4           ThC13.5         Ghrist, Robert         ThC13.4           Ghrist, Robert         ThC13.5           Ghrist, Robert         ThC13.6           Ginuca, Villani         ThC13.5           Ginuca, Villani         ThC12.3           Giordano, Alessandro Massimo         ThA02.20           Girard, Anouck         ThB10.4           ThC03.3         FrB03.6           FrB18.4         FrC04.6           FrC04.6         FrC05.4           Glista, Elizabeth         ThC06.1           Gody, Boris I         FrC12.3           Goel, Ankit         ThB07.1           ThB17.5         ThB17.5           Gody, Boris I         FrC17.4           Goel, Ankur         FrC05.4           Gody, Boris I         ThLBP-A01           S         Godwine, Bill         ThLBP-A01           S         S           Goodwine, Bill         ThC13.1           Gossmann, Felix         FrB05.4           Gracy, Sebin         ThC19.4           Gravell, Benjamin         FrC12.4           Gravell, Benjamin <t< td=""><td>Germani, Alfredo</td><td>ThB18.3</td><td></td></t<>	Germani, Alfredo	ThB18.3	
ThB05.1           Ghasemi, Amirhossein         ThC03.4           ThC13.5         ThC13.5           Ghoreishi, Seyede Fatemeh.         ThC13.5           Ghrist, Robert.         ThC13.5           Ghusinga, Khem Raj         FrA01.2           Gianluca, Villani         ThB11.5           Gim, Juhui         ThC12.3           Giordano, Alessandro Massimo         ThA02.20           Giard, Anouck         ThB11.5           Girdano, Alessandro Massimo         ThB10.4           ThC03.3         FrB03.6           FrB18.4         FrC04.6           FrC04.6         FrC05.4           Glista, Elizabeth         ThC06.1           Godoy, Boris I         FrC12.3           Goel, Ankit         ThA02.5           ThB07.1         FrC17.4           FrC17         C           Goodwine, Bill         ThLBP-A01.5           Gosthasbi, Alireza         ThC13.1           Gossmann, Felix         FrB05.4           Gracy, Sebin         ThC19.4           Gravell, Benjamin         FrC12.4           Gravell, Benjamin         FrC11.2           Granichina, Olga         ThC19.4           Gravell, Benjamin         FrC10			00
Ghasemi, Amirhossein       ThB09.2         Ghoreishi, Seyede Fatemeh.       ThC13.4	· · · · · · · · · · · · · · · · · · ·		
Ghoreishi, Seyede Fatemeh.       ThC13.4         ThC13.5       ThC13.5         Ghrist, Robert.       ThC19.6         Ghusinga, Khem Raj       FrA01.2         FrB1T1.2       Gianluca, Villani         Giordano, Alessandro Massimo       ThA02.20         Girard, Anouck       ThB10.4         ThB10.4       ThC03.3         FrB03.6       FrB3.6         FrC05.4       FrC05.4         Glista, Elizabeth       ThC06.1         Gody, Boris I.       FrC12.3         Goel, Ankit.       ThA02.5         ThB172.5       ThB172.5         Goel, Ankit.       ThB07.1         FrC05.4       FrC17.3         Goel, Ankur       FrC08.5         Gombo, Yoshua       FrLBP-A01.         5       Sodowine, Bill         ThC13.1       Gossmann, Felix         Gracy, Sebin.       ThC19.4         Granichin, Oleg       ThC19.4         Gravell, Benjamin       FrC12.4         Gregg, Robert D.       ThLBP-A01         4       FrC10       C         Granichin, Oleg       ThC19.4         Gravell, Benjamin       FrC12.4         Gregg, Robert D.       ThLBP-A01			
ThC13.5           Ghrist, Robert         ThC19.6           Ghusinga, Khem Raj         FrA01.2           —         FrB1T1.2           Gianluca, Villani         ThB1.5           Gim, Juhui         ThC12.3           Giordano, Alessandro Massimo         ThA02.20	Ghoreishi, Sevede Fatemeh	ThC13.4	
Ghrist, Robert.			
FrB1T1.2         Gianluca, Villani.       ThB11.5         Gim, Juhui.       ThC12.3         Giordano, Alessandro Massimo       ThA02.20			
Gianluca, Villani	Ghusinga, Khem Raj	.FrA01.2	
Gim, Juhui       ThC12.3         Giordano, Alessandro Massimo       ThA02.20			
Giordano, Alessandro Massimo       ThA02.20         Main and Market M			
	Gim, Juhui	ThC12.3	
Girard, Anouck       ThB10.4			
ThC03.3         FrB03.6         FrB18.4         FrC04.6         FrC05.4         Glista, Elizabeth         Godoy, Boris I.         Godoy, Boris I.         FrC12.3         Goel, Ankit.         ThB07.1         FrC17         C         FrC17.4         Goel, Ankur         FrC17.4         Goel, Ankur         FrC17.4         Goedwine, Bill         ThLBP-A01         5         Goshtasbi, Alireza         ThC13.1         Gossmann, Felix         Gracy, Sebin         ThC19.4         Granichin, Oleg         ThC19.4         Gravell, Benjamin         FrC10         CC         FrC10         Grigoriadis, Karolos M.         ThC12.2         Grimsman, David.         FrC10         CC         FrC10         CC         FrC10         CC         FrC10         Grigoriadis, Karolos M.         ThP1         C         ThA01         C			
FrC05.4         Glista, Elizabeth       ThC06.1         Godoy, Boris I.       FrC12.3         Goel, Ankit       ThA02.5         ThB1T2.5       ThB07.1         FrC17       C         FrC17.4       Goel, Ankur         Goel, Ankur       FrC17.4         Goel, Ankur       FrC08.5         Gombo, Yoshua       FrLBP-A01.         5       Goodwine, Bill         ThLBP-A01       .5         Goshtasbi, Alireza       ThCT3.1         Gossmann, Felix       FrB05.4         Gracy, Sebin       ThC19         C       .3         ThC19.4       Gravell, Benjamin         FrC12.4       Gregg, Robert D.         Gregg, Robert D.       ThLBP-A01         .4          FrC10       CC         FrC10       C         Greiff, Marcus Carl       FrB12.3         Grigoriadis, Karolos M       ThC12.2         Grimsman, David       FrC18.2         Grover, Martha       ThP1         C       ThA01         ThBT3.1			
Glista, Elizabeth       ThC06.1         Godoy, Boris I.       FrC12.3         Goel, Ankit       ThA02.5			
Godoy, Boris I.       FrC12.3         Goel, Ankit.       ThA02.5		.FrC05.4	
Goel, Ankit.       ThA02.5			
ThB1T2.5           ThB07.1           FrC17           Coel, Ankur           FrC17,4           Goel, Ankur           FrC08.5           Gombo, Yoshua           FrLBP-A01.           5           Goodwine, Bill           ThLBP-A01           .5           Goshtasbi, Alireza           ThCT3.1           Gossmann, Felix           FrB05.4           Gracy, Sebin           ThC19.4           Granichin, Oleg           ThC19.4           Granichina, Olga           ThC19.4           Gravell, Benjamin           FrC10           CC           FrC10           Qregg, Robert D.           4           FrC10           Qrigoriadis, Karolos M.           ThC12.2           Grimsman, David.           FrC18.2           Grover, Martha           ThP1           C           ThA01           C			
FrC17         C           FrC17.4         FrC17.4           Goel, Ankur         FrC08.5           Gombo, Yoshua         FrLBP-A01.           5         Goodwine, Bill           Goshtasbi, Alireza         ThLBP-A01           .5         Goshtasbi, Alireza           Goshtasbi, Alireza         ThCT3.1           Gossmann, Felix         FrB05.4           Gracy, Sebin         ThLBP-A01           .3         ThC02.3           Granichin, Oleg         ThC19.4           Gravell, Benjamin         FrC12.4           Gregg, Robert D.         ThLBP-A01           .4         FrC10           CC         FrC10           Greiff, Marcus Carl         FrB12.3           Grigoriadis, Karolos M         ThC13.2           Grover, Martha         ThP1           C         ThA01           C         ThA01			
FrC17.4           Goel, Ankur         FrC08.5           Gombo, Yoshua         FrLBP-A01.           5         Goodwine, Bill         ThLBP-A01           .5         Goshtasbi, Alireza         ThCT3.1           Gossmann, Felix         FrB05.4         Fracy, Sebin           .1         ThC02.3         ThC19.4           Granichin, Oleg         ThC19.4         ThC19.4           Gravell, Benjamin         FrC12.4         Gregg, Robert D.         ThLBP-A01           .4         FrC10         CC           .7         FrC10         C           .7         FrC10         CC           .7         Gragg, Robert D.         ThLBP-A01           .4         FrC10         C                                                        Greiff, Marcus Carl			C
Goel, Ankur         FrC08.5           Gombo, Yoshua         FrLBP-A01.           5         Goodwine, Bill         ThLBP-A01           .5         Goshtasbi, Alireza         ThCT3.1           Gossmann, Felix         FrB05.4         FraD01.           Gracy, Sebin         ThLBP-A01         .3			U
Gombo, Yoshua         FrLBP-A01.           5         Goodwine, Bill         ThLBP-A01           .5         Gosshtasbi, Alireza         ThCT3.1           Gossmann, Felix         FrB05.4         FrB05.4           Gracy, Sebin         ThLBP-A01         .3			
5           Goodwine, Bill         .5           Goshtasbi, Alireza         ThLBP-A01           .5         Gossmann, Felix           Gracy, Sebin         FrB05.4           Gracy, Sebin         ThLBP-A01           .3			
.5         Goshtasbi, Alireza			
Goshtasbi, Alireza         ThCT3.1           Gossmann, Felix         FrB05.4           Gracy, Sebin         ThLBP-A01           .3         ThC02.3           Granichin, Oleg         ThC19           C         ThC19.4           Gravell, Benjamin         FrC12.4           Gregg, Robert D         ThLBP-A01           .4         FrC10           CC         FrC10           Grigoriadis, Karolos M.         ThC12.2           Grimsman, David.         FrC18.2           Grover, Martha         ThP1           C         ThA01           C         ThBT3.1	Goodwine, Bill	ThLBP-A01	
Gossmann, Felix         FrB05.4           Gracy, Sebin         ThLBP-A01           .3         ThC02.3           Granichin, Oleg         ThC19           C         ThC19.4           Gravell, Benjamin         FrC12.4           Gregg, Robert D.         ThLBP-A01           .4         FrC10           CC         FrC10           Greiff, Marcus Carl         FrB12.3           Grigoriadis, Karolos M.         ThC12.2           Grover, Martha         ThP1           C         ThA01           C         ThBT3.1           FrA01         C			
Gracy, Sebin			
.3 ThC02.3 Granichin, Oleg			
	Gracy, Sedin		
Granichin, Oleg         ThC19         C			
ThC19.4           Granichina, Olga         ThC19.4           Gravell, Benjamin         FrC12.4           Gregg, Robert D.         ThLBP-A01           .4             FrC10           CC             FrC10            FrC10            FrC10            FrB12.3           Grigoriadis, Karolos M.         ThC12.2           Grimsman, David.         FrC18.2           Grover, Martha         ThP1            ThA01            ThBT3.1            FrA01			С
Granichina, Olga       ThC19.4         Gravell, Benjamin       FrC12.4         Gregg, Robert D.       ThLBP-A01         .4			
Gregg, Robert D.			
.4 FrC10 CC FrC10 O Greiff, Marcus Carl FrB12.3 Grigoriadis, Karolos M. ThC12.2 Grimsman, David FrC18.2 Grover, Martha ThP1 C ThA01 C ThBT3.1 FrA01 C	Gravell, Benjamin	.FrC12.4	
FrC10         CC           FrC10         O           Greiff, Marcus Carl         FrB12.3           Grigoriadis, Karolos M         ThC12.2           Grimsman, David         FrC18.2           Grover, Martha         ThP1           C         ThA01           C         ThBT3.1           FrA01         C	Gregg, Robert D.		
FrC10         O           Greiff, Marcus Carl         FrB12.3           Grigoriadis, Karolos M.         ThC12.2           Grimsman, David.         FrC18.2           Grover, Martha         ThP1           C         ThA01           C         ThBT3.1           FrA01         C		• •	~~
Greiff, Marcus Carl         FrB12.3           Grigoriadis, Karolos M.         ThC12.2           Grimsman, David.         FrC18.2           Grover, Martha         ThP1         C			
Grigoriadis, Karolos M.         ThC12.2           Grimsman, David.         FrC18.2           Grover, Martha         ThP1         C			0
Grimsman, David			
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	ThA02.11	
Gu. Yan		
Guan, Yue	ThLBP-A01	
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Guo, Jia		
Guo, Pinyao		
Guo, Yi	ThC06.4	
Guo, Yi	Frl BP-A01	
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Guo, Yi		
Gupta, Nirupam		
	FrB1T2.18	
Gupta, Vijay	ThB06.5	
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Gyorgy, Andras	FrB07	С
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Hably, Ahmad		
Haddad, Shadi	FrB13.2	
Haddad, Wassim M	FrC13.3	
Hadjicostis, Christoforos N		
Haldeman, Kathryn	IhAU1.17	
	ThB1T1.17	
Halder, Abhishek	ThC18	CC
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Hale, Matthew	FrB12.1	
	FrB20.6	
Hale, William	ThC07.3	
Hall, Carrie		0
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Halsted, Trevor	FrC04 ThC19.3	
Halsted, Trevor Han, Kyoungseok	FrC04 ThC19.3 FrC04.6	
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria	FrC04 	
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing	FrC04 FrC04.6 FrC04.6 FrC15.1 	
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria	FrC04 FrC04.6 FrC04.6 FrC15.1 	
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing	FrC04 FrC04.6 FrC04.6 FrC15.1 FrA02.13 FrB1T2.13	
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James	FrC04 FrC04.6 FrC04.6 FrC15.1 FrA02.13 FrB1T2.13 FrB13.5	
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian	FrC04 FrC04.6 FrC04.6 FrC15.1 FrA02.13 FrB1T2.13 FrB13.5 FrB13.5 ThC15.6	
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib	FrC04 	
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James. Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James. Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hasnain, Aqib		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hasnain, Aqib		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Hashemi, Ehsan Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas Haydon, Benjamin		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas Haydon, Benjamin Hayes, Alex		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Hashemi, Ehsan Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas Haydon, Benjamin		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas Haydon, Benjamin Hayes, Alex		
Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas Haydon, Benjamin Hayes, Alex He, Binghan		
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Halsted, Trevor Han, Kyoungseok Hansen, Emma Victoria Hao, Qing Hare, James Harris, Christian Hasan, Saqib Haseli, Masih Hashemi, Ehsan Hashemi, Ehsan Hasnain, Aqib Hawkins, Nicholas Haydon, Benjamin Hayes, Alex He, Binghan		
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Halsted, Trevor	FrC04         ThC19.3         FrC04.6         FrC15.1         FrA02.13         FrB172.13         FrB13.5         ThC15.6         ThC02.6         FrB15.3         FrB03.4         FrB07.1         ThC07.4         ThC15.2         FrC10.5         ThB08.1         ThLBP-P01         .1         ThC13.6         FrC06.4         ThB17.6         ThC20.2         FrB03.4         FrC10.5         ThB08.1         ThLBP-P01         .1         ThC13.6         FrC10.6         ThB17.6         ThC20.2         FrB03.4         FrC12.4         ThC21         ThC21.1         ThC21.2         ThC21.5	o c c

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Kamidi, Vinay		
Kandel, Aaron Kanellopoulos, Aris		
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Kinani Mand	
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Kremers, Demy. Krenzke, Peter Kressner, Daniel Kreth, Phil Krishnamoorthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram	8 ThA02.14 ThB1T2.14 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThA02.8 ThB1T2.8 ThB1T2.8 ThB06
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Kremers, Demy. Krenzke, Peter. Kressner, Daniel Kreth, Phil. Krishnamoorthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram Kroposki, Ben Krstic, Miroslav. Kulgod, Sutej Pramod Kumar, Aditya Kumar, Harshat.	8 ThA02.14 ThB1T2.14 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThA02.8 ThB15.4 ThB15.4 ThB172.8 ThB14.1 ThB19.3 ThC14.3 ThC14.4 FrB14.4 FrB14.4 FrB14.4 FrC20.6 ThB05.1 ThA02.3 ThC17.2 ThB172.3
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Kremers, Demy Krenzke, Peter Kressner, Daniel Kreth, Phil Krishnamoorthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram Kroposki, Ben Kroposki, Ben Krstic, Miroslav Kulgod, Sutej Pramod Kumar, Aditya Kumar, Harshat	8 ThA02.14 ThB1T2.14 ThB10.1 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThA15.4 ThB15.4 ThB172.8 ThB172.8 ThB14.1 ThB19.3 ThC14.3 ThC14.3 ThC14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.4 ThB05.1 ThB05.1 ThB02.3 ThB1T2.3 FrA01.16 FrB1T1.16
Kremers, Demy Krenzke, Peter Kressner, Daniel Kressner, Daniel Kreshnamoorthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram Kroposki, Ben Kroposki, Ben Krstic, Miroslav Kulgod, Sutej Pramod Kumar, Aditya Kumar, Harshat Kumar, Manish	8 ThA02.14 ThB1T2.14 ThB10.1 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThA15.4 ThB15.4 ThB15.4 ThB14.1 ThB19.3 ThC06 ThB14.1 ThB19.3 ThC14.3 ThC14.4 FrC20.6 ThB05.1 ThA02.3 ThB1T2.3 ThB1T2.3 FrA01.16 FrB1T1.16 FrB05.6
Kremers, Demy Krenzke, Peter Kressner, Daniel Kreth, Phil Krishnamoorthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram Kroposki, Ben Krstic, Miroslav Kulgod, Sutej Pramod Kulgod, Sutej Pramod Kumar, Aditya Kumar, Manish	8 ThA02.14 ThB1T2.14 ThB10.1 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThC17.2 ThB15.4 ThB15.4 ThB06 ThB14.1 ThB14.1 ThB19.3 ThC14.3 ThC14.3 ThC14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.4 FrB14.6 ThB05.1 ThA02.3 FrB111.16 FrB05.6 ThA02.8
Kremers, Demy Krenzke, Peter Kressner, Daniel Kressner, Daniel Kreshnamoorthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram Kroposki, Ben Kroposki, Ben Krstic, Miroslav Kulgod, Sutej Pramod Kumar, Aditya Kumar, Harshat Kumar, Manish	8 ThA02.14 ThB1T2.14 ThB10.1 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThB15.4 ThB15.4 ThB14.1 ThB14.1 ThB14.1 ThB19.3 ThC14.3 ThC14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.3 ThC14.4 FrB14.4 FrB14.1 FrB172.3 FrA01.16 FrB171.16 FrB05.6 ThA02.8 ThA02.8 ThB172.8
Kremers, Demy Krenzke, Peter Kressner, Daniel Kreth, Phil Krishnamurthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram Kroposki, Ben Krstic, Miroslav Kulgod, Sutej Pramod Kumar, Aditya Kumar, Harshat Kumar, Manish	8 ThA02.14 ThB1T2.14 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThC06 ThB17.8 ThB17.8 ThB19.3 ThC14.3 ThC14.3 ThC14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.4 FrB14.1 ThB17.3 ThC14.3 ThC14.3 ThC14.3 ThC14.4 FrB14.4 FrB05.1 FrB05.6 ThA02.8 ThB1T2.8 ThB1T2.8 ThB172.8 ThB172.8 ThB172.8 ThB172.8
Kremers, Demy. Krenzke, Peter Kressner, Daniel Kreth, Phil Krishnamoorthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram Kroposki, Ben Krstic, Miroslav Kulgod, Sutej Pramod Kumar, Aditya Kumar, Manish Kumar, Mrinal Kumar, Rumit	8 ThA02.14 ThB1T2.14 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThA02.8 ThB15.4 ThB15.4 ThB14.1 ThB19.3 ThC14.3 ThC14.3 ThC14.3 ThC14.4 FrB14.4 FrC20.6 ThB05.1 ThA02.3 ThC14.3 ThC14.3 ThC14.3 ThC14.4 FrB171.16 FrB1T1.16 FrB1T1.16 FrB1T2.8 ThB172.8 ThB172.8 ThB172.8 ThB172.8
Kremers, Demy Krenzke, Peter Kressner, Daniel Kreth, Phil Krishnamoorthy, Dinesh Krishnamurthy, Prashanth Krishnaswamy, Sriram Kroposki, Ben Krstic, Miroslav Kulgod, Sutej Pramod Kumar, Aditya Kumar, Harshat Kumar, Mrinal	8 ThA02.14 ThB1T2.14 ThC08.2 FrC13.5 ThB09.1 FrB14.6 ThC17.2 ThB15.4 ThA02.8 ThB15.4 ThB15.4 ThB14.1 ThB19.3 ThC14.3 ThC14.3 ThC14.3 ThC14.4 FrB14.4 FrC20.6 ThB05.1 ThA02.3 ThC14.3 ThC14.3 ThC14.3 ThC14.4 FrB171.16 FrB1T1.16 FrB1T1.16 FrB1T2.8 ThB172.8 ThB172.8 ThB172.8 ThB172.8

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Kumar, Shashi Ranjan	FrA01.8
Kurdila, Andrew J.	
Kurth, Anna-Carina	
Kurtz, Vincent	
Kuwaranancharoen, Kananart	
Kwon, Joseph	
Kyriakis, Panagiotis	FrB19.1
Kyrtatos, Nikolaos	ThA01.11
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Laidler, Will	
Laird, Cary	
Lampariello, Roberto	
Lamperski, Andrew	
Lan, Jianglin	ThB03.6
Landers, Robert G	
Lang, Haoxiang	
Lang, Xun	
Langbort, Cedric Lansner, Anders	
Lao, Yejun	
Lapins, Chantel K.	
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Lare, Constance, A	
Lavaei, Javad	
Lawrence, Douglas A.	
Lawrynczuk, Maciej	
Leang, Kam K	ΤΡΦΟ2 C
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Lederer, Armin	
Lee, Cheol	
Lee, Dongheon	
Lee, Jaemin	
Lee, Junsoo	
Lee, Meng-Lun	
Lee, Taeyoung	
	FrB12 C
Lee, Woo-Cheol	
Lee, Xian Yeow	
Leithead, William	
Lendek, Zsofia	
Leonhardt, Steffen	
Leu, Jessica	
Leung, Henry	ThB19.2

Leung, Jordan	FrLBP-A01. 4	
Leung, Tim		С
Leve, Frederick		
Li, Ao		
Li, Caili	ThB10.6	
Li, Huayi		
Li, Jiani Li, Jing Shuang		
Li, Jr-Shin		С
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Li, Li Li, Lichun		
Li, Na		
Li, Nan	1 ThC03.3	
Li Dorny V		
Li, Perry Y.		
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Li, Qiang		
Li, Ruolin Li, Xiang		
Li, Xiao		
Li, Xiaofan Li, Xuemin		
Li, Yichuan		
Li, Yujun	ThC09.2	
Li, Yun		
Li, Zhaojian		
Lian, Jianming	ThC02	С
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Liang, Quanyi		
Liang, Xiao	ThB08.2	
Liao-McPherson, Dominic	ThLBP-P01 .6	
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Lim, Rachel		
Limoge, Damas		
Lin, Feng		
Lin, Hai		
Lin, Qin		
	FrB1T2.16	
Lin, Tony		
Lin, Wei	2 ThB15.5	
Lin, Wen-Chiao		
Lin, Xianke		С
Lin, Xinfan		СС
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Lin Van		0
Lin, Yan Lin, Ye		
Lin, Yixuan		
Lin, Zhenyu Lin, Zongli		С
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Lindemann, Lars	FrB20.1	
Liu, Changliu		~
Liu, Fengjiao		С

Liu, Ji		
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Liu, Jiaxi		
Liu, Jing-Sin		
Liu, Lin		
Liu, Meigin		
Liu, Mingxi	ThA01.2	
Liu, Mingyan		
Liu, Peng		
Liu, Shixian		
Liu, Siyuan Liu, Steven		
Liu, Wansong		
Liu, Wei	ThB16	CC
Liu, Xinyue		
Liu, Yichao		
Liu, Yilu		
Liu, Yuxing Liu, Zexiang		
Liu, Zhiyu		
Liu, Zhiyuan		
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Lo, Chun Ho, David	ThA02.17	
	ThB1T2.17	
Loria, Antonio	ThA02.13	
Lotfi, Nima		0
		0
Low, Steven		0
Lu, Shuwen		
	ThB1T1.3	
Lu, Wenmiao		
Lu, Wenmiao Lu, Yang	ThB09.4 ThC02	0
Lu, Wenmiao Lu, Yang	ThB09.4 ThC02 ThC02.5	0
Lu, Wenmiao Lu, Yang Lu, Yi	ThB09.4 ThC02 ThC02.5 ThB09.4	0
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yi Lu, Yusheng	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1	0
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5	0
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang Luo, Ruikun	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5 FrB10.4	0
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5 FrB10.4 FrC06.4	0
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang Luo, Ruikun Luo, Xiaoyu	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5 FrB10.4 FrC06.4 ThB13.3	0
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang Luo, Ruikun Luo, Xiaoyu Luviano-Juarez, Alberto Lymperopoulos, Georgios	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5 FrB10.4 FrC06.4 ThB13.3 FrB06.1	0
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang Luo, Ruikun Luo, Xiaoyu Luviano-Juarez, Alberto Lymperopoulos, Georgios M Ma, Nan	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5 FrB10.4 FrC06.4 ThB13.3 FrB06.1	0
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Lu, Wenmiao Lu, Yang Lu, Yi Luo, Yusheng Luo, Danyang Luo, Ruikun Luo, Xiaoyu Luviano-Juarez, Alberto Lymperopoulos, Georgios Ma, Nan Ma, Nan Ma, Wenlong Ma, Xiuzhen Ma, Xiuzhen Ma, Xiuzhen Machalek, Derek Madonski, Rafal Madonski, Rafal Maghenem, Mohamed Adlene Makarenkov, Oleg Makarow, Artemi Malikopoulos, Andreas A Malisoff, Michael Mali, Kshitij	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB10.4 FrB10.4 FrB01.4 FrB06.1 FrB01.5 FrB01.5 FrC16.6 ThC09.3 ThB13.3 ThB04.6 ThC01.3 ThB13.3 ThB13.3 ThB13.3 ThB172.13 ThB172.13 ThB172.13 ThB07 ThB07.5 ThC18.4 ThB18.2 FrB03 ThB18.1 FrB03 ThB14.1 FrB05.3	C
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Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yi Luo, Danyang Luo, Danyang Luo, Ruikun Luo, Xiaoyu Luviano-Juarez, Alberto Lymperopoulos, Georgios Madano-Juarez, Alberto Lymperopoulos, Georgios Ma, Xiuzhen Ma, Yao Ma, Xiuzhen Ma, Yao Machalek, Derek Madonski, Rafal Madonski, Rafal Maghenem, Mohamed Adlene Makarenkov, Oleg Makarenkov, Oleg Makarow, Artemi Maldonado, Bryan Malikopoulos, Andreas A Malisoff, Michael Mallada, Enrique Mammar, Said	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB10.4 FrB10.4 FrC06.4 ThB13.3 FrB06.1 FrB01.5 FrC16.6 ThC09.3 ThB04.6 ThC01.3 ThB13.3 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 ThB172.13 THB172.13 THB172.13 THB172.13 THB172.13 	C
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang Luo, Ruikun Luo, Ruikun Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Manon Juarez, Alberto Lymperopoulos, Georgios Madanao, Georgios Maharen Ma, Xan Ma, Yao Machalek, Derek Machalek, Derek Madonski, Rafal Maghenem, Mohamed Adlene Makarenkov, Oleg Makarenkov, Oleg Makarow, Artemi Malikopoulos, Andreas A Malisoff, Michael Mall, Kshitij Mallada, Enrique Mamar, Said Mandali, Anusree	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5 FrB10.4 FrC06.4 ThB13.3 FrB06.1 FrC16.6 ThC09.3 ThB04.6 ThC01.3 ThB13.3 ThB04.6 ThC01.3 ThB13.3 ThB17.13 ThB17.13 ThB17.13 ThB17.5 ThC18 ThC18.4 ThB18.2 ThC18.4 ThB18.2 ThB14.1 FrB05.3 FrB19.2 ThC03.2 ThC03.2 ThB13.2	C
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang Luo, Ruikun Luo, Ruikun Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Manogularez, Alberto Lymperopoulos, Georgios Ma, Nan Ma, Nan Ma, Venlong Ma, Xiuzhen Ma, Yao Machalek, Derek Machalek, Derek Madonski, Rafal Madhaned Adlene Makarenkov, Oleg Makarenkov, Oleg Makarow, Artemi Malikopoulos, Andreas A Malikopoulos, Andreas A Malisoff, Michael Malisoff, Michael Mallada, Enrique Mandali, Anusree Mandali, Anusree Manjaly Joshy, Dennis	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5 FrB10.4 FrC06.4 ThB13.3 FrB06.1 FrC16.6 ThC09.3 ThB04.6 ThC01.3 ThB13.3 ThB04.6 ThC01.3 ThB13.3 ThB17.13 ThB17.13 ThB17.13 ThB17.5 ThC18 ThC18.4 ThB18.2 ThC18.4 ThB18.2 ThB18.2 FrB03 ThB14.1 FrB05.3 FrB19.2 ThC03.2 ThC13.2 ThC13.4	C
Lu, Wenmiao Lu, Yang Lu, Yi Lu, Yusheng Luo, Danyang Luo, Ruikun Luo, Ruikun Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Luo, Xiaoyu Manon Juarez, Alberto Lymperopoulos, Georgios Madanak, Darek Ma, Xiuzhen Ma, Xiuzhen Ma, Yao Machalek, Derek Machalek, Derek Madonski, Rafal Maghenem, Mohamed Adlene Makarenkov, Oleg Makarenkov, Oleg Makarow, Artemi Malikopoulos, Andreas A Malikopoulos, Andreas A Malisoff, Michael Mall, Kshitij Mallada, Enrique Mamar, Said Mandali, Anusree	ThB09.4 ThC02 ThC02.5 ThB09.4 FrB14.1 ThB10.5 FrB10.4 FrB06.1 FrB06.1 FrB06.1 FrC16.6 ThC09.3 ThB04.6 ThC01.3 ThB04.6 ThC01.3 ThB13.3 ThB13.3 ThB172.13 ThB172.13 ThB07.5 ThC18 ThB07.5 ThC18 ThC18.4 ThB18.2 ThC18.4 ThB18.2 FrB03 ThB14.1 FrB05.3 ThC03.2 ThC03.2 ThC03.2 ThC03.2 ThC1.4 FrB1T1.4	C

Marden, Jason R		
Mark, August Mark, Christoph	FrC05.5 ThA01.8	
Martin, Philippe Martin, Scott	ThB15.2 ThLBP-P01 .7	
Martinez, Sonia		СС
Martins, Nuno C	FrC16.1	
Marvi, Zahra Massei, Stefano		
Matei, Ion	ThC01.1	
Matni, Nikolai	FrA02.11	
Matschek, Janine	FrA02.4	
Mayer, Annika		
· · ·	ThB1T2.4	
Mazenc, Frederic		CC
Mazumdar, Anirban	FrC10	0
McBride, Cameron McCourt, Michael J		
McEneaney, William M.	ThB18	СС
McIntyre, Michael		
	ThC15	С
McMahon, Jay		
Meckl, Peter H	FrC04.3	
Mehta, Prashant G		С
Meng, Tingyang	ThB16.4	
Merco, Roberto Mern, John		
· · · · · · · · · · · · · · · · · · ·	FrB1T2.17	
Mesanovic, Amer Mesbahi, Afshin		
Mesbahi, Mehran	ThC19.2	
Mesesan, George		
Meslem, Nacim		
Messaoud, Hassani	FIBTIT.19 ThC12.4	
Messina, Dominic		
Meyn, Sean P.		
	FrB1T2.9	
Mezic, Igor		
Miao, Wei	FrB17.1	
Michael, Elad Miculescu, David		
Mikhaylenko, Dina	ThB11.6	
Miller, Alexander Milosevic, Jezdimir		
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Minhas, Raj		
Misawa, Eduardo	ThLuT4.4	
Misgeld, Berno Johannes Engelbert		
	FrB1T1.7	
Mishra, Hrishik		
Misra, Gaurav		

Miyano, Tatsuya	ThA02.6	
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Mobayen, Saleh	FrC08.5	
Modiano, Eytan	FrC06.5	
Mohajerpoor, Reza		
Mohammadi, Hesameddin	IhB19.6	
	FrC01.4	
Mohr, Ryan		
	FrB1T2.7	
Mohseni, Nima	ThA02.5	
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Molnar, Tamas Gabor		
Monsuez, Bruno	ThB03.5	
Morari, Manfred		
Morgansen, Kristi A	IhB12.2	
	ThLBP-P01	
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Morinec, Allen	InB13.2	
Morovati, Samaneh	ThLBP-P01	
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Morse, A. Stephen	FrB16.3	
Motee, Nader	ThB15.6	
Mou, Shaoshuai	ThC10.1	
	ThC16.3	
Moura. Scott		0
		0
	ThB02.4	
	ThB06	CC
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	FrLuT4.3	
Moussa, Kaouther	FrB07 2	
Mouton, Xavier		
Movahedi, Hamidreza	ThC03.6	
Mrochen, Michael Alexander		С
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Mukherjee, Dwaipayan	FrA01.8	
	FrA01.11	
	FrA01.11 FrA01.12	
	FrA01.11 FrA01.12 FrB1T1.8	
	FrA01.11 FrA01.12 FrB1T1.8	
	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9	
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	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12	
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Mukherjee, Sayak	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8	
Mukherjee, Sayak	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8	
Mukherjee, Sayak	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 FrB1T2.8	
Mukherjee, Sayak Mulders, Sebastiaan Paul	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1	
Mukherjee, Sayak Mulders, Sebastiaan Paul	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThA02.4	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThA02.4 ThB1T2.4 ThC01.4	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThA02.4 ThB1T2.4 ThC01.4	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 1 ThA02.4 ThA02.4 ThB1T2.4 ThC10.6	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThA02.4 ThB1T2.4 ThC01.4 FrA01.14	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThA02.4 ThB1T2.4 ThC01.4 FrA01.14	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB1T2.4 ThC01.4 FrA01.14 FrB1T1.14	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB1T2.4 ThC01.4 FrA01.14 FrB1T1.14 FrB1T1.14	
Mukherjee, Sayak. Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M. Muse, Jonathan	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC01.4 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.14	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC01.4 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.14	
Mukherjee, Sayak. Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M. Muse, Jonathan	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC01.4 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.14	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC01.4 FrB1T1.14 FrB1T1.14 ThB09.5 ThC16.1 FrB11.5	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan Nabi, Saleh	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC01.4 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.5	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan Nuse, Jonathan Nabi, Saleh Naffziger, Peter	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC10.6 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB11.5 ThB05.6 FrC09.1	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan Nabi, Saleh	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC10.6 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB11.5 ThB05.6 FrC09.1	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan Nuse, Jonathan Nabi, Saleh Naffziger, Peter	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC10.6 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrB11.5	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan Nabi, Saleh Naffziger, Peter Nagel, William	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 1 ThA02.4 ThB1T2.4 ThB01.4 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.5 ThB05.6 FrC09.1 FrLBP-P01. 5	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan Nuse, Jonathan Naffziger, Peter Naffziger, Peter Nagel, William Naghnaeian, Mohammad	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 ThLBP-A01 1 ThA02.4 ThB1T2.4 ThC01.4 ThC01.4 FrA01.14 FrB1T1.14 FrB1T1.5 ThB09.5 ThC16.1 FrB11.5 ThB05.6 FrC09.1 FrLBP-P01. FrLBP-P01. 	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan Nuse, Jonathan Naffziger, Peter Naffziger, Peter Nagel, William Naghnaeian, Mohammad	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 ThLBP-A01 1 ThA02.4 ThB1T2.4 ThC01.4 ThC01.4 FrA01.14 FrB1T1.14 FrB1T1.5 ThB09.5 ThC16.1 FrB11.5 ThB05.6 FrC09.1 FrLBP-P01. FrLBP-P01. 	
Mukherjee, Sayak Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M Muse, Jonathan Nuse, Jonathan Nabi, Saleh Naffziger, Peter Nagel, William Naghnaeian, Mohammad Nagy, Zoltan	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrA02.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC01.4 FrB1T2.4 ThC01.4 FrB1T1.14 FrB1T1.14 FrB11.5 ThB05.6 FrC09.1 FrLBP-P01. 5 FrC17.3 ThB12.1	
Mukherjee, Sayak. Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M. Muse, Jonathan Muse, Jonathan Muse, Jonathan Nabi, Saleh Naffziger, Peter Nagel, William Naghnaeian, Mohammad Nagy, Zoltan Najson, Federico	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.19 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB1T2.4 ThC10.6 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.5 FrB1T1.5 FrC09.1 FrLBP-P01. 5 FrC17.3 FrC17.3 ThB20.6	
Mukherjee, Sayak. Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M. Muse, Jonathan Muse, Jonathan Muse, Jonathan Nage, Jonathan Nagel, William Naghnaeian, Mohammad Nagy, Zoltan Nagon, Federico Nam, Jiyeon	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.19 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB02.4 ThC01.4 FrB1T1.14 ThB09.5 ThC16.1 FrB1T1.14 ThB09.5 ThC16.1 FrB11.5 ThB05.6 FrC09.1 FrLBP-P01. 5 FrC17.3 ThB12.1 ThB20.6 FrB11.4	
Mukherjee, Sayak. Mulders, Sebastiaan Paul Müller, Daniel Murray, Richard M. Muse, Jonathan Muse, Jonathan Muse, Jonathan Nage, Jonathan Nagel, William Naghnaeian, Mohammad Nagy, Zoltan Nagon, Federico Nam, Jiyeon	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.19 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB02.4 ThC01.4 FrB1T1.14 ThB09.5 ThC16.1 FrB1T1.14 ThB09.5 ThC16.1 FrB11.5 ThB05.6 FrC09.1 FrLBP-P01. 5 FrC17.3 ThB12.1 ThB20.6 FrB11.4	
Mukherjee, Sayak	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB1T2.4 ThC01.4 FrB1T1.14 ThB09.5 ThC16.1 FrB11.15 FrB11.5 FrC17.3 ThB12.1 ThB20.6 FrB11.4 FrB15.4	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel         Murray, Richard M.         Muse, Jonathan         Muse, Jonathan         Nabi, Saleh         Naffziger, Peter         Nagel, William         Naghnaeian, Mohammad         Najson, Federico         Nam, Jiyeon         Nandanoori, Sai Pushpak         Naqvi, Syed Ahsan Raza	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC01.4 ThC01.4 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrB11.5 FrC17.3 FrLBP-P01. 5 FrC17.3 ThB20.6 FrB11.4 FrB15.4 FrB15.4 ThB05.3	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel         Murray, Richard M.         Muse, Jonathan         Muse, Jonathan         Nabi, Saleh         Naffziger, Peter         Nagel, William         Nagy, Zoltan         Najson, Federico         Nam, Jiyeon         Nandanoori, Sai Pushpak         Naqvi, Syed Ahsan Raza         Narasingam, Abhinav	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.8 ThLBP-A01 .1 ThA02.4 ThC10.6 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrC17.3 ThC16.1 FrLBP-P01. 5 FrC17.3 ThB20.6 FrC17.3 ThB20.6 FrB11.4 FrB15.4 FrB15.1	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel         Murray, Richard M.         Muse, Jonathan         Muse, Jonathan         Nabi, Saleh         Naffziger, Peter         Nagel, William         Nagy, Zoltan         Najson, Federico         Nam, Jiyeon         Nandanoori, Sai Pushpak         Naqvi, Syed Ahsan Raza         Narasingam, Abhinav	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.8 ThLBP-A01 .1 ThA02.4 ThC10.6 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrC17.3 ThC16.1 FrLBP-P01. 5 FrC17.3 ThB20.6 FrC17.3 ThB20.6 FrB11.4 FrB15.4 FrB15.1	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel         Murray, Richard M.         Muse, Jonathan         Muse, Jonathan         Nabi, Saleh         Naffziger, Peter         Nagel, William         Nagy, Zoltan         Najson, Federico         Nam, Jiyeon         Nandanoori, Sai Pushpak         Narasingam, Abhinav         Narayanan, Vignesh	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB01.4 FrB1T1.14 FrB1T1.14 FrB11.5 ThC16.1 FrB11.5 FrC17.3 FrC17.3 FrB12.1 FrB15.4 FrB15.4 FrB15.1 FrB15.1 FrB01.3	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel         Murray, Richard M.         Muse, Jonathan         Muse, Jonathan         Nabi, Saleh         Naffziger, Peter         Nagel, William         Nagy, Zoltan         Najson, Federico         Nam, Jiyeon         Nandanoori, Sai Pushpak         Narayanan, Vignesh         Narayanan, Vignesh         Narendra, Kumpati S	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB01.4 FrB1T1.14 FrB1T1.14 FrB11.5 ThC16.1 FrB11.5 FrC17.3 FrC17.3 FrB12.1 FrB15.4 FrB15.4 FrB15.1 FrB01.3 FrC09.2	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel         Murray, Richard M.         Muse, Jonathan         Muse, Jonathan         Nabi, Saleh         Naffziger, Peter         Nagel, William         Nagy, Zoltan         Najson, Federico         Nam, Jiyeon         Nandanoori, Sai Pushpak         Narasingam, Abhinav         Narayanan, Vignesh	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB01.4 FrB1T1.14 FrB1T1.14 FrB11.5 ThC16.1 FrB11.5 FrC17.3 FrC17.3 FrB12.1 FrB15.4 FrB15.4 FrB15.1 FrB01.3 FrC09.2	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel         Murray, Richard M.         Muse, Jonathan         Muse, Jonathan         Nabi, Saleh         Naffziger, Peter         Nagel, William         Nagy, Zoltan         Najson, Federico         Nam, Jiyeon         Nandanoori, Sai Pushpak         Narayanan, Vignesh         Narayanan, Vignesh         Narendra, Kumpati S	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.9 FrB1T1.11 FrB1T1.12 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThC01.4 ThC01.4 FrB1T1.14 FrB1T1.14 FrB11.5 ThB09.5 ThC16.1 FrB11.5 FrC09.1 FrLBP-P01. 5 FrC09.1 FrB15.4 FrB15.4 FrB15.4 FrB15.1 FrB15.1 FrB15.1 FrB01.3 FrC09.2 ThB18.1	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.19 FrB1T1.11 FrB1T1.12 FrA02.8 FrB1T2.8 FrB1T2.8 FrB1T2.8 FrB1T2.8 FrB1T2.8 FrB1T2.8 FrB1T2.8 FrB1T2.4 FrB1T2.4 FrB1T2.4 FrB1T2.4 FrB1T2.4 FrB1T2.4 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB11.5 FrC09.1 FrC09.1 FrB15.1 FrB15.1 FrB15.1 FrB01.3 FrC09.2 FrC09.2 FrA02.10	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel         Murray, Richard M.         Muse, Jonathan         Naffziger, Peter         Nagel, William         Naghnaeian, Mohammad         Nagy, Zoltan         Najson, Federico         Nam, Jiyeon         Nandanoori, Sai Pushpak         Naqvi, Syed Ahsan Raza         Narasingam, Abhinav         Narasingam, Abhinav         Narayanan, Vignesh         Narendra, Kumpati S.         Nayyar, Ashutosh <td>FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.19 FrB1T1.11 FrB1T1.12 FrB1T2.8 FrB1T2.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB1T2.4 ThC10.6 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.15 FrB1T1.5 FrC17.3 FrC17.3 FrC17.3 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB172.10</td> <td></td>	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.19 FrB1T1.11 FrB1T1.12 FrB1T2.8 FrB1T2.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB1T2.4 ThC10.6 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.15 FrB1T1.5 FrC17.3 FrC17.3 FrC17.3 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB172.10	
Mukherjee, Sayak.         Mulders, Sebastiaan Paul         Müller, Daniel	FrA01.11 FrA01.12 FrB1T1.8 FrB1T1.19 FrB1T1.11 FrB1T1.12 FrB1T2.8 FrB1T2.8 FrB1T2.8 ThLBP-A01 .1 ThA02.4 ThB1T2.4 ThB1T2.4 ThC10.6 FrA01.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.14 FrB1T1.15 FrB1T1.5 FrC17.3 FrC17.3 FrC17.3 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB15.1 FrB172.10	

Nemeth, Balazs	ThB03.1	
Nersesov, Sergey		с
Nersesov, Sergey		U
Ng, Jerry		
Nguyen, Hoang Hai		
Nguyen, Tam Willy	ThB07.1	
Nicotra, Marco M	ThLBP-P01	
	.6 Frl BP-A01	
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Nielsen, Christopher		
Nijmeijer, Hendrik	FrB08.5	
Nikolakopoulos, George		
Nikolakopoulou, Anastasia	ThB17.5	
Nilsson, Petter		
Noroozi, Navid		
Novillo, Jorge		
Nudehi, Shahin	FrC13.5	
Nugroho, Sebastian Adi		
Nuño, Emmanuel		
Nurkanović, Armin		
O'Brien, Kevin	ThC21.2	
O'Neill, Kristin	ThLBP-A02	
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	.5 FrLBP-A02.	
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Obereigner, Gunda		
Oh, Geunseob		
Oh, Paul		
Ong, Chong-Jin	ThC11.6	
Ono, Masahiro		
Opila, Daniel F Orosz, Gabor		
Orsini, Valentina	ThA01.6	
Ossareh, Hamid	1hB111.6 FrC04	с
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Ott, Christian		
Ouyang, Hupo		
Ozay, Necmiye	FrB20	С
Ozkan, Mehmet	ThB04.6	
Ozorio Cassol, Guilherme		
Р		
P. Vinod, Abraham		
Paarporn, Keith		
Packard, Andrew K.		
Pagilla, Prabhakar R	FrC13.4	
	FrC13.4 ThB08.4 FrB10.5	

Palanthandalam-Madapusi, Harish J	FrC17.5	
Paley, Derek A.		0
Panagou, Dimitra		С
Pandala, Abhishek		
Pandey, Ayush		
Pangborn, Herschel		С
•	FrB04	0
Panteley, Elena		
Pao, Lucy Y.		
	FILDP-PUT. 1	
Papadimitriou, Andreas		
Papadopoullos, Panayiotis		
Papalambrou, George		
	ThB1T1.11	
Pappas, George J.	FrB21.3	
Pappas, losif	ThC17.5	
Pare, Philip E		
Paredes, Juan		
Park, Gyunghoon		
Park, Jinrak		
Park, Saehong		
Park, SangWoo		
Park, Youngsuk Paruchuri, Sai Tej		
Pasik-Duncan, Bozenna		
Pasley, David	ErB02.4	
Pasqualetti, Fabio	FrA02.12	
Pastor, Daniel	FrA02.7	
Patartics, Bálint		
Patel, Sourav	FrB19.4	
Paternain, Santiago		
Patil, Mayuresh J		
Patterson, Eric		
Paul, Victor		
Pavlak, Gregory		С
		-
	FrC12.2	
Peet, Matthew M.	ThB14.4	
Peherstorfer, Benjamin	ThB09	С
Peng, Huei		
Pentzer, Jesse		
Dequite Corrie		СС
Pequito, Sergio		CC
Perez, Hector E	ThB02	0
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Petersen, Christopher		
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Philbrick, Douglas		
-	FrB1T1.5	
Pinskiy, Vadim	ThC01.5	
Pinto, Samuel C.		
Pistikopoulos, Efstratios N		<b>-</b> -
Pisu, Pierluigi		CC
Dianakia Nikolaaa		
Planakis, Nikolaos		
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Plewe, Kaden		
Polis, Michael P.		
Polterauer, Philipp		
Polycarpou, Marios M.		
Poveda, Jorge I		
Powell, Kody		CC
Pradhan, Anuj	FrB10.3	
Pribbernow, Jacob Prochazka, Karl Frederik		
Prusty, Biswajit Kumar		
Purba, Victor	ThB06.4	
Putman, Matthew	ThC01.5	
Q		
Qi, Jie		
Qian, Chunjiang		
Qiao, Tian Qie, Xiaohu	FfB09.3 ErB01.5	
Qie, Alaona		
Qin, S. Joe		
Qu, Guannan		
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Quah, Titus	ThC01.3	
R		
Rabhi, Abdelhamid		
Radmanesh, Reza		
Radosz, Maria Rafat, M		
Raghuraman, Vignesh		
Rahaman, Josie		
	.4	
	ThLBP-P02	
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	FrLBP-A02.	
	FILDF-F02. 4	
Rai, Rahul	ThC01.1	
Raisch, Adrian		
Raïssi, Tarek		
Raj, Akhilesh		~~~
Rajamani, Rajesh	ThC03	CC
Raman, Naren Srivaths		
Ramapuram Matavalam, Amarsagar Reddy	ThC13.2	
Ramapuram Matavalam, Amarsagar Reddy Ramezani, Alireza		
	ThC08.4	
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank	ThC08.4 ThB13.3 ThB01.4	
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya	ThC08.4 ThB13.3 ThB01.4 FrC17.5	
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6	0
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V Rasmussen, Bryan	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05	0
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V Rasmussen, Bryan Rastgoftar, Hossein	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03	O CC
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V Rasmussen, Bryan	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6	
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James.	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrB04.2	
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrC04.2 FrB08.3	
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrC04.4 FrB04.2 ThB08.3 ThA02.11	
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrC04.4 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11	CC
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08	
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08 FrB08.4	CC
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08 FrB08.4 FrB04.1	CC
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan Renganathan, Venkatraman Reynolds, Taylor Patrick Riahi, Nayereh	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 FrB03 FrB03.6 FrB03.6 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08 FrB08.4 FrB08.4 FrB04.1 ThC19.2 FrB08.3	CC
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan Ren, Juan Renganathan, Venkatraman Reynolds, Taylor Patrick Riahi, Nayereh Ribeiro, Alejandro	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 FrB03 FrB03.6 FrB03.6 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08.4 FrB08.4 FrB04.1 FrB04.1 ThC19.2 FrB08.3 ThA02.3	CC
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan Renganathan, Venkatraman Renganathan, Venkatraman Reynolds, Taylor Patrick Riahi, Nayereh Ribeiro, Alejandro	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrB04.2 ThA02.11 ThB1T2.11 FrB08 FrB08.4 FrB04.1 ThC19.2 ThC19.2 ThA02.3 ThA02.3 ThA02.3 ThB1T2.3	сс
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan Renganathan, Venkatraman Reynolds, Taylor Patrick Riahi, Nayereh Ribeiro, Alejandro	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03.6 FrB03.6 FrC04.4 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08 FrB08.4 FrB08.4 FrB08.3 ThA02.3 ThA02.3 ThB1T2.3 ThC10	CC
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reher, Jenna Reichard, Karl Ren, Juan Renganathan, Venkatraman Reynolds, Taylor Patrick Riahi, Nayereh Ribeiro, Alejandro	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08.4 FrB08.4 FrB08.4 FrB08.3 ThA02.3 ThA02.3 ThB1T2.3 ThC10 ThC10.5	сс
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V. Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan Renganathan, Venkatraman Reynolds, Taylor Patrick Riahi, Nayereh Ribeiro, Alejandro	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 FrB03 FrB03.6 FrB03.6 FrC04.4 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08 FrB08.4 FrB08.4 FrB08.3 ThC19.2 ThA02.3 ThB1T2.3 ThC10 ThC10.5 ThB19.2	сс
Ramezani, Alireza Ramirez-Neria, Mario Ranjan, Shashank Rao, Aishwarya Rao, Anil V Rasmussen, Bryan Rastgoftar, Hossein Ravichandran, Maruthi Reed, James Reher, Jenna Reichard, Karl Ren, Juan Renganathan, Venkatraman Reynolds, Taylor Patrick Riahi, Nayereh Ribeiro, Alejandro Richards, Christopher	ThC08.4 ThB13.3 ThB01.4 FrC17.5 ThB18.6 ThB05 FrB03 FrB03.6 FrC04.4 FrB04.2 ThB08.3 ThA02.11 ThB1T2.11 FrB08.4 FrB08.4 FrB08.4 FrB08.3 ThC19.2 ThC19.2 ThB1T2.3 ThC10 ThC10.5 ThB19.2 FrC10.2	сс

Rincon, David	ThR07 /	
Ristevski, Stefan	ThC16_1	
Rivera, Phillip	ThB16 5	
Rizzo, Denise	FrB20.5	
Robert Jr., Lionel		
Rodriguez, Luis	ErB08 1	
Rodríguez-Cortés, Hugo	FrC14.3	
Rognant, Mathieu		
Romagnoli, Raffaele	ThA01.6	
	ThB1T1.6	
Bomborg Justin	ThA02.6	
Romberg, Justin	InAU2.0	
	ThB1T2.6	
Romero, Orlando	FrC07.1	
Rose, Jennifer	IIILDF-AUZ	
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	IhLBP-P02	
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	FrLBP-A02.	
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Däomonn Christoph		
Rösmann, Christoph		
Rotea, Mario		
Rouchon, Pierre	ThB15.2	
Roun, Tomáš	IhB13.5	
Rouse, Elliott	ErC10	0
		0
Roy, Tanushree	FrB03.3	
Ruybal, Kevin	FrC04.4	
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Saberi, Ali	ThC11.2	
Cadaah Nadaa	E-404 47	
Sadegh, Nader	FIAUT.T/	
	FrB1T1 17	
Sadigh, Dorsa	FrA02.17	
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	FrB112.17	
Sadovnik, Amir	ErB01 /	
Saggin, Fabricio		
	ThC09.1	
Sahoo, Avimanyu		
Sahoo, Avimanyu	ThC19.1	
Sahoo, Avimanyu Sahyoun, Samir	ThC19.1 FrB14.6	
Sahoo, Avimanyu Sahyoun, Samir	ThC19.1 FrB14.6	
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V	ThC19.1 FrB14.6 FrB19.4	
Sahoo, Avimanyu Sahyoun, Samir	ThC19.1 FrB14.6 FrB19.4	
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed	ThC19.1 FrB14.6 FrB19.4 ThC12.2	66
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08	СС
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08	СС
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6	СС
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6	
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04	
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 .7	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 .7	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 .7 ThB11.4 ThC02.3	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandhu, Romeil	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandberg, Henrik	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandhu, Romeil	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandhu, Romeil	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandberg, Henrik Sandhu, Romeil Sanfelice, Ricardo G.	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 FrB11.4 FrB11.4 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandberg, Henrik Sandhu, Romeil Sanfelice, Ricardo G. Santiago, Michael	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrB18.3 FrB18.2 FrB18.2 FrB172.14 FrC09.5 ThC11.4 ThA01.17	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandberg, Henrik Sandhu, Romeil Sanfelice, Ricardo G. Santiago, Michael	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrB18.3 FrB18.2 FrB18.2 FrB172.14 FrC09.5 ThC11.4 ThA01.17	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandberg, Henrik Sandhu, Romeil Sanfelice, Ricardo G. Santiago, Michael	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 FrB11.4 ThC02.3 FrB18.3 FrB18.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 ThA01.17 ThB11.17	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandberg, Henrik Sandhu, Romeil Sanfelice, Ricardo G. Santiago, Michael	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 FrB11.4 ThC02.3 FrB18.3 FrB18.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 ThA01.17 ThB11.17	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrB18.3 FrB18.3 FrB172.14 FrB172.14 FrC09.5 ThC11.4 ThA01.17 ThB1T.17 FrC14.4	сс
Sahoo, AvimanyuSahoo, AvimanyuSahyoun, SamirSalapaka, Murti V. Salapaka, Murti V. Salavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalehi, RasoulSalehi, RasoulSamuelson, HollySamuelson, SamanthaSamuelson, SamanthaSamuelson, SamanthaSandberg, HenrikSandberg, HenrikSantos, DavidSantos, DavidSantos, DavidSantoyo, Cesar	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 FrB17.14 FrB172.14 FrB172.14 FrC05.5 ThC11.4 ThC11.4 ThA01.17 ThB1T1.17	сс
Sahoo, AvimanyuSahoo, AvimanyuSahyoun, SamirSalapaka, Murti V. Salapaka, Murti V. Salavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalehi, RasoulSalehi, RasoulSamuelson, HollySamuelson, SamanthaSamuelson, SamanthaSamuelson, SamanthaSandberg, HenrikSandberg, HenrikSantos, DavidSantos, DavidSantos, DavidSantoyo, Cesar	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 FrB17.14 FrB172.14 FrB172.14 FrC05.5 ThC11.4 ThC11.4 ThA01.17 ThB1T1.17	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrC13.2	сс
Sahoo, AvimanyuSahoo, AvimanyuSahyoun, SamirSalapaka, Murti V. Salapaka, Murti V. Salavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalavati Dezfuli, SaeedSalehi, RasoulSalehi, RasoulSamuelson, HollySamuelson, SamanthaSamuelson, SamanthaSamuelson, SamanthaSandberg, HenrikSandberg, HenrikSantos, DavidSantos, DavidSantos, DavidSantoyo, Cesar	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrC13.2	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandberg, Henrik Sandhu, Romeil Sanfelice, Ricardo G. Santiago, Michael Santos, David Santoyo, Cesar. Santoyo, Cesar. Santaş, Serkan	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC11.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrC13.2 FrB18.3	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC14.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrC13.2 FrB18.3 FrB19.4	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC14.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrC13.2 FrB18.3 FrB19.4	сс
Sahoo, Avimanyu Sahyoun, Samir Salapaka, Murti V. Salavati Dezfuli, Saeed Saldana, David Salehi, Rasoul Samuelson, Holly Samuelson, Samantha Sandberg, Henrik Sandberg, Henrik Sandhu, Romeil Sanfelice, Ricardo G. Santiago, Michael Santos, David Santoyo, Cesar. Santoyo, Cesar. Santaş, Serkan	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB19.4 ThLBP-A01	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC14.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrC13.2 FrB18.3 FrB19.4	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC14.4 ThA01.17 FrC14.4 ThC13.2 FrB18.3 FrC13.2 FrB18.3 FrB19.4 ThLBP-A01 .7	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC14.4 ThA01.17 FrC14.4 ThC13.2 FrB18.3 FrC13.2 FrB18.3 FrB19.4 ThLBP-A01 .7	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC14.4 ThA01.17 FrC14.4 ThC13.2 FrB18.3 FrC13.2 FrB18.3 FrB19.4 ThLBP-A01 .7 FrA02.15	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC11.4 FrC11.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrB18.3 FrB18.3 FrB19.4 ThLBP-A01 .7 FrA02.15 FrB172.15	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC11.4 FrC11.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrB18.3 FrB18.3 FrB19.4 ThLBP-A01 .7 FrA02.15 FrB172.15	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 ThB08.6 FrC03.6 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2 FrB18.3 FrC13.2	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC13.2 FrB172.15 FrB19.4 ThLBP-A01 .7 FrA02.15 FrB172.15 FrA02.4 FrB172.4	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB172.14 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC09.5 ThC11.4 FrC13.2 FrB172.15 FrB19.4 ThLBP-A01 .7 FrA02.15 FrB172.15 FrA02.4 FrB172.4	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 ThA01.17 ThB1T1.17 FrC14.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrB18.3 FrC13.2 FrB18.3 FrB19.4 ThLBP-A01 .7 FrA02.15 FrB12.15 FrA02.4 FrB1T2.4 ThA02.4	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 ThA01.17 ThB1T1.17 FrC14.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrB18.3 FrC13.2 FrB18.3 FrB19.4 ThLBP-A01 .7 FrA02.15 FrB12.15 FrA02.4 FrB1T2.4 ThA02.4	сс
Sahoo, Avimanyu	ThC19.1 FrB14.6 FrB19.4 ThC12.2 ThB08 FrC03.6 FrC04 FrC04 FrC04 ThB05.5 ThB19.6 ThLBP-A01 .3 ThLBP-A01 .7 ThB11.4 ThC02.3 FrB18.3 FrA02.14 FrB1T2.14 FrC09.5 ThC11.4 ThA01.17 ThB1T1.17 FrC14.4 ThA01.17 ThB1T1.17 FrC14.4 ThC18.3 FrB18.3 FrC13.2 FrB18.3 FrB19.4 ThLBP-A01 .7 FrA02.15 FrB12.15 FrA02.4 FrB1T2.4 ThA02.4	сс

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	ThC03 5	
Schaetzler, Sven		
Cabanan Audrau		
Schanen, Audrey		
Scheinker, Alexander		
Schilders, Wilhelmus		
Schmidt, Kevin		
Schmitt, Lukas Rudolf		
Schoenwald. David A		СС
Scholbrock, Andrew		0
Schreiber, Johannes		0
Schuster, Eugenio		0
		Ũ
Schwager, Mac Schweidel, Katherine		
Schweidel, Katherine		
Scorletti, Gerard		
Scruggs, Jeff		
		С
Seigler, Thomas M		
Seiler, Peter		СС
Sengupta, Sam		
Senov, Aleksandr		
Senter, James		
Sentis, Luis		
		С
Shabbir, Mudassir		
Shahbakhti, Mahdi		0
Shames, Iman		CC
Shang, Chao		
chang, chao		
Shapiro, Carl		
Sharma, Harsh		00
Shastri, Subramanian		CC
Shaw Cortez, Wenceslao		
She, Xu Ting Pamela		
She, Zhikun		С
Shen, Ping-Yen		
Shen, Siqian		
Shen, Xu	ThC03.4	
Shepherd, Blake		
Shi, Linlin Shieh, Su-Yang		
Shim, Hyungbo		С
	FrB11.4	
Shishika, Daigo		
Shivakumar, Sachin Shivkumar, Shashank		
Shor, Roman		С
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Shorinwa Ala		
Shorinwa, Ola Shoukry, Yasser		С
Siddhamshetty, Prashanth	ThC05.5	

Siefert, Jacob	FrB04.2 ThC09.4	
Siegel, Jason B.		С
		õ
		0
Silvestre, Carlos		
Cimkoff India		
Simkoff, Jodie		
Simonelli, James		
<u> </u>		
Simonetto, Andrea		
Simpson-Porco, John W		
Singh, Abhyudai		
Singh, Rajiv		
Singletary, Andrew	ThC08.1	
Sinha, Abhinav	FrA01.9	
	FrA01.11	
	FrB1T1.9	
	FrB1T1.11	
Sinha, Subhrajit	FrB15.4	
Sinner, Michael Nelson		
Sinopoli, Bruno		
Sinsley, Gregory L		
Sira-Ramirez, Hebertt		
Sitapure, Niranjan		
Sivaranjani, S		
Okibik Tarranaa		
Skibik, Terrence		
Skagastad Sigurd	4 ThC 17 2	
Skogestad, Sigurd		
Smith, Amanda		
Smith, Madeline		
Sohani, Nauman		
		~
Sojoudi, Somayeh		С
Soltanolkotabi, Mahdi		
Somarakis, Christoforos		
	FrB09.3	
Son, Dong Hee		
Son, Dong Hee Song, Gangbing	ThB13.1	
Song, Gangbing		
Song, Gangbing Song, Minseok	ThLBP-P01 .5	
Song, Gangbing Song, Minseok	ThLBP-P01 .5	
Song, Gangbing Song, Minseok Song, Wenjie	ThLBP-P01 .5 ThC09.2	ο
Song, Gangbing Song, Minseok Song, Wenjie	ThLBP-P01 .5 ThC09.2 ThB02	0
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong	ThLBP-P01 .5 ThC09.2 ThB02 ThC05	
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4	
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 FrB20.4	
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 FrB20.4 ThB17.3	0
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 FrB20.4 ThB17.3 FrB01	
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 ThB17.3 ThB17.3 FrB01 ThC04.3	0
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 FrB0.4 FrB01 FrB01 ThC04.3 ThC04.3 ThC12.4	CC
Song, Gangbing Song, Minseok Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C.	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 FrB0.4 FrB01 ThC04.3 ThC04.3 ThC12.4 ThB12	0
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C	ThLBP-P01 .5 ThC09.2 ThB02 ThC05.4 ThC05.4 ThB17.3 ThB17.3 ThB17.3 ThC04.3 ThC04.3 ThC12.4 ThB12 ThB12.5	o cc c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C.	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 FrB20.4 ThB17.3 FrB01 ThC04.3 ThC04.3 ThC12.4 ThB12 ThB12.5 ThB12.5 FrC14	CC
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 ThC05.4 ThB17.3 FrB01 ThC04.3 ThC12.4 ThB12 ThB12 ThB12.5 FrC14 FrC14.2	o cc c c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C Speranzon, Alberto.	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 ThC05.4 ThB17.3 FrB01 ThC04.3 ThC12.4 ThB12 ThB12 ThB12.5 FrC14 FrC14.2 ThC19	o cc c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C. Speranzon, Alberto.	ThLBP-P01 .5 ThC09.2 ThB02 ThC05.4 ThC05.4 ThB17.3 FrB01 ThB17.3 FrB01 ThC04.3 ThC12.4 ThB12 ThB12.5 FrC14 ThB12.5 FrC14.2 ThC19 ThC19.6	o cc c c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C. Speranzon, Alberto.	ThLBP-P01 .5 ThC09.2 ThB02 ThC05.4 ThC05.4 ThB17.3 FrB01 ThB17.3 FrB01 ThC12.4 ThB12 ThB12.5 FrC14 ThB12.5 FrC14.2 ThC19.6 ThC19.6 ThC19.6	o cc c c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C Speranzon, Alberto Sprinkle, Jonathan	ThLBP-P01 .5 ThC09.2 ThB02 ThC05.4 ThC05.4 ThB17.3 FrB01 ThB17.3 ThC04.3 ThC12.4 ThB12 ThB12.5 FrC14 FrC14.2 ThC19.6 FrLBP-A01. 8	o cc c c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C. Speranzon, Alberto Speranzon, Alberto Sprinkle, Jonathan Sridhar, Siddharth	ThLBP-P01 .5 ThC09.2 ThB02 ThC05.4 ThC05.4 ThB17.3 FrB20.4 ThB17.3 FrB01 ThC04.3 ThC12.4 ThC12.4 ThB12 ThC12.4 FrC14 FrC14 FrC14 FrC19 ThC19.6 FrLBP-A01. 8 FrA01.16	o cc c c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C Speranzon, Alberto Speranzon, Alberto Sprinkle, Jonathan Sridhar, Siddharth	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 ThC05.4 ThB17.3 FrB01 ThC04.3 ThC12.4 ThB12.5 FrC14 FrC14.2 ThC19.6 FrLBP-A01. 8 FrA01.16 FrB1T1.16	o cc c c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C Speranzon, Alberto Speranzon, Alberto Sprinkle, Jonathan Sridhar, Siddharth	ThLBP-P01 .5 ThC09.2 ThB02 ThC05 ThC05.4 ThC05.4 ThB17.3 FrB01 ThC04.3 ThC12.4 ThB12.5 FrC14 FrC14.2 ThC19.6 FrLBP-A01. 8 FrA01.16 FrB1T1.16	o cc c c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C Speranzon, Alberto Sprinkle, Jonathan Sridhar, Siddharth	ThLBP-P01 .5 ThC09.2 ThB02 ThC05.4 ThC05.4 ThB17.3 FrB01 ThB17.3 ThC04.3 ThC12.4 ThB12 ThC12.4 ThB12.5 FrC14 FrC14.2 ThC19.6 FrLBP-A01. 8 FrA01.16 FrB1T1.16 FrA01.3	o cc c c
Song, Gangbing Song, Minseok Song, Wenjie Song, Xingyong Sood, Harry Soroush, Masoud Sotoudeh, Seyedeh Mahsa Souley Ali, Harouna Spall, James C Speranzon, Alberto Sprinkle, Jonathan Sridhar, Siddharth Srivastava, Vaibhav	ThLBP-P01 .5 ThC09.2 ThC05.2 ThC05.4 ThC05.4 ThB17.3 ThB17.3 ThC04.3 ThC12.4 ThB12.5 FrC14 ThB12.5 FrC14.2 ThC19.6 FrLBP-A01. 8 FrA01.16 FrB1T1.16 FrB1T1.3	o cc c c

# С О

Stefanopoulou, Anna G.		
Stegagno, Paolo	ThB20.5	
Stein, Jeffrey L	FrB10.4	
Steiner, Ted	FrB12.5	
Stipanovic, Dusan M Stock, Adam		
Stockar, Stephanie Stomberg, Gösta	ThB05	0
	FrB1T1.21	
Stoorvogel, Anton A Stroock, Abraham		
Stumfoll, Jason		
Su, Du Su, Hongye		
Su, Lanlan Su, Rong	FrB16.4	С
	FrB03	õ
Su, Shanwei	ThB15	СС
Subbarao, Kamesh		
Sumer, Dogan Summers, Tyler H		
	FrB04.1	
	FrC12.4	
Sun, Chuangchuang		
Sun, Jieming		
Sun, Jing	ThC04.1	
Sun, Liting Sun, Qiyu	FrB10.1	
Sun, Runhan	FrC15.6	
Sun, Zhijie Sundaram, Shreyas	FrB11.3	
Sundstrom, Andrew Sunny, Ajin		
Surroop, Dilshad Suthar, Kerul		
Svaricek, Ferdinand Sznaier, Mario	FrB05.4	
Т		
Tadiparthi, Vaishnav	FrB13.3	
Taghvaei, Amirhossein Taha, Ahmad		С
Taheri, Ehsan		С
·	FrB05.3	U
Tahir, Adam Tai, Wei-Che	ThC04.4	
Talj, Reine Tallapragada, Phanindra		
Tan, Kai Liang	FrC15.3	
Tan, Naiqiang	FrB1T2.15	
Tan, Xiaobo	FrA01.1	
Tanaka, Takashi	FrC12	СС
Taner, Baris		
Tang, Choon Yik	ThB11 ThB11.1	С
Tang, Shuxia	FrB14	C O
Tang, Yu		2

Tang, Zhiyuan       FrC14.5         Tanner, Herbert G.       ThB10.6         Tao, Molei       2         Taousser, Fatima Zohra       ThB20.1         Tasoujian, Shahin       ThC12.2         Taylor, Clark N.       ThC12.3         Tedesco, Francesco       FrB16.1         Tekeoglu, Ali       FrC12.1         Teng, Kuo-Tai       ThC21.3         Thelander Andrén, Marcus       ThC20.6         Theodorou, Evangelos A.       ThC13.6         Theodorou, Evangelos A.       ThC13.6         Thomas, Gray       ThLBP-A02.3         Janne, TheB0.3.6       ThLBP-P02.3         Janne, Dongzuo       ThC05.4         Tian, Daxin       ThB03.6         Tian, Daxin       ThB03.6         Tian, Daxin       ThB03.6         Tian, Name       FrB10.3         Tituaria, Luis R.       FrB08.3         Tituaria, Luis R.       FrC30.5         Tormich, Christopher       ThLBP-A02.4         S       FrLBP-A01.5         S       FrLBP-A01.5         Tian, Ran       FrB03.3         Tiwari, Anuj       FrLBP-A02.4         S       FrLBP-A02.5         Tomisch, Christopher       ThLBP-A02.4		ErC14.5	
Tao, Molei.       FrLBP-P01.         2       Taousser, Fatima Zohra       ThB20.1         Tasoujian, Shahin       ThC12.2         Taylor, Clark N.       ThC12.1         Tedesco, Francesco       ThB03.3         FrB16.1       FrB03.3         Tedesco, Francesco       ThB03.3         FrB16.1       FrC12.1         Teng, Kuo-Tai.       ThC21.3         Thelander Andrén, Marcus       ThC20.6         Theodorou, Evangelos A.       ThC16.6         Thomas, Brian G.       ThB14.3         Thomas, Gray.       ThC13.6         FrC10.6       Thomton, Jay         Ja       ThLBP-P02         Ja       Ja         Tan, Daguo       Th603.6         Tian, Daguo       ThC05.4         Tian, Ning       ThC13.1         Tian, Ram       FrB18.4         Tibury, Dawn M.       FrB18.4         Tibury, Dawn M.       FrB18.4         Tibury, Dawn M.       FrB18.3         Tiwari, Anuj.       FrB06.3         Tiwari, Anuj.       FrB0.3         Tiwari, Anuj.       FrB0.4         ThuBP-P02       S         Theodocolitic filesphere       ThLBP-P02.1 <td< td=""><td></td><td></td><td></td></td<>			
Tapus, Adriana       ThB03.5         Tasoujian, Shahin.       ThC12.2         Taylor, Clark N.       ThC15.4         Tedesco, Francesco       ThB03.3         FrB16.1       Tekeoglu, Ali.         Theodorou, Evangelos A.       ThC12.1         Thendander Andrén, Marcus       ThC21.3         Theadner, Evangelos A.       ThC18.1         Thomas, Brian G.       ThB14.3         Thomas, Gray.       ThC18.6         Thornton, Jay       ThLBP-A02.         3       ThLBP-A02.         3       ThLBP-A02.         3       ThLBP-A02.         3       ThLBP-A02.         3       ThC13.6         Tran, Daxin       ThB03.6         Tian, Daxin       ThC51.1         Tian, Ran       FrB10.3         Tituaña, Luis R       FrB08.3         Tiwari, Anuj.       FrLBP-A01.         5       FrC03 CC         Tominich, Christopher       ThLBP-A02.         8       ThLBP-P02         40       ThB04.2         Tomás, Haniš       FrC03.5         Tominich, Christopher       ThLBP-A01.5         5       FrLBP-A02.8         8       ThLBP-P02.8			
Tapus, Adriana       ThB03.5         Tasoujian, Shahin.       ThC12.2         Taylor, Clark N.       ThC15.4         Tedesco, Francesco       ThB03.3         FrB16.1       Tekeoglu, Ali.         Theodorou, Evangelos A.       ThC12.1         Thendander Andrén, Marcus       ThC21.3         Theadner, Evangelos A.       ThC18.1         Thomas, Brian G.       ThB14.3         Thomas, Gray.       ThC18.6         Thornton, Jay       ThLBP-A02.         3       ThLBP-A02.         3       ThLBP-A02.         3       ThLBP-A02.         3       ThLBP-A02.         3       ThC13.6         Tran, Daxin       ThB03.6         Tian, Daxin       ThC51.1         Tian, Ran       FrB10.3         Tituaña, Luis R       FrB08.3         Tiwari, Anuj.       FrLBP-A01.         5       FrC03 CC         Tominich, Christopher       ThLBP-A02.         8       ThLBP-P02         40       ThB04.2         Tomás, Haniš       FrC03.5         Tominich, Christopher       ThLBP-A01.5         5       FrLBP-A02.8         8       ThLBP-P02.8		2	
Tasoujian, Shahin.			
Taylor, Clark N.       Thc15.4         Tedesco, Francesco.       ThB03.3         FrB16.1       Frc12.1         Teng, Kuo-Tai.       ThC21.2         Thedarou, Evangelos A.       ThC18.1         Thomas, Brian G.       ThB14.3         Thomas, Gray.       ThC13.6         Thomas, Gray.       ThC18.1         Thomas, Gray.       ThC13.6         FrLBP-A02       3         3       ThLBP-A02         3       ThLBP-P02.3         3       ThLBP-P02.3         3       ThC13.1         Tian, Daxin       ThB03.6         Tian, Dongzuo       ThC05.4         Tian, Ning       ThC17.3.1         Tian, Ran       Fr818.4         Tilbury, Dawn M.       Fr810.3         Tituaña, Luís R       Fr608.3         Twari, Anuj.       FrLBP-A01.5         5       FrLBP-A01.5         6       ThLBP-P02.8         8       ThLBP-P02.8         7       ThB93.6         Tian, Ning       Fr1.4         Tibury, Dawn M.       Fr610.3         Tituaña, Luís R       Fr608.3         Tomás, Haniš       Frc03         Comáš, Haniš <td< td=""><td></td><td></td><td></td></td<>			
Tedesco, Francesco.			
FrB16.1           Tekeoglu, Ali.         FrC12.1           Freq, Kuo-Tai.         ThC21.2           Thc21.3         ThC21.3           Thedorou, Evangelos A.         ThC18.1           Thomas, Brian G.         ThB14.3           Thomas, Gray.         ThC18.1           Thomas, Gray.         ThC13.6           FrC10.6         Thomton, Jay.           ThLBP-A02         3           ThEBP-P02.3         3           Than Daxin         ThB03.6           Tian, Daxin         ThC13.1           Tian, Danguo.         ThC13.1           Tian, Ran         FrB14.4           Tibury, Dawn M.         FrB18.4           Tibury, Dawn M.         FrB10.3           Tivari, Anuj.         FrLBP-A01.5           FrcBP-A01.         6           FrC03.5         Tominich, Christopher           ThLBP-P02         8           Tominich, Christopher         ThLBP-A02.5           R         FrLBP-A02.6           S         FrLBP-A01.6           ThB04.2         Tomáš, Haniš           FrC03.5         Tominich, Christopher           ThLBP-P02         8           Tomizuka, Masayoshi         ThA02.19 <td></td> <td></td> <td></td>			
Tekeoglu, Ali.			
Teng, Řuo-Tai.       ThC21.2         Thelander Andrén, Marcus       ThC21.3         Thedorou, Evangelos A.       ThC18.1         Thomas, Gray.       ThC13.6         Frc10.6       Thorton, Jay         ThLBP-A02       3			
Thc21.3           Theader Andrén, Marcus         Thc20.6           Theodorou, Evangelos A.         ThC18.1           Thomas, Brian G.         ThB14.3           Thomas, Gray.         ThC13.6           FrC10.6         FrC10.6           Thornton, Jay.         ThLBP-A02           3         3           FrLBP-A02.         3           Janne         FrLBP-A02.           3         Thumas, Gray.           FrLBP-A02.         3           Tian, Daxin         ThB03.6           Tian, Dongzuo         ThC73.1           Tian, Ran         FrB18.4           Tibury, Dawn M.         FrB10.3           Tituaña, Luis R         FrB08.3           Tiwari, Anuj         FrLBP-A01.           5         FrC03.5           Tominich, Christopher         ThB04.2           Tomáš, Haniš         FrC03.5           Tominich, Christopher         ThB17.1           ThB17.2         8           ThLBP-P02.8         8           ThuEP-P02.8         8           Thuersenter         FrED-A02.8           Theatist         FrED-A02.8           ThitBP-P02.8         8           ThuEBP-P02.8 <td>Teng, Kuo-Tai</td> <td>ThC21.2</td> <td></td>	Teng, Kuo-Tai	ThC21.2	
Theodorou, Evangelos A.       ThC18.1         Thomas, Brian G.       ThB14.3         Thomas, Gray.       FrC10.6         Thornton, Jay       ThLBP-A02         .3       ThLBP-P02.         .3       FrLBP-P02.         .3       FrLBP-P02.         .3       FrLBP-P02.         .3       ThOTS.1         Tian, Daxin       ThB03.6         Tian, Ning       ThC15.1         Tian, Ran       FrB18.4         Tibury, Dawn M.       FrB18.4         Tibury, Dawn M.       FrB10.3         Tituaña, Luis R       FrB08.3         Tiwari, Anuj.       FrLBP-A01.         6       FrC03.         Twait, Anuj.       FrLBP-A01.         6       FrC03.         Thomish, Christopher       ThB04.2         Tominich, Christopher       ThB04.2         Tominich, Christopher       8         FrLBP-P02.       8         Thall BP-P02.       8         Thomish, Rasyoshi       ThA2.19         ThB17.19       ThB17.19         ThB17.19       FrB10.1         Tomsovic, Kevin       ThB17.19         ThB17.19       FrB20.6         Touri, Behrou			
Thomas, Brian G.         ThB14.3           Thomas, Gray.         ThC13.6	Thelander Andrén, Marcus	ThC20.6	
Thomas, Gray.         ThC13.6           FrC10.6         FrC10.6           Thornton, Jay         3           ThLBP-A02         3           FrLBP-P02         3           FrLBP-P02.         3           FrLBP-P02.         3           Tian, Daxin         ThB03.6           Tian, Daxin         ThB03.6           Tian, Daxin         ThCT3.1           Tian, Ran         FrB18.4           Tilbury, Dawn M.         FrB18.4           Tilbury, Dawn M.         FrB18.3           Tiwaria, Luis R         FrB08.3           Tiwaria, Anuj         FrEB0.3           FrLBP-A01.         6           Tkachenko, Pavlo         7h08.2           Thomis, Haniš         FrC03.5           Tomisch, Christopher         ThLBP-A02.           8         FrLBP-A02.           9         FrEB1.0			
FrC10.6           Thornton, Jay         ThLBP-A02           3         ThLBP-A02.           3         FrLBP-A02.           3         FrLBP-A02.           3         FrLBP-A02.           3         Tian, Daxin           Thomson         Th605.4           Tian, Ning         Th673.1           Tian, Ran         FrB18.4           Tibury, Dawn M.         FrB08.3           Tiwari, Anuj         5           FrLBP-A01.         6           Tkachenko, Pavlo.         ThB04.2           Tomáš, Haniš         FrC03           CC			
Thornton, Jay       ThLBP-A02         3       ThLBP-P02         3       FrLBP-A02.         3       FrLBP-P02.         3       FrLBP-P02.         3       ThB03.6         Tian, Daxin       ThB03.6         Tian, Daxin       ThC05.4         Tian, Ning       ThCT3.1         Tian, Ran       FrB18.4         Tilbury, Dawn M.       FrB10.3         Tituaña, Luis R       FrB08.3         Tiwari, Anuj       FrLBP-A01.         5       FrLBP-A01.         6       FrLBP-A01.         7       S         7       FrC03         7       ThB04.2         Tomáš, Haniš       FrC03         6       FrLBP-A02.         8       FrLBP-A02.         8       FrLBP-A02.         8       FrLBP-A02.         8       FrLBP-P02.         8       S         7       ThB172.19         8       FrLBP-P02.         8       S         7       ThB20.1         7       ThM21.11         7       ThA02.19         7       FrB10.1         7 <td></td> <td></td> <td></td>			
3         ThLBP-P02           3         FrLBP-A02.           3         FrLBP-P02.           Tian, Daxin         ThB03.6           Tian, Dongzuo         ThC05.4           Tian, Ning         ThC13.1           Tian, Ran         FrB10.3           Tituaria, Luis R         FrB08.3           Tiwari, Anuj         FrLBP-A01.           5         FrLBP-A01.           1         FrC03 CC           Tomáš, Haniš         FrC03 CC           7         FrC03.5           Tominich, Christopher         ThLBP-A02.           8         ThLBP-P02           8         ThLBP-P02.           8         ThLBP-P02.           8         ThLBP-P02.           8         ThLBP-P02.           8         ThLBP-P02.           8         ThLBP-P02.           8         ThMIT2.19           FrLBP-P02.         8           7         ThB20.1           ThB172.19         ThB172.19           FrB10.1         ThC06.6           Topcu, Ufuk         ThA01.19           5         ThC06.6           Topcu, Ufuk         ThA02.19           7 <td< td=""><td></td><td></td><td></td></td<>			
ThLBP-P02         3         FrLBP-A02.         3         FrLBP-P02.         3         Tian, Daxin         ThB03.6         Tian, Dongzuo         ThCT3.1         Tian, Ran         FrB18.4         Tilbury, Dawn M.         FrB10.3         Tituaña, Luis R         FrLBP-A01.         5         FrLBP-A01.         6         Tkachenko, Pavlo         ThB04.2         Tomáš, Haniš         FrC03.5         Tominich, Christopher         ThLBP-A02.         8         FrLBP-P02.         8         FrLBP-P02.         8         FrLBP-P02.         8         FrLBP-P02.         8         FrLBP-P02.         8         FrLBP-P02.         8         ThB17.19         ThB20.1         ThB20.1         ThB20.1         ThB20.1         ThB20.1         ThB20.1         ThB20.1         ThB17.19         ThB20.1 </td <td>momon, Jay</td> <td></td> <td></td>	momon, Jay		
3         FrLBP-P02.           3         Tian, Daxin         ThB03.6           Tian, Dongzuo         ThC05.4           Tian, Ning         ThC13.1           Tian, Ran         FrB18.4           Tilbury, Dawn M.         FrB10.3           Tituaña, Luis R         FrB08.3           Tiwari, Anuj         FrLBP-A01.           5         FrLBP-A01.           6         ThAB04.2           Tomáš, Haniš         FrC03           CC         ThBD4.2           Tomáš, Haniš         FrC03.5           Tominich, Christopher         ThLBP-A02.           8         ThLBP-P02           8         FrLBP-A02.           8         FrLBP-P02.           8         FrLBP-P02.           8         ThA02.19           ThB172.19         ThB172.19           String         FrB0.1           Tomsovic, Kevin         ThB20.1           ThB20.1         ThB20.1           ThB20.1         ThB20.1           ThB20.1         ThB20.1           String         FrB10.6           Tory, Ning         ThC06.6           Touri, Behrouz         FrB11.6           CC         Fr			
3         Tian, Daxin       ThB03.6         Tian, Dongzuo       ThC05.4         Tian, Ning       ThCT3.1         Tian, Ran       FrB18.4         Tilbury, Dawn M.       FrB08.3         Tiwari, Auj.       FrB08.3         Tiwari, Anuj.       FrB08.3         Tiwari, Anuj.       FrLBP-A01.         5       FrLBP-A01.         6       FrC03.5         Tomáš, Haniš       FrC03.5         Tominich, Christopher       ThLBP-A02         8       ThLBP-A02.         8       FrLBP-A02.         8       FrLBP-A02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       ThA02.19         ThB10.1       ThB20.1         Tomizuka, Masayoshi       ThA02.19         700, Ning       ThC66.6         Topcu, Ufuk       ThA01.19         700, Ning       ThC66.6         Topcu, Ufuk       ThA01.19         7782.1       CC         7782.1       CC         779.1       FrB21.0         700.0       FrB21.1 <tr< td=""><td></td><td>FrLBP-A02.</td><td></td></tr<>		FrLBP-A02.	
3         Tian, Daxin       ThB03.6         Tian, Dongzuo       ThC05.4         Tian, Ning       ThCT3.1         Tian, Ran       FrB18.4         Tilbury, Dawn M.       FrB08.3         Tiwari, Auj.       FrB08.3         Tiwari, Anuj.       FrB08.3         Tiwari, Anuj.       FrLBP-A01.         5       FrLBP-A01.         6       FrC03.5         Tomáš, Haniš       FrC03.5         Tominich, Christopher       ThLBP-A02         8       ThLBP-A02.         8       FrLBP-A02.         8       FrLBP-A02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       ThA02.19         ThB10.1       ThB20.1         Tomizuka, Masayoshi       ThA02.19         700, Ning       ThC66.6         Topcu, Ufuk       ThA01.19         700, Ning       ThC66.6         Topcu, Ufuk       ThA01.19         7782.1       CC         7782.1       CC         779.1       FrB21.0         700.0       FrB21.1 <tr< td=""><td></td><td>3</td><td></td></tr<>		3	
Tian, Daxin       ThB03.6         Tian, Dongzuo       ThC05.4         Tian, Ning       ThCT3.1         Tian, Ran       FrB18.4         Tilbury, Dawn M.       FrB10.3         Tituafia, Luis R       FrB08.3         Tiwari, Anuj       FrLBP-A01.         5       FrLBP-A01.         6       FrC03.5         Tomáš, Haniš       FrC03.5         Tominich, Christopher       ThLBP-A02.         8       ThLBP-P02.         8       FrLBP-A02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P01.         7       ThB172.19         ThB172.19       ThC66.6         Topcu, Ufuk       ThA01.19         5       FrB20.1         7       Tran, Dzung       ThC66.6         Topcu, Ufuk       ThB06.6         Traveca, Bertrand       ThB06		FrLBP-P02.	
Tian, Dongzuo       ThC05.4         Tian, Ning       ThCT3.1         Tian, Ran       FrB18.4         Tilbury, Dawn M.       FrB10.3         Tituaña, Luis R       FrB08.3         Tiwari, Anuj       FrLBP-A01.         5       5         Tiwari, Anuj       FrLBP-A01.         6       6         Tkachenko, Pavlo       ThB04.2         Tomáš, Haniš       FrC03         CC       ThLBP-A01.         6       FrC03.5         Tominich, Christopher       ThLBP-A02         8       FrLBP-A02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       ThA02.19         ThB1T2.19       FrB10.1         Tomsovic, Kevin       ThB20.1         ThC6.6       Topcu, Ufuk       ThA01.19         ThB1T1.19       FrB20.6         Touri, Behrouz       FrB11       CC         FrB21       C	T' D'		
Tian, Ning       ThCT3.1         Tian, Ran       FrB18.4         Tilbury, Dawn M.       FrB10.3         Tituaria, Luis R       FrB08.3         Tiwari, Anuj.       FrLBP-A01.         5       FrLBP-A01.         6       FrLBP-A01.         7       FrLBP-A01.         6       FrcO3.         Twari, Anuj.       FrC03.         CC       FrC03.         CC       S         Tominich, Christopher       ThLBP-A02         8       ThLBP-P02.         8       S         FrLBP-A02.       8         FrLBP-P02.       8         S       S         FrLBP-P02.       8         ThMET2.19       ThA02.19         ThB1T2.19       FrB10.1         Tomsovic, Kevin       ThB20.1         ThB20.1       ThB20.1         S       ThC06.6         Topcu, Ufuk       ThA01.19         FrB21       CC			
Tian, Ran       FrB18.4         Tilbury, Dawn M.       FrB10.3         Tituaña, Luis R       FrB08.3         Tiwari, Anuj       FrLBP-A01.         5       FrLBP-A01.         6       FrLBP-A01.         7       FrLBP-A01.         6       FrLBP-A01.         7       FrLBP-A01.         6       FrcO3         CC       FrC03.5         Tomis, Haniš       FrC03.5         Tominich, Christopher       ThLBP-A02.         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .         .       .			
Tilbury, Dawn M.       FrB10.3         Tituaña, Luis R.       FrB08.3         Tiwari, Anuj.       FrLBP-A01.         5       FrLBP-A01.         6       FrLBP-A01.         6       Thada Sama Sama Sama Sama Sama Sama Sama S			
Tituaña, Luis R       FrB08.3         Tiwari, Anuj       FrLBP-A01.         5       FrLBP-A01.         6       FrLBP-A01.         7       6         Tkachenko, Pavlo       ThB04.2         Tomáš, Haniš       FrC03         Comáš, Haniš       FrC03.5         Tominich, Christopher       ThLBP-A02         .8           FrLBP-A02.          8          FrLBP-A02.          8          FrLBP-A02.          8          FrLBP-A02.          8          FrLBP-A02.          8          FrLBP-A02.          8          ThA02.19          ThB17.19          ThB20.1         Tomsovic, Kevin       ThB20.1          ThC6.6         Topcu, Ufuk       ThA01.19          FrB11          CC          FrB2.1         Tran, Dzung       ThC16.4         <			
Tiwari, Anuj			
FrLBP-A01.       6         Tkachenko, Pavlo.       ThB04.2         Tomáš, Haniš       FrC03       CC         FrC03.5       FrC03.5         Tominich, Christopher       ThLBP-A02         8       ThLBP-P02         8       FrLBP-A02.         8       FrLBP-A02.         8       FrLBP-A02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         8       FrLBP-P02.         9       FrB10.1         Tomizuka, Masayoshi       ThA02.19         FrB10.1       ThB172.19         9       FrB10.1         10       Tomsovic, Kevin         11       Tomsovic, Kevin         12       ThB172.19         3       Tong, Ning         14       ThA01.19         15       FrB20.6         Touri, Behrouz       FrB11         15       FrB21         16       FrB21         17       Fravacca, Bertrand         17       ThC16.4         17       Tran, Dzung         17       ThC16.16         17       ThB10.4         17 <td></td> <td></td> <td></td>			
6           Tkachenko, Pavlo	-	-	
Tomáš, Haniš         FrC03         CC           FrC03.5         Tominich, Christopher         ThLBP-A02           .8         ThLBP-P02           .8         FrLBP-A02.           .8         FrLBP-A02.           .8         FrLBP-A02.           .8         FrLBP-P02.           .8         FrLBP-P02.           .8         FrLBP-P02.           .8         FrBP-P02.           .8         FrB10.1           Tomsovic, Kevin         ThB1T2.19		FrLBP-A01.	
Tomáš, Haniš         FrC03         CC           FrC03.5         Tominich, Christopher         ThLBP-A02           .8         ThLBP-P02           .8         FrLBP-A02.           .8         FrLBP-A02.           .8         FrLBP-A02.           .8         FrLBP-P02.           .8         FrLBP-P02.           .8         FrLBP-P02.           .8         FrBP-P02.           .8         FrB10.1           Tomsovic, Kevin         ThB1T2.19	<b>T</b> I I I <b>D</b> I	6	
FrC03.5         Tominich, Christopher       ThLBP-A02         .8       ThLBP-P02         .8       FrLBP-A02.         .8       FrLBP-A02.         .8       FrLBP-A02.         .8       FrLBP-P02.         .8       FrLBP-P01.         .8       FrLBP-P01.         .7       ThB172.19         .7       FrB10.1         Tomsovic, Kevin       ThB20.1         .7       ThB11.19			~~
Tominich, Christopher       ThLBP-A02         .8			CC
.8			
ThLBP-P02         .8         FrLBP-A02.         8         FrLBP-P02.         8         Tomizuka, Masayoshi         ThB1T2.19         FrB10.1         Tomsovic, Kevin         ThB20.1         ThLBP-P01         .3         Tong, Ning         ThC06.6         Topcu, Ufuk         ThB1T1.19         FrB20.6         Touri, Behrouz         FrB11         CC         FrB21         CC         FrB21         Tran, Dzung         ThC16.4         Travers, Matt         Travers, Matt         ThB08.5         Tron, Roberto         FrB17.3         Tseng, Eric         A         A         A         A         A         ThC16.2         Travers, Shih-Hao         FrC16.2         Tsolovikos, Alexandros			
FrLBP-A02.         8         FrLBP-P02.         8         Tomizuka, Masayoshi         ThA02.19         ThB172.19         FrB10.1         Tomsovic, Kevin         ThB20.1         ThLBP-P01         .3         Tong, Ning         ThC06.6         Topcu, Ufuk         ThB1T1.19         FrB20.6         Touri, Behrouz         FrB21         CC         FrB21         CC         FrB21         C         Travers, Ma			
8         FrLBP-P02.           8         Tomizuka, Masayoshi         ThA02.19           ThB1T2.19         FrB10.1           Tomsovic, Kevin         ThB20.1           ThB20.1         ThC06.6           Topcu, Ufuk         ThA01.19           FrB20.6         Touri, Behrouz           FrB21         CC           FrB21         CC           FrB21         CC           FrB21         C           FrB21         O           FrB21         O           FrB21         C           FrB21         O           FrB21 <td< td=""><td></td><td>.8</td><td></td></td<>		.8	
FrLBP-P02.         8         Tomizuka, Masayoshi       ThA02.19         ThB1T2.19         FrB10.1         Tomsovic, Kevin         ThLBP-P01         3         Tong, Ning         ThC06.6         Topcu, Ufuk         ThB1T1.19         FrB20.6         Touri, Behrouz         FrB21         CC         FrB21         CC         FrB21         C         FrB21         C         FrB21         C         FrB21         C         FrB21         C         FrB21         C         FrB21         O         FrB21         Ton, Roberto		FrLBP-A02.	
8           Tomizuka, Masayoshi		-	
Tomizuka, Masayoshi       ThA02.19         ThB1T2.19       FrB10.1         Tomsovic, Kevin       ThB20.1         Tong, Ning       ThC06.6         Topcu, Ufuk       ThA01.19         FrB20.6       Touri, Behrouz         FrB21       CC         FrB21       CC         FrB21       O         FrB21       O         FrB21.1       Travacca, Bertrand         Travers, Matt       ThB06.6         Travers, Matt       ThB06.5         Tron, Roberto       ThC16.2         FrB17.3       Tseng, Eric         Fresto, Shih-Hao       FrC16.2         Tsolovikos, Alexandros       ThC18.5		_	
ThB1T2.19         FrB10.1         Tomsovic, Kevin         ThLBP-P01         .3         Tong, Ning         ThC06.6         Topcu, Ufuk         ThB1T1.19         FrB20.6         Touri, Behrouz         FrB11         CC         FrB21         CC         FrB21         C         FrB21         O         FrB21         CC         FrB21         CC         FrB21         O         FrB21         Tran, Dzung         ThC16.4         Travers, Matt         ThB06.6         Travers, Matt         ThC16.2         FrB17.3         Tseng, Eric         A         A         ThB10.4         Tseng, Shih-Hao         FrC16.2         Tsolovikos, Alexandros	Tomizuka Masavoshi	-	
FrB10.1         Tomsovic, Kevin         ThB20.1         ThLBP-P01         .3         Tong, Ning         ThC06.6         Topcu, Ufuk         ThB1T1.19         FrB20.6         Touri, Behrouz         FrB11         CC         FrB21         CC         FrB21         Tran, Dzung         ThC16.4         Travers, Matt         ThB06.6         Travers, Matt         ThB06.6         Travers, Matt         ThB06.6         Travers, Matt         ThC16.2         FrB17.3         Tseng, Eric         A         A         ThB10.4         Tseng, Shih-Hao         FrC16.2         Tsolovikos, Alexandros			
ThLBP-P01         .3         Tong, Ning       ThC06.6         Topcu, Ufuk       ThA01.19			
.3         Tong, Ning	Tomsovic, Kevin	ThB20.1	
Tong, Ning.       ThC06.6         Topcu, Ufuk       ThA01.19	·	ThLBP-P01	
Topcu, Ufuk       ThA01.19			
ThB1T1.19         FrB20.6         Touri, Behrouz       FrB11         CC         FrB11.6         FrB21         CC         FrB21         O         FrB21         O         FrB21         O         FrB21         O         FrB21         O         FrB21.1         Tran, Dzung         ThC16.4         Travacca, Bertrand         ThB08.5         Tron, Roberto         ThC16.2         FrB17.3         Tseng, Eric         ThB10.4         Tseng, Shih-Hao         FrC16.2         Tsolovikos, Alexandros			
FrB20.6         Touri, Behrouz       FrB11       CC         FrB11.6       FrB21       CC         FrB21       CC       FrB21       O         FrB21.1       Tran, Dzung       ThC16.4       Travacca, Bertrand       ThB08.5         Tron, Roberto       ThC16       C       C         FrB17.3       Tseng, Eric       ThB10.4         Tseng, Shih-Hao       FrC16.2       FrC16.2         Tsolovikos, Alexandros       ThC18.5	•		
Touri, Behrouz         FrB11         CC			
FrB11.6         FrB21       CC         FrB21       O         FrB21       O         FrB21.1       FrB21.1         Tran, Dzung.       ThC16.4         Travacca, Bertrand.       ThB06.6         Travers, Matt       ThB06.5         Tron, Roberto       ThC16.2         FrB17.3       FreB17.3         Tseng, Eric       ThB10.4         Tseng, Shih-Hao       FrC16.2         Tsolovikos, Alexandros       ThC18.5			cc
FrB21         CC           FrB21         O           FrB21         O           FrB21.1         FrB21.1           Tran, Dzung.         ThC16.4           Travacca, Bertrand.         ThB06.6           Travers, Matt         ThB08.5           Tron, Roberto         ThC16.2           FrB17.3         FrB17.3           Tseng, Eric         ThB10.4           Tseng, Shih-Hao         FrC16.2           Tsolovikos, Alexandros         ThC18.5			00
FrB21.1         Tran, Dzung         Travacca, Bertrand			СС
Tran, Dzung		FrB21	0
Travacca, Bertrand       ThB06.6         Travers, Matt       ThB08.5         Tron, Roberto       ThC16       C			
Travers, Matt       ThB08.5         Tron, Roberto       ThC16       C			
Tron, Roberto         ThC16         C			
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FrB17.3 Tseng, EricFrB17.3 ThLBP-A01 			C
Tseng, Eric         ThLBP-A01           .6			
.6 ThB10.4 Tseng, Shih-HaoFrC16.2 Tsolovikos, AlexandrosThC18.5			
Tseng, Shih-HaoFrC16.2 Tsolovikos, AlexandrosThC18.5	J, -		
Tsolovikos, AlexandrosThC18.5		ThB10.4	
U		ThC18.5	_
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Ulusoy, Melda	-	
	.2 ThLBP-P02 .2	
	-	
Uribe, Cesar Urschel, Chase		
Usevitch, James	FrB1T1.17	
Uzzaman, Nahid		
Vaglica, Pasquale		
Vagiica, Pasquale Vahidi, Ardalan		
Vaidya, Umesh		
Valli, Carlo		
Vallon, Charlott		
Vamvoudakis, Kyriakos G		CC
		С
		C
		CC
Van De Wouw, Nathan	ThC05.2	
van den Eijnden, Sebastiaan		
van der Meulen, Stan		0
Van Raemdonck, Stefan		
van Wingerden, Jan-Willem	ThLBP-A01 .1	
	FrB02	С
		0
	FrB02.5	
		0
Vanek Balint	FrC02	0
Vanek, Balint Varnai, Peter	FrC02 ThB13.6 FrC20.1	0
Vanek, Balint Varnai, Peter Vasal, Deepanshu	FrC02 ThB13.6 FrC20.1 FrC18.6	0
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5	0
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3	0
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1	0
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2	Ο
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThB16.3 ThC03.1 FrB04.2 FrC01.3	С
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrB04.2 FrC10 FrC10	
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10 FrC10.1	С
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10 FrC10.1 FrC10.5	С
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Verriest, Erik I.	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThB04.2 FrB04.2 FrC10 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2	С
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Verriest, Erik I Verriest, Erik I Vidyasagar, Mathukumalli	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThB16.3 FrB04.2 FrB04.2 FrC10 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4	С
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Verriest, Erik I.	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThB04.2 FrB04.2 FrC10 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 ThB01.6	C O
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Verriest, Erik I Verriest, Erik I Vidyasagar, Mathukumalli	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC10.5 FrC17.2 ThB01.4 ThB01.6 FrB21	С
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke. Verginis, Christos. Vergote, Karel Vermillion, Christopher Verriest, Erik I. Verriest, Erik I. Vidyasagar, Mathukumalli	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.1 FrC10.5 FrC17.2 ThB01.4 ThB01.6 FrB21 FrB21 FrB21.1	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Verriest, Erik I. Vidyasagar, Mathukumalli	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 FrB21 FrB21 FrB21 FrB21.1 FrB21.2	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Vermillion, Christopher Verriest, Erik I. Vidyasagar, Mathukumalli Vijayshankar, Sanjana	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 FrB21 FrB21 FrB21.1 FrB21.2 ThB05.6	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Vermillion, Christopher Verriest, Erik I. Vidyasagar, Mathukumalli Vijayshankar, Sanjana Visnevski, Nikita	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 FrB21 FrB21 FrB21 FrB21.1 FrB21.2 ThB05.6 ThB05.1	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke. Verginis, Christos. Vergote, Karel Vermillion, Christopher Verriest, Erik I. Vidyasagar, Mathukumalli. Vijayshankar, Sanjana Visnevski, Nikita Vitullo, Shane	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC10.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 FrB21 FrB21 FrB21.1 FrB21.2 ThB05.6 ThB05.1 ThA02.8	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Vermillion, Christopher Verriest, Erik I. Vidyasagar, Mathukumalli Vijayshankar, Sanjana Visnevski, Nikita	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 FrB21 FrB21 FrB21.1 FrB21.2 ThB05.6 ThB05.1 ThA02.8 ThB1T2.8	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Verriest, Erik I. Verriest, Erik I. Vidyasagar, Mathukumalli Vijayshankar, Sanjana Visnevski, Nikita Vitullo, Shane von Andrian, Matthias	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 ThB01.6 FrB21 FrB21.1 FrB21.2 ThB05.6 ThB05.1 ThB05.1 ThB1T2.8 ThB1T2.8 ThB1T2.8 ThC13.3	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos Vergote, Karel Vermillion, Christopher Verriest, Erik I. Verriest, Erik I. Vidyasagar, Mathukumalli Vijayshankar, Sanjana Visnevski, Nikita Vitullo, Shane von Andrian, Matthias Voulgaris, Petros G.	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 ThB01.6 FrB21 FrB21.1 FrB21.2 ThB05.6 ThB05.1 ThB05.1 ThB1T2.8 ThB1T2.8 ThB1T2.8 ThB17.5 ThC13.3 ThB19.4	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos. Vergote, Karel Vermillion, Christopher Verriest, Erik I. Vidyasagar, Mathukumalli Vidyasagar, Mathukumalli Vijayshankar, Sanjana Visnevski, Nikita Visnevski, Nikita Vitullo, Shane von Andrian, Matthias Voulgaris, Petros G Vrabac, Damir	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 ThB01.6 FrB21 FrB21.1 FrB21.2 ThB05.6 ThB05.1 ThB05.1 ThB1T2.8 ThB1T2.8 ThB1T2.8 ThB17.5 ThC13.3 ThB19.4	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos. Vergote, Karel Vermillion, Christopher Verriest, Erik I. Vidyasagar, Mathukumalli Vidyasagar, Mathukumalli Vijayshankar, Sanjana Visnevski, Nikita Visnevski, Nikita Vitullo, Shane von Andrian, Matthias Voulgaris, Petros G. Vrabac, Damir W	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.1 FrC10.5 FrC17.2 ThB01.6 FrB21 FrB21 FrB21 FrB21.2 ThB05.6 ThB05.1 ThB05.6 ThB17.5 ThC13.3 ThB17.5 ThC13.3 ThB19.4 ThB11.4	C O C
Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos. Vergote, Karel Vermillion, Christopher Verriest, Erik I. Vidyasagar, Mathukumalli Vidyasagar, Mathukumalli Vijayshankar, Sanjana Visnevski, Nikita Visnevski, Nikita Vitullo, Shane von Andrian, Matthias Voulgaris, Petros G Vrabac, Damir	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 FrB21 FrB21 FrB21 FrB21.1 FrB21.2 ThB05.6 ThB05.6 ThB05.1 ThB17.5 ThC13.3 ThB17.5 ThC13.3 ThB19.4 ThB11.4	C O C
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Vanek, Balint Varnai, Peter Vasal, Deepanshu Venstrom, Luke Verginis, Christos. Vergote, Karel Verriest, Karel Verriest, Erik I. Vidyasagar, Mathukumalli Vijayshankar, Sanjana Visnevski, Nikita. Visnevski, Nikita. Vitullo, Shane. von Andrian, Matthias Voulgaris, Petros G. Vrabac, Damir. W	FrC02 ThB13.6 FrC20.1 FrC18.6 FrC13.5 ThB16.3 ThC03.1 FrB04.2 FrC01.3 FrC10 FrC10 FrC10.1 FrC10.5 FrC17.2 ThB01.4 FrB21 FrB21 FrB21.1 FrB21.2 ThB05.6 ThB05.1 ThB17.5 ThB17.5 ThB17.5 ThB17.4 ThB17.4 ThB11.4	C O O

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Tharinda Wegener, Matthew Wehr, Matthias Weiss, Avishai Welikala, Shirantha Wen, Yalun	 ThB1T2.16 ThA01.1 ThB1T1.1 ThA01.7 ThB1T1.7 FrC05.1 ThB16.1 ThB08.4
Tharinda Wegener, Matthew Wehr, Matthias Weiss, Avishai Welikala, Shirantha Wen, Yalun Wen, Yining	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 FrC05.1 ThB16.1 ThB16.4 FrC09.4
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 FrC05.1 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrB10.4
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Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrC09.4 FrB10.4 FrC17.6 FrB08.2
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 FrC05.1 ThB16.1 ThB16.1 FrB10.4 FrC10.4 FrB10.4 FrB08.2 FrB08.2 FrC08.2
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 FrC05.1 ThB16.1 ThB16.1 FrC09.4 FrC17.6 FrB10.4 FrC17.6 FrC08.2 FrC08.2 ThB08.5
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 FrC05.1 ThB16.1 ThB16.1 FrC09.4 FrC17.6 FrB10.4 FrC17.6 FrC08.2 FrC08.2 ThB08.5
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 FrC05.1 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrB10.4 FrB10.4 FrC08.2 FrB08.2 FrC08.2 ThB08.5 FrLBP-A01. 1
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrB10.4 FrC17.6 FrB08.2 FrC08.2 FrC08.2 FrLBP-A01.1 1 ThA01.4 ThB1T1.4
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrC09.4 FrC17.6 FrB08.2 FrC08.2 FrC08.2 FrC08.5 FrLBP-A01.1 1 ThA01.4 ThB1T1.4 FrB08.1
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Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrC09.4 FrC17.6 FrB08.2 FrC08.2 FrLBP-A01.1 1 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.1 ThB1T1.4 FrB05.2 FrB01.4
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrC09.4 FrB08.4 FrC17.6 FrB08.2 FrLBP-A01. 1 ThB08.5 FrLBP-A01.4 FrB08.1 FrB08.1 FrB05.2 FrB01.4 FrB14.6
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB08.4 FrC09.4 FrC17.6 FrC08.2 FrC08.2 ThB08.5 FrLBP-A01. 1 ThB1T1.4 FrB08.1 FrB08.1 FrB08.1 FrB05.2 FrB14.6 FrC08.4
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB08.4 FrC09.4 FrC09.4 FrC17.6 FrC08.2 FrC08.2 ThB08.5 FrLBP-A01. 1 ThB1T1.4 FrB08.1 FrB05.2 FrB01.4 FrB14.6 FrC08.4 ThC20.3
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB08.4 FrC09.4 FrC09.4 FrB10.4 FrC17.6 FrB08.2 FrB08.2 ThB08.5 ThB08.5 ThB08.5 ThB08.5 ThB08.1 FrC08.4 FrC08.4 FrC08.4 ThC20.3 ThC13.1
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrB10.4 FrB08.2 FrB08.2 FrC8.2 FrC8.2 ThB08.5 FrLBP-A01.1 1 ThA01.4 FrB08.1 FrB05.2 FrB01.4 FrB01.4 FrB04.4 FrB14.6 FrC08.4 ThC20.3 ThC13.1 ThB19.1
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrB10.4 FrB08.2 FrC17.6 FrB08.2 FrC8.2 ThB08.5 FrLBP-A01.1 1 ThA01.4 ThB1T1.4 FrB08.1 FrB05.2 FrB01.4 FrB14.6 FrC08.4 ThC20.3 ThC13.1 ThB19.1 ThB19.1 ThB10.5
Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrC09.4 FrB08.4 FrC17.6 FrB08.2 FrC8.2 FrC8.2 FrB08.5 FrLBP-A01.1 1 ThB1T1.4 FrB05.2 FrB01.4 FrB14.6 FrC08.4 ThC3.1 ThB19.1 ThB10.5 FrC06.5 FrC06.5 FrB01.5
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Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB16.1 ThB16.1 ThB08.4 FrC09.4 FrB08.4 FrC17.6 FrB08.2 FrB08.2 FrB08.2 ThB08.5 FrLBP-A01.1 1 ThB1T1.4 FrB08.1 ThB08.1 ThB05.2 FrB01.4 FrB14.6 FrB14.6 FrB14.6 FrC08.4 ThC20.3 ThC13.1 ThB19.1 ThB19.1 FrB10.5 FrC04.4 FrC01.3
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Tharinda	 ThB1T2.16 ThA01.1 ThB1T1.1 ThB1T1.7 ThB1T1.7 FrC05.1 ThB16.1 ThB08.4 FrC09.4 FrC17.6 FrB08.4 FrC08.2 FrB08.5 FrB08.5 FrLBP-A01.1 1 ThB08.5 FrB08.5 FrB08.5 FrB01.4 FrB01.4 FrB01.4 FrB01.4 FrC08.4 ThC03.1 ThC01.5 FrC06.5 FrB01.5 FrC06.5 FrC06.5 FrC06.5 FrC06.5 FrC06.5 FrC06.5 FrC07.4
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Yang, Liren Yang, Niankai Yang, Xi Jessie	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4		Zampieri, Zanelli, Ar
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2		Zampieri, Zanelli, Ar Zarringhal
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 FrB10.4 FrB01.2		Zampieri, Zanelli, Ar Zarringhal Zavlanos,
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 FrB10.4 FrB01.2 FrB01.2 FrB01.2		Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1		Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 FrB10.4 FrB01.2 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3		Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jiwei	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5		Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jiwei Yau, David	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ting
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jiwei	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ting Zeng, Wei
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jie Yau, David Yau, Stephen ST	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12 ThC12.1	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ting Zeng, Wei Zeng, Wei
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jiwei Yau, David Yau, Stephen ST. Yavrucuk, İlkay Yazdani, Kasra	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12 ThC12.1 FrB05.1 FrB12.1	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zhang, Ba
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jie Yao, Jie Yau, David Yau, Stephen ST. Yavrucuk, İlkay. Yazdani, Kasra	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThC9.3 ThC09.5 ThC09.5 ThC09.5 ThC09.5 ThC02.2 ThC12 FrB05.1 FrB12.1 FrB20.6	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemg, Ten Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zhang, Ba Zhang, Bo
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jie Yao, Jie Yao, Jiwei Yau, David Yau, Stephen ST Yavrucuk, İlkay. Yazdani, Kasra Yekkehkhany, Ali	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThC9.3 ThC09.5 ThC09.5 ThC09.5 ThC02.2 ThC12 FrB05.1 FrB12.1 FrB20.6 ThB09.4	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bo Zhang, Bo
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jie Yao, Jie Yao, Jie Yau, David Yau, Stephen ST. Yavrucuk, İlkay Yazdani, Kasra Yekkehkhany, Ali Yeung, Enoch	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5 ThC09.5 ThC02.2 ThC12 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bo Zhang, Bo
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jie Yao, Jie Yao, Jiwei Yau, David Yau, Stephen ST. Yavrucuk, İlkay Yazdani, Kasra Yekkehkhany, Ali Yeung, Enoch	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 FrB01.2 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA02.19	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zhang, Ba Zhang, Bo Zhang, Do Zhang, Fu
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yu Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jie Yao, Jiwei Yau, David Yau, David Yau, Stephen ST. Yavrucuk, İlkay. Yazdani, Kasra Yekkehkhany, Ali Yeung, Enoch	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB12.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA02.19 FrB1T1.4	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bo Zhang, Bo Zhang, Do Zhang, Fu Zhang, Fu
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jiwei Yao, Jiwei Yau, David Yau, David Yau, Stephen ST. Yavrucuk, İlkay. Yazdani, Kasra Yekkehkhany, Ali Yeung, Enoch	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA01.4 FrB1T1.4 FrB172.19	СС	Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Ba Zhang, Bo Zhang, Do Zhang, Fu Zhang, Ha
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jiwei Yao, Jiwei Yau, David Yau, David Yau, Stephen ST. Yavrucuk, İlkay. Yazdani, Kasra Yekkehkhany, Ali Yeung, Enoch	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThC9.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB20.6 FrB09.4 FrA01.4 FrA02.19 FrB17.19 FrB17.19		Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Ba Zhang, Ba Zhang, Do Zhang, Du Zhang, Fu Zhang, Ha
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jiwei Yao, Jiwei Yau, David Yau, David Yau, Stephen ST. Yavrucuk, İlkay. Yazdani, Kasra Yekkehkhany, Ali Yeung, Enoch	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThC9.5 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA01.4 FrA02.19 FrB1T1.4 FrB07 FrB07.1		Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bo Zhang, Bo Zhang, Bo Zhang, Fu Zhang, Ha Zhang, Ha
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jiwei Yao, Jiwei Yao, Jiwei Yau, David Yau, David Yau, Stephen ST Yavrucuk, Ilkay. Yazdani, Kasra Yekkehkhany, Ali Yeung, Enoch	FrB17.3 FrB20.3 FrB20.5 FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB05.1 FrB12.1 FrB09.4 FrA01.4 FrA01.4 FrA02.19 FrB1T1.4 FrB07 FrB07 FrB07.1 FrB15.4		Zampieri, Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ting Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bo Zhang, Bo Zhang, Do Zhang, Fu Zhang, Ha Zhang, Ha
Yang, Liren Yang, Niankai Yang, Xi Jessie Yang, Yi Yang, Yi Yang, Yu Yang, Zhaohui Yao, Jie Yao, Jie Yao, Jie Yao, Jiwei Yau, David Yau, David Yau, Stephen ST Yavrucuk, İlkay Yazdani, Kasra Yekkehkhany, Ali Yeung, Enoch			Zampieri, S Zanelli, Ar Zarringhal Zavlanos, Zedan, An Zegers, Fe Zemouche Zeng, Ten Zeng, Ten Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bo Zhang, Bo Zhang, Bo Zhang, Do Zhang, Fu Zhang, Ha Zhang, Ha Zhang, Jia Zhang, Jia Zhang, Jia Zhang, Jia

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ency		ThLBP-A02			
		.9		Yin, Xunyuan	
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		9		Yoon, Yongeun	ThB20.3
		FrLBP-P02.		You, Fengqi	ThA01.3
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				You, Shutang	
			С	Yu, Huan	
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				Yu, Min Gyung	
				Yu, Shuyou	
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			С	Yu, Tao	
				Yu, Xi	
			CC	Yu, Yao-Chi	
		ThB17.2		Yuan, Chengzhi	
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				Yuan, Xiangyu	
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Masaki		ThB07.6		Zaki, Ezzeldin	
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		FrC10.4 FrB10.3 FrB10.4		Zampieri, Sandro Zanelli, Andrea	FrC20.4 FrC20.5 ThB06.3 FrC06.6
		FrC10.4 FrB10.3 FrB10.4 ThC09.2		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2
		FrC10.4 FrB10.3 FrB10.4 ThC09.2		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6
		FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6
		FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1
ohui		FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M Zedan, Amr	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6
ohui		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 InC17.1 ThC15.1 ThB09.3		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M Zedan, Amr Zegers, Federico	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6
ohui		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M Zedan, Amr Zegers, Federico Zemouche, Ali Zeng, Teng	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6
ohui		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5	66	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M Zedan, Amr Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Tingting	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2
ohui d hen ST		FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC02.2	сс	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M Zedan, Amr Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Tingting Zeng, Wei	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5
ohui d 		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC09.5 ThC02.2 ThC12 ThC12.1	сс	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB02.1
ohui d hen ST İlkay		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5 ThC02.2 ThC12 ThC12.1 FrB05.1	сс	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wei	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB02.1 FrA02.3
ohui d hen ST. İlkay ćasra		Frc10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5 ThC02.2 ThC12 ThC12.1 FrB05.1 FrB12.1	сс	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng. Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wente Zhang, Baosen	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB20.5 ThB02.1 FrA02.3 FrB1T2.3
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ohui d hen ST İlkay (asra any, Ali		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4	СС	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bosen Zhang, Bo Zhang, Dong.	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB02.1 FrA02.3 FrB1T2.3 FrB01.5 ThB02.1
ohui d hen ST. İlkay. Kasra any, Ali		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4	сс	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng. Zeng, Tingting Zeng, Wei. Zeng, Weite Zhang, Bo.	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 FrB06.2 ThB20.5 ThB02.1 FrA02.3 FrB1T2.3 FrB15 ThB02.1 FrA02.1 FrA02.1 FrA02.3
ohui d hen ST. İlkay. Kasra any, Ali		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4	сс	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M Zedan, Amr Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Teng Zeng, Tingting Zeng, Wei. Zeng, Wei. Zeng, Wei. Zhang, Bosen Zhang, Bo Zhang, Dong Zhang, Fumin	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB02.1 FrA02.3 FrB1T2.3 FrB1T2.3 FrB01.5 ThB02.1 FrLBP-P01. 2
ohui d hen ST. İlkay. Kasra any, Ali Joch		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB05.1 FrB20.6 ThB09.4 FrA01.4 FrA02.19	сс	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bosen Zhang, Bo Zhang, Dong.	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB02.1 FrA02.3 FrB1T2.3 FrB1T2.3 FrB01.5 ThB02.1 FrLBP-P01. 2
ohui d hen ST. İlkay (asra any, Ali och		Frc10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5 ThC02.2 ThC12 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA02.19 FrB1T1.4	СС	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M Zedan, Amr Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Teng Zeng, Tingting Zeng, Wei. Zeng, Wei. Zeng, Wei. Zhang, Bosen Zhang, Bo Zhang, Dong Zhang, Fumin	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 FrB06.2 ThB02.1 FrA02.3 FrB01.5 ThB02.1 FrA02.3 FrB01.5 ThB02.1 FrB01.5 FrB06.2
d  hen ST. İlkay. Kasra any, Ali 		FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC09.5 ThC02.2 ThC12 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA01.4 FrB172.19	СС	Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M Zedan, Amr Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wei. Zhang, Bosen Zhang, Bo Zhang, Bo Zhang, Fumin	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB02.1 FrA02.3 FrB1T2.3 FrB1T2.3 FrB01.5 ThB02.1 FrLBP-P01. 2 FrB06.3 FrB06.4
d hen ST. likay (asra any, Ali		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA02.19 FrB1T1.4 FrB1T2.19 FrB07		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bosen Zhang, Bo Zhang, Dong. Zhang, Fumin Zhang, Hao Zhang, Haopeng.	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB02.1 FrA02.3 FrB1T2.3 FrB1T2.3 FrB01.5 ThB02.1 FrLBP-P01.2 2 FrB06.3 FrB06.4 ThC10.5
d hen ST. İlkay Kasra any, Ali		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA01.4 FrA01.4 FrB1T1.4 FrB1T2.19 FrB07 FrB07.1		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bo Zhang, Bo Zhang, Dong Zhang, Fumin Zhang, Hao	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB02.1 FrA02.3 FrB1T2.3 FrB1T2.3 FrB01.5 ThB02.1 FrLBP-P01.2 2 FrB06.3 FrB06.4 ThC10.5 FrC07.4
d hen ST. İlkay (asra any, Ali noch		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA01.4 FrA01.4 FrB112.19 FrB07 FrB07.1 FrB07.1 		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bosen Zhang, Bo Zhang, Dong Zhang, Fumin Zhang, Hao Zhang, Hao Zhang, Haopeng	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB02.1 FrA02.3 FrB1T2.3 FrB01.5 ThB02.1 FrLBP-P01. 2 FrB06.3 FrB06.4 ThC10.5 FrC07.4 ThC20.3
ohui d hen ST. İlkay (asra any, Ali loch		FrC10.4 FrB10.3 FrB10.4 FrB01.2 FrB01.2 ThC17.1 ThC15.1 ThC09.5 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA01.4 FrA01.4 FrB1T1.4 FrB1T2.19 FrB07 FrB07.1 FrB07.1 FrB15.4 FrC09.5		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zhang, Bosen Zhang, Bosen Zhang, Bosen Zhang, Fumin Zhang, Fumin Zhang, Hao Zhang, Hao Zhang, Jiachen Zhang, Jingting	FrC20.4 FrC20.5 ThB06.3 FrC06.6 ThLuT4.2 ThB14.6 ThC14.1 FrC15.6 ThC03.6 ThB06.6 FrB06.2 ThB20.5 ThB02.1 FrA02.3 FrB1T2.3 FrB1T2.3 FrB01.5 ThB02.1 FrLBP-P01. 2 FrB06.3 FrB06.4 ThC10.5 FrC07.4 ThC20.3 ThC07.2
ohui d hen ST. likay (asra any, Ali loch hony		FrC10.4 FrB10.3 FrB10.4 ThC09.2 FrB01.2 ThC17.1 ThC15.1 ThB09.3 ThC09.5 ThC02.2 ThC12.1 FrB05.1 FrB12.1 FrB12.1 FrB20.6 ThB09.4 FrA01.4 FrA01.4 FrB172.19 FrB172.19 FrB172.19 FrB07 FrB07.1 FrB15.4 FrC09.5 ThC18.1		Zampieri, Sandro Zanelli, Andrea Zarringhalam, Reza Zavlanos, Michael M. Zedan, Amr. Zegers, Federico Zemouche, Ali Zeng, Teng Zeng, Tingting Zeng, Wei Zeng, Wei Zeng, Wei Zhang, Bosen Zhang, Bo Zhang, Dong Zhang, Fumin Zhang, Hao Zhang, Hao Zhang, Haopeng	FrC20.4         FrC20.5         ThB06.3         FrC06.6         ThLuT4.2         ThB14.6         ThC14.1         FrC15.6         ThB06.3         FrB06.2         ThB02.1         FrA02.3         FrB1T2.3         FrB01.5         ThB02.1         FrB06.3         FrB06.3         FrB06.3         FrB06.4         ThC10.5         FrC07.4         ThC20.3         ThC07.2         FrB14

Zhang, Lu	FrB01 2
Zhang, Meirong	
Zhang, Mukai	FrB11.2
Zhang, Ping	
Zhang, Senlin	ThC16.5
Zhang, Shuo	FrC14 5
Zhang, Tao	
Zhang, Tianyun	FrB19.6
Zhang, Wei	FrA02 22
Zhang, Xiaojing	
Zhang, Xinwei	ThB06.4
Zhang, Xueru	FrC03.6
Zhang, Yi	
Zhang, Yichen	
	.3
Zhang, Yicheng	FrB03.2
Zhang, Yihuan	
Zhang, Yujie	ThC12.6
Zhang, Zhenyong	ThC02.2
Zhao, Changhong	
Zhao, Dezong	
Zhao, Weiye	FrB10.1
Zhao, Ye	
Zhao, Yingbo	ThC21.2
	ThC21.3
Zheng, Linfang	
Zheng, Minghui	ThB08.2
	ThB10
Zheng, Ronghao	
	ThC16.5
Zheng, Tianqi	FrB19.2
Zheng, Tianqi Zheng, Tongjia	FrB19.2 FrC16.4
Zheng, Tianqi	FrB19.2 FrC16.4
Zheng, Tianqi Zheng, Tongjia	FrB19.2 FrC16.4
Zheng, Tianqi Zheng, Tongjia Zheng, Yang	FrB19.2 FrC16.4 ThLBP-A01 .2
Zheng, Tianqi Zheng, Tongjia Zheng, Yang	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Yang	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Yang Zhou, Zejian	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Zejian Zhou, Ziyi	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Zejian Zhou, Ziyi	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Zejian Zhou, Ziyi Zhu, Guoming	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3 FrC04.2
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Zejian Zhou, Ziyi Zhu, Guoming Zhu, Lin	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 FrC18.5 FrC09.3 FrC04.2 ThC06.6
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Zejian Zhu, Ziyi Zhu, Guoming Zhu, Lin Zhu, Ling	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 FrC18.5 FrC09.3 FrC04.2 ThC06.6 FrC04.2
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Zijian Zhou, Ziji Zhu, Guoming Zhu, Lin Zhu, Ling Zhu, Minghui	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 FrC18.5 FrC09.3 FrC04.2 ThC06.6 FrC04.2 ThB01.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Zejian Zhu, Ziyi Zhu, Guoming Zhu, Lin Zhu, Ling	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 FrC18.5 FrC09.3 FrC04.2 ThC06.6 FrC04.2 ThB01.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Zijian Zhou, Ziji Zhu, Guoming Zhu, Lin Zhu, Ling Zhu, Minghui	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 FrC18.5 FrC09.3 FrC09.3 FrC04.2 ThC06.6 FrC04.2 ThB01.5 ThC02
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Fengyu Zhou, Xinyang Zhou, Xinyang Zhou, Zejian Zhou, Ziyi Zhu, Guoming Zhu, Lin Zhu, Lin Zhu, Ling Zhu, Minghui	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3 FrC04.2 FrC04.2 FrC04.2 ThB01.5 ThC02 ThC02
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Fengyu Zhou, Xinyang Zhou, Xinyang Zhou, Yang Zhou, Zejian Zhou, Zejian Zhou, Ziyi Zhu, Guoming Zhu, Lin Zhu, Lin Zhu, Ling Zhu, Minghui	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3 FrC04.2 ThC06.6 FrC04.2 ThC02 ThC02 ThC02 ThC02 ThC02 ThC02.1
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu. Zhou, Fengyu. Zhou, Xinyang. Zhou, Xinyang. Zhou, Yang Zhou, Zejian Zhou, Zejian Zhou, Ziyi. Zhu, Guoming Zhu, Lin Zhu, Lin Zhu, Minghui.	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC06.5 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3 FrC04.2 ThC06.6 FrC04.2 ThB01.5 ThC02 ThC02 ThC02 ThC02.1 ThC02.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu. Zhou, Fengyu. Zhou, Xinyang. Zhou, Xinyang. Zhou, Yang Zhou, Zejian Zhou, Zejian Zhou, Ziyi. Zhu, Guoming Zhu, Lin Zhu, Lin Zhu, Minghui.	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3 FrC04.2 ThC06.6 FrC04.2 ThC02 ThB01.5 ThC02 ThC02 ThC02.1 ThC02.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Fengyu Zhou, Xinyang Zhou, Yang Zhou, Yang Zhou, Zejian Zhou, Zejian Zhu, Guoming Zhu, Guoming Zhu, Ling Zhu, Minghui Zhu, Quanyan	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC06.5 ThC06.4 ThC06.4 FrC18.5 FrC09.3 FrC04.2 ThC06.6 FrC04.2 ThC06.6 FrC04.2 ThC02.1 ThC02.1 ThC02.5 ThB02.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Kengyu Zhou, Xinyang Zhou, Xinyang Zhou, Yang Zhou, Yang Zhou, Zejian Zhou, Zejian Zhou, Ziyi Zhu, Guoming Zhu, Lin Zhu, Lin Zhu, Ling Zhu, Minghui Zhu, Minghui Zhu, Quanyan Zhu, Shanying	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3 FrC04.2 ThB01.5 ThC02 ThC02 ThC02.1 ThC02.5 ThB02.5 ThB02.5 ThB02.5 ThB02.5 ThB02.5 ThB02.5 ThC04.4
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Kengyu Zhou, Xinyang Zhou, Yang Zhou, Yang Zhou, Zejian Zhou, Zejian Zhu, Guoming Zhu, Guoming Zhu, Lin Zhu, Lin Zhu, Ling Zhu, Minghui Zhu, Minghui Zhu, Shanying Zhu, Siyu	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3 FrC04.2 ThC02.1 ThC02 ThC02 ThC02.1 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5
Zheng, Tianqi Zheng, Tongjia Zheng, Yang Zhenirovskyy, Maksym Zhou, Fengyu Zhou, Xinyang Zhou, Xinyang Zhou, Yang Zhou, Zejian Zhou, Ziyi Zhu, Guoming Zhu, Lin Zhu, Lin Zhu, Ling Zhu, Minghui  Zhu, Quanyan Zhu, Shanying Zhu, Siyu	FrB19.2 FrC16.4 ThLBP-A01 .2 ThB05.5 ThC01.1 ThC01.2 ThC06.5 ThC06.4 ThB18.4 FrC18.5 FrC09.3 FrC04.2 ThC02.1 ThB01.5 ThC02 ThC02.1 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC02.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 ThC03.5 
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Automotive control	FrB01.5, FrB04.6, FrB10.4, FrC03.1, FrC03.2, FrC03.3, FrC03.4, FrC03.5,		WeC07.3, WeC07.4 See also Biological Systems,
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	ThC04.1, ThC04.2, ThC04.3, ThC04.5, ThC09.2, ThLBP-P01.7, WeA02.15,	Biomedical	See also Intelligent Systems FrA01.7, FrB01.4, FrB07.3, FrB08.3,
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Automotive systems	FrB03.4, FrB04.6, FrB20.4, FrC03.1,	······	FrB07.6, FrB1T1.2

	See also Biological Systems		WeC07.5, WeC08.2, WeC09.5,
Biotechnology	FrC07.3		WeC14.4, WeC18.1, WeC18.5,
Puilding and facility	See also Biological Systems		WeLBP-P01.1 See also Control Applications,
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	WeC06.6		Finance, Fluid power control,
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Cellular dynamics	FrB07.4, FrC07.6		processing, Mechanical
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<b>.</b>	See also Process Control	Control laboratories	FrB08.1, FrB08.2, ThA02.10,
Closed-loop identification	WeB12.3, WeC12.5, WeLBP-P01.7		ThB1T2.10
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	ThC11.5, WeLBP-A01.2	Control of metal processing	
Computational methods	FrA01.4, FrA01.5, FrA02.4, FrB15.3,	Control of notworks	See also Process Control
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	FrB1T1.5, FrB1T2.4, FrB20.2, FrC16.1,		ThB05.1, ThB11.2, ThC11.1, ThC16.4,
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	WeB07.4, WeB14.1, WeB14.4,	Control software	ThB14.4, WeA02.16, WeB1T2.16,
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	Control software, LMIs, Numerical algorithms	Cooperative control	FrA01.11, FrA02.6, FrA02.14, FrB03.1,
Computer-aided control	FrC16.1, ThC13.4, ThC13.5		FrB11.1, FrB1T1.11, FrB1T2.6,
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	FrC07.1, FrC08.3, FrC09.1, FrC10.3,		WeB16.4, WeB17.1, WeB17.2,
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	WeC08.4	Flight control	Systems
	See also Emerging Control Applications, Human-in-the-loop	Flight control	FrA01.10, FrA01.13, FrA01.14, FrA01.16, FrA01.17, FrA01.21,
	control, Information theory and		FrB05.1, FrB05.2, FrB1T1.10,
	control, MEMs and Nano systems,		FrB1T1.13, FrB1T1.14, FrB1T1.16, FrB1T1.17, FrB1T1.21, FrC05.2,
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	ThB11.3, ThB1T1.12, ThC02.4,		WeC13.1, WeC21.2
	ThC02.6, ThC14.2, WeA02.11,		See also Iterative learning control, Statistical learning, Machine
	WeA02.13, WeB02.1, WeB02.2, WeB02.3, WeB02.6, WeB1T2.11, WeB1T2.13, WeC01.5, WeC07.3,		learning, Pattern recognition and classification
	WeC07.4, WeC09.4, WeC12.2, WeC12.3, WeC12.4, WeC12.6,	Linear parameter-varying systems	FrB05.4, FrB17.4, ThB03.1, ThB03.2, ThB06.2, WeC01.4
	WeC13.1, WeLBP-P01.7	Linear systems	See also Linear Systems FrB05.2, FrB11.5, FrB13.2, FrB16.4,
Identification for control	FrA02.20, FrB15.1, FrB1T2.20, FrC12.6, FrLBP-P01.6, ThA01.19, ThB1T1.19, WeA02.9, WeB02.5,		FrB17.2, FrB17.3, FrB17.4, FrB17.5, FrB19.1, FrC01.3, FrC08.4, FrC12.4,
Indirect adaptive control	WeB05.2, WeB1T2.9, WeC12.5 WeC09.1 See also Adaptive Systems		FrC17.2, FrC17.3, FrC17.4, FrC17.5, FrC17.6, ThA02.2, ThB11.6, ThB1T2.2, ThC02.3, ThC09.1, ThC11.5, ThC18.4,
Information technology systems	FrC14.5, ThB17.4, ThLBP-A01.7 See also Control Applications		ThLBP-A01.2, ThLBP-A01.3, WeB13.1, WeB14.5, WeC07.1, WeC08.6,
Information theory and	FrC12.2, ThC02.5, WeC05.4		WeC14.2, WeC14.5, WeC19.6,
control	See also Emerging Control		WeLBP-A01.1, WeLBP-A01.5
<b>.</b>	Applications		See also Linear Systems,
Intelligent systems	FrA02.17, FrB01.2, FrB10.2, FrB18.4,		Behavioural systems, Linear parameter-varying systems,
	FrB1T2.17, FrC18.5, FrLBP-A01.3, ThB08.2, ThC09.6, ThC12.3, WeB01.1,		Observers for Linear systems, PID
	WeC10.1, WeC21.5		control, Predictive control for linear
	See also Intelligent Systems,		systems, Quantitative feedback
	Biologically-inspired methods,		theory, Sampled-data control,
	Evolutionary computing, Fuzzy		Stability of linear systems,
Iterative learning control	systems, Neural networks FrC01.1, FrC01.2, FrC01.3, FrC01.4,	LMIs	Time-varying systems FrA01.18, FrB13.3, FrB1T1.18,
		-	ThA01.6, ThB09.5, ThB12.1, ThB12.4,

Lyapunov methods	ThB1T1.6, ThB20.5, ThC11.4, ThC12.4, ThC14.2, ThC15.5, ThLBP-P01.2, WeB11.5, WeB13.3, WeC03.6, WeC05.6, WeC12.2 See also Computational Methods FrA01.6, FrA01.8, FrA01.10, FrA01.14, FrA01.17, FrB1T1.6, FrB1T1.8, FrB1T1.10, FrB1T1.14, FrB1T1.17, FrC08.2, FrC13.1, FrC13.2, FrC13.3, FrC13.4, FrC13.5, ThA01.1, ThA01.21, ThA02.13, ThA02.20, ThB08.3, ThB12.1, ThB14.3, ThB15.5, ThB15.6, ThB17.1, ThB19.3, ThB1T1.1, ThB1T1.21, ThB1T2.13, ThB1T2.20, ThC07.4, ThC13.6, ThC15.2, ThC15.6, ThC20.2, WeA01.10, WeA02.5, WeB07.2, WeB13.4, WeB15.1, WeB15.6, WeB18.5, WeB19.2, WeB1T1.10, WeB1T2.5, WeB20.4, WeC05.1, WeC09.5, WeC15.1, WeC15.2, WeC15.3, WeC20.2	MEMs and Nano systems Model Validation Model/Controller reduction Modeling	ThB1T2.10, ThC03.5, ThC21.2, ThLBP-P01.1, WeA01.7, WeB08.3, WeB08.4, WeB08.5, WeB1T1.7, WeC07.5, WeC08.3, WeC08.6, WeLBP-P01.3 ThC09.1, WeB08.4, WeC08.3, WeLBP-P01.5 See also Emerging Control Applications FrB09.3, FrB09.5, ThC01.6, WeB05.3, WeLBP-A01.4 FrB13.1, ThA01.7, ThB1T1.7, WeC01.1 FrA02.5, FrB01.6, FrB03.2, FrB03.5, FrB07.3, FrB08.2, FrB09.4, FrB09.5, FrB10.2, FrB13.2, FrB1T2.5, FrC02.1, FrC06.3, FrC08.2, FrC08.3, FrC12.3, FrC13.5, FrC18.4, ThB03.4, ThB05.5, ThB07.4, ThB11.3, ThB15.3, ThB20.2, ThC01.2, ThC04.4, ThC05.2, ThC05.4, ThC09.5, ThLBP-P01.5, WeA02.20, WeB02.3, WeB02.4, WeB05.1, WeB02.5, WeB02.4, WeB05.1,
Machine learning			WeB05.3, WeB05.4, WeB07.1, WeB07.4, WeB1T2.20, WeC01.4,
<b>J</b>	FrA02.13, FrA02.15, FrA02.16,		WeC03.1, WeC03.3, WeC07.1,
	FrA02.17, FrA02.18, FrA02.19, FrA02.21, FrB01.2, FrB10.1, FrB10.5, FrB13.1, FrB19.3, FrB1T1.5, FrB1T2.1, FrB1T2.3, FrB1T2.4, FrB1T2.13, FrB1T2.15, FrB1T2.16, FrB1T2.17, FrB1T2.18, FrB1T2.19, FrB1T2.21, FrB21.2, FrB21.3, ThB01.4, ThB01.5,	Multivehicle systems	WeC08.3, WeC12.3 FrC14.1, ThB04.3, ThB13.5, ThC09.6, ThC16.5, WeA01.12, WeB01.1, WeB03.1, WeB03.2, WeB03.3, WeB03.4, WeB03.5, WeB03.6, WeB04.1, WeB1T1.12, WeC16.2, WeC17.6, WeLBP-A01.2
	ThB01.6, ThB07.4, ThB09.4, ThB10.4,		N
	ThB17.6, ThB19.1, ThB19.2, ThB19.5, ThB20.4, ThC01.1, ThC01.2, ThC01.3,	Network analysis and control	FrA02.20, FrB11.1, FrB18.6, FrB1T2.20, FrC17.2, FrLBP-P01.7,
	ThC01.4, ThC01.5, ThC02.1, ThC04.5, ThC07.3, ThC09.2, WeA01.13, WeA01.16, WeA02.11, WeA02.12,		ThB08.6, ThB11.1, ThB11.2, ThB11.3, ThB11.4, ThB11.5, ThC10.2, ThC11.1, ThC11.6
	WeB01.2, WeB05.6, WeB10.1, WeB12.4, WeB14.1, WeB18.4, WeB1T1.13, WeB1T1.16, WeB1T2.11, WeB1T2.12, WeC01.1, WeC01.4, WeC01.5, WeC02.2, WeC06.5, WeC08.5, WeLBP-A01.3, WeP21.1	Networked control systems	s FrA01.3, FrB03.6, FrB11.1, FrB11.2, FrB11.3, FrB11.4, FrB11.5, FrB11.6, FrB18.2, FrB1T1.3, FrC02.4, FrLBP-P01.3, ThA01.4, ThA02.1, ThA02.6, ThB11.4, ThB11.6, ThB18.3, ThB1T1.4, ThB1T2.1, ThB1T2.6,
Manufacturing systems	See also Learning ThA01.7, ThB08.4, ThB17.5, ThB1T1.7, ThC01.5, ThC20.5, WeB05.1, WeB05.3, WeB05.4, WeB05.5, WeB05.6 See also Control Applications		ThC02.3, ThC02.5, ThC07.1, ThC10.1, ThC10.3, ThC11.1, ThC11.2, ThC11.3, ThC11.4, ThC11.5, ThC11.6, ThC14.1, ThLBP-A01.3, WeA01.1, WeA01.11, WeB06.2, WeB08.5, WeB13.2, WeB16.4, WeB17.3, WeB1T1.1,
Maritime control Markov processes	FrB04.2, FrC10.5, ThC09.3 FrA02.9, FrB1T2.9, FrC06.5, ThB10.3, ThB18.1, ThB18.2, ThB18.4, ThC10.6,		WeB1T1.11, WeB20.3, WeC05.4, WeC05.5, WeC11.2, WeC14.1, WeC16.3, WeLBP-A01.1,
	ThLBP-A01.6, WeB06.3, WeB19.6, WeC01.1, WeC01.2, WeC01.3, WeC03.2, WeC05.3, WeC19.3	Neural networks	WeLBP-A01.2, WeP11.1 FrB01.2, FrB01.5, FrB12.5, FrB21.1, FrB21.2, FrC06.1, ThB05.5, ThB09.3,
Mean field games	See also Stochastic Systems FrC18.5, FrC18.6, WeB01.4, WeC19.1 See also Stochastic Systems		ThB09.4, ThB11.5, ThB12.2, ThB12.3, ThC01.5, ThC07.2, ThC17.5, WeB09.6, WeC15.5, WeLBP-A01.4
Mechanical	FrA01.7, FrB1T1.7, FrC01.1, FrC08.1,		See also Intelligent Systems
systems/robotics	FrC08.2, FrC08.3, FrC08.4, FrC08.6, FrC10.3, FrC13.2, FrC14.5, FrLBP-A01.2, ThA02.4, ThA02.5, ThA02.9, ThA02.10, ThA02.11, ThA02.12, ThA02.21, ThB08.3, ThB08.4, ThB08.5, ThB1T2.4,	Nonholonomic systems	FrB09.1, FrC15.1, FrC15.2, FrC15.3, FrC15.4, FrC15.5, FrC15.6, ThA01.20, ThA02.13, ThB1T1.20, ThB1T2.13, WeA01.12, WeB1T1.12, WeC04.6, WeC16.2, WeC16.5, WeC17.6, WeC18.3, WeLBP-A01.7
	ThB1T2.5, ThB1T2.9, ThB1T2.10, ThB1T2.11, ThB1T2.12, ThB1T2.21, ThLBP-A01.1, ThLBP-P01.1, WeB18.3, WeC08.1 See also Control Applications	Nonlinear output feedback	FrA01.1, FrB1T1.1, ThA01.5, ThB15.1, ThB15.2, ThB15.3, ThB15.4, ThB15.5, ThB15.6, ThB1T1.5, ThLBP-P01.1, WeA02.3, WeB17.5, WeB1T2.3, WeC09.1, WeC10.2, WeC10.3
Mechatronics	See also Control Applications FrB08.1, FrB08.2, FrB08.3, FrB08.4, FrB08.5, FrB08.6, FrLBP-P01.5, ThA02.10, ThB03.3, ThB07.5, ThB13.1,	Nonlinear systems identification	FrB15.3, FrB15.4, FrB15.5, FrB15.2, FrB15.3, FrB15.4, FrB15.5, FrB172.1, FrB172.7, FrC14.2, FrLBP-P01.6, ThB05.1, ThB07.6, WeB02.5,

Numerical algorithms	WeB07.1, WeLBP-P01.6 FrB05.6, FrB17.2, FrC07.4,		WeB1T1.16, WeB1T1.18, WeB1T1.21, WeB20.6, WeC04.5, WeC06.1,
Numerical algorithms	FrLBP-P01.4, ThB09.1, ThB19.1,		WeC06.2, WeC06.6, WeC10.5,
	ThB19.6, ThC12.6, ThC14.5, ThC19.2, WeA01.8, WeA01.18, WeA02.10,		WeC11.6, WeC21.1, WeLBP-P01.4 See also H-infinity control, Optimal
	WeB15.3, WeB1T1.8, WeB1T1.18,		control, Optimization algorithms,
	WeB1T2.10, WeC20.3, WeC20.5		Variational methods
	See also Computational Methods O	Optimization algorithms	FrA02.15, FrA02.19, FrB11.3, FrB19.4, FrB19.6, FrB1T2.15, FrB1T2.19,
Observers for Linear	FrB11.2, FrB13.6, FrB14.2, FrB16.3,		FrC09.3, FrC12.6, FrC18.1,
systems	FrC08.4, FrC17.3, ThC05.1, ThC05.6, ThC12.4, ThC15.3, WeC11.2		FrLBP-A01.4, FrLBP-P01.2, ThA01.19, ThB02.5, ThB03.5, ThB16.1, ThB19.1,
	See also Linear Systems		ThB19.2, ThB19.3, ThB19.4, ThB19.5,
Observers for nonlinear	FrB15.5, FrC04.3, FrC13.2, FrC14.6,		ThB19.6, ThB1T1.19, ThB20.4,
systems	ThB02.1, ThB12.6, ThC03.6, ThC07.4, ThC15.1, ThC15.2, ThC15.3, ThC15.4,		ThC04.2, ThC06.3, ThC19.1, ThC19.2, ThC19.3, ThC19.4, ThC19.5, ThC19.6,
	ThC15.5, ThC15.6, WeB08.3,		ThLBP-A01.4, ThLBP-P01.6, WeA01.4,
	WeC02.4, WeC08.1, WeC10.3, WeC17.1		WeA01.9, WeA01.10, WeA01.13, WeA01.14, WeA01.15, WeA01.16,
Optimal control	FrA02.8, FrA02.22, FrB02.2, FrB03.1,		WeA01.17, WeA01.18, WeA01.19,
	FrB04.6, FrB05.3, FrB09.1, FrB10.3,		WeA01.20, WeA01.21, WeA01.22,
	FrB14.5, FrB16.4, FrB16.5, FrB16.6, FrB18.5, FrB1T2.8, FrB1T2.22,		WeA02.6, WeA02.17, WeB01.3, WeB13.4, WeB1T1.4, WeB1T1.9,
	FrC02.1, FrC04.6, FrC06.6, FrC07.5,		WeB1T1.10, WeB1T1.13, WeB1T1.14,
	FrC09.3, FrC10.2, FrC10.4, FrC12.4,		WeB1T1.15, WeB1T1.16, WeB1T1.17, WeB1T1.18, WeB1T1.19, WeB1T1.20,
	FrC15.1, FrC16.3, FrC20.3, FrC20.6, FrLBP-A01.4, ThA01.2, ThA01.12,		WeB1T1.21, WeB1T1.22, WeB1T2.6,
	ThA02.9, ThB01.1, ThB02.4, ThB04.1,		WeB1T2.17, WeC01.3, WeC05.6,
	ThB04.4, ThB15.6, ThB17.3, ThB18.5, ThB18.6, ThB1T1.2, ThB1T1.12,		WeC11.4, WeC15.2, WeC19.2 See also Optimization
	ThB1T2.9, ThC01.1, ThC02.6,	Output regulation	FrB08.4, ThB07.1, ThB14.3, ThB15.4,
	ThC04.1, ThC04.2, ThC04.3, ThC04.6,		WeA01.8, WeB1T1.8
	ThC08.1, ThC08.2, ThC08.3, ThC09.4, ThC14.5, ThC17.5, ThC18.1,	Pattern recognition and	<b>P</b> FrA02.16, FrB12.5, FrB1T2.16,
	ThLBP-A01.1, ThLBP-P01.2, WeA01.2,	classification	ThB04.2, ThC12.3, ThC19.4, WeC08.5
	WeA01.3, WeA01.4, WeA01.5, WeA01.6, WeA01.7, WeA01.8,	Petri nets	See also Learning ThC20.5
	WeA01.9, WeA01.12, WeA02.17,	Fellinels	See also Discrete Event Systems
	WeA02.20, WeB01.1, WeB04.1,	PID control	FrA01.16, FrB1T1.16, FrC17.4,
	WeB04.3, WeB08.2, WeB10.4, WeB13.3, WeB13.5, WeB14.1,		ThA02.5, ThB1T2.5, ThC17.6, ThC20.6, WeC17.2
	WeB14.2, WeB16.1, WeB19.1,		See also Linear Systems
	WeB19.2, WeB19.3, WeB19.4, WeB19.5, WeB19.6, WeB1T1.2,	Power systems	FrB04.3, FrB04.5, FrB06.3, FrB06.5,
	WeB1T1.3, WeB1T1.4, WeB1T1.5,		FrC06.3, FrC06.4, FrC06.5, FrC06.6, ThB06.5, ThB13.2, ThC02.2, ThC02.4,
	WeB1T1.6, WeB1T1.7, WeB1T1.8, WeB1T1.9, WeB1T1.12, WeB1T2.17,		ThC02.6, ThC06.2, ThC06.3, ThC06.4,
	WeB1T2.20, WeB20.2, WeC01.6,		ThC06.5, ThC06.6, ThC09.4, ThLBP-P01.3, WeA02.4, WeB06.4,
	WeC03.4, WeC05.4, WeC13.2,		WeB06.5, WeB17.5, WeB1T2.4,
	WeC16.6, WeC19.1, WeC19.2, WeC19.3, WeC19.4, WeC19.5,		WeB20.5, WeC06.1, WeC06.3, WeC06.4
	WeC19.6, WeLBP-A01.5,	Predictive control for linear	FrB04.1, FrB04.3, FrC05.1, ThA01.6,
	WeLBP-A01.6, WeLBP-P01.4 See also Optimization	systems	ThA01.7, ThA01.8, ThA01.9, ThA01.10,
Optimization	FrA02.18, FrB03.2, FrB04.1, FrB05.6,		ThA01.13, ThB07.1, ThB07.2, ThB07.3, ThB07.6, ThB17.2, ThB1T1.6,
	FrB06.2, FrB07.1, FrB09.4, FrB10.6,		ThB1T1.7, ThB1T1.8, ThB1T1.9,
	FrB15.5, FrB16.5, FrB18.6, FrB19.1, FrB19.2, FrB19.3, FrB19.4, FrB19.5,		ThB1T1.10, ThB1T1.13, ThB20.5, WeC04.3, WeC09.2, WeC20.1
	FrB19.6, FrB1T2.18, FrB20.2, FrC01.3,		See also Linear Systems
	FrC02.3, FrC03.1, FrC04.2, FrC09.1, FrLBP-P01.7, ThA01.17, ThA02.19,	Predictive control for	FrB08.4, FrC03.5, FrC03.6, ThA01.4,
	ThB01.2, ThB02.6, ThB03.4, ThB04.6,	nonlinear systems	ThA01.5, ThA01.11, ThA01.12, ThA01.14, ThA01.15, ThA01.18,
	ThB06.6, ThB19.4, ThB19.5, ThB19.6,		ThA01.19, ThA01.20, ThA01.21,
	ThB1T1.17, ThB1T2.19, ThC01.2, ThC01.3, ThC01.6, ThC03.1, ThC03.3,		ThA01.22, ThB02.3, ThB04.6, ThB07.4, ThB07.5, ThB07.6, ThB17.1, ThB1T1.4,
	ThC04.6, ThC06.1, ThC06.2, ThC06.4,		ThB1T1.5, ThB1T1.11, ThB1T1.12,
	ThC06.5, ThC09.5, ThC17.1, ThC17.2, ThLBP-A01.4, ThLBP-A01.5, WeA01.1,		ThB1T1.14, ThB1T1.15, ThB1T1.18,
	WeA01.10, WeA01.11, WeA01.13,		ThB1T1.19, ThB1T1.20, ThB1T1.21, ThB1T1.22, ThC04.4, ThC08.2,
	WeA01.16, WeA01.18, WeA01.21, WeB01.2, WeB02.1, WeB02.6,		ThC08.4, ThC19.5, ThLBP-P01.6,
	WeB01.2, WeB02.1, WeB02.6, WeB03.2, WeB07.6, WeB15.2,		WeA02.10, WeB05.1, WeB07.5, WeB1T2.10, WeC01.6, WeC02.6,
	WeB17.4, WeB19.3, WeB1T1.1,		WeC04.1, WeC04.2
	WeB1T1.10, WeB1T1.11, WeB1T1.13,		

Process Control	ThA01.3, ThA01.9, ThA01.15, ThA01.16, ThA01.17, ThB15.1,		WeC21.2 See also Uncertain Systems
	ThB17.2, ThB17.3, ThB17.4, ThB17.5, ThB1T1.3, ThB1T1.9, ThB1T1.15, ThB1T1.16, ThB1T1.17, ThC01.3, ThC14.1, ThC14.6, ThC17.2, ThC17.3, ThC17.4, ThC17.6, WeA01.3, WicD15, WicD17.4,	Sampled-data control	<b>S</b> FrA01.20, FrB11.4, FrB1T1.20, FrC04.1, ThC14.3, ThC17.3, ThC20.6, WeC09.2, WeC15.5, WeC17.1, WeC17.3, WeC19.6, WeLBP-P01.2
	WeB12.5, WeB1T1.3 See also Chemical process control, Control of metal processing, Mineral process control, Pulp and Paper Control	Sensor fusion	See also Linear Systems FrC14.1, FrC14.3, FrC14.4, FrC14.5, FrC14.6, ThB12.4, ThB19.2, ThC01.4, WeA02.16, WeB04.4, WeB12.2, WeB1T2.16
Pulp and Paper Control	FrB09.5, ThB17.6 See also Process Control Q	Sensor networks	See also Control Applications FrC14.2, FrC16.5, ThB12.3, ThC16.2, ThC19.3, ThC19.6, ThLBP-A01.3,
Quantum information and control	FrB09.3 See also Emerging Control Applications	Simulation	WeB11.6, WeC11.4 FrB02.1, FrB02.4, FrB03.5, FrB09.3, FrB09.4, FrB13.4, FrC02.5, ThA01.2,
Queueing systems	FrC09.4 See also Discrete Event Systems		ThB02.2, ThB12.5, ThB1T1.2, ThC09.5, ThLBP-P01.5, WeB10.5, WeC03.1, WeC03.3, WeLBP-A01.7,
Randomized algorithms	R FrC01.4, ThB13.4, ThC17.1, WeA02.12, WeB1T2.12, WeC05.3 See also Uncertain Systems	Smart grid	WeLBP-P01.1, WeLBP-P01.3 FrB06.3, FrC06.6, FrLBP-P01.3, ThB02.5, ThB05.1, ThB06.2, ThB06.3,
Reduced order modeling	FrB14.6, FrC12.6, FrC17.6, ThB02.2, ThB05.6, ThC15.1, ThLBP-P01.5, WeB05.2		ThB06.4, ThB06.5, ThB06.6, ThC02.2, ThC06.1, ThC06.3, ThC06.4, WeA02.1, WeA02.2, WeA02.3, WeA02.4, WeA02.5, WeA02.6, WeA02.14,
Robotics	FrA01.1, FrA01.16, FrA01.19, FrA02.2, FrA02.7, FrB12.6, FrB1T1.1, FrB1T1.16, FrB1T1.19, FrB1T2.2, FrB1T2.7, FrC01.5, FrC09.3, FrC10.2, FrC10.3, FrC10.6, FrC15.2, FrC15.3, FrC15.5, FrC16.4, FrC16.6, FrC20.2,		WeB06.1, WeB06.2, WeB06.3, WeB06.4, WeB06.5, WeB06.6, WeB1T2.1, WeB1T2.2, WeB1T2.3, WeB1T2.4, WeB1T2.5, WeB1T2.6, WeB1T2.14, WeC06.3, WeC06.6, WeC21.1
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