EMI/PMC 2024

Engineering Mechanics Institute Conference and
Probabilistic Mechanics & Reliability Conference

University of Illinois Urbana-Champaign

Chicago, Illinois | May 28-31, 2024

Schedule-at-a-Glance

	Tuesday, May 28	Wednesday, May 29	Thursday, May 30	Friday, May 31
7:45 am - 8:00 am		Opening Remarks		
8:00 am - 9:00 am		**Keynote 1** Ross B. Corotis	**Keynote 3** Anne S. Kiremidjian	**Keynote 5** Jamie E. Padgett
9:00 am - 10:30 am		Session 1	Session 5	Session 9
10:30 am - 10:50 am		Break	Break	Break
10:50 am - 12:20 pm	Board of Governors Meeting (10:00 am - 2:00 pm)	Session 2	Session 6	Session 10
12:20 pm - 1:20 pm		Lunch	Lunch	
1:20 pm - 2:20 pm	Board of Governors and Committee Chair Meeting (2:00 - 3:00 pm)	**Keynote 2** Oral Buyukozturk	**Keynote 4** Julio M. Ottino	
2:20 pm - 3:50 pm		Session 3	Session 7	
3:50 pm - 4:10 pm	Committee Meetings (open to all attendees) (3:00 - 6:00 pm)	Break	Break	
4:10 pm - 6:00 pm		Session 4	Session 8	
6:00 pm - 9:00 pm	Welcome Reception (6:00 - 8:00 pm)	CMC Poster Competition (6:00 - 7:30 pm)	Drinks and Banquet (6:30 - 9:00 pm)	

Company Showcase & Student Engagement

Company Showcase & Student Engagement

Company Showcase & Student Engagement

NSF Talk

Student Awards

Registration

Welcome Message from the EMI President

Arif Masud, Ph.D., F.EMI, M.ASCE
University of Illinois Urbana-Champaign
EMI President (2024-Present)

Greetings everyone!

It is my pleasure to welcome you to Chicago and to the joint Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference (EMI/PMC 2024). This conference is hosted by the University of Illinois and the Engineering Mechanics Institute of ASCE. We are also excited about the upcoming EMI-IC 2024 in Vienna, Austria, which symbolizes our worldwide reach and influence. These EMI conferences are premier venues for showcasing the latest research and innovation in the broad field of engineering mechanics and probabilistic methods, bringing together top researchers and practitioners in academia, government, and industry from around the world.

A highlight of EMI/PMC 2024 is the plenary talks delivered by our distinguished plenary speakers on topics of great significance and importance. The conference will feature several networking events including the Career Path Panel for students and post-docs, a discussion panel focusing on Women in Engineering that offers an opportunity to connect with women leaders within our EMI community, and a workshop on Industry Challenges in Engineering Mechanics that discusses current and future market-need-oriented technical challenges and research opportunities. I take this opportunity to thank the organizers of these events as well as the participants and speakers who will share their wisdom and experience with the community.

This conference will facilitate catalyzing new interactions in our multi- and cross-disciplinary community to address the core issues of our changing world's needs. It will also aim at promoting stimulating discussions to generate new insights on how EMI platform can help reshape the trajectory of the interdisciplinary field of mechanics in our academic institutions.

The Engineering Mechanics Institute benefits from its strong base and a vibrant community. Nearly 21% of the members of EMI are actively engaged in various technical committees, and attendance at the annual conferences consistently remains robust and strong. EMI - 2023 that was hosted by Georgia Tech had 810 registered participants, while the EMI International Conference that was held in August 2023 in Palermo, Italy, saw 276 participants. Nearly 25% of EMI membership resides outside of the USA, and typically 16% of conference participants are from outside the US. The future prospects of any organization are vested in its younger members. As a leading institute within ASCE, EMI enjoys a significant presence of early-career members (aged 40 years or younger), that constitute nearly 40% of its membership base. Likewise, the quality and impact of the Journal of Engineering Mechanics has continued to grow under the outstanding leadership of Professor Franz Ulm. The impact factor of the journal has now grown to 3.3. At EMI, we have also embarked on developing a strategic plan for the next decade, in line with ASCE's six strategic directions: innovate, advocate, inspire, stimulate, magnify, and deliver.

I thank Professor Paolo Gardoni and the University of Illinois team, Verna Jameson and Tisha Kramer at EMI, and Bethany Roicki and Ruth Hengst for their outstanding services in organizing EMI/PMC 2024. I also extend my gratitude to all the organizers of the minisymposia and the judges of the student poster competition event for their remarkable dedication and hard work. We are expecting an engaging and fruitful conference, and I am confident that we will all experience a rewarding and enjoyable week ahead.

Warm Regards,
Arif Masud

Special Events

- **Grand Ballroom:** Opening remarks and keynote lectures
- **RL** - *Red Lacquer*; **CR** – *Chicago Room*

Tuesday May 28, 2024

18:00 – 20:00 Welcome Reception, *RL*

Wednesday May 29, 2024

7:45 – 8:00 Opening remarks, *Grand Ballroom*

8:00 – 9:00 Keynote 1: Ross Barry Corotis, *Grand Ballroom*

9:00 – 12:20 Company Showcase and Student Engagement, *RL*

12:20 – 13:20 Let's Talk - A Division Director's Take on Directions and Where CMMI Fits In, *CR*

13:20 – 14:20 Keynote 2: Oral Buyukozturk, *Grand Ballroom*

14:20 – 18:00 Company Showcase and Student Engagement, *RL*

18:00 – 19:30 CMC Poster Competition, *RL*

Thursday May 30, 2024

8:00 – 9:00 Keynote 3: Anne S. Kiremidijan, *Grand Ballroom*

9:00 – 12:00 Company Showcase and Student Engagement, *RL*

12:20 – 13:20 Student Awards, *Grand Ballroom*

13:20 – 14:20 Keynote 4: Julio M. Ottino, *Grand Ballroom*

14:20 – 18:00 Company Showcase and Student Engagement, *RL*

18:30 – 21:00 Drinks and Banquet, *Grand Ballroom*

Friday May 31, 2024

8:00 – 9:00 Keynote 5: Jamie E. Padgett, *Grand Ballroom*

10:50 – 12:20 Career Path Panel, *LaSalle 3*

10:50 – 12:20 Panel for Women in Engineering, *LaSalle 2*

10:50 – 12:20 Industry Challenges in Engineering Mechanics, *LaSalle 1*

EMI Technical Committee Meetings and Student Competitions

Tuesday May 28, 2024

10:00 – 14:00 EMI Board of Governors Meeting, *Salon 12*

14:00 – 15:00 Board of Governors and Committee Chair Meeting, *Salon 12*

15:00 – 16:00 Properties of Materials, *Salon 5*

15:00 – 16:00 Objective Resilience Committee, *Salon 7*

15:00 – 16:00 Dynamics, *Spire Parlor*

15:00 – 17:00 Mechanics of Pavements Committee, *Salon 6*

16:00 – 17:00 Fluid Dynamics, *Hancock Parlor*

16:00 – 17:00 Poromechanics, *Salon 9*

16:00 – 17:00 Biomechanics, *Salon 8*

16:00 – 17:00 Stability, *Salon 4*

16:00 – 17:00 Elasticity, *Price Room*

16:00 – 17:00 Granular Materials, *Buckingham Room*

16:00 – 18:00 Structural Health Monitoring and Control (Meeting and Competition), *Salon 12*

17:00 – 18:00 Modeling Inelasticity and Multiscale Behavior, *Salon 1*

17:00 – 18:00 Computational Mechanics Committee (CMC), *Salon 2*

17:00 – 18:00 Diversity and Mentoring, *Salon 10*

17:00 – 18:00 Probabilistic Methods Committee (PMC), *Wilson Room*

Wednesday May 29, 2024

12:20 – 13:20 Architected Materials, *Salon 1*

12:20 – 13:20 Machine Learning in Mechanics, *Salon 5*

12:20 – 13:20 Experimental Analysis & Instrumentation, *Salon 4*

12:20 – 13:20 Nanomechanics and Micromechanics, *Salon 8*

12:20 – 13:20 Education, *Salon 9*

12:20 – 13:20 JEM, *Salon 10*

12:20 – 13:20 Modeling Inelasticity and Multiscale Behavior (Competition), *Salon 6*

12:20 – 13:20 Probabilistic Methods Committee (Competition), *Wilson Room*

12:20 – 13:20 Objective Resilience Committee (Competition), *Price Room*

12:20 – 13:20 Poromechanics (Competition), *Salon 7*

12:20 – 13:20 Elasticity (Competition), *Buckingham Room*

12:20 – 13:20 Dynamics (Competition), *Salon 2*

18:00 – 19:30 CMC Poster Competition, *Red Lacquer*

- All committee events are committee meeting by default. Student competitions are noted in parentheses.

FAQs

How do I connect to the WiFi?
Select “Hilton Honors Meeting” as your network, launch your browser, when prompted type “UEG” in as your promotional code, click connect.

Speaker Preparation
We strongly advise you to go to the room where your presentation will be ahead of time and test your talk on the equipment provided there. You are responsible for all adapters and cables needed to connect your laptop to the appropriate projector.

Mobile app instructions
Download the Eventsforce app on your mobile phone or tablet and search for EMI. Log into the app with the email address associated with your registration.

Lost and Found
A lost and found for the conference is located at the registration desk.

Security
We strongly urge you to take your belongings with you when leaving the technical session rooms.

Meals
Lunches will be provided Wednesday and Thursday in the Exhibit Hall.

Breaks
Breaks will take place in the Exhibit Hall.

EMI/PMC 2024

Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference

Chicago, Illinois, USA
May 28 – 31, 2024

ORGANIZED BY

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

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Arif Masud

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2024 SOCIETY / EMI AWARD RECIPIENTS

The Executive Committee of the ASCE Board of Direction approved the list of recipients of several prestigious 2024 Society awards administered by the Engineering Mechanics Institute.

Congratulations to the Award Winners!

Zdenek P. Bazant Medal for Failure and Damage Prevention

Vikram S. Deshpande, Ph.D., for his pioneering contributions to damage and failure prevention of metal alloys, lattice-cored sandwich structures, and micro-architected materials across length scales.

EMI Leonardo da Vinci Award

Xiaojia Shelly Zhang, Ph.D. A.M.ASCE, M. EMI, for important contributions to novel multi-physics topology optimization methods and fabrication strategies for highly multi-functional structures with programmable behaviors, and for translating practice.

Alfred M. Freudenthal Medal

George Deodatis, Ph.D., F.EMI, Dist.M.ASCE, for excellence in developing probabilistic methods in civil engineering and engineering mechanics, emphasizing simulation of stochastic processes and fields to model loads and system properties, and on quantifying the effect of input and system uncertainties on the random system response.

George W. Housner Structural Control and Monitoring Medal

Jerome P. Lynch, Ph.D., F.EMI, M.ASCE, for advances in wireless sensing and information systems for intelligent infrastructure including wireless sensor networks, distributed computing, and cyber-physical systems to perform structural health assessment with applications to real-world civil engineered structures.

Raymond D. Mindlin Medal

Jiun-Shyan (J.S.) Chen, Ph.D., F.EMI, M.ASCE., for seminal contributions to the development of advanced finite element and meshfree methods and their applications to a wide range of applied mechanics problems and solids and structures under extreme conditions.

2024 Robert H. Scanlan Medal

Xinzhong Chen, Ph.D., for advancing the field of aerodynamics of buildings and bridges through development of analysis, modeling, and simulation approaches

Theodore von Karman Medal

George Z. Voyiadjis, D.Eng., F.EMI, Dist.M.ASCE, for outstanding achievements in macro/micro-material characterization of damage and plasticity in solid mechanics, pioneering contributions in multi-scale modeling and localization problems, and national and international leadership and service to solid mechanics.

Walter L. Huber Civil Engineering Research Prizes

Ioannis Kougioumtzoglou, Ph.D., C.Eng, M.ASCE for seminal contributions to the field of stochastic engineering dynamics, and for pioneering Wiener path integral methods for determining the response of diverse nonlinear systems/structures subjected to a variety of stochastic excitations.

Hae Young Noh, Ph.D., A.M.ASCE for *the structures as sensors* concept to enable user- and environmental-aware physical structures via analysis of structural vibrations. This paradigm shift in sensing facilitates easy-to-deploy platforms that learn from the analysis of what would otherwise be noise.

Walter L. Huber Civil Engineering Research Prize 2022

Steve WaiChing Sun, Ph.D., M.ASCE, for his fundamental contributions to computational and data-driven poromechanics.

EMI FELLOWS CLASS OF 2024

James K. Guest, Ph.D., F.EMI, A.M.ASCE
Professor, Department of Civil and Systems Engineering, Johns Hopkins University

Kalpana Katti, Ph.D., F.EMI, M.ASCE Professor, Department of Civil Construction and Environmental Engineering, North Dakota State University

Junho Song, Ph.D., F.EMI, M.ASCE
Professor, Department of Civil and Environmental Engineering; Dean, School of Transdisciplinary Innovations Seoul National University

R. Panneer Selvam, Ph.D., P.E., F.EMI, F.ASCE
Professor, Department of Civil Engineering, University of Arkansas

Keynote 1

Engineering risk analysis and decision for communities facing natural hazards: a talk in four+ parts

Ross Barry Corotis, Ph.D. P.E., S.E., NAE, F.EMI, F.SEI, Dist.M.ASCE, Denver Business Challenge Professore Emeritus, College of Engineering and Applied Science Dean Emeritus, University of Colorado at Boulder

8:00 – 9:00, Wednesday May 29, 2024

Abstract The cost of natural disasters continues to rise around the world, in part because of population growth, urbanization and the pressures they place on land use, and in part because policy makers continue to undervalue natural hazard risk in long-term planning. Yet these hazards are critical to community sustainability, and fundamental to the concept of resilience. The shortcoming in reducing the vulnerability of infrastructure lies partly with engineers and risk professionals, who must be aware of public perceptions of risk and political process rationality, which present inherent incompatibilities. Engineers need to know which measures of risk are most meaningful or relevant to decision makers, and then be able to communicate those risks, and the costs and benefits of mitigation, in concise, credible and meaningful terms. This seminar will discuss four related aspects: approximate reliability methods for community-wide resilience, issues of risk perception, practical rationality of elected officials, and the role for generalized information theory as an alternative to probability.

Biosketch Ross B. Corotis, NAE, is Professor of Engineering Emeritus at the University of Colorado in Boulder. He researches the coordinated roles of engineering and social science in framing and communicating long-term hazard risks and resiliency for the built environment. With three degrees from MIT, he was on the faculty at Northwestern University, established the Department of Civil Engineering at The Johns Hopkins University, and was Dean of Engineering at CU. He has chaired committees on structural safety for ASCE and ACI and the Executive Committee of IASSAR, served as science advisor for the Department of State in Washington, DC., and was Editor of the journals Structural Safety and ASCE Journal of Engineering Mechanics. For The National Academies he served on the Building Research Board, the Disasters Roundtable, the Board on Infrastructure and the Constructed Environment, chaired the Laboratory Assessment Board, was founding chair of the Committee on NIST Technical Programs, and was Chair of the Civil Engineering Section of the NAE. He is a registered professional engineer and structural engineer, Distinguished Member of ASCE, Fellow of the Structural Engineering and Engineering Mechanics Institutes, recipient of the ASCE Huber, Shinozuka and OPAL Awards, and author of more than 250 publications

Keynote 2

Development of resilient and durable construction materials through a robust multiscale mechanistic concept

Oral Buyukozturk, PhD, F. ASCE, F. EMI, F. ACI, F. RSE, Massachusetts Institute of Technology (MIT)

13:20 – 14:20, Wednesday May 29, 2024
Grand Ballroom

Abstract In recent years, developing resilient and durable construction materials for sustainable solutions has become an important engineering field in view of climate change challenges and the need for extending the service life of buildings and infrastructures. In that respect concrete has emerged as the main construction material considering its cost, its flexibility in material design with additives, and its durability and fire performance. However, concrete is a complex material containing various chemical phases introducing challenges in its design as a composite system containing interfaces between these phases as well as interfaces between various embedded components in the system. Classical concrete mechanics may have limitations in meeting these design challenges. In this presentation, we will describe a multiscale approach involving atomistic and molecular dynamics simulations for predicting resiliency of cementitious materials that includes cohesive-frictional interactions between various phases. The approach allows material design for sustainability and durability for cementitious materials with additives. The developed methodology would facilitate appropriate mixture designs that would fit the 3D printing purposes from a fundamental viewpoint for automated construction applications with additives. Additionally, the moisture and temperature related durability simulations will be presented for multi-component systems of fiber reinforced polymer (FRP)/concrete composites, and glass FRP rebars as a replacement of conventional reinforcement in concrete to avoid corrosion problems in infrastructure applications.

Biosketch Dr. Oral Buyukozturk is George Macomber Professor, Professor of Civil and Environmental Engineering, and Director of the Laboratory for Infrastructure Science and Sustainability at the Massachusetts Institute of Technology (MIT). His research focuses on safety, sustainability and intelligence of buildings and physical infrastructure. He has made seminal contributions to this field with three interconnected major thrust areas of multiscale mechanics of concrete materials and structures, design of sustainable cement-based construction materials, and infrastructure sensing and novel vision-based monitoring through data analytics and AI in engineering mechanics. He has published more than 430 refereed journal papers and proceedings and supervised/co-authored 14 patents in his field. He has made more than 230 plenary keynote/invited lectures and served the profession through professional societies in different capacities with numerous technical committees, distinctive consulting, services to governments, major conference organization and scientific committee memberships. His work has been recognized through multiple honors and awards including Elected Fellow of the Scotland's National Academy of Science and Letters; the George W. Housner Structural Control and Monitoring Medal (ASCE-EMI); the Golden Mirko Roš Medal of the Swiss Federal Research Laboratory for Materials Science and Technology (EMPA); the Distinguished Service and Leadership Award (MIT-CEE), ASNT faculty fellowship awards, and Elected Fellows of ASCE, EMI, and ACI.

Keynote 3

Structural health monitoring: from sensing to decision support

Anne S Kiremidjian, Ph.D., NAE, Dist.M.ASCE,
Stanford University

8:00 – 9:00, Thursday May 30, 2024
Grand Ballroom

Abstract A comprehensive structural health monitoring system consists of a set of sensors, a wireless communications module, damage diagnosis and prognosis module and information delivery module. Each of these components require to work in a reliable and efficient manner. The system needs to be scalable and easily upgradable. In this presentation, the components of a comprehensive wireless structural health monitoring system will be presented discussing recent developments for each component. While sensors, wireless communications and computational capabilities have significantly advanced reaching a widespread level of acceptance, challenges remain with damage diagnosis and prognosis algorithms. Similarly, robust decision support systems that are versatile and can manage the system while delivering useful information to users are still lacking. The challenges with damage diagnosis and prognosis, and decision support systems will be presented. Impediments to widespread implementation of such systems in practice will be briefly discussed.

Biosketch Anne Kiremidjian is the C. L. Peck, Class of 1906 Professor in the School of Engineering at Stanford University where she teaches and conducts research on earthquake hazard, risk, and resilience modeling, and structural health monitoring for extreme events. She and her students have developed some of the first seismic hazard maps for California and all countries in Central America except Mexico, time-dependent earthquake occurrence models, dynamics based analytical fragility functions for buildings, and time-dependent fragility functions for deteriorating structures. In 1985 together with her students and faculty from electrical and mechanical engineering, she developed the first wireless accelerometer and the overall concept of wireless structural health monitoring for which Stanford holds a patent. Her research is published in more than 350 articles. She was the director of the John. A. Blume Earthquake Engineering Center at Stanford and has served on numerous committees and boards at Stanford, various university consortia and national and international organizations. She was a co-founder of two technology companies – K2 Technologies, Inc. and Sensametrics, Inc. She has given more than 40 invited, keynote and distinguished lectures. Dr. Kiremidjian has been recognized with the Extraordinary Achievement Award in Loss Estimation from Applied Technology Council, the C. Martin Duke Award from the American Society of Civil Engineers, the John Fritz Medal (one of the highest honors across all of engineering) from the American Association of Engineering Societies, the Lifetime Achievement Award in Structural Health Monitoring, and the Egleston Medal from Columbia University. In September of 2024 she will be awarded an Honorary Doctorate from Aarhus University in Denmark. She is a member of the National Academy of Engineering, Distinguished Member of the American Society of Civil Engineers, and Honorary Member of the Earthquake Engineering Research Institute.

Keynote 4

Thinking that connects domains: evolution of ideas across art, math, science, and technology

Julio M. Ottino, Ph. D., Walter P. Murphy Professor of Chemical and Biological Engineering and Mechanical Engineering, Distinguished Robert R. McCormick Institute Professor, Northwestern University

13:20 – 14:20, Thursday May 30, 2024
Grand Ballroom

Abstract Technology is about invention, making and building; Science is about unveiling, revealing what may already be there. It can be argued that Math is about invention and creation as well as discovery. Philosophers, placing the emphasis on uniqueness, placed artistic creation on the highest plane. Is this, however, true? I will argue that it is not and that there are thinking processes and useful lessons that can be transferred across domains. Transfer does not need to be at a purely technical level. Conceptual implications are critical as well. Considerable advances take place when disconnected domains merge into larger wholes. This talk will cover examples from dynamical systems, statistical mechanics, and fluid dynamics including examples of when ideas overreach. The lesson of history being a good teacher will be at the center of the narrative.

Biosketch Julio Mario Ottino is a researcher, engineering scientist, artist, author, and educator. He is a professor, and former dean, in the McCormick School of Engineering and Applied Science as well as a professor in the Kellogg School of Management at Northwestern University. He previously held positions at UMass Amherst as well as chaired and senior appointments at Caltech, Stanford, and Minnesota. He is the founder and co-director of the Northwestern Institute on Complex Systems (NICO) and numerous university-wide initiatives, programs, and centers in the areas of design, energy and sustainability, human-computer interaction, and entrepreneurship, with the Kellogg School of Management, Pritzker School of Law, Feinberg School of Medicine, Medill School of Journalism, and the School of Education and Social Policy within Northwestern, as well as with external partners ranging from the Argonne National Lab to the Art Institute of Chicago. His work on chaos, complexity, and granular dynamics has impacted a wide range of fields in physical and geophysical sciences, engineering, and nonlinear dynamics and has been featured on the covers of Nature, Science, Scientific American, the Proceedings of the National Academy of Sciences of the USA, and other publications. He has supervised more than 65 PhD theses and written over 260 papers. He is a Fellow of the American Physical Society (APS) and the American Association for the Advancement of Science and the recipient of multiple awards from APS and the American Institute of Chemical Engineers (AIChE). In 2008 he was awarded the Fluid Dynamics Prize from APS and selected by AIChE as one of the “One Hundred Engineers of the Modern Era”. In 2017, he was awarded the Bernard M. Gordon Prize for Innovation in Engineering and Technology Education from the National Academy of Engineering for the concept of whole-brain engineering. He has been a Guggenheim Fellow and is a member of both the National Academy of Engineering and the National Academy of Sciences as well as the American Academy of Arts and Sciences. His 2022 MIT press book, The Nexus, dealing with creativity and innovation at the intersection of art, technology, and science, in collaboration with noted designer Bruce Mau, was selected as category winner in the 2023 PROSE Award from the Association of American Publishers.

Keynote 5

Probing multi-hazard risk and resilience in coastal industrial settings: the promise of smart and equitable models

Jamie Ellen Padgett, Ph.D., Stanley C. Moore Professor and Department Chair, Department of Civil & Environmental Engineering, Rice University

8:00 – 9:00, Friday May 31, 2024
Grand Ballroom

Abstract Many coastal communities are co-located and intrinsically interwoven with industrial installations, including ports, chemical plants, or oil and gas operations. While these installations are often strategically placed on the coast, their positioning alongside neighboring communities leaves them jointly susceptible to hurricane-induced hazards and their compound effects. In these settings, NaTech risks are prominent, where damage to industrial structures like tanks can results in hazardous material spills in fenceline communities; infrastructure failures and downtime can impair commodity flows through intermodal transportation networks or access within neighboring communities. This presentation explores methods for modeling multi-hazard reliability, risk and resilience in coastal industrial settings. We probe quantification of parameterized structural fragility and multi-hazard risk, resilience of industrial installations and infrastructure systems, and cascading community consequences. Case studies are leveraged along the US Gulf Coast to draw insights from the structure- to community-scale on opportunities for both methodological advances and practical resilience enhancement. In particular, we probe the promise of smart and equitable modeling as a paradigm for guiding improved resilience quantification.

Biosketch Jamie E. Padgett is the Stanley C. Moore Professor and Department Chair of Civil and Environmental Engineering at Rice University. Padgett is a structural engineer whose research is focused on multi-hazard risk and resilience modeling of structures and infrastructure systems, while understanding their impacts on communities. Dr. Padgett has received such honors as the TAMEST Edith and Peter O'Donnell Award, the EMI Objective Resilience Distinguished Lecturer, and the Walter L. Huber Civil Engineering Research Prize. She is a Fellow of ASCE's Structural Engineering Institute (SEI), an NSF BRITE Fellow, and a member of the IASSAR Executive Committee. Padgett serves in leadership roles within several large national research efforts including the NIST funded Center of Excellence for Risk-based Resilience Planning, the NSF funded Natural Hazards Engineering Research Infrastructure (NHERI) Cyberinfrastructure "DesignSafe", and the Severe Storm Prediction Education and Evacuation from Disasters (SSPEED) Center. She is the Faculty Director of the inaugural Gulf Scholars Program at Rice University funded by NASEM's Gulf Research Program.


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EMI/PMC Minisymposia

0100 **MATERIALS**

MS 0101: Plan the future: Innovations in advanced cementitious materials and sustainability
Linfei Li and Jianqiang Wei

MS 0102: Geometries & design: Opportunities for sustainable construction
Ann Sychterz, Mija Hubler, Jiaolong Zhang, Ali Ghahremani and Yao Wang

MS 0103: Mechanics of granular materials: Modeling and characterization
Dawa Seo, Nitin Daphalapurkar and Darby Jon Luscher

MS 0104: Mechanics of wood and wood-based materials
Markus Lukacevic, Eric Landis, Sebastian Pech and Josef Füssl

MS 0105: Mechanics of soft synthetic and biological materials: Theory, simulation, and experiment
Berkin Dortdivanlioglu and Aditya Kumar

MS 0106: Advances in modeling of material damage and fracture
Lampros Svolos, Aditya Kumar, Mostafa Mobasher, Georgios Moutsanidis, Alessandro Fascetti, Ravindra Duddu and Haim Waisman

MS 0107: Multiscale organization, mechanics and physics of layer-like, fibrous materials and related structures
Pedro Miguel Jesus de Sousa Godinho

MS 0108: Using pavement mechanics to develop pavement materials with less environmental impact
Erdem Coleri and Shane Underwood

MS 0109: Modeling of materials with interfaces and scales using physics-based and machine-learning methods
Xiang Zhang, Pinlei Chen, Timothy Truster, Soheil Soghrati, Ravindra Duddu, Reza Abedi

MS 0110: Characterization and modeling of physical processes in porous materials across scales
Mostafa Mobasher, Pania Newell, Sara Abdei, Manolis Vevakis, Giuseppe Buscarnera, Jean-Michel Pereira and Yanni Chen

MS 0111: Cementitious materials: Experiments and modeling across the scales
Bernhard Pichler, Christian Hellmich, Günther Meschke, Gilles Pijaudier-Cabot and Franz-Josef Ulm

MS 0112: Small scale phenomena in sustainable & complex materials
Nishant Garg and Claire White

MS 0113: Advances and applications of elasticity within applied mechanics
Euclides Mesquita, John Brigham, Dumont Ney, Evgueni Filipov and Sonia Mogilevskaya

MS 0114: Phase change materials (PCMs)-based multifunctional architected construction composites
Qingxu Jin and Hongyan Ma

MS 0115: Molecular scale modeling and experimentation
Dinesh Katti, Sinan Keten, Nima Rahbar, Rouzbeh Shahsavari, Kalpana Katti, Steve Cranford and Wenjie Xia

MS 0117: Mechanics and physics of granular materials
Alessandro F. Rotta Loria, Ryan Hurley and Marcial Gonzalez

MS 0119: On the mechanics of road and paving materials in the cold, Nordic, and Arctic Regions
Augusto Cannone Falchetto, Shane Underwood and Di Wang

MS 0120: Architected materials
Pablo Zavattieri, Josephine Carstensen, Tian "Tim" Chen, Evgueni Filipov, Nilesh Mankame, Reza Moini, Jochen Mueller, Jordan Raney, David Restrepo, Mazdak Tootkaboni, X. Shelly Zhang and Yunlan Zhang

MS 0121: Contributions of high-performing lightweight materials to sustainable development and infrastructure resilience of engineering systems
Fariborz Tehrani

MS 0122: Modeling and characterization of brittle and quasibrittle fracture
Wen Luo, Jia-Liang Le, Marco Salviato and Kedar Kirane

MS 0123: Multiscale behavior of damage and healing mechanics
Oliver Giraldo-Londoño, Poh Leong Hien, Glaucio H. Paulino, George Z. Voyiadjis, Jiann-Wen Ju and Lizhi Sun

MS 0124: Physics informed machine learning (PIML) for mechanics of porous media
Dakshina Valiveti, Yanhua Yuan and Xiao-Hui Wu

MS 0125: Discrete models for the simulation of infrastructure materials
Gianluca Cusatis, Giovanni Di Luzio, Mohammed Alnaggar, Madura Pathirage, Jan Elias and Lei Shen

MS 0126: Mechanics and modeling of pavement structures and materials
Ramez Hajj, Shane Underwood and Hao Wang

0200 STRUCTURES AND INFRASTRUCTURE

MS 0201: Failure and function in structural stability applications
Hayder Rasheed, Stylianos Yiatros, Noël Challamel, C. W. Lim and Ahmer Wadee

MS 0202: New challenges in instabilities of shell structures
Frederic Bumbieler, Hamid Zahrouni and Mohamad Jrad

MS 0203: Recent advances in hybrid simulation and real-time hybrid simulation
Wei Song and Richard Christenson

MS 0204: Design and additive manufacturing of engineering structures and materials
Xiaojia Shelly Zhang, Josephine Carstensen, Emily Sanders and Reza Moini

MS 0205: Origami/kirigami inspired structures and metamaterials
Evgueni Filipov, John Brigham, Rafael Ruiz, Mark Schenk and Martin Walker

MS 0206: Biological and biologically inspired materials and structures
Dinesh Katti and Christian Hellmich

MS 0207: Data-driven methods and research for physical testing in structural engineering
Zhidong Zhang, Hannah Blum, Hyeyoung Koh, Cristopher Moen and Benjamin Schafer

MS 0208: Meshfree, peridynamic, and particle methods: Advancements and applications
Sheng-Wei Chi, Jiun-Shyan Chen, John Foster, Mike Hillman and Pablo Seleson

MS 0209: Advanced engineering concepts, designs, and technologies for aerospace and extraterrestrial applications
Ramesh Malla, Robert Mueller, Kris Zacny and Hongyu (Nick) Zhou

MS 0210: Assessing human-infrastructure interactions and their performance
Fernando Moreu, Haeyoung Noh, Ken Loh and Rodrigo Sarlo

MS 0211: Advances on life-cycle of structures and infrastructure systems
Fabio Biondini and Dan Frangopol

MS 0212: Repair and assessment of deteriorating critical infrastructure
Christine Lozano and Hussam Mahmoud

MS 0213: 4M (modeling of multiphysics-multiscale-multifunctional) engineering materials and structures
Yong-Rak Kim, Chung Song, Huiming Yin, Qiming Wang, Xiaoyu Song and Congrui Jin

MS 0214: Finite element modeling and simulation of train derailments and their role in assessing tank car safety
Paul Gharzouzi, Leandro Iannacone, Paolo Gardoni, Steven Kirkpatrick, Chen-Yu Lin, Todd Treichel and Christopher Barkan

0300 NDE, SHM AND STRUCTURAL CONTROL

MS 0301: Smart IoT sensors and artificial intelligence for civil infrastructure monitoring
Yuguang Fu and Jian Li

MS 0302: Analysis of heritage structures: Tools and methods for assessing unknowns in historic monuments and structures
Rebecca Napolitano, Linda Seymour, Branko Glisic and Admir Masic

MS 0303: Innovations and advances in passive, active, and semi-active structural control
Nicholas Wierschem and Scott Harvey

MS 0304: Advances in bridge health monitoring: Data-driven and machine learning methods, indirect monitoring, crowdsourced mobile sensing
Debarshi Sen, Basuraj Bhowmik and Shamim Pakzad

MS 0305: Structural identification and damage detection
Eleni Chatzi, Costas Papadimitriou and Babak Moaveni

MS 0306: Recent advances in sensing, SHM, and automated inspections for infrastructure condition assessment: Toward actionable solutions
Mohamad Alipour, Hoon Sohn, Brian Eick and Francisco Peña

MS 0307: Recent advances in mechanical energy harvesting and its applications in structural health monitoring and control
Mohsen Amjadian and Chao Sun

MS 0308: Advances in vibration and structural control
Aly Mousaad Aly

MS 0309: Leveraging structural sensing and monitoring for informed decision-making, mitigation, and post-event management
Milad Roohi, Yashar Eftekhar Azam, Kalil Erazo, Doeun Choe and Eleonora Tronci

MS 0310: New trends in vibration control and energy harvesting: Modeling and analysis of innovative materials and structures at micro- and macro-scale
Francesco Paolo Pinnola, Gioacchino Alotta and Alberto Di Matteo

MS 0311: Eco-friendly systems, devices, and metamaterials for structural vibration control
Konstantinos Kalfas and Nicolo' Vaiana

MS 0312: Seismic isolation: Theoretical advancements, experimental insights, and innovative applications
Dimitrios Konstantinidis and Michalis Vassiliou

MS 0313: Complex dynamics and vibration control of infrastructure exposed to single/multiple hazards
Chao Sun, Mariantonieta Soto and Lin Chen

MS 0314: Advancing infrastructure management through structural health monitoring: A value of information perspective
Leandro Iannacone, Pier Francesco Giordano, Paolo Gardoni and Maria Pina Limongelli

0400 DESIGN AND OPTIMIZATION

MS 0401: Topology optimization: From algorithmic developments to applications
Mazdak Tootkaboni, Josephine Carstensen, Jamie Guest and Xiaojia Shelly Zhang

MS 0402: Emerging topology and shape optimization techniques in computational design of materials and structures
Ahmad Najafi

0500 GEOMECHANICS

MS 0501: Computational geomechanics
Qiushi Chen, Craig Foster, Xiaoyu Song, Shabnam Semnani, Fushen Liu and Ronaldo Borja

MS 0502: Advances in geomechanics and geophysics for modern sub-surface technology and natural hazard
Ghassan Shahin, John Rudnicki and Giuseppe Buscarnera

MS 0503: Uncertainty in geomechanical and geochemical processes: their role on prediction of natural and engineered system behavior
Pouyan Asem

0600 FLUID MECHANICS

MS 0602: Computational fluid dynamics (CFD) and fluid-structure interaction (FSI): Method development and applications
Jinhui Yan, Georgios Moutsanidis, Dimitrios Kalliontzis, Mostafa Momen, Muhammad Hajj, Barbara Simpson and Jennifer Franck

0700 HAZARD MODELING

MS 0701: Advanced analysis for earthquake engineering
Kevin Wong, Steven McCabe and Ting Lin

MS 0702: Understanding and managing the wildfire problem
Negar Elhami-Khorasani, Hamed Ebrahimian, Hussam Mahmoud and Erica Fischer

MS 0703: Tropical cyclone induced winds, surge-wave, flooding and impacts on infrastructure systems
Chao Sun, Grace Yan and Celalettin Ozdemir

MS 0704: Advances in modeling wind and its effects on the built environment
Catherine Gorle, Marco Giometto and Teng Wu

MS 0705: Advancements in wind engineering: From atmospheric boundary-layer processes to resilient built environments
Aly Mousaad Aly

MS 0706: Natural hazard assessment with monitoring, modeling, and uncertainty quantification
Yichuan Zhu, Hui Wang and Weibing Gong

0800 AI, MACHINE LEARNING AND DATA-DRIVEN METHODS

MS 0801: Advances in computer vision, deep learning and artificial intelligence for structural health monitoring and inspections
Mohammad Jahanshahi and Vedhus Hoskere

MS 0802: Machine learning applications in wind engineering
Pedro Fernández-Cabán, Sungmoon Jung and Haifeng Wang

MS 0803: Data-scarce modeling in engineering mechanics: Probabilistic learning, information maximization & transfer learning
Audrey Olivier, Michael Shields, Hadi Meidani and Lori Graham-Brady

MS 0804: Data-driven approaches to engineering mechanics
Fatemeh Pourahmadian, John Brigham, Alessandro Fascetti, Evgueni Filipov and Tom Seidl

MS 0805: Machine learning and its applications in civil and mechanical engineering
Aly Mousaad Aly

MS 0807: Advancements of data-driven methods in computational mechanics
Nikolaos Napoleon, Jiun-Shyan Chen, Qizhi He and WaiChing Sun

MS 0808: A New horizon - Quantum computing and quantum materials (by invitation only)
Caglar Oskay, Suvranu De and Pradeep Sharma

0900 STOCHASTIC MECHANICS

MS 0901: Computational methods for stochastic engineering dynamics
Ketson dos Santos, Vasileios Fragkoulis, Ioannis Kougioumtzoglou, Antonina Pirrota and Athanasios Pantelous

1000 **PROBABILISTIC MODELING: UNCERTAINTY QUANTIFICATION AND PROPAGATION AND DIGITAL TWINS**

MS 1001: Computational statistics for natural hazards engineering: Advances in uncertainty quantification, surrogate modeling, and dimension reduction for performance-based design of structures and systems
Dimitris Giovanis, Alexandros Taflanidis, Seymour Spense and Michael Shields

MS 1002: Uncertainty characterization and propagation in complex nonlinear structures
Meng-Ze Lyu, Zhiheng Wang and Jian-Bing Chen

MS 1003: Surrogate modeling for uncertainty quantification, optimization, and statistical inference in engineering applications
Min Li, Abdollah Shafieezadeh, Gaofeng Jia, Bruno Sudret and Alexandros Taflanidis

MS 1004: Multi-fidelity methods and machine learning for uncertainty propagation, inference, and optimization
Negin Alemazkoor and Ruda Zhang

MS 1005: Probabilistic, physics-guided, and multi-fidelity generative modeling for uncertainty quantification
Agnimitra Dasgupta, Roger Ghanem, Sanjay Govindjee and Assad Oberai

MS 1006: Uncertainty quantification and machine learning for design, optimization, and inference in multiscale systems
Zhiheng Wang, Lizhi Sun, Jiun-Shyan (J.S.) Chen and Roger Ghanem

MS 1007: Integration of physics-based models with data for identification, monitoring, estimation, and uncertainty quantification
Hamed Ebrahimian, Babak Moaveni, Haeyoung Noh and Yang Wang

MS 1008: Infrastructure assessment automation with robotics, deep learning and digital twins
Vedhus Hoskere, Mohammad Jahanshahi, Jian Li and Wei Song

MS 1009: Toward data-driven approaches for uncertainty quantification and propagation
Subhayan De, Patrick Brewick, Kundan Goswami and Alireza Doostan

MS 1010: Addressing uncertainties in infrastructure risk management
Alessandro Contento, Jessica Boakye, Roberto Guidotti, Leandro Iannacone, Fabrizio Nocera and Aditya Pandei

MS 1011: Probabilistic assessment, data-driven inference and optimization for decision-making under uncertainty
Charalampos Andriotis, Konstantinos Papakonstantinou, George Deodatis, Mariyam Amir and Pablo Morato

MS 1012: Probabilistic learning, stochastic optimization, and digital twins
Amir H Gandomi, Christian Soize and Roger Georges Ghanem

1100 **RISK, RELIABILITY AND RESILIENCE**

MS 1101: Towards resilient coastlines: Advancements and new approaches
Teng Wu, Maria Koliou and Katerina Kyprioti

MS 1102: Objective resilience: Harnessing emerging technologies for enhancing infrastructure and community resilience
Milad Roohi and ZhiQiang Chen

MS 1104: Resilience of coastal structures, systems, and community subjected to hazards
Wei Zhang, Jamie Padgett, Andre Barbosa, Katerina Kyprioti, Claudia Reis and William Hughes

MS 1105: Civil infrastructure in a changing climate: From nonstationary risk assessment to developing adaptation strategies
Eun Jeong Cha, Abdollah Shafieezadeh, Michele Barbato and Alex Taflanidis

MS 1106: Objective resilience: Multi-scale resilience measures for electric power networks in climatic hazards
Alice Alipour, Abdollah Shafieezadeh and Paolo Bocchini

MS 1107: Objective resilience: Computational advancements for performance-based engineering and resilience assessment of communities
Alice Alipour and Paolo Gardoni

MS 1108: Towards resilient communities: Improvements in natural hazard risk assessment using data-driven methods
Jize Zhang and Katerina Kyprioti

MS 1110: Advances in resilience analytics and sustainable infrastructure: Bridging theory and practice
Arghavan Louhghalam, Negin Alemazkoor, Mohammadjavad Abdolhosseini Qomi, Mazdak Tootkaboni and Abdollah Shafieezadeh

MS 1111: Reliability analysis and rare event probability estimation
Kostas Papakonstantinou, Ziqi Wang, Shanyin Tong, Iason Papaioannou and Som Dhulipala

MS 1112: Structural reliability, bridges, and truck loads
Gongkang Fu

MS 1113: AI-enhanced probabilistic reliability assessment
Hrishikesh Sharma

MS 1114: Advances in regional hazard modeling and risk assessment
Sang-ri Yi, Aakash B Satish, Carmine Galasso and Alexandros Taflanidis

Wednesday, May 29

7:45 – 8:00 Opening Remarks | Grand Ballroom

8:00 – 9:00 Keynote 1 | Grand Ballroom

Engineering Risk Analysis and Decision for Communities Facing Natural Hazards A talk in Four+ Parts
Ross Barry Corotis, Ph.D. P.E., S.E., NAE, F.EMI, F.SEI, Dist.M.ASCE

9:00 – 12:20 Company Showcase and Student Engagement | Red Lacquer

Wednesday, May 29, Early Morning Sessions, 9:00 – 10:30

0101: Plan the future: Innovations in advanced cementitious materials and sustainability Chairs(s): Jianqiang Wei		
Salon 1	09:20 - 09:40	EP240907 Full aggregate replacement by crushed seashell wastes in environmental-friendly concrete: A local and circular industrial case-study at the Dune of Pilat construction site in France Author(s): David Grégoire*, Tematuanui a Tehei Hantz, Benjamin Niez, Olivier Nouailletas
	09:40 - 10:00	EP241077 On the physio-chemical characterization of multi-binder eco-ultra-high-performance concrete (E-UHPC) Author(s): Bayezid Baten*, Nishant Garg
	10:00 - 10:20	EP240388 Durability performance of enzymatic self-healing concrete Author(s): Sara Heidarnezhad*, Nima Rahbar
	09:00 - 09:20	EP240400 Development of 3D printable self-sensing concrete for smart precast concrete structures Author(s): Yen-Fang Su*, Khalilullah Taj
0102: Geometries & design: Opportunities for sustainable construction Chairs(s): Ann Sychterz and Mija Hubler		
Salon 4	09:00 - 09:20	EP240253 Experimentally extending the useful strain-range of uniaxial testing of sheet metals beyond the limits of homogenous deformation Author(s): Jumari Robinson*, Adam Creuziger, Mark Iadicola
	09:20 - 09:40	EP240376 Rock aggregate pull-out test in concrete: Evaluation of bond strength and interface behavior between rock aggregates and concrete Author(s): Bola Odunaro*, Hubler Mija, Wang Yao
	09:40 - 10:00	EP240413 Non-linear modelling of multi-layered randomized architected material (MLRAM) under tensile loading for a tensegrity structure Author(s): Sagnik Paul*, Ann Sychterz
	10:00 - 10:20	EP240626 Ruppeiner geometry unveiling volumetric phase transition in gels Author(s): Asif Raza*, Debasish Roy

0106: Advances in modeling of material damage and fracture Chairs(s): Lampros Svolos		
Salon 12	09:00 - 09:20	EP241121 Remote transient electromagnetic scattering response of fractal cracks in multi-phase brittle materials Author(s): Tzuyang Yu*
	09:20 - 09:40	EP240793 The revisited phase-field approach to brittle fracture: Application to the Brazilian fracture and wing-crack problems Author(s): Aditya Kumar*, Chang Liu, Yangyuanchen Liu, John Dolbow, Oscar Lopez-Pamies
	09:40 - 10:00	EP240492 A Griffith description of fracture in brittle elastic materials under non-monotonic loading conditions with application to fatigue Author(s): Subhrangsu Saha*, Oscar Lopez-Pamies
	10:00 - 10:20	EP240107 A computational study of fracture nucleation and propagation using the revisited phase field model Author(s): Li Meng*, Hsiao Wei Lee, Alireza Ashkpour, Ahmad Najafi
0108: Using pavement mechanics to develop pavement materials with less environmental impact Chairs(s): Erdem Coleri		
Salon 7	09:20 - 09:40	EP240508 Understanding the coupling effect of high RAP and warm mix asphalt for producing sustainable asphalt pavements Author(s): Mayank Sukhija, Erdem Coleri*
	09:40 - 10:00	EP240841 Innovative material characterization approaches for enhanced recycling agent optimization: A comprehensive study on bio-based and petroleum-based agents in asphaltic materials Author(s): Hamzeh Haghshenas*, Adrian Andriescu, Raj Dongre, Varun Veginati, David Mensching, Jack Youtcheff
	10:00 - 10:20	EP241037 Numerical modeling of truck-electrification-induced excess fuel consumption in highway flexible pavements Author(s): Johann Jhanpiere Cardenas Huaman, Aditya Singh*, Imad Al-Qadi
	09:00 - 09:20	EP240030 Three-dimensional pavement response modeling using graph neural network Author(s): Fangyu Liu*, Imad Al-Qadi
0109: Modeling of materials with interfaces and scales using physics-based and machine-learning methods Chairs(s): Ravindra Duddu and Xiang Zhang		
Price Room	09:20 - 09:40	EP240657 Crystal plasticity modeling and analysis for the transition from intergranular to transgranular failure in nickel-based alloy at elevated temperature Author(s): Jiahao Cheng*, Xiaohua Hu, Timothy Lach, Xiang Chen
	10:00 - 10:20	EP240338 Stress analysis of solids via a meshless method using adaptive weighted polynomially augmented radial basis interpolants Author(s): Ruturaj Chiddarwar*, Dipankar Das, Petros Sideris
	09:00 - 09:20	EP241186 Modeling thermoelasticity and failure of polycrystalline material using a novel nonlocal lattice particle method Author(s): Di Liu*, Hailong Chen
	09:40 - 10:00	EP240240 Comparative analysis of formulations for periodic boundary conditions in solid mechanics Author(s): Timothy Truster*, Amirfarzad Behnam

0115: Molecular scale modeling and experimentation Chairs(s): Dr. Wenjie Xia and Dr. Dinesh Katti		
Buckingham Room	09:00 - 09:20	EP240910 The dynamics of cellular proteins during cancer progression Author(s): Dinesh Katti*, Sharad Jaswandkar, Hanmant Gaikwad, Kalpana Katti
	09:20 - 09:40	EP241154 Sequence-based data-constrained deep learning framework to predict spider dragline mechanical properties Author(s): Akash Pandey, Wei Chen, Sinan Keten*
	09:40 - 10:00	EP240262 Predictive Modeling of Mechanical Behavior of Crumpled Sheets Author(s): Long Chen*, Yangchao Liao, Wenjie Xia
	10:00 - 10:20	EP240199 Energy renormalization for temperature transferable coarse-graining of silicone polymer Author(s): Dawei Zhang*, Wenjie Xia, Ying Huang
0119: On the mechanics of road and paving materials in the cold, Nordic, and Arctic Regions Chairs(s): Augusto Cannone Falchetto		
Salon 2	09:00 - 09:20	EP240485 Machine learning prediction of the mechanical response from chemical characteristics of asphalt binders used in the Nordics Author(s): Fan Zhang, Augusto Cannone Falchetto*, Di Wang
	09:20 - 09:40	EP240742 Research on the deformation and damage process of crushed-rock highway embankment in permafrost areas Author(s): Runmin Zhao*, Xiaoming Huang, Tao Ma
	09:40 - 10:00	EP241097 The low-temperature performance of an asphalt binder modified by the sub-epoxidized soybean oil for cold region applications Author(s): Ataslina de Paula da Silva*, Antônia Flávia Justino Uchôa, Suelly Helena de Araújo Barroso, Ronald Christopher Williams
	10:00 - 10:20	EP240980 Multiple recycling of asphalt pavement in cold climates Author(s): Yuxuan Sun, Augusto Cannone Falchetto*, Di Wang, Fan Zhang
0120: Architected materials Chairs(s): Pablo Zavattieri and Reza Moini		
Salon 3	09:00 - 09:20	EP240865 Mechanics of metamaterials engineered with DNA Author(s): Horacio Espinosa*, Hanxun Jin
	09:20 - 09:40	EP240830 Mechanics of 3D micro-architected interpenetrating phase composites Author(s): Andrew Chen*, Carlos Portela
	09:40 - 10:00	EP241057 Two-phase gyroid-like shell-based architectures with improved energy absorption capacity Author(s): Mehran Rakhshan*, Alfa Heryudono, Lorenzo Valdevit, Mazdak Tootkaboni
	10:00 - 10:20	EP240148 Additive manufacturing of PDMS-blown foams with tailorable porosity Author(s): Melody Golobic*, Larry Dugan, Taylor Bryson, Todd Weisgraber, Jeremy Armas, Eric Duoss, Tom Wilson, Jeremy Lenhardt

0123: Multiscale behavior of damage and healing mechanics Chairs(s): Oliver Giraldo-Londono		
Salon 6	09:00 - 09:20	EP241120 Spress-sprain crack band model based on lagrange multiplier constraint and its verification by gap test Author(s): Zdenek Bazant*, Houlin Xu, Anh Nguyen, Karel Matouš
	09:20 - 09:40	EP240960 Experimental and computational investigation on interfacial transition zone of concrete Author(s): Kyoungsoo Park*, Minkwan Ju, Habeun Choi, Tiana Razakamandimby
	09:40 - 10:00	EP241157 A mixed-mode cohesive zone model for fracture modeling of self-healing materials Author(s): Oliver Giraldo-Londoño*, Daniel W. Spring, Glaucio Paulino
	10:00 - 10:20	EP241195 A localizing gradient damage model for the dynamic fracture of quasi-brittle materials and its simple implementation in ABAQUS Author(s): Guangyuan Yang*, Leong Hien Poh
0125: Discrete models for the simulation of infrastructure materials Chairs(s): Gianluca Cusatis and Mohammed Alnaggar		
Salon 8	09:00 - 09:20	EP240873 Comparison of Lattice Discrete Particle Modeling (LDPM) implementations: Lessons learned and future work Author(s): Gianluca Cusatis*, Erol Lale, Ke Yu, Matthew Troemner, Madura Pathirage, Yuhui Lyu, Ioannis Koutromanos, Jan Elias, Monika Stredulova, Tianju Xue, Mohammed Alnaggar
	09:20 - 09:40	EP240777 Discrete model of fresh ultra high performance concrete for the simulation of 3D printing: The effect of thixotropy Author(s): Bahar Ayhan*, Elham Ramyar, Gianluca Cusatis
	09:40 - 10:00	EP240802 Connector and Beam Lattice (CBL) Model for the simulation of wood under high strain rates Author(s): Matthew Troemner*, Susan Alexis Brown, Hao Yin, Gianluca Cusatis
0204: Design and additive manufacturing of engineering structures and materials Chairs(s): Xiaojia Shelly Zhang		
Monroe Room	09:00 - 09:20	EP240363 Using human experience to interactively reduce support material in topology-optimized structures Author(s): Gillian Schiffer, Dat Ha, Josephine Carstensen*
	09:20 - 09:40	EP240905 Additive manufacturing of stiff and strong structures by leveraging printing-induced strength anisotropy in topology optimization Author(s): Rahul Dev Kundu*, Xiaojia Shelly Zhang
	09:40 - 10:00	EP241158 Multi-material stress-constrained topology optimization with unified yield criterion Author(s): Oliver Giraldo-Londoño, Juan Pablo Giraldo Isaza*
	10:00 - 10:20	EP240419 Machine learning model for the fexural srength of 3D-printed fiber-reinforced concrete using Mountain Gazelle Optimization algorithm Author(s): Nima Khodadadi*, Francisco Decaso, Antonio Nanni

0209: Advanced engineering concepts, designs, and technologies for aerospace and extraterrestrial applications Chairs(s): Ramesh B. Malla, Ph.D., F. ASCE, F. EMI, A.F. AIAA; University of Connecticut, Storrs, CT and Brent Knight, NASA Marshall Space Flight Center, Huntsville, AL		
LaSalle 2	09:00 - 09:20	EP240961 Lunar and martian regoliths: Characterization and suitability for construction Author(s): Nishant Garg*
	09:20 - 09:40	EP240469 Meteoroid impact-induced peak shock pressure and attenuation through the thickness of a regolith protective layer on a lunar structure Author(s): Sushrut Vaidya*, Ramesh Malla
	09:40 - 10:00	EP240934 Enforcing coupling of smart habitat subsystem models within a systems-of-systems modeling framework Author(s): Adnan Shahriar, Arsalan Majlesi, David Avila, Herta Montoya, Arturo Montoya*
	10:00 - 10:20	EP240839 Lunar habitat arch-shield optimization for complex load combinations with ML Author(s): Yang Zhao*, Christian Malaga-Chuquitaype
0211: Advances on life-cycle of structures and infrastructure systems Chairs(s): Fabio Biondini and Qindan Huang		
Salon 10	09:00 - 09:20	EP240741 A framework for risk assessment of post-tensioned concrete bridges- data-driven stochastic approach considering life cycle Author(s): Armin Mehrabi*
	09:20 - 09:40	EP241052 Toward experimental validation of life-cycle assessment methods for concrete structures under corrosion Author(s): Mattia Anghileri, Fabio Biondini*
	09:40 - 10:00	EP240766 Electrochemical-chemical-mechanical phase field model for rust precipitation-induced cracking in concrete Author(s): Airong Chen*, Xurui Fang, Zichao Pan
	10:00 - 10:20	EP240639 An analytical approach of determining life-cycle cost of deteriorating pipelines Author(s): Qindan Huang*, Kiswendsida Jules Kere
0305: Structural identification and damage detection Chairs(s): Babak Moaveni and Vasilis Dertimanis		
Wabash Room	09:20 - 09:40	EP240861 Bayesian model updating of Ting Kau Bridge and its verification by measured influence line Author(s): Heung-Fai Lam*, Zhengyi Fu
	09:40 - 10:00	EP240083 Identifying hysteretic models for base-isolation systems using bayesian approaches Author(s): Reza Farzad*, Patrick Brewick
	10:00 - 10:20	EP240051 Hierarchical Bayesian model updating of a 6 MW offshore wind turbine for uncertainty quantification with comparison to a frequentist approach Author(s): Bridget Moynihan*, Babak Moaveni, Eric Hines
	09:00 - 09:20	EP240969 Quantifying non-uniqueness in model updating and damage detection following a Bayesian approach Author(s): Jia-Hua Yang*, Heung-Fai Lam

0306: Recent advances in sensing, SHM, and automated inspections for infrastructure condition assessment: Toward actionable solutions Chairs(s): Mohamad Alipour and Francisco Pena and Travis Fillmore		
Crystal Room	09:40 - 10:00	EP241070 Corrosion detection of steel-reinforced concrete specimens using synthetic aperture radar Author(s): Koosha Raisi*, Tzuyang Yu
	10:00 - 10:20	EP240164 Image based autonomous corrosion detection in steel structures Author(s): Sattar Dorafshan, Amrita Das*
	09:20 - 09:40	EP240585 A framework for damage diagnosis for miter gates of navigation locks Author(s): Gbandi Nikabou*, Pranav Karve, Sankaran Mahadevan
	09:00 - 09:20	EP240022 Optimization of automated inspection for infrastructure condition assessment based on physics-based diagnostics and prognostics Author(s): Zihan Wu, Zhen Hu*, Michael Todd
0401: Topology optimization: From algorithmic developments to applications Chairs(s): Mazdak Tootkaboni		
Salon 5	09:00 - 09:20	EP240526 Non-stationary stochastic dynamic loads in topology optimization of structures Author(s): Sebastian Pozo*, Fernando Gómez, Mengxiao Zhang, Juan Carrión, Billie Spencer
	09:20 - 09:40	EP240740 Topology optimization of low-carbon hybrid mesh structures using mixed-integer programming Author(s): Zane Schemmer*, Josephine Carstensen
	09:40 - 10:00	EP241000 Novel method for topology optimization of eigenfrequencies of structures with single/repeated eigenvalues Author(s): Shiyao Sun*, Kapil Khandelwal
	10:00 - 10:20	EP241074 Simultaneous topology optimization of materials and structures Author(s): James Guest*, Yakov Zelickman
0502: Advances in geomechanics and geophysics for modern sub-surface technology and natural hazard Chairs(s): John Rudnicki		
Water Tower Parlor	09:00 - 09:20	EP240128 Finite element modeling of creep-induced subsidence along coastal Louisiana with GPS measurements Author(s): George Z. Voyiadjis, Yaneng Zhou*, Ahmed Abdalla
	09:20 - 09:40	EP240105 A rigorous semi-analytical graphical solution for undrained wellbore stability problem in elastoplastic hoek-brown rock under non-hydrostatic in situ stresses Author(s): Hadeel Abu Dayyeh*, Sheng-Li Chen
	09:40 - 10:00	EP240888 Error-in-constitutive relation (ECR) framework for the wave-based characterization of linear viscoelastic solids Author(s): Marc Bonnet, Prasanna Salasiya*, Bojan Guzina
	10:00 - 10:20	EP241095 Predicting earthquake fault dynamics and parametric identification through Physics-Informed Neural Networks Author(s): Napat Tainpakdipat*, Ahmed Elbanna

0704: Advances in modeling wind and its effects on the built environment Chairs(s): Teng Wu and Marco Giometto and Catherine Gorle		
Wilson Room	09:00 - 09:20	EP240173 Nowcasting thunderstorm wind speeds by integrating multi-source datasets to enhance safety of solar trackers Author(s): Mahmoud Elnahla*, Yanlin Guo, Teng Wu
	09:20 - 09:40	EP240331 Implementation of a hybrid active-passive multi-stage flow control system in a large boundary layer wind tunnel for the physical simulation of near-surface extreme wind phenomena Author(s): Ryan Catarelli*, Yutiwadee Pinyochotiwong, Forrest Masters, Brian Phillips, Tai-An Chen, Jennifer Bridge, Kurtis Gurley
	09:40 - 10:00	EP240547 Modeling of vortices in straight-line wind simulators Author(s): Faiaz Khaled*, Franklin T. Lombardo
	10:00 - 10:20	EP240938 Application of an Immersed Boundary Method to generate boundary layer turbulence and non-uniform wind fields Author(s): Jianyu Wang*, Catherine Gorlé
0901: Computational methods for stochastic engineering dynamics Chairs(s): Antonina Pirrota		
Salon 9	09:40 - 10:00	EP240095 A reduced-order formulation of the Wiener path integral technique for efficient stochastic response determination of nonlinear systems with singular diffusion matrices Author(s): Ketson Roberto Maximiano dos Santos*, Ioannis Kougioumtzoglou
	10:00 - 10:20	EP240302 Efficient stochastic response determination of nonlinear structural systems: An extrapolation approach within the Wiener path integral technique Author(s): Ilias Mavromatis, Ioannis Kougioumtzoglou*
	09:00 - 09:20	EP240578 Eigenvalue problems in stochastic mechanics: A quantum computing solution treatment Author(s): Ilias Mavromatis*, Ioannis Kougioumtzoglou
	09:20 - 09:40	EP240629 Singular value decomposition problems in structural dynamics: A quantum computing solution treatment Author(s): Leonidas Taliadouros*, Ioannis Kougioumtzoglou
1004: Multi-fidelity methods and machine learning for uncertainty propagation, inference, and optimization Chairs(s): Negin Alemazkoor and Ruda Zhang		
LaSalle 1	09:00 - 09:20	EP240390 Multi-fidelity modelling for digital twins of fast manufacturing processes under uncertainty Author(s): Miriam B. Dodt*, Stefano Marelli, Augustin Persoons, Matthias G. R. Faes, Bruno Sudret, David Moens
	09:20 - 09:40	EP240746 Enhancing data efficiency and accuracy in finite element analysis using multi-fidelity graph neural networks Author(s): Mehdi Taghizadeh*, Negin Alemazkoor
	09:40 - 10:00	EP240923 Multi-fidelity Bayesian optimization in engineering design Author(s): Bach Do, Ruda Zhang*
	10:00 - 10:20	EP240738 Multi-fidelity subset simulation for rare event simulation Author(s): Leila Naderi*, Gaofeng Jia

1006: Uncertainty quantification and machine learning for design, optimization, and inference in multiscale systems Chairs(s): Zhiheng Wang		
LaSalle 3	09:00 - 09:20	EP241137 The physics-informed kernel operator Author(s): Weiheng Zhong*, Hadi Meidani
	09:20 - 09:40	EP240433 Machine learning for statistical modeling of fiber-reinforced composites delamination Author(s): Zhengtao Yao*, Philippe Hawi, Venkat Aitharaju, Jay Mahishi, Roger Ghanem
	09:40 - 10:00	EP240562 Feature encoded and multi-resolution physics-informed machine learning approaches for musculoskeletal digital twin applications. Author(s): Karan Taneja*, Xiaolong He, QiZhi He, Jiun-Shyan Chen
	10:00 - 10:20	EP240546 Fully parametric estimation method for the hybrid switching diffusion model Author(s): Zheming Gou*, Roger Ghanem, Sergey Lototsky
1011: Probabilistic assessment, data-driven inference and optimization for decision-making under uncertainty Chairs(s): Kostas Papakonstantinou		
Adams Room	09:00 - 09:20	EP241176 Understanding multi-agent cooperation in deep reinforcement learning for inspection and maintenance planning Author(s): Prateek Bhustali, Charalampos Andriotis, Pablo G. Morato*, Kostas Papakonstantinou
	09:20 - 09:40	EP240286 Investigating graph based deep reinforcement learning for inspection and maintenance optimization Author(s): Daniel Hettegger*, Lisa Roßgoderer, Daniel Koutas, Alois C. Knoll, Daniel Straub
	09:40 - 10:00	EP240992 Multi-objective multi-agent Deep Reinforcement Learning for life-cycle management of deteriorating systems Author(s): Ashmita Bhattacharya*, Kostas Papakonstantinou
	10:00 - 10:20	EP241184 Subsidy for repair in component maintenance games Author(s): Maria-Florina Balcan, Matteo Pozzi, Dravyansh Sharma*
1104: Resilience of coastal structures, systems, and community subjected to hazards Chairs(s): Jamie Padgett and William Hughes		
Grant Park Parlor	09:00 - 09:20	EP240565 Innovative computational strategies for coastal resilience: Tackling hurricane-induced debris challenges Author(s): Kooshan Amini*, Yuhao Liu, Jamie Padgett, Ashok Veeraraghavan, Guha Balakrishnan
	09:20 - 09:40	EP240728 An optimization model for wind retrofits to inform alternatives for resilient communities Author(s): William Hughes*, Tasnim Ibn Faiz, Kenneth Harrison
	09:40 - 10:00	EP240649 Coastal nexus: Interweaving sustainability dimensions in infrastructure performance Author(s): Catalina Gonzalez Duenas*
	10:00 - 10:20	EP240718 A probabilistic flood risk assessment framework for road networks Author(s): Pranavesh Panakkal*, Jamie Padgett

1105: Civil infrastructure in a changing climate: From nonstationary risk assessment to developing adaptation strategies Chairs(s): Michele Barbato and Alex Taflanidis and Abdollah Shafieezadeh and Eun Cha		
Hancock Parlor	09:20 - 09:40	EP241135 A numerical comparison of different methods for estimating non-stationary failure probabilities of aging structures subject to hurricane hazards under changing climate conditions Author(s): Michele Barbato*, Lei Zhou
	09:00 - 09:20	EP240294 Nonstationary stochastic models for structural reliability analysis in the changing climate Author(s): Mahesh Pandey*, Sophie Mercier
	09:40 - 10:00	EP240183 Economic loss estimation due to hazards driven by climate change using non-stationary models Author(s): Rituraj Bhadra*, Mahesh Pandey
1106: Objective resilience: Multi-scale resilience measures for electric power networks in climatic hazards Chairs(s): Alice Alipour and Abdollah Shafieezadeh and Paolo Bocchini		
Spire Parlor	09:00 - 09:20	EP240082 A generalized model for predicting power outages in Texas during extreme weather events: Integrating lagged information, geographical, climatic, and socio-demographic data Author(s): Jangjae Lee*, Stephanie Paal
	09:20 - 09:40	EP240512 Enhancing electricity resilience through rooftop panels and behind-the-meter batteries for communities exposed to hurricanes Author(s): Luis Ceferino*, Ning Lin, Prateek Arora
	09:40 - 10:00	EP240919 Flood resilience in pole-mounted substations: Structural fragility assessment Author(s): Wenzhu Li*, Lee S. Cunningham, David M. Schultz, Sarah Mander, Chin Kim Gan, Mathaios Panteli
	10:00 - 10:20	EP241016 Multi-dimensional reliability assessment and resilience-based analysis of electric power networks Author(s): Muneer Qudaisat*, Alice Alipour
1113: AI-enhanced probabilistic reliability assessment Chairs(s): Hrishikesh Sharma		
Chicago Room	09:00 - 09:20	EP241035 Exploring the microtexture-effective property relationship via a machine-learning assisted data-driven approach Author(s): Xuejing Wang*, Arghavan Louhghalam, Mazdak Tootkanoni
	09:20 - 09:40	EP240754 Calculating simulation-assisted decision boundaries under uncertainty using machine learning and adaptive classification Author(s): Jake Desmond*, Wilkins Aquino, Andrew Kurzawski, Cameron McCormick, Clay Sanders, Chandler Smith, Timothy Walsh
	09:40 - 10:00	EP240496 A novel machine learning framework for improved predictions of peak response to dynamic loads Author(s): Sushreyo Misra*, Paolo Bocchini
	10:00 - 10:20	EP240094 Prior model updating with uncertainty quantification through variational Bayesian inference Author(s): Xuechun Li*, Susu Xu

10:30 – 10:50 Break | Exhibit Hall

Wednesday, May 29, Late Morning Sessions, 10:50 – 12:20

0101: Plan the future: Innovations in advanced cementitious materials and sustainability Chairs(s): Jianqiang Wei		
Salon 1	11:10 - 11:30	EP240776 Towards development of low-carbon concrete via high-volume cement replacement with recycled ground glass pozzolan Author(s): Arkabrata Sinha*, Dayou Luo, Jianqiang Wei
	10:50 - 11:10	EP240411 A framework for sustainable building materials using lignin biopolymer bound soil composites Author(s): Barney Miao*, Robert Headrick, Zhiye Li, David Loftus, Michael Lepech
0102: Geometries & design: Opportunities for sustainable construction Chairs(s): Ann Sychterz		
Salon 4	10:50 - 11:10	EP240315 Inclusions govern the mechanical development of cementitious materials Author(s): Yao Wang*, Bola Odunaro, Boning Wang, Mija Hubler
	11:10 - 11:30	EP240092 Adaptive camber precast concrete girder for deflection mitigation Author(s): Ann Sychterz*
	11:30 - 11:50	EP240412 Optimizing sensor placement for characterization and control of a meter-scale origami pill-bug structure Author(s): Angshuman C Baruah*, Ann Sychterz
	11:50 - 12:10	EP240586 Reconfigurable partition system for adaptive modular construction Author(s): Jacob Pavelka*, Evgueni Filipov, Sherif El-Tawil
0106: Advances in modeling of material damage and fracture Chairs(s): Ravindra Duddu		
Salon 12	11:30 - 11:50	EP240424 XFEM-based multilevel simulation strategy on hysteric performance and fracture behavior of semi-rigid PC connections Author(s): Dianyou Yu, Zheng He*
	11:50 - 12:10	EP240506 Viscous regularization in dynamical problems does not stop strain localization on a mathematical plane and mesh dependency Author(s): Alexandros Stathas*, Ioannis Stefanou
	10:50 - 11:10	EP240275 Upgrade of fracture mechanics by spress-sprain relations: Limiting damage field curvature Author(s): Houlin Xu*, Anh Nguyen, A. Abdullah Donmez, Zdenek Bazant
	11:10 - 11:30	EP240292 Strong form meshless gradient nonlocal damage formulation via high order constrained polynomial differential operators Author(s): Nikhil Potnuru*, Sumedh Sharma, Petros Sideris

0109: Modeling of materials with interfaces and scales using physics-based and machine-learning methods Chairs(s): Timothy Truster		
Price Room	10:50 - 11:10	EP241067 Physics-constrained data-driven variational method for discrepancy modeling Author(s): Arif Masud*, Shoaib Goraya
	11:10 - 11:30	EP240168 CNN-based surrogate for the phase field fracture model and its application in inverse design of composite materials Author(s): Yuxiang Gao*, Soheil Kolouri, Ravindra Duddu
	11:30 - 11:50	EP240600 Data-driven Gurson-Tvergaard-Needleman model for ductile fracture Author(s): Dharanidharan Arumugam*, Ravi Yellavajjala
	11:50 - 12:10	EP240831 Quantification of elastic incompatibilities at triple junctions via a physics-based surrogate model Author(s): Aaditya Rau*, Raul Radovitzky
0111: Cementitious materials: Experiments and modeling across the scales Chairs(s): Bernhard Pichler		
Salon 7	11:10 - 11:30	EP240720 Characterization of fatigue damage in concrete: An experimental study on mechanisms and parameters influencing fatigue life Author(s): Srinithya A, Yogesh R, Chandra Kishen*
	11:30 - 11:50	EP240730 An experimental study for estimation of residual strength in concrete beams under fatigue loading Author(s): Yogesh R*, Srinithya A, Goutham H M, Chandra Kishen
	11:50 - 12:10	EP240339 A novel method to evaluate the fracture behavior of the shotcrete-concrete interface Author(s): Ayumi Manawadu*, Pizhong Qiao
	10:50 - 11:10	EP240154 On the role of the horizon in modelling failure with peridynamics Author(s): Gilles Pijaudier-Cabot*, Dono Toussaint, Madura Pathirage, Gianluca Cusatis
0115: Molecular scale modeling and experimentation Chairs(s): Dr. Dinesh Katti and Dr. Wenjie Xia		
Buckingham Room	10:50 - 11:10	EP240260 Insights into thermomechanical properties of crosslinked polymer network assisted by machine learning Author(s): Lan Xu*, Sara Tolba, Wenjie Xia
	11:10 - 11:30	EP240955 Oxidation levels and configurations in graphene oxide influence the mechanical and viscoelastic properties of PMMA nanocomposites Author(s): Yitong Chen*, Linjiale Dai, Zhaoxu Meng
	11:30 - 11:50	EP240283 Towards data-driven inverse design for interatomic potentials Author(s): Benjamin Jasperson*, Harley Johnson
	11:50 - 12:10	EP241013 A dynamic formulation for potential of mean force based Lattice Element Method Author(s): Soolmaz Khoshkalam*, Shayan Razi, Mazdak Tootkaboni, Arghavan Louhghalam

0117: Mechanics and physics of granular materials Chairs(s): Alessandro F. Rotta Loria and Ryan Hurley and Marcial Gonzalez		
Salon 2	10:50 - 11:10	EP240066 Density relaxation in tapped granular systems: Recurrent neural network model Author(s): Anthony Rosato*, Vish Ratnaswamy, Youngjin Chung, David Horntrop
	11:10 - 11:30	EP240068 Derivation of wave speed for dry and saturated nonlinearly elastic models Author(s): David Riley*, Itai Einav, François Guillard
	11:30 - 11:50	EP240112 Thermo-mechanics of granular materials: Experiments and simulations Author(s): Alessandro Rotta Loria*, Yize Pan, Jibril Coulibaly
	11:50 - 12:10	EP240121 Generalized Granular Micromechanics Approach to obtain injective mapping between material state variables and the stress tensor Author(s): Abhinav Ramkumar*, Marcial Gonzalez
	12:10 - 12:30	EP240908 Pushing the limits of stress and strain measurements in triaxially-compressed sand Author(s): Ryan Hurley*, Kwangmin Lee and Edward Andó
0120: Architected materials Chairs(s): Nilesh Mankame and David Restrepo		
Salon 3	10:50 - 11:10	EP240086 A novel computational approach for predicting micro-buckling sensitivities in architected materials Author(s): David Restrepo*, David Risk, Mauricio Aristizabal, Harry Millwater
	11:10 - 11:30	EP240619 Harnessing instabilities in bio-inspired hierarchical tape springs Author(s): Phani Saketh Dasika*, Adwait Trikanad, Kristiaan Hector, Pablo Zavattieri
	11:30 - 11:50	EP240171 Arbitrary curvature programming of thermo-active liquid crystal elastomer via topology optimization Author(s): Weichen Li*, Xiaojia Shelly Zhang
	11:50 - 12:10	EP240157 Algorithmic designs of architected materials with complex microstructures Author(s): Tian Chen*
0123: Multiscale behavior of damage and healing mechanics Chairs(s): Kyoungsoo Park		
Salon 6	10:50 - 11:10	EP240140 Exploring fabric tensors in damage and healing mechanics of materials Author(s): George Z. Voyiadjis*, Peter I. Kattan
	11:10 - 11:30	EP240468 Machine learning-augmented parametrically upscaled damage model for microstructural damage sensing in piezoelectric composites Author(s): Somnath Ghosh*, Preetam Tarafder, Saikat Dan
	11:30 - 11:50	EP240577 A phase-field formulation for fracture modeling of rate- and temperature-dependent materials Author(s): Rogelio Muñeton-Lopez*, Oliver Giraldo-Londoño
	11:50 - 12:10	EP240817 A multiscale phase field formulation for capturing the fracture behavior of rubber-like materials Author(s): Prajwal Kammardi Arunachala*, Christian Linder

0125: Discrete models for the simulation of infrastructure materials Chairs(s): Gianluca Cusatis and Mohammed Alnaggar		
Salon 8	10:50 - 11:10	EP241046 Discrete modeling of the concrete bioshield long-term performance in Light Water Reactors Author(s): Mohammed Alnaggar*, Yann Le Pape, Yong-Joon Choi
	11:10 - 11:30	EP240760 Multi-Physics Lattice Discrete Particle Model (M-LDPM) for the coupling of diffusion processes and fracture Author(s): Hao Yin*, Mohammed Alnaggar, Giovanni Di Luzio, Weixin Li, Madura Pathirage, Lei Shen, Matthew Treomner, Lifu Yang, Gianluca Cusatis
	11:30 - 11:50	EP240948 A dual random lattice model for the simulation of the time evolution of backward erosion piping Author(s): Zhijie Wang*, Caglar Oskay, Alessandro Fascetti
	11:50 - 12:10	EP240155 What can be expected from lattice modelling of quasi-brittle materials? Author(s): Julien Khoury*, Gilles Pijaudier-Cabot
0204: Design and additive manufacturing of engineering structures and materials Chairs(s): Reza Moini and Xiaojia Shelly Zhang		
Monroe Room	10:50 - 11:10	EP240942 Multi-physics modeling for metal additive manufacturing: Melt pool dynamics, defects, and powder spatters Author(s): Jinhui Yan*
	11:10 - 11:30	EP241005 Thermo-chemo-rheological modeling of direct ink writing based on frontal polymerization Author(s): Michael Zakoworotny*, Javier Balta, Gavin DeBrun, Aditya Kumar, Sameh Tawfick, Nancy Sottos, Philippe Geubelle
	11:30 - 11:50	EP240031 Reduced-order phase-field modeling for controlled microstructure in additive manufacturing Author(s): Zhengtao Gan*
	11:50 - 12:10	EP240340 Numerical simulation of the lateral behavior of 3D-printed hempcrete (3DPH) walls Author(s): Mohammad Syed*, Sumedh Sharma, Tal Mizrachi, Mohammad Aghajani Delavar, Maria Koliou, Petros Sideris
0209: Advanced engineering concepts, designs, and technologies for aerospace and extraterrestrial applications Chairs(s): Arturo Montoya, Ph.D., University of Texas, San Antonio, TX and Sushrut Vaidya, Ph.D., University of Connecticut, Storrs, CT		
LaSalle 2	10:50 - 11:10	EP241096 Revolutionary expandable rotating shielded space habitat: Pioneering sustainable life beyond earth Author(s): Anthony Longman, Muhao Chen*
	11:10 - 11:30	EP241185 Conservatism in the Structural Design Process Associated With Assuming Dynamic Loads are Static Author(s): J. Brent Knight*
	11:30 - 11:50	EP240936 Development of an Artificial Neural Network model for predicting damage of shielded lunar habitats Author(s): Arsalan Majlesi*, Amir Behjat, Adnan Shahriar, David Avila, Arturo Montoya
	11:50 - 12:10	EP240343 Bio-synthetic hydrogel-based concrete (bio-HBC) for construction on Mars Author(s): Ning Liu*, Wenwei Huang, Shing Chi Lam, Qikun Yi, Fei Sun, Jishen Qiu

0211: Advances on life-cycle of structures and infrastructure systems Chairs(s): Fabio Biondini and Armin Mehrabi		
Salon 10	10:50 - 11:10	EP240500 Life-cycle multi-hazard resilience assessment of transportation networks Author(s): Vahid Aghaeidoost*, AHM Muntasir Billah
	11:10 - 11:30	EP240765 Bayesian networks driven life-cycle seismic resilience of highway bridges Author(s): Hongyuan Guo*, Ruiwei Feng, You Dong
	11:30 - 11:50	EP241114 Mooring fatigue reliability of Floating Offshore Wind Turbine Author(s): J M Raisul Islam Shohag, Do-Eun Choe*
0305: Structural identification and damage detection Chairs(s): Wenjun Cao and Vasilis Dertimanis		
Wabash Room	10:50 - 11:10	EP240060 Unsupervised structural damage assessment using improved deep one-class anomaly detection Author(s): Soyeon Park*, Sunjoong Kim
	11:10 - 11:30	EP240213 Detection and localization of internal damage in sealed spent nuclear fuel canisters using a multi-task convolutional neural network (CNN) Author(s): Anna Arcaro*, Bozhou Zhuang, Bora Gencturk, Roger Ghanem
	11:30 - 11:50	EP240542 Damage identification for train wheels using real time data Author(s): Wenjun Cao*, Chan Ghee Koh, Ian F. C. Smith
	11:50 - 12:10	EP240588 Integrating acceleration and strain measurements for structural damage detection Author(s): Dhiraj Ghosh*, Suparno Mukhopadhyay
0306: Recent advances in sensing, SHM, and automated inspections for infrastructure condition assessment: Toward actionable solutions Chairs(s): Mohamad Alipour and Francisco Pena and Hai Nguyen		
Crystal Room	10:50 - 11:10	EP240165 Progressing stereophotogrammetry for expedited inspection of large-scale structures Author(s): Fabio Bottalico, Alessandro Sabato*
	11:10 - 11:30	EP240223 Experimental characterization and computer vision-based detection of pitting corrosion on stainless steel Author(s): Long Wang*, Luke Yium, Duncan Fure, Christopher Chau, Jessica Luu
	11:30 - 11:50	EP240426 The relative benefits of vision and strain gage-based SHM of miter gates Author(s): Travis Fillmore*, Shuo Wang, Brian Eick, Billie Spencer
	11:50 - 12:10	EP240675 Digital twins and civil engineering phases: Reorienting adoption strategies Author(s): Taiwo Adebiyi*, Nafeezat Ajenifuja, Ruda Zhang

0401: Topology optimization: From algorithmic developments to applications Chairs(s): Mazdak Tootkaboni		
Salon 5	10:50 - 11:10	EP240172 Inverse design of magneto-active metasurfaces and robots: Theory, computation, and experimental validation Author(s): Chao Wang*, Zhi Zhao, Xiaojia Shelly Zhang
	11:10 - 11:30	EP240291 Topology optimization of structures made of printing-driven anisotropic material response considering strength and serviceability requirements Author(s): Sri Keerthana Chakravarthula*, Dipankar Das, Petros Sideris
	11:30 - 11:50	EP240396 Topology optimization of beams' cross-sectional properties considering torsional and warping behavior Author(s): Christos Kostopoulos*, Ameer Marzok, Haim Waisman
	11:50 - 12:10	EP240618 Topology optimization of liquid crystal elastomer materials with a nonuniform director field Author(s): Tingting Xu*, Thao (Vicky) Nguyen, James Guest
	12:10 – 12:30	EP241205 Topological optimization of metamaterials for wave control Author(s): Mohamed Habeebulla Khazi*, Heedong Goh and Loukas F. Kallivokas
0502: Advances in geomechanics and geophysics for modern sub-surface technology and natural hazard Chairs(s): Giuseppe Buscarnera		
Water Tower Parlor	10:50 - 11:10	EP240277 Effect of osmotic pressure gradients on water diffusion and hydraulic fracturing of mafic rocks aimed at sustainable deep sequestration of CO2 Author(s): Anh Nguyen*, Pouyan Asem, Joseph Labuz, Zdenek Bazant
	11:10 - 11:30	EP240226 Poromechanical behavior of unsaturated shales Author(s): Roman Makhnenko*, Hyunbin Kim
	11:30 - 11:50	EP240714 Origins of the poroelastic Noordbergum effect Author(s): Ehsan Tavakol*, Amin Mehrabian
	11:50 - 12:10	EP240038 Active seismic monitoring of dry and saturated rock fractures Author(s): Kyungsoo Han*, Laura Pyrak-Nolte, Antonio Bobet
0602: Computational fluid dynamics (CFD) and fluid-structure interaction (FSI): Method development and applications Chairs(s): Jinhui Yan		
Chicago Room	11:10 - 11:30	EP240098 Addressing geometric and material nonlinearities in FSI simulations with the ALE-SSM framework Author(s): Dimitrios Kalliontzis*
	11:30 - 11:50	EP241080 Challenges in hydro-real-time hybrid simulation to examine the response of floating offshore wind turbines Author(s): Akiri Seki*, Yun Ni, Bret Bosma, Barbara Simpson, Bryson Robertson, Ted Brekken, Andreas Schellenberg, Pedro Lomonaco
	11:50 - 12:10	EP240852 A cross-scale neural network assisted powder dynamics model for additive manufacturing processes Author(s): Shashwot Paudel*, Jinhui Yan
	10:50 - 11:10	EP241034 System identification of response of oscillating surge wave energy converter using physics-informed neural network Author(s): Mahmoud Ayyad*, Lisheng Yang, Muhammad Hajj, Ahmed Shalaby, Alaa Ahmed, Jianuo Huang, Raju Datla, Lei Zuo

0704: Advances in modeling wind and its effects on the built environment Chairs(s): Teng Wu and Marco Giometto and Catherine Gorle		
Wilson Room	10:50 - 11:10	EP240493 Characterizing urban flow disturbances for safe UAM operations using high resolution large-eddy simulation Author(s): Emmanuel Akinlabi*, Dan Li
	11:10 - 11:30	EP240950 Impact of geometrical uncertainties in the prediction of pressure loads on a low-rise building using LES Author(s): Themistoklis Vargiemezis*, Catherine Gorlé
	11:30 - 11:50	EP240574 Aerodynamical cluster effect of arrays of infinite- and finite-height square cylinders in turbulent flow Author(s): Zheng-Tong Xie, Saad Inam*, Abhishek Mishra, Marco Placidi, Davide Lasagna, Alan Robins
	11:50 - 12:10	EP240993 Simulating the urban canopy's impact on natural cooling Author(s): Nicholas Bachand*, Catherine Gorlé
0901: Computational methods for stochastic engineering dynamics Chairs(s): Ketson dos Santos		
Salon 9	10:50 - 11:10	EP240945 On the existence, uniqueness and efficient calculation of Wiener path integral most probable paths for a class of nonlinear stochastic differential equations Author(s): Asela Nawagamuwage*, Ioannis Kougioumtzoglou, Athanasios Pantelous
	11:10 - 11:30	EP240344 Statistical linearization solution treatment of stochastically excited nonlinear systems: An alternative perspective based on computational algebraic geometry Author(s): Ioannis Kougioumtzoglou, Vasileios Fragkoulis*, Ioannis Petromichelakis
	11:30 - 11:50	EP240280 Closed-form solutions for the stochastic response of wind-excited structural systems based on integer- and non-integer-order filter approximations Author(s): Luca Roncallo*, Ilias Mavromatis, Ioannis Kougioumtzoglou, Federica Tubino
	11:50 - 12:10	EP240582 Stochastic response analysis of nonlinear structural systems subject to non-white and non-Gaussian excitations described by probability density functionals Author(s): Zifeng Huang*, Ioannis A. Kougioumtzoglou, Athanasios Pantelous, Michael Beer
1006: Uncertainty quantification and machine learning for design, optimization, and inference in multiscale systems Chairs(s): Zhiheng Wang		
LaSalle 3	10:50 - 11:10	EP240901 A stochastic hierarchical multiscale modeling framework for heterogeneous materials Author(s): Cornelius Otchere*, Kenneth Leiter, Jaroslaw Knap, Michael Shields
	11:10 - 11:30	EP240705 Operators learning for multiscale modeling: An example of elastic-viscoplastic structural material Author(s): Yupeng Zhang*, Kaushik Bhattacharya
	11:30 - 11:50	EP240668 Both specimen size and sample size matter for material certification Author(s): Philippe Hawi*, Venkat Aitharaju, Jay Mahishi, Roger Ghanem
	11:50 - 12:10	EP240743 Data-driven process uncertainty analysis of stochastic lack-of-fusion in laser powder bed fusion Author(s): Vamsi Subraveti*, Caglar Oskay

1007: Integration of physics-based models with data for identification, monitoring, estimation, and uncertainty quantification Chairs(s): Babak Moaveni and Hamed Ebrahimian		
LaSalle 1	10:50 - 11:10	EP240556 A new framework for model updating considering inherent discrepancy between numerical models and real structures Author(s): Chao-Sheng Hung*, Rih-Teng Wu
	11:10 - 11:30	EP240904 Learning modeling errors via a machine-infused Bayesian model updating approach Author(s): Mohammad Valikhani*, Kasra Shamsaei, Hamed Ebrahimian
	11:30 - 11:50	EP241143 Bayesian updating of hierarchical models applied to calibration and uncertainty quantification of constitutive material models Author(s): Maitreya Manoj Kurumbhati, Aakash Bangalore Satish*, Joel Pascal Conte
1011: Probabilistic assessment, data-driven inference and optimization for decision-making under uncertainty Chairs(s): Kostas Papakonstantinou and Pablo Morato		
Adams Room	10:50 - 11:10	EP240354 Belief Deep Markov Models for POMDP inference and solutions Author(s): Giacomo Arcieri*, Antonios Kamariotis, Kostas Papakonstantinou, Daniel Straub, Eleni Chatzi
	11:10 - 11:30	EP240476 An investigation into the robustness of inspection and maintenance strategies to model errors Author(s): Carmen Buliga*, Daniel Straub
	11:30 - 11:50	EP241177 Investigating convexity-enforced deep reinforcement learning algorithms for POMDPs Author(s): Daniel Koutas*, Daniel Hettegger, Daniel Straub
	11:50 - 12:10	EP240144 Enhancing the resilience of large-scale infrastructure networks using GNN-enhanced deep reinforcement learning Author(s): Jinzhu Yu*, Xudong Fan
1104: Resilience of coastal structures, systems, and community subjected to hazards Chairs(s): Jamie Padgett and Katerina Kyprioti		
Grant Park Parlor	10:50 - 11:10	EP240800 Experimental study of broken wave attenuation and load mitigation by mangrove forests of varying configuration and density Author(s): Vasileios Kotzamanis*, Dimitrios Kalliontzis
	11:10 - 11:30	EP240200 Effects of wall inclination on elevated structures subject to breaking waves: A multiphase SPH numerical exploration Author(s): Krisna Pawitan, Maria Garlock, Shengzhe Wang*
	11:30 - 11:50	EP240203 Enhancing the resilience of coastal bridges: The influence of box girder geometry on wave forces via SPH simulations Author(s): Gaoyuan Wu*, Maria Garlock
	11:50 - 12:10	EP240851 Risk assessment of seawall overtopping considering uncertainties under climate change Author(s): Xukai Zhang*, Arash Noshadravan

1105: Civil infrastructure in a changing climate: From nonstationary risk assessment to developing adaptation strategies Chairs(s): Eun Cha and Abdollah Shafieezadeh and Michele Barbato and Alex Taflanidis		
Hancock Parlor	10:50 - 11:10	EP240079 Balancing coastal resilience through the combined use of engineered and natural infrastructure for SLR protection Author(s): Mohamed Abdelhafez*, Hussam Mahmoud, Bruce Ellingwood
	11:10 - 11:30	EP240957 Optimal life-cycle adaptation under climate change Author(s): Ashmita Bhattacharya, Kostas Papakonstantinou*, Gordon Warn, Lauren McPhillips, Melissa Bilec, Chris Forest, Rahaf Hasan, Digant Chavda
	11:30 - 11:50	EP240130 Climate adaptive design for community resilience assessment: A temporal retrofit methodology for a changing climate Author(s): Jiate Li*, John van de Lindt
	11:50 - 12:10	EP240365 Towards climate resilience: Evaluating the mitigative impact of strengthening residential buildings on hurricane risks Author(s): Bowei Song, Yihan Jiang, Eun Jeong Cha*
1106: Objective resilience: Multi-scale resilience measures for electric power networks in climatic hazards Chairs(s): Alice Alipour and Abdollah Shafieezadeh and Poalo Bocchini		
Spire Parlor	10:50 - 11:10	EP240058 Class fragility models of transmission towers for regional analysis of transmission systems under hurricanes Author(s): Xinyue Wang*, Paolo Bocchini
	11:10 - 11:30	EP240573 Dynamic behavior of transmission line systems prone to non-uniform downburst wind loading Author(s): Mohamed Eissa*, Amal Elawady
	11:30 - 11:50	EP240055 Risk assessment and reliability modeling of transmission line systems under severe weather conditions Author(s): Pooria Mazaheri*, Alice Alipour
	11:50 - 12:10	EP240230 System-reliability-based disaster resilience analysis for power grids considering causality effects of cascading line outages Author(s): Youngjun Kwon*, Junho Song

12:20 – 13:20 Lunch | Exhibit Hall

12:20 – 13:20 Let's Talk - A Division Director's Take on Directions and Where CMMI Fits In| Chicago Room

13:20 – 14:20 Keynote 2 | Grand Ballroom

Development of resilient and durable construction materials through a robust multiscale mechanistic concept

Oral Buyukozturk, Ph.D., F. ASCE, F.EMI, F.ACI, F.RSE

14:20 – 18:00 Company Showcase and Student Engagement | Red Lacquer

Wednesday, May 29, Afternoon Sessions, 14:20 – 15:50

0101: Plan the future: Innovations in advanced cementitious materials and sustainability Chairs(s): Jianqiang Wei		
Salon 1	14:20 - 14:40	EP240187 Engineered biomolecules for self-healing resilient infrastructure materials Author(s): Elvis Baffoe, Ali Ghahremaninezhad*
	14:40 - 15:00	EP240706 Self-sensing cementitious composite using carbon nanotubes Author(s): Yu-Jin Jung*, Hye-Kyoung Jeon, Ga-Hyeon Eom, Sung-Hwan Jang
	15:00 - 15:20	EP240707 Assessing the integrity and gas permeability of polyvinyl alcohol (PVA) fiber reinforced mortar for oil and gas well decommissioning Author(s): Xiaoying Pan*, Bora Gencturk
	15:20 - 15:40	EP240471 Hydration mechanism of cement pastes with the addition of dry ice through electrochemical impedance spectroscopy Author(s): Peyman Harirchi, Mijia Yang*
0104: Mechanics of wood and wood-based materials Chairs(s): Markus Lukacevic		
Salon 4	14:20 - 14:40	EP240287 Phase field method-base modeling of wood fracture Author(s): Sebastian Pech*, Markus Lukacevic, Josef Füssl
	14:40 - 15:00	EP240480 Development and implementation of an anisotropic constitutive model for wood in ANSYS: Application in predicting the mechanical behavior of a hybrid connection for cross-laminated timber panels Author(s): Bleriot Vincent Feujofack Kemda*, Cristiano Loss
	15:00 - 15:20	EP240580 A probabilistic model for spatially varying tensile strength: Strength ratios Author(s): Fiona O'Donnell*, Kevin Murillo
	15:20 - 15:40	EP240284 Size effect of glued laminated timber beams based on the finite weakest-link theory Author(s): Christoffer Vida*, Markus Lukacevic, Sebastian Pech, Josef Füssl
0106: Advances in modeling of material damage and fracture Chairs(s): Lampros Svolos		
Salon 12	14:20 - 14:40	EP240239 Finite element based cohesive zone models for hydraulic fracture propagation in glaciers and ice shelves Author(s): Yuxiang Gao, Tim Hageman, Ravindra Duddu*, Emilio Martinez-Paneda
	14:40 - 15:00	EP240221 Stress-based phase-field fracture model for ice and rock fracture simulation Author(s): Duc Tien Nguyen*, Abhinav Gupta, Darshan Chinnadupargi Rajashekar, Chandrasekhar Annavarapu, Ravindra Duddu
	15:00 - 15:20	EP240268 Dynamic crack propagation in functionally graded materials under thermal shock: A novel phase field approach Author(s): Mohammad Naqib Rahimi*, Georgios Moutsanidis, Lampros Svolos
	15:20 - 15:40	EP240941 On the convexity of phase-field fracture formulations: Analytical study and comparison of various degradation functions Author(s): Lampros Svolos*, JeeYeon Plohr, Gianmarco Manzini, Hashem Mourad

0109: Modeling of materials with interfaces and scales using physics-based and machine-learning methods Chairs(s): Xiang Zhang		
Price Room	14:20 - 14:40	EP240333 Pre-trained transformer model as a surrogate in multiscale computational homogenization framework for elastoplastic composites Author(s): Zhongbo Yuan, Leong Hien Poh*
	14:40 - 15:00	EP240670 Crystal plasticity and surrogate modeling of deformation and martensite transformation of high-strength quenching and partitioning steels Author(s): Jiahao Cheng*, Xiaohua Hu, Brain Lin, Narayan Pottore, Andrew Chuang, Zhu Hong, Sriram Sadagopan
	15:00 - 15:20	EP240952 A machine learning framework for predicting concrete properties Author(s): Sama Taha*, Oral Buyukozturk
	15:20 - 15:40	EP241093 A physics-informed probabilistic machine learning approach for high-compactability asphalt mix design Author(s): Tianhao Yan*, Yuxiang Wan, Mugurel Turos, Qizhi He, Jia-Liang Le, Mihai Marasteanu
0111: Cementitious materials: Experiments and modeling across the scales Chairs(s): Bernhard Pichler		
Salon 7	14:20 - 14:40	EP240984 The precipitation degree: A new hydration variable describing universal hydration properties of white cement pastes Author(s): Nabor Jiménez Segura, Bernhard Pichler*, Christian Hellmich
	14:40 - 15:00	EP241053 Phase quantification of anhydrous CSA cements: A combined x-ray diffraction and Raman Imaging Approach Author(s): Chirayu Kothari*, Nishant Garg
	15:00 - 15:20	EP240516 Nonlinear basic creep of concrete: Interplay of viscoelasticity and cracking-induced damage Author(s): Rodrigo Díaz Flores*, Christian Hellmich, Bernhard Pichler
0115: Molecular scale modeling and experimentation Chairs(s): Dr. Sinan Keten and Dr. Kalpana Katti		
Buckingham Room	14:20 - 14:40	EP240219 Brucite carbonation: Molecular insights and sustainable carbon capture Author(s): Mehrdad Youzi*, Mohammad Javad Abdolhosseini Qomi
	14:40 - 15:00	EP240403 Dislocation distribution in medium entropy alloy CrCoNi using micropillar compression tests and molecular dynamics simulations Author(s): Mobin Vandadi*, Nima Rahbar
	15:00 - 15:20	EP240775 Potential development, molecular dynamics, and multiscale modeling of TiB and Ti/TiB composites Author(s): Shaoping Xiao*, Siamak Attarian, Akram Ghaffarigharehbagh, Yingbin Chen

0117: Mechanics and physics of granular materials Chairs(s): Alessandro F. Rotta Loria and Ryan Hurley and Marcial Gonzalez		
Salon 2	14:20 - 14:40	EP240827 Droplet impact on granular material modelled by coupled LBM-DEM Author(s): Linlin Fei, Dominique Derome, Jan Carmeliet*
	14:40 - 15:00	EP240874 New method for three-dimensional pore network identification of clays using FIB-SEM imaging Author(s): Yanzheng Ding, Fares Bennai, Mohamad Jrad, Julien Guyon, Mahdia Hattab*
	15:00 - 15:20	EP240323 Experimental evaluation of Cosserat model derived from granular micromechanics approach Author(s): Anil Misra*
	15:20 - 15:40	EP240792 Discrete computational modeling of thermo-hydro mechanical behavior frozen soils subjected to long-term freezing and thawing cycling Author(s): Danyang Tong*, Giuseppe Buscarnera, Alessandro F. Rotta Loria, David Grégoire, Gilles Pijaudier-Cabot, Gianluca Cusatis
0120: Architected materials Chairs(s): Josephine V. Carstensen and Pablo D. Zavattieri		
Salon 3	14:20 - 14:40	EP240063 Enhancing the confinement of structural members with auxetic architected truss lattice materials for civil infrastructure. Author(s): Thomas Vitalis*, Andrew Gross, Georgios Tzortzinis, Brian Schagen, Simos Gerasimidis
	14:40 - 15:00	EP240146 Cortical bone-inspired tough tubular architected cementitious materials Author(s): Shashank Gupta*, Reza Moini
	15:00 - 15:20	EP240180 Sinusoidal helicoidal architecture with nonplanar layering of filaments in additively manufactured cementitious materials Author(s): Yu Wang*, Ala Douba, Jan Olek, Jeffrey Youngblood, Pablo Zavattier
	15:20 - 15:40	EP240406 Enhancing mechanical properties of cementitious materials through auxetic materials Author(s): Mobin Vandadi, Sara Heidarnezhad, Pardis Pourhaji*, Nima Rahbar
0122: Modeling and characterization of brittle and quasibrittle fracture Chairs(s): Wen Luo		
Salon 10	14:20 - 14:40	EP240274 Asymptotically matched extrapolation of fishnet failure probability to continuum scale Author(s): Houlin Xu*, Joshua Vievering, Hoang Nguyen, Yupeng Zhang, Jia-Liang Le, Zdenek Bazant
	14:40 - 15:00	EP240737 Size effect on strength statistics of notched quasibrittle structures Author(s): Jia-Liang Le*, Jan Elias
	15:00 - 15:20	EP241002 Process modeling and characterization of a quasibrittle carbon fiber using molecular dynamics Author(s): Md Fazlay Alam*, Armanj Hasanyan
	15:20 - 15:40	EP240170 Mode I fracture load prediction of components weakened by symmetrical and asymmetrical V-notches using the phase-field method Author(s): Alireza Ashkpour*, Jamal Bidadi, Hamed Saeidi Googarchin, Hsiao Wei Lee, Li Meng, Ahmad Najafi

0123: Multiscale behavior of damage and healing mechanics Chairs(s): Poh Leong Hien		
Salon 6	14:20 - 14:40	EP240247 Multiscale numerical modeling of microstructural damage and tensile strength of UHPC Author(s): Yanmo Weng, Lizhi Sun*
	14:40 - 15:00	EP241201 Exploring mechanical battery safety in lithium-ion cells under various mechanical loading conditions Author(s): Edris Akbari*, George Z. Voyiadjis
	15:00 - 15:20	EP240125 Prediction of microbial-induced calcium carbonate precipitation and its application in self-healing cementitious material Author(s): Hsiao Wei Lee*, Li Meng, Ali Rahmaninezhad, Christopher Sales, Yaghoob Amir Farnam, Ahmad Najafi
	15:20 - 15:40	EP240607 A family of frame elements with damage evolution for steel structures Author(s): Jade Cohen*, Filip Filippou
0125: Discrete models for the simulation of infrastructure materials Chairs(s): Gianluca Cusatis and Mohammed Alnaggar		
Salon 8	14:20 - 14:40	EP240693 Coarse-grained lattice discrete particle modeling of ultra-high-performance concrete Author(s): Tathagata Bhaduri*, Mohammed Abdellatef, Mohammed Alnaggar
	14:40 - 15:00	EP240756 Numerical simulation of hardened 3D-printed ultra high performance concrete using the Lattice Discrete Particle Model Author(s): Erol Lale*, Ke Yu, Matthew Troemner, Gianluca Cusatis
	15:00 - 15:20	EP240814 An energy regularization scheme for the Multiscale Lattice Discrete Particle Model Author(s): Yingbo Zhu*, Alessandro Fascetti
	15:20 - 15:40	EP240778 Dissipation mechanisms of crack-parallel stress effects on fracture process zone in concrete Author(s): Zdenek Bazant, Yuhui Lyu, Madura Pathirage, Hoang Nguyen, Gianluca Cusatis*
0204: Design and additive manufacturing of engineering structures and materials Chairs(s): Reza Moini and Xiaojia Shelly Zhang		
Monroe Room	14:20 - 14:40	EP240759 Assessment of the printability of ultra-high-performance concrete for different printing systems Author(s): Shady Gomaa*, Ayesha Ahmed, Elmer Irizarry, Raul Marrero Rosa, Gianluca Cusatis
	14:40 - 15:00	EP240179 Upscaling architected metamaterials for applications in civil infrastructure using robotics Author(s): Brian Schagen*, Andreas Thoma, Matteo Pacher, Tanaya Bhave, Daniel Blank, Simos Gerasimidis
	15:00 - 15:20	EP240327 Thixotropy and rheological characterization of 3D-printable ultra-high-performance concrete Author(s): Ayesha Ahmed*, Raul Marrero Rosa, Shady Gomaa, Elmer Irizarry, Gianluca Cusatis
	15:20 - 15:40	EP240575 Bending performance of 3D steel auxetic lattice reinforced concrete Author(s): Neeraj Sharma*, Thomas Vitalis, Simos Gerasimidis, Kshitij Kumar Yadav

0305: Structural identification and damage detection Chairs(s): Dimitrios Anastasopoulos and Manolis Chatzis		
Wabash Room	14:20 - 14:40	EP240785 Detecting criticality in fibre reinforced cementitious composites using natural time analysis of acoustic emission under flexural loading Author(s): Kashif Naukhez*, R Vidya Sagar, Chandra Kishen
	14:40 - 15:00	EP240846 Data-driven ultrasonic imaging of delamination cavities in an anisotropic composite structure using convolutional neural network and level-set spectral element method Author(s): Boyoung Kim*, Shashwat Maharjan, Fazle Pranto, Bruno Guidio, Chanseok Jeong
	15:00 - 15:20	EP240862 Bayesian modal analysis based on spurious mode identification and Bayes-Mode-ID Author(s): Zhengyi Fu*, Heung Fai Lam
	15:20 - 15:40	EP240033 Strain-based OMA and quasi-static response monitoring of a Vierendeel truss railway bridge Author(s): Dimitrios Anastasopoulos*, Kristof Maes, Geert Lombaert, Edwin Reynders
0306: Recent advances in sensing, SHM, and automated inspections for infrastructure condition assessment: Toward actionable solutions Chairs(s): Mohamad Alipour and Francisco Pena and Anita Brown		
Crystal Room	14:20 - 14:40	EP240360 Finite element model updating of miter gates with nonlinear boundary conditions using static strain measurements Author(s): Trent Schreiber*, Yang Wang
	14:40 - 15:00	EP240394 Two-stage optimization approach for automated UAS structural visual inspection mission planning Author(s): Yuxiang Zhao, Benhao Lu, Mohamad Alipour*
	15:00 - 15:20	EP240389 Monitoring of long-term prestress losses in prefabricated prestressed slabs with complex cross sections using long-gauge sensors Author(s): Yitian Liang*, Branko Glisic
	15:20 - 15:40	EP241125 Real-life application and challenges of modern techniques and technologies towards a supervised automation of condition assessments Author(s): Francisco Pena, Ph.D.*
0401: Topology optimization: From algorithmic developments to applications Chairs(s): James Guest		
Salon 5	14:20 - 14:40	EP240753 Proper Generalized Decomposition for topology optimization of problems with separable geometry for minimal elastic or thermal compliance Author(s): Tomas Pauwels, Geert Degrande, Mattias Schevenels*
	14:40 - 15:00	EP240898 Discrete topology and sizing optimization solved with hierarchical-inspired deep reinforcement learning Author(s): Gordon Warn*, Maximilian Ororbia
	15:00 - 15:20	EP241003 Using machine learning to improve the quality of gradient-based topology-optimized designs Author(s): Dat Ha*, Josephine Carstensen
	15:20 - 15:40	EP241098 A novel approach to overhang constraints in topology optimization Author(s): Ardalan Nejat*, James Guest

0402: Emerging topology and shape optimization techniques in computational design of materials and structures Chairs(s): Nolan Black and Jonathan Gorman		
Spire Parlor	14:20 - 14:40	EP241198 A graph-based adjoint design sensitivity analysis approach for transient systems with history dependent material response Author(s): Brandon Talamini, Daniel A. Tortorelli*
	14:40 - 15:00	EP240101 Stress-constrained design of hierarchical structures using second-order homogenization and machine learning Author(s): Ahmad Najafi*, Nolan Black
	15:00 - 15:20	EP241133 Transient modeling and design optimization of biodegradable magnesium alloy fixation devices Author(s): Justin Unger*, Timothy P. Weihs, James Guest
	15:20 - 15:40	EP240100 Multiscale structural optimization for applications in thermal stability and actuation Author(s): Isabella Snyder*, Nolan Black, Ahmad Najafi
0502: Advances in geomechanics and geophysics for modern sub-surface technology and natural hazard Chairs(s): Ghassan Shahin		
Water Tower Parlor	14:20 - 14:40	EP240141 Reaction-driven fracturing in carbon sequestration by mineralization Author(s): Rui Feng*, John Rudnicki
	14:40 - 15:00	EP240735 Scaling effects in reduced physical tests: Insights from a gradient-type nonlocal plasticity model Author(s): Dawei Xue*, Giuseppe Buscarnera
	15:00 - 15:20	EP240142 Interpreting chemically assisted crack growth in calcite using Surface Force-based Fracture Theory Author(s): Hooman Dadras*, Yida Zhang
	15:20 - 15:40	EP240882 CT and 3DXRD on non-ideal crystals for geomechanics applications Author(s): Subham Bose*, Ye Tian, Ryan Hurley
0602: Computational fluid dynamics (CFD) and fluid-structure interaction (FSI): Method development and applications Chairs(s): Jinhui Yan		
Chicago Room	14:20 - 14:40	EP240808 Compressible Euler flow computations using the shifted boundary method Author(s): Xianyi Zeng*, Guglielmo Scovazzi
	14:40 - 15:00	EP241084 Examining the influence of fluid-structure interactions on dynamic stall in cross-flow turbines under high confinement Author(s): Rithwik Kandukuri*, Tony Clay, Richard Wiebe, Michael Motley, Jennifer Franck
	15:00 - 15:20	EP240812 Level-set Assisted Enriched Immersed Boundary Method for Stefan problem with applications to additive manufacturing process Author(s): Jongmin Rim*, Jinhui Yan
	15:20 - 15:40	EP241115 Effect of circadian rhythm modulated blood flow on nanoparticle based targeted drug delivery in virtual in vivo arterial geometries Author(s): Shoaib Goraya*, Shengzhe Ding, Mariam Arif, Hyunjoon Kong, Arif Masud

0704: Advances in modeling wind and its effects on the built environment Chairs(s): Catherine Gorle and Marco Giometto and Teng Wu		
Wilson Room	14:20 - 14:40	EP240184 Experimental investigation of highly turbulent wind field effects on spherical debris flight Author(s): Shaopeng Li, Kimia Yousefi Anarak*, Ryan Catarelli, Yanlin Guo, Kurtis Gurley, John van de Lindt
	14:40 - 15:00	EP240185 Numerical investigation of turbulence effect on flight trajectory of spherical windborne debris: A multi-layered approach Author(s): Shaopeng Li*, Kimia Yousefi Anarak, Ryan Catarelli, Yanlin Guo, Kurtis Gurley, John van de Lindt
	15:00 - 15:20	EP240041 CFD-based community-level hurricane wind hazard modeling using integrated BIM-GIS approach Author(s): Omar Nofal*, John van de Lindt, Ahmed Zakzouk
	15:20 - 15:40	EP240708 Large eddy simulation of wind flow over Oklahoma City using WRF-LES Author(s): Gokhan Kirkil*
0901: Computational methods for stochastic engineering dynamics Chairs(s): Athanasios Pantelous		
Salon 9	14:20 - 14:40	EP241025 A spline chaos expansion for uncertainty quantification in linear dynamical systems Author(s): Sharif Rahman*
	14:40 - 15:00	EP240612 Stochastic subspace via probabilistic principal component analysis for model-form uncertainty Author(s): Akash Yadav*, Ruda Zhang
	15:00 - 15:20	EP240912 Exact dynamic analysis of beams with distributed stochastic parameters Author(s): Sondipon Adhikari*, S Mukherjee, A Roy
	15:20 - 15:40	EP240035 Quantification of urban and community resilience to natural hazards Author(s): George Chatzikyriakidis, Gholamreza Moghimi, Nicos Makris*, Tue Vu
1007: Integration of physics-based models with data for identification, monitoring, estimation, and uncertainty quantification Chairs(s): Haeyoung Noh and Hamed Ebrahimian		
LaSalle 1	14:20 - 14:40	EP240081 Hybrid physics-data driven digital twinning of a 6 MW offshore wind turbine for estimation of aerodynamic stiffness and damping Author(s): Burak Bagirgan*, Eleonora Maria Tronci, Babak Moaveni, Eric Hines
	14:40 - 15:00	EP240432 Multi-physics model updating of a jacket offshore wind turbine using measured vibration data Author(s): Nasim Partovi Mehr*, Eric Hines, Babak Moaveni
	15:00 - 15:20	EP240439 Wind load estimation of offshore wind turbine based on KalmanNet Author(s): Azin Mehrjoo*, Mingming Song, Babak Moaveni
	15:20 - 15:40	EP240825 Digital twinning of offshore wind turbines using vibration measurements Author(s): Babak Moaveni*

1011: Probabilistic assessment, data-driven inference and optimization for decision-making under uncertainty Chairs(s): Pablo Morato		
Adams Room	14:20 - 14:40	EP240659 Evaluating actions to increase infrastructure resilience through a Bayesian system modeling framework Author(s): Cynthia Lee, Iris Tien*
	14:40 - 15:00	EP241075 Graph neural networks for power grid risk management Author(s): Yadong Zhang*, Pranav Karve, Sankaran Mahadevan
	15:00 - 15:20	EP240745 Neural networks ensembles of residuals to accelerate power grid contingency analysis Author(s): Nicholas A. G. Casaprima*, Somayajulu L. N. Dhulipala, Audrey Olivier, Ryan C. Hruska
	15:20 - 15:40	EP240877 Metamodeling from Bayesian perspective Author(s): Sin-Chi Kuok*, Ka-Veng Yuen
1101: Towards resilient coastlines: Advancements and new approaches Chairs(s): Teng Wu		
LaSalle 2	14:20 - 14:40	EP240150 Investigation of wind forcing on the energy dissipation of solitary waves in a storm surge Author(s): Hunter Boswell*, Guirong (Grace) Yan, Wouter Mostert
	14:40 - 15:00	EP240243 Assessing bridge performance and its effects on transportation network resilience under hurricane storms Author(s): Xuechen Ni*, Maria Koliou
	15:00 - 15:20	EP240245 Fragility assessment of industrial cooling towers under hurricane wind loads Author(s): Andres Calvo*, Jamie Padgett
	15:20 - 15:40	EP240386 Effect of incorporating hurricane duration on the regional loss assessment of a portfolio of wooden structures using simulation-based full track approach Author(s): Chao Sheng*, Paolo Bocchini
1104: Resilience of coastal structures, systems, and community subjected to hazards Chairs(s): William Hughes and Katerina Kyprioti		
Grant Park Parlor	14:20 - 14:40	EP240162 Equity-based retrofit decision-making for Galveston's electric distribution network Author(s): Abigail Beck*, Eun Jeong Cha, Walter Gillis Peacock
	14:40 - 15:00	EP240077 Analytical and experimental testing for increased shear plane of deployable geosystems for coastal stabilization Author(s): Elizabeth Capretta*, Khuzaima Hummad, Ann Sychertz
	15:00 - 15:20	EP240256 Role of insurance claims data from hurricanes in catastrophe modeling Author(s): Zhiming Zhang*, Jianjun Luo, Karthik Ramanathan

1105: Civil infrastructure in a changing climate: From nonstationary risk assessment to developing adaptation strategies Chairs(s): Eun Cha and Abdollah Shafieezadeh and Michele Barbato and Alex Taflanidis		
Hancock Parlor	14:20 - 14:40	EP240091 Projection of tropical cyclone activities under future climate Author(s): Grace Yan*
	14:40 - 15:00	EP240303 Resilient power systems in a changing climate: Adaptive replacement strategies for utility structures Author(s): Jaeyeong Lim*, Abdollah Shafieezadeh
	15:00 - 15:20	EP240317 A framework to mitigate wind-intensified wildfire incidents caused by failures in electric power system components Author(s): Amir Tajik*, Yousef Darestani, Payman Dehghanian
	15:20 - 15:40	EP240940 Life-cycle of structures and infrastructure systems under climate change Author(s): Fabio Biondini*, Zoubir Lounis, Michel Ghosn
1111: Reliability analysis and rare event probability estimation Chairs(s): Kostas Papakonstantinou		
LaSalle 3	14:20 - 14:40	EP240818 Importance sampling with Langevin Dynamics: Integrating optimization and geometry for enhanced reliability analysis Author(s): Armin Tabandeh, Gaofeng Jia*, Paolo Gardoni
	14:40 - 15:00	EP240780 Inverse importance sampling-based framework for reliability estimation in complex, high-dimensional spaces Author(s): Elsayed Eshra*, Kostas Papakonstantinou
	15:00 - 15:20	EP240972 Self-structured importance sampling for chance-constrained optimization Author(s): Sai Rakshith, Anand Deo*, Karthyek Murthy, Anirudh Subramanyan, Shanyin Tong
	15:20 - 15:40	EP240139 Noise-aware stopping criteria for active learning reliability with noisy limit-states Author(s): Anderson Vinha Pires*, Augustin Persoons, Maliki Moustapha, Stefano Marelli, David Moens, Bruno Sudret

15:50 – 16:10 Break | Exhibit Hall

Wednesday, May 29, Evening Sessions, 16:10 – 18:00

0101: Plan the future: Innovations in advanced cementitious materials and sustainability Chairs(s): Jianqiang Wei		
Salon 1	16:10 - 16:30	EP240021 Probabilistic structural vulnerability framework: Hazard intensity measure and fragility parameters concerning the reliability-based vulnerability index Author(s): Seyed Hooman Ghasemi*
	16:30 - 16:50	EP240156 Seismic fragility analysis using mNARX modelling Author(s): Styfen Schär*, Stefano Marelli, Bruno Sudret
	16:50 - 17:10	EP240525 A PINN method for registration of medical images Author(s): Amirhossein Amiri-Hezaveh*, Adrian Buganza Tepole
	17:10 - 17:30	EP240628 Finite volume based multi-contact modeling to study detailed mechanical response of an elastic material Author(s): Ranjan Dhakal*, Philip Cardiff
0104: Mechanics of wood and wood-based materials Chairs(s): Markus Lukacevic		
Salon 4	16:10 - 16:30	EP240404 Ion diffusion rate in soft wood structures: A molecular dynamics study Author(s): Sina Youssefian, Mobin Vandadi*, Joseph Jakes, Nima Rahbar
	16:30 - 16:50	EP240977 Molecular mechanisms underlying the peg-treatment of wood cell wall components Author(s): Ali Shomali*, Jan Carmeliet, Dominique Derome
	16:50 - 17:10	EP240757 Prediction of mechanosorptive creep in mass timber via microprestress theory Author(s): Susan Alexis Brown*, Giovanni Di Luzio, Gianluca Cusatis
	17:10 - 17:30	EP240466 Development of a lignin-bonded biocomposite from sawmill by-products Author(s): Markus Lukacevic*, Josef Füssl, Michael Schwaighofer, Markus Königsberger, Luis Zelaya-Lainez
	17:30 - 17:50	EP240235 Characterization of mechanical properties of five hot-pressed lignins extracted from different feedstocks by micromechanics-guided nanoindentation Author(s): Luis Zelaya-Lainez*, Michael Schwaighofer, Markus Königsberger, Markus Lukacevic, Sebastian Serna-Loaiza, Michael Harasek, Anton Friedl, Josef Füssl

0105: Mechanics of soft synthetic and biological materials: Theory, simulation, and experiment Chairs(s): Aditya Kumar, Berkin Dortdivanlioglu		
Crystal Room	16:50 - 17:10	EP240519 Numerical and experimental analyses of a new tonometer based on solitary waves Author(s): Madison Hodgson*, Ali Komaie, Piervincenzo Rizzo, Samuel Dickerson
	17:10 - 17:30	EP240391 Shape morphing with swelling hydrogels and expanding foams Author(s): Abigail Plummer*, Caroline Adkins, Tom Marzin, Julien Le Dreff, Sujit Datta, P.-T. Brun, Andrej Košmrlj
	17:30 - 17:50	EP240794 Nonlinear mechanics of remodeling and growth Author(s): Aditya Kumar*, Arash Yavari
	16:10 - 16:30	EP240029 EcoCFTrack: Advanced diagnostic, monitoring, and tracking device for affordable cystic fibrosis care Author(s): Roshira Premadasa*, Qianyun Zhang
	16:30 - 16:50	EP240887 Curvature-matching mechanics in skin-based bioelectronics to minimize interfacial stresses Author(s): Raudel Avila*
0106: Advances in modeling of material damage and fracture Chairs(s): Mostafa Mobasher		
Salon 12	16:10 - 16:30	EP240700 Effect of excessive clamping force on bolted CFRP composite plates Author(s): Alaa Elsisi*, Hani Salim
	16:30 - 16:50	EP240682 On calibration and validation of a cohesive zone model for mixed-mode delamination in Z-pinned composites Author(s): Alex Faupel*, Caglar Oskay
	16:50 - 17:10	EP240214 Phase field fracture approach to model complex crack interactions in fiber reinforced polymer composites Author(s): Akash Kumar*, Trisha Sain
	17:10 - 17:30	EP240878 Multiscale modeling of localized damage in ceramic matrix composite structures with the Generalized Finite Element Method Author(s): Bryce Mazurowski*, Patrick O'Hara, Armando Duarte
	17:30 - 17:50	EP240127 Fracture response of BioFiber-reinforced concrete (BioFRC) Author(s): Amirreza Sadighi*, Mohammad Houshmand, Ali Rahmaninezhad, Divya Kamireddi, Yaghoob Amir Farnam, Christopher Sales, Caroline Schauer, Ahmad Najafi
0109: Modeling of materials with interfaces and scales using physics-based and machine-learning methods Chairs(s): Ravindra Duddu and Reza Abedi		
Price Room	16:30 - 16:50	EP240684 Efficient computation of reduced order basis for eigenstrain homogenization method for multiscale polycrystal plasticity simulations Author(s): Aslan Nasirov*, Caglar Oskay
	16:50 - 17:10	EP240982 A non-uniform adaptive model order reduction technique for modeling composite materials Author(s): Min Lin, David Brandyberry, Xiang Zhang*
	17:10 - 17:30	EP240522 Linking micro-morphology and macro-mechanics: Uncertainty quantified parametrically upscaled constitutive mechanics model (UQ-PUCDM) for composites through physics-based machine learning Author(s): Yanrong Xiao*, Deniz Ozturk, Xiaofan Zhang, Somnath Ghosh
	16:10 - 16:30	EP241047 Additive manufacturing process modeling with Multi-Output Gaussian Processes Author(s): Som Dhulipala*, Sudipta Biswas, Peter German

0111: Cementitious materials: Experiments and modeling across the scales Chairs(s): Bernhard Pichler		
Salon 7	16:10 - 16:30	EP240909 An approach for design of multi-material wellbore plug placement processes accounting for uncertainty Author(s): Carlos Garcia Verdugo*, Eilis Rosenbaum, Matthew Grasinger, Julie Vandenbossche, John Brigham
	16:30 - 16:50	EP240822 Autogenous shrinkage and swelling of submerged or sealed specimens of ultra-high-performance cement paste Author(s): Raul Marrero Rosa*, Tapiwanashe Bhibho, Oscar Manuel Gonzalez, Zdenek Bazant, Gianluca Cusatis
	16:50 - 17:10	EP241091 Enhanced durability of concrete with during- and post-cure shrinking fibers Author(s): Mohammad Abdul Qader, Bismark Yeboah, Diarmuid Gregory, Mandar Dewoolkar, Dryver Huston*
	17:10 - 17:30	EP240567 Cemcat: Cementitious materials catalogue with their compositions, properties, synthesis and characterization methods, and applications Author(s): Mohd Zaki*, N. M. Anoop Krishnan, Jayadeva Jayadeva
	17:30 - 17:50	EP240566 Reconstruction of multi-phase cement paste virtual specimens using deep learning Author(s): Sung-Wook Hong, Se-Yun Kim, Donghwi Eum, Tong-Seok Han*
0112: Small scale phenomena in sustainable & complex materials Chairs(s): Nishant Garg		
Salon 8	16:10 - 16:30	EP241197 From small scale fracture tests to open metrology & circular economies Author(s): Christos E. Athanasiou*
	16:30 - 16:50	EP240962 Sorptivity prediction in seconds Author(s): Hossein Kabir*, Nishant Garg
	16:50 - 17:10	EP240215 Elucidating the enhancement mechanisms of carbon nanomaterials in fine recycled concrete aggregate mortars Author(s): Nathanial Buettner*, Gass Iyacu, Ange-Therese Akono
	17:10 - 17:30	EP240920 Dissolution kinetics of calcium hydroxide Author(s): Yoonjung Han*, Natasha V. D. Levy, Umme Zakira, Jonathan Lapeyre, Mine Ucak-Astarlioglu, Jedadiah F. Burroughs, Jeffrey W. Bullard
	17:30 - 17:50	EP240336 Model for simultaneous carbonation and hydration of belite clinker during carbonation curing Author(s): Julian Stapper*, Quin R.S. Miller, Mohammad Javad Abdolhosseini Qomi

0117: Mechanics and physics of granular materials Chairs(s): Alessandro F. Rotta Loria and Ryan Hurley and Marcial Gonzalez		
Salon 2	16:10 - 16:30	EP240252 Effect of the particle shape on the elastic anisotropy of granular materials Author(s): Shubjot Singh*, Giuseppe Buscarnera
	16:30 - 16:50	EP240259 Constitutive modeling of the rate-dependency of sand during flowslides Author(s): Ming Yang*, Giuseppe Buscarnera
	16:50 - 17:10	EP240271 Dynamic feeding-discharging behavior of milled corn stover in wedge-shaped hoppers Author(s): Yimin Lu*, Nicholas Deak, Hariswaran Sitaraman, Yidong Xia, Jordan Klinger
	17:10 - 17:30	EP240462 A micro-macro hopper flow design for handling granular biomass materials Author(s): Abdallah Ikbarieh*, Yumeng Zhao, Wencheng Jin
	17:30 - 17:50	EP241142 Highly stretchable pantograph-inspired multi-layer lattice metamaterials Author(s): Kehinde Omotayo*, Mohammad Amin Hodaei, Paul Resch, Ranganathan Parthasarathy, Anil Misra, Landon Onyebueke, Catherine Armwood-Gordon, Lin Li
0120: Architected materials Chairs(s): Tim Chen and David Restrepo		
Salon 3	16:10 - 16:30	EP241042 Stress focusing in soft lattices undergoing extreme, topology-switching deformation Author(s): Caleb Widstrand, Joseph Labuz, Xiaoming Mao, Stefano Gonella*
	16:30 - 16:50	EP240310 Feather-inspired architected materials with shape memory Author(s): Phani Saketh Dasika, Yunlan Zhang, Pablo Zavattieri*
	16:50 - 17:10	EP241106 Design framework for microscale 3D woven architected materials Author(s): Molly Carton*, James Surjadi, Bastien Aymon, Carlos Portela
	17:10 - 17:30	EP240832 Double-network-inspired woven metamaterials Author(s): James Surjadi*, Bastien Aymon, Molly Carton, Carlos Portela
	17:30 - 17:50	EP241088 Architected foams for compact and lightweight cushioning Author(s): Abhishek Gupta*, Komal Chawla, Ramathasan Thevamaran

0121: Contributions of high-performing lightweight materials to sustainable development and infrastructure resilience of engineering systems Chairs(s): Nima Khodadadi		
Salon 6	16:10 - 16:30	EP240196 Synergistic effects of nanoparticle geometric shape and post curing on carbon-based nanoparticle reinforced epoxy nanocomposites: Characterization, microstructure and adhesion properties Author(s): Dawei Zhang*, Ying Huang, Xingyu Wang
	16:30 - 16:50	EP240415 Ensemble machine learning model to predict the compressive strength of geopolymer recycled aggregate concrete Author(s): Nima Khodadadi*, Emadaldin Mohammadi Golafshani, Tuan Ngo, Ali Behnood, Francisco Decaso, Antonio Nanni
0122: Modeling and characterization of brittle and quasibrittle fracture Chairs(s): Jia-Liang Le		
Salon 10	16:10 - 16:30	EP241063 Dynamic rupture modeling in a complex fault zone with distributed and localized damage Author(s): Chunhui Zhao*, Md Shumon Mia, Ahmed Elbanna, Yehuda Ben-Zion
	16:30 - 16:50	EP240106 Bound constrained optimization using Lagrange multiplier for a length scale insensitive phase field model Author(s): Li Meng*, Hsiao Wei Lee, Alireza Ashkpour, Ahmad Najafi
	16:50 - 17:10	EP240464 The effect of strength distribution at the microscale on macroscopic fracture strength and energy Author(s): Reza Abedi*, Giang Huynh, Erdem Caliskan, Colin Furey, Farhad Pourkamali-Anaraki, Alireza Amirkhizi, Christopher Hansen
	17:10 - 17:30	EP241150 Rare-event reliability evaluation of additively manufactured composites with high-throughput tests Author(s): Shafi Shahriar, Wen Luo*
	17:30 - 17:50	EP240694 Effect of constraints on brittle fracture of thick steel elements Author(s): Thanh Do*
0204: Design and additive manufacturing of engineering structures and materials Chairs(s): Josephine Carstensen		
Monroe Room	16:10 - 16:30	EP240858 Engineering mechanics of suture interlocking mechanism in cementitious hard-soft composites by design and additive manufacturing Author(s): Dana Daneshvar, Mahsa Rabiei, Aimane Najmeddine, Reza Moini*
	16:30 - 16:50	EP241123 Algorithmic encoding of adaptive responses in temperature-sensing multi-material architectures Author(s): Xiaojia Shelly Zhang*, Weichen Li, Yue Wang, Tian Chen
	16:50 - 17:10	EP240751 Topology optimization for material-extrusion additive manufacturing with large deposition to design feature size ratios Author(s): Hajin Kim-Tackowiak*, Josephine Carstensen
	17:10 - 17:30	EP240554 Automated design-analysis-optimization workflow for aerospace structures using isogeometric Kirchhoff–Love shells Author(s): Han Zhao*, David Kamensky, John Hwang, Jiun-Shyan Chen

0212: Repair and assessment of deteriorating critical infrastructure Chairs(s): Christine Lozano and Hussam Mahmoud		
Salon 5	16:10 - 16:30	EP240688 Experimental design and deep neural networks for predicting the conditions of structurally deficient bridges Author(s): Olivia Smith, Weidong Wu*, Joseph Owino, Yu Liang, Lan Gao, Dalei Wu
	16:30 - 16:50	EP240088 Entropy based life cycle framework for inspection and management of marine structures Author(s): Akshat Chulahwat*, Hussam Mahmoud
	16:50 - 17:10	EP240197 Cyclic actuation behavior of iron-based shape memory alloys for use in self-centering columns Author(s): Huanpeng Hong*, Bora Gencturk, M Saiid Saiidi
	17:10 - 17:30	EP240151 Computational analysis of repair and rehabilitation of aging underground cast-iron pipelines with cure-in-place-pipe liner Author(s): Junyi Duan*, Chengcheng Tao, Yizhou Lin, Ying Huang
	17:30 - 17:50	EP240663 Assessment of mass concrete structure joint condition by application of impact loads from a Cold Gas Thruster Author(s): Martin Butler*, Gabriel Riveros
0304: Advances in bridge health monitoring: Data-driven and machine learning methods, indirect monitoring, crowdsourced mobile sensing Chairs(s): Shamim Pakzad and Debarshi Sen		
Salon 9	16:30 - 16:50	EP240382 Bridge modal identification using time-frequency analysis of mobile sensing data Author(s): Liam Cronin, Giulia Marasco, Debarshi Sen*, Thomas Matarazzo, Shamim Pakzad
	16:50 - 17:10	EP240481 Graph Neural Networks based virtual sensing: A machine learning approach for fatigue assessment Author(s): Giulia Marasco*, Debarshi Sen, Shamim Pakzad
	17:10 - 17:30	EP240521 Failure prediction of damaged members using a deep neural network (DNN) Author(s): Richard Snyder*, Hyunjoong Kim, Joel Harkness
	17:30 - 17:50	EP240561 Sensing based simulation of force and displacement in reinforced concrete bridge columns subjected to seismic events by using plasticity and bar-slip models Author(s): Amir Iranmanesh*, Mahsa Panahi, Farhad Ansari
	16:10 - 16:30	EP240149 A differentiable material point method for inverse estimation in SHM of railway bridges Author(s): Jeffrey Cheng*, Krishna Kumar, Matthew DeJong
0305: Structural identification and damage detection Chairs(s): Vasilis Dertimanis		
Wabash Room	16:10 - 16:30	EP240630 Structural damage detection using physics-informed domain adaptation Author(s): Zixin Wang*, Ojaswi Acharya, Mohammad Jahanshahi
	16:50 - 17:10	EP240944 Estimation of unknown parameters and hidden physics with adaptive basis function and successive convex approximation Author(s): Letian Yi*, Siyuan Yang, Ying Cui, Zhilu Lai
	17:10 - 17:30	EP241113 Identification of structural properties from LVD measurement of a steel railway bridge Author(s): Tzuyang Yu*
	16:30 - 16:50	EP240886 Identification of creep damage in structural systems using Physics-Informed Parallel Neural Networks Author(s): Rui Zhang*, Gordon Warn, Aleksandra Radlińska

0309: Leveraging structural sensing and monitoring for informed decision-making, mitigation, and post-event management Chairs(s): Milad Roohi and Saeed Eftekharazam and Kalil Erazo and Doeun Choe and Eleonora Tronci		
Wilson Room	17:10 - 17:30	EP241064 Advancements in structural system identification for floating offshore wind turbines: Model calibration Author(s): Martin Masanes Didyk*, Yashar Eftekhar Azam, Ibrahim Taze, Barbara Costa Girafa
	17:30 - 17:50	EP241066 Hybrid decision making framework for mooring-line failures of Floating Offshore Wind Turbines Author(s): J M Raisul Islam Shohag, Do-Eun Choe*
	16:10 - 16:30	EP240921 A model-based framework for structural damage assessment of instrumented civil infrastructure systems Author(s): Kalil Erazo*
	16:50 - 17:10	EP240507 Sensor development and characterization for post-wildfire water recovery Author(s): Amanda McCann, Amy Metz, Erica Fischer, Lauren Linderman*
	16:30 - 16:50	EP240823 Convolutional neural network for identifying effective seismic force and rapid reconstruction of seismic motions in built environments and soils Author(s): Shashwat Maharjan*, Bruno Guidio, Chanseok Jeong
0310: New trends in vibration control and energy harvesting: Modeling and analysis of innovative materials and structures at micro- and macro-scale Chairs(s): Francesco Paolo Pinnola and Alberto Di Matteo		
Buckingham Room	16:30 - 16:50	EP240884 Recent advances on the evaluation of path-dependent work and internal energy change for mechanical systems with complex hysteretic behavior Author(s): Nicolò Vaiana*, Luciano Rosati
	16:50 - 17:10	EP241033 Scaling effects of a bistable piezomagnetoelastic non-linear energy harvester Author(s): Hossam Alqaleiby*, Mahmoud Ayyad, Muhammad Hajj
	17:10 - 17:30	EP240902 A viscoelastic nonlocal model for dynamic behavior of dielectric elastomer plates Author(s): Francesco Paolo Pinnola*, Alotta Gioacchino, Francesco Scudieri, Francesco Marotti de Sciarra
	17:30 - 17:50	EP240744 Novel TLCD-based wave energy converter with dielectric elastomer generator Author(s): Alberto Di Matteo*, Antonina Pirrotta
	16:10 - 16:30	EP240549 Assessment of particle damping systems in reducing motion of floating wind turbine platforms Author(s): Ahmed Shalaby*, Muhammad Hajj, Raju Datla, Mahmoud Nassar, Sami Masri, Lei Zuo, Jia Mi

0402: Emerging topology and shape optimization techniques in computational design of materials and structures Chairs(s): Daniel Tortorelli and Ahmad Najafi		
Spire Parlor	17:10 - 17:30	EP240084 Topology optimization of structural battery composites using a virtual temperature constraint to ensure bi-continuous material distributions Author(s): Jonathan Gorman*, Reza Pejman, Ahmad Najafi
	17:30 - 17:50	EP240729 Computational design approaches for tailoring the rate-dependent response of soft metamaterials exhibiting instabilities Author(s): Ryan Alberdi*, Craig Hamel, Aabhas Singh, Adam Cook, Kevin Long
	16:30 - 16:50	EP240099 Second-order homogenization for multiscale structural optimization applications Author(s): Nolan Black*, Ahmad Najafi
	16:50 - 17:10	EP240381 A framework for the topology optimization of multi-physics, multi-material microstructures using neural networks Author(s): Akshay Kumar*, Krishnan Suresh
	16:10 - 16:30	EP240019 Topology optimization of elasto-plastic structures and materials Author(s): Mathias Wallin*
0502: Advances in geomechanics and geophysics for modern sub-surface technology and natural hazard Chairs(s): Ghassan Shahin		
Water Tower Parlor	16:10 - 16:30	EP240366 Normal stress variation and pore pressure rate effect on a rate and state frictional fault Author(s): Micaela Mercuri*, John Rudnicki
	16:30 - 16:50	EP240551 Discrete element analysis of the influence of porosity on strike-slip surface fault rupture Author(s): Fernando Garcia*
	16:50 - 17:10	EP241079 A thermo-hydro-mechanical formulation for modelling fault slip over the seismic cycle Author(s): Antoine Jacquey*, Manolis Veveakis, Robert Viesca
	17:10 - 17:30	EP240477 Conditions for steady creep, asesmic transients, and seismic slip in a single-asperity strike-slip fault Author(s): Federico Ciardo*, Robert Viesca, Dmitry Garagash
	17:30 - 17:50	EP241051 On the role of bulk strength in generating a spectrum of fault slip patterns Author(s): Md Shumon Mia, Amr Ibrahim, Mohamed Abdelmeguid, Ahmed Elbanna*

0602: Computational fluid dynamics (CFD) and fluid-structure interaction (FSI): Method development and applications Chairs(s): Dimitrios Kalliontzis		
Chicago Room	16:10 - 16:30	EP240499 Performance optimization of cross flow turbine for energy generation from moving water Author(s): Mahmoud E. Abd El-Latief*, Ahmed Shalaby, Raju Datla, Muhammad Hajj
	16:30 - 16:50	EP241039 Numerical investigation of wave scour around tandem cylinders Author(s): Haq Murad Nazari*, Celalettin Emre Ozdemir
	16:50 - 17:10	EP240876 The impact of surface roughness on the ship's resistance Author(s): Gabriella Bognar*
	17:10 - 17:30	EP240377 Effect of different tornado chambers on vortex structure and vortex parameters Author(s): Rathinam Selvam*
0701: Advanced analysis for earthquake engineering Chairs(s): Kevin Wong		
Grant Park Parlor	17:10 - 17:30	EP240134 Propagation of RC beam-column joint modeling uncertainty to the seismic performance of RC buildings using incremental record-wise LHS Author(s): Medhat Elmorsy*, Michalis Vassiliou, Dimitrios Vamvatsikos
	17:30 - 17:50	EP240040 Numerical and experimental validation of an uplift friction damper for seismically resilient rocking wall seismic-force resisting systems Author(s): Daniel Dowden*
	16:10 - 16:30	EP240988 Evaluating the influence of seismic mitigation measures on the performance of Chilean bridges Author(s): Esteban Amaya*, Alexandros Taflanidis
	16:30 - 16:50	EP240987 Fragility assessment of anticipatory automatic seismic trip systems for critical facilities Author(s): Mohammad Salehi*, Kaniel Tilow, Benjamin Kosbab
	16:50 - 17:10	EP240599 Semi-analytical and numerical analyses of tunnels subjected to arbitrarily inclined seismic waves Author(s): Swetha Veeraraghavan*

0703: Tropical cyclone induced winds, surge-wave, flooding and impacts on infrastructure systems Chairs(s): Chao Sun and Guirong Yan and Celalettin Ozdemir		
Hancock Parlor	16:50 - 17:10	EP240541 Modeling business interruption loss due to hurricane wind Author(s): Changda Feng*, Tim Johnson, Karthik Ramanathan
	17:10 - 17:30	EP240118 Characterizing coupled extreme wind-wave loads on offshore wind turbines using large eddy simulations Author(s): Tianqi Ma, Chao Sun*
	17:30 - 17:50	EP240965 Validating multiphase numerical simulation of shoaling regular and irregular waves Author(s): Max Beeman*, Catherine Gorlé
	16:10 - 16:30	EP240398 Storm surge vulnerability of idealized deltaic landscapes under future sea level rise scenarios Author(s): Sayed Omar Hofioni*, Peter Bacopoulos, Celalettin Emre Ozdemir, Matthew Hiatt
	16:30 - 16:50	EP241007 Flood performance evaluation of process pipelines using finite element analysis Author(s): Md Manik Mia*, Sabarethinam Kameshwar
1007: Integration of physics-based models with data for identification, monitoring, estimation, and uncertainty quantification Chairs(s): Babak Moaveni and Haeyoung Noh		
LaSalle 1	16:10 - 16:30	EP240644 Uncertainty quantification of complex structural connections through Bayesian model updating using modal data Author(s): Milad Mehrkash*, Erin Bell
	16:30 - 16:50	EP240784 Operational health monitoring of bridges using multimodal data fusion and Bayesian finite element model updating techniques Author(s): Niloofar Malekghaini*, Hamed Ebrahimian, Farid Ghahari, Mathew Bowers, Ertugrul Taciroglu, Frederick Harris
	16:50 - 17:10	EP240931 Real-time state estimation of nonstationary systems using topological data analysis features Author(s): Arman Razmarashooli*, Daniel Salazar, Simon Laflamme
	17:10 - 17:30	EP240946 Pairing UAV-collected imagery data and machine learning for corrosion detection in bridge inspections in areas with chaotic data Author(s): Hana Herndon*, Iris Tien
	17:30 - 17:50	EP240402 Water facility monitoring through pre-existing telecommunication optical fiber cables Author(s): Jatin Aggarwal*, Jingxiao Liu, Hae Young Noh

1011: Probabilistic assessment, data-driven inference and optimization for decision-making under uncertainty Chairs(s): Kostas Papakonstantinou and Pablo Morato and George Deodatis		
Adams Room	16:10 - 16:30	EP240658 Machine learning-based time series prediction for nodal networks under uncertainty Author(s): Yanjie Tong, Iris Tien*
	16:30 - 16:50	EP240820 Evaluating accuracy in response prediction of nonlinear systems Author(s): Sena Mursel*, Wei-Min Huang, Daniel Conus, Paolo Bocchini
	16:50 - 17:10	EP240671 Variability response functions for certain problems in classical elasticity Author(s): Manuel Miranda*
	17:10 - 17:30	EP240314 Damage localization of structures using full-field displacement and differentiable physics Author(s): Borna Rahnamay Farnod*, Wesley Reinhart, Rebecca Napolitano
	17:30 - 17:50	EP240427 Uncertainty-aware sub-surface material characterization via Bayesian radar signal processing Author(s): Ishfaq Aziz*, Mohamad Alipour
1101: Towards resilient coastlines: Advancements and new approaches Chairs(s): Aikaterini P. Kyprioti		
LaSalle 2	16:10 - 16:30	EP240220 Aerodynamic mitigation of single-axis solar trackers through machine learning-based shape optimization Author(s): Seyed Pejman Fatehi*, Yanlin Guo, Teng Wu
	16:30 - 16:50	EP240595 Life-cycle cost assessment for performance-based wind design of a tall concrete building equipped with damping systems Author(s): Teng Wu*, Baichuan Deng
	16:50 - 17:10	EP240683 Tropical cyclone scenarios for risk-informed resilience assessment of coastal communities under a changing climate Author(s): Yue Dong, Yanlin Guo*, Norberto Nadal-Caraballo, Madison Yawn, Bruce Ellingwood, Hussam Mahmoud, Luke Aucoin
	17:10 - 17:30	EP240016 AI-driven assessment and large-scale mapping of post-disaster building damage by integrating deep learning, satellite imagery, and GIS Author(s): Abdullah Braik*, Maria Koliou
	17:30 - 17:50	EP240313 A life-cycle cost analysis to determine the effectiveness of prestressed concrete poles against aging and combined wind-surge-wave induced loads Author(s): Saeed Sohrabi*, Yousef Darestani, William Pringle, Daniel Dowden, Payman Dehghanian

1111: Reliability analysis and rare event probability estimation Chairs(s): Ziqi Wang		
LaSalle 3	16:10 - 16:30	EP240279 Risk assessment for large-scale transportation infrastructure using transitional Markov Chain Monte Carlo sampling Author(s): Anteneh Deriba*, David Yang
	16:30 - 16:50	EP240241 Efficient assessment of network seismic fragility curves using subset simulation Author(s): Dongkyu Lee*, Ziqi Wang, Junho Song
	16:50 - 17:10	EP240680 Reliability and ultimate failure analysis of ship hulls under cyclic bending loads Author(s): Mohammad Ibrahim*, Aws Idris, Mohamed Soliman
	17:10 - 17:30	EP240847 A novel algorithm for probability of failure estimation in structural engineering Author(s): Roberto Forgione*, Binbin Li, Paolo Gardoni
	17:30 - 17:50	EP240207 Sensitivity analysis of the reliability of corroded ship hulls considering initial geometric imperfections and residual stresses Author(s): Aws Idris*, Mohamed Soliman

18:00 – 19:30 CMC Poster Competition | Red Lacquer

Thursday, May 30

8:00 – 9:00 Keynote 3 | Grand Ballroom
Structural Health Monitoring: From Sensing to Decision Support
Anne S Kiremidjian, Ph.D., NAE, Dist.M.ASCE

9:00 – 12:00 Company Showcase and Student Engagement | Red Lacquer

Thursday, May 30, Early Morning Sessions, 9:00 – 10:30

0106: Advances in modeling of material damage and fracture Chairs(s): Lampros Svolos		
Salon 12	09:00 - 09:20	EP240804 Molecular dynamics and quasicontinuum studies to explore parallel stress effects on fracture mechanisms at the nanoscale Author(s): Yu-Chuan Hsu, Steve M. Whalen, Woo Kyun Kim, Zdeněk Bažant, Ellad B. Tadmor, Markus Buehler*
	09:20 - 09:40	EP240120 Statistical fractographic analysis of steel ductile fracture using computer vision techniques Author(s): Min-Chun Han*, Sherif El-Tawil
	09:40 - 10:00	EP240482 Accelerating the analysis of non-local gradient damage propagation with a new formulation of I-FENN based on Temporal Convolutional Networks Author(s): Panos Pantidis*, Diab Abueidda, Mostafa Mobasher
	10:00 - 10:20	EP240927 Neural network discretization for the phase field model of fracture Author(s): Conor Rowan*, Kurt Maute, Alireza Doostan
0120: Architected materials Chairs(s): Reza Moini and Shelly Zhang		
Salon 3	09:00 - 09:20	EP240174 Multiphysics topology optimization of architected magnetic soft materials with continuous magnetization orientations Author(s): Zhi Zhao*, Chao Wang, Xiaojia Shelly Zhang
	09:20 - 09:40	EP240176 Topology optimization of irregular architected materials with tunable responses using a virtual growth rule Author(s): Yingqi Jia*, Ke Liu, Xiaojia Shelly Zhang
	09:40 - 10:00	EP240939 Experiment-informed finite-strain inverse design of spinodal metamaterials Author(s): Michael Espinal*, Prakash Thakolkaran, Siddhant Kumar, Somayajulu Dhulipala, Carlos Portela
	10:00 - 10:20	EP240602 Machine learning assisted design of architected materials for enhanced energy absorption and failure strength Author(s): Bhargav Reddy Isanaka*, Tanmoy Mukhopadhyay, Rajendra Kumar Varma, Vinod Kushvaha

0125: Discrete models for the simulation of infrastructure materials Chairs(s): Gianluca Cusatis and Mohammed Alnaggar		
Salon 8	09:00 - 09:20	EP240727 An efficient static solver for the Lattice Discrete Particle Model (LDPM) Author(s): Dongge Jia, John Brigham, Alessandro Fascetti*
	09:20 - 09:40	EP240375 Modeling of triaxial stresses and steel reinforcement-induced transverse confinement in concrete damaged by alkali-silica reaction Author(s): Madura Pathirage*, Tianjiao Gai, Boqin Zhang, Gianluca Cusatis
	09:40 - 10:00	EP240783 Numerical simulation of flow, setting, and hardening of 3D printed concrete Author(s): Ke Yu*, Bahar Ayhan, Erol Lale, Matthew Treomner, Gianluca Cusatis
	10:00 - 10:20	EP240763 Poly-Material Lattice Discrete Particle Model (P-LDPM) for the numerical simulation of scratch testing Author(s): Dono Toussaint*, Matthew Troemner, Gilles Pijaudier-Cabot, Gianluca Cusatis
0201: Failure and function in structural stability applications Chairs(s): Hayder Rasheed and Stelios Yiatros		
Salon 7	09:00 - 09:20	EP240265 Progressive wrinkling and collapse of lined pipe due to repeated winding/unwinding on reel Author(s): Emile Naous*, Stelios Kyriakides
	09:20 - 09:40	EP241112 Modeling of thin cylindrical shells with geometric imperfections under combined bending and torsion Author(s): Victoria Ding*, Shahab Torabian, Sandor Adany, Ben Schafer
	09:40 - 10:00	EP241203 The effects of boundary conditions on the axial compressive response of thin-walled circular cylindrical shells Author(s): Anindya Karmarkar*, Veera Sundararaghavan Sundararaghavan, Anthony M. Waas
	10:00 - 10:20	EP240893 Buckling and lift-off of a heavy rod compressed into a cylinder Author(s): Gert van der Heijden*, Rehan Shah
0202: New challenges in instabilities of shell structures Chairs(s): Frederic Bumbieler		
Salon 1	09:00 - 09:20	EP240346 Experimental characterization of the mechanical behavior of a steel liner subjected to high confinement based on in-situ measurements Author(s): Frederic Bumbieler*, Norman Mathieu, Mohamad Jrad, Gilles Armand
	09:20 - 09:40	EP240790 Instability of a confined steel shell subjected to a solid/solid external loading – Effect of interface mechanical properties. Author(s): Sajid Zemam, Mohamad Jrad*, Norman Mathieu, Frederic Bumbieler, Mahdia Hattab
	09:40 - 10:00	EP240725 A new XFEM approach for the analysis of thin-walled structures Author(s): Ameer Marzok, Tejav DeGanyar, Haim Waisman*
	10:00 - 10:20	EP240037 Probabilistic buckling of imperfect shells: Multi-defect interactions and statistical insights Author(s): Fani Derveni*, Pedro M. Reis

0206: Biological and biologically inspired materials and structures Chairs(s): Dr. Christian Hellmich and Dr. Dinesh Katti		
LaSalle 3	09:00 - 09:20	EP240917 Computationally driven materials design of tissue engineering scaffolds for biomechanical tuning of for bone regeneration and testbeds of cancer bone metastasis Author(s): Kalpana Katti*, Dinesh Katti, Krishna Kundu, Hanmant Gaikwad, Sharad Jaswandkar, Parth Vyas
	09:20 - 09:40	EP240594 Hierarchical elastoplasticity of cortical bone: Observations, mathematical modeling, validation Author(s): Valentina Kumbolder, Claire Morin, Stefan Scheiner, Christian Hellmich*
	09:40 - 10:00	EP240749 Estimation of the mechanical properties of in vivo cervical spine intervertebral discs Author(s): Soumaya Ouhsousou, William J. Anderst, Clarissa M. LeVasseur, Jeremy D. Shaw, John C. Brigham*
	10:00 - 10:20	EP240509 The effects of age, sex, and the materials of hip implants on the microstructures and mechanical properties of hip capsule scar tissues Author(s): Angelina Avgeri, Samantha Sanders, Bertrand Cinquin, Christophe Sandt, Laurent Sedel, Pascal Bizot, Elisa Budyn*
0208: Meshfree, peridynamic, and particle methods: Advancements and applications Chairs(s): JS Chen and Sheng-Wei Chi		
Adams Room	09:20 - 09:40	EP241068 Stabilized extended B-spline material point method for multi-field soft materials with nitsche imposition of boundary conditions Author(s): Ashkan Ali Madadi*, Berkin Dortivanlioglu
	09:00 - 09:20	EP240498 Unified analysis of meshfree methods: Comparisons and results Author(s): Michael Hillman*, Joseph Magallanes, Dominic Wilmes
	09:40 - 10:00	EP241083 An assessment of the applicability of modern RKPM methods towards a concrete simulation under extreme events Author(s): Dominic Wilmes*, Michael Hillman, Joseph Magallanes
0210: Assessing human-infrastructure interactions and their performance Chairs(s): Rodrigo Sarlo		
Grant Park Parlor	09:00 - 09:20	EP241126 Low-cost efficient intelligent wireless sensors increasing human-data interfaces with their environment Author(s): Fernando Moreu, Mahsa Sanei*, Morgan Merrill, Ali Khorasani, Kaveh Malek, Gavin De Berry
	09:20 - 09:40	EP240605 Personalized emotion recognition using footstep-induced floor vibrations Author(s): Yuyan Wu*, Yiwen Dong, Sumer Vaid, Gabriella Harari, Hae Young Noh
	09:40 - 10:00	EP240631 Hierarchical data-driven modeling of human interactions within social infrastructure systems Author(s): Maral Doctorarastoo*, Katherine Flanigan, Mario Bergés
	10:00 - 10:20	EP241156 QR SENSOR: A citizen-assisted, QR-based sensory data acquisition and cloud computing approach for Structural Health Monitoring Author(s): Jongwoong Park*, Junyoung Park, Chaemin Kim

0301: Smart IoT sensors and artificial intelligence for civil infrastructure monitoring Chairs(s): Fu Yuguang and Li Jian		
Salon 2	09:00 - 09:20	EP240548 Unsupervised anomaly detection for indirect structural health monitoring under dynamic environmental and operating conditions Author(s): Jeremy Yin, Sizhe Ma*, Katherine Flanigan, Mario Bergés
	09:20 - 09:40	EP240689 Reinforcement learning for adaptive battery management of Structural Health Monitoring IoT sensor network Author(s): Tahsin Afroz Hoque Nishat*, Jong-Hyun Jeong, Hongki Jo, Jian Liu
	09:40 - 10:00	EP240097 A hybrid deep learning framework enabling edge intelligence for data anomaly detection in smart structural health monitoring systems Author(s): Shuaiwen Cui, Hao Fu, Xiao Yu, Yuguang Fu*
0302: Analysis of heritage structures: Tools and methods for assessing unknowns in historic monuments and structures Chairs(s): Rebecca Napolitano and Linda Seymour and Branko Glisic		
Price Room	09:40 - 10:00	EP240181 Post-disaster dimensionality reduction for vulnerability assessment of unreinforced masonry buildings Author(s): Joe Kallas*, Rebecca Napolitano
	09:00 - 09:20	EP240073 Parametric analysis of archaic steel columns Author(s): Donald Friedman*
	09:20 - 09:40	EP240297 Impact analysis of masonry towers: A comparative study Author(s): Lauren Goyette*, Branko Glisic
	10:00 - 10:20	EP240634 Structural investigation of the conical domes of Armenia's historic churches Author(s): Araxi Malazian*, Branko Glisic
0303: Innovations and advances in passive, active, and semi-active structural control Chairs(s): Nicholas Wierschem and Scott Harvey		
Monroe Room	09:00 - 09:20	EP240025 Preliminary study of isolation bearings with discontinuous inerters for seismic protection of essential equipment and components Author(s): Chia-Ming Chang*, Wei-Kai Chen
	09:20 - 09:40	EP240981 Characterization and hybrid testing of a rolling isolation system with response-based adaptive behavior Author(s): Miguel Payan, Menziwokuhle Thwala, Esteban Villalobos Vega, P. Scott Harvey*
	09:40 - 10:00	EP240494 Real time hybrid simulation (RTHS) of a 2-story reinforced concrete building equipped with a novel self-centering base isolation system Author(s): Liang Cao*, Faisal Nissar Malik, James Ricles, Thomas Marullo, Chinmoy Kolay, Austin Downey, Simon Laflamme
	10:00 - 10:20	EP240116 Experimental validation of real-time, weighted control algorithm on civil infrastructure Author(s): Courtney Peckens*

0305: Structural identification and damage detection Chairs(s): Babak Moaveni		
Wabash Room	09:00 - 09:20	EP241162 Acceleration and strain data fusion technique for displacement estimation of dynamic system Author(s): Aniruddha Das*, Ashish Pal, M. Mohamed Sajeer, Satish Nagarajaiah, Suparno Mukhopadhyay
	09:20 - 09:40	EP241166 Identification of vertical dynamic parameters from earthquake data recorded in a high-rise Author(s): Viviana Vela, Monica D. Kohler*, German Prieto, Farid Ghahari
	09:40 - 10:00	EP240136 Fatigue life estimation of CVOW Offshore Wind Turbines using strain measurements Author(s): Sophia Lauterbach*, Bridget Moynihan, John DeFrancisci, Eleonora Maria Tronci, Babak Moaveni, Eric Hines
	10:00 - 10:20	EP240304 Pattern recognition in offshore wind turbine dynamics: Unveiling fatigue and damage signatures Author(s): Sina Shid-Moosavi*, Nasim Partovi Mehr, Eleonora Maria Tronci, Babak Moaveni, Eric Hines
0306: Recent advances in sensing, SHM, and automated inspections for infrastructure condition assessment: Toward actionable solutions Chairs(s): Qipei (Gavin) Mei and Francisco Pena and Mohamad Alipour		
Crystal Room	09:00 - 09:20	EP240490 Buckling identification of a profiled steel deck through strain measurements using Distributed Fiber Optic Sensing Author(s): Gowshikan Arulananthan*, Nate Opperman, Hyeyoung Koh, Jesse Hampton, Hannah Blum
	09:20 - 09:40	EP240023 A recursive likelihood-free inference method for model-based diagnostics and prognostics of miter gates using video monitoring data Author(s): Jice Zeng, Michael Todd, Zhen Hu*
	09:40 - 10:00	EP240361 Monitoring to localize excessive vibrations in hydraulic structures Author(s): Anita Brown*
	10:00 - 10:20	EP240540 A roughness-free continuous condition monitoring framework for bridge structures through a sparse network of connected smart vehicles Author(s): Mohammad Talebi-Kalaleh, Qipei Mei*, Mustafa Gul
0313: Complex dynamics and vibration control of infrastructure exposed to single/multiple hazards Chairs(s): Chao Sun and Mariantonieta Soto and Lin Chen		
Buckingham Room	09:20 - 09:40	EP241008 A practical piecewise linearization approach to estimating the nonlinear hydrodynamics for floating wind turbines undergoing large platform motions Author(s): Jiayao Meng*, Wouter Mostert, Manolis Chatzis
	09:40 - 10:00	EP240119 Complex nonlinear system response modeling and parameter identification via a real-time updating physics-informed neural network Author(s): Huaguan Li*, Chao Sun
	10:00 - 10:20	EP241058 Dynamic response of hybrid mass timber-steel buildings using real-time hybrid simulation Author(s): David Caballero-Russi*, Mariantonieta Gutierrez Soto
	09:00 - 09:20	EP241110 Adaptive tracking control for multi-axial real-time hybrid simulation of civil structures subject to earthquake loading Author(s): Andrew Aguila*, Mariantonieta Gutierrez Soto, Alejandro Betancur Palacio, Kamal Ahmed, Hongliang Li, Ilya Kovalenko

0401: Topology optimization: From algorithmic developments to applications Chairs(s): Josephine Carstensen		
Salon 5	09:00 - 09:20	EP240266 Hybrid mesh topology optimization of reinforced concrete structures with moving truss nodes Author(s): Jackson Jewett*, Josephine Carstensen
	09:20 - 09:40	EP240326 Neural networks with kernel-weighted corrective residuals for inverse design Author(s): Amin Yousefpour*, Carlos Mora, Ramin Bostanabad
	09:40 - 10:00	EP240440 Topology optimization of extruded thin-walled beams Author(s): Ameer Marzok*, Haim Waisman
	10:00 - 10:20	EP241041 Optimization of voided post tensioned slabs Author(s): Yakov Zelickman*, James Guest
0501: Computational geomechanics Chairs(s): Qiushi Chen		
Salon 4	09:00 - 09:20	EP240261 Conditions for onset of localized deformation with phase transformation, with applications to deep-focus earthquakes Author(s): Craig Foster*, Javad Mofidi Rouchi
	09:20 - 09:40	EP241111 Time-dependent deformation of soil during freezing and thawing processes Author(s): Yingxiao Liu*, WaiChing Sun
	09:40 - 10:00	EP240859 Modeling the coupled abiotic and biotic processes in hyporheic zones with the combination of porosity-permeability relations Author(s): Chengwu Jiang*, Martial Taillefert, Chloé Arson
	10:00 - 10:20	EP240454 Optimizing heat dissipation in underground power cable duct banks using differentiable programming and Bayesian optimization Author(s): Leila Roshanali*, Krishna Kumar
0704: Advances in modeling wind and its effects on the built environment Chairs(s): Marco Giometto and Teng Wu and Catherine Gorle		
Salon 6	09:00 - 09:20	EP240583 Increasing high-fidelity modelling efficiency with automation and machine learning Author(s): Matthew Coburn*, Z. Xie
	09:20 - 09:40	EP240320 Convergence of LES and full-scale measurements for peak wind load predictions Author(s): Jack Hochschild, Catherine Gorlé*
	09:40 - 10:00	EP240597 Development of loading protocol for hurricane wind performance testing of deformation-controlled MWFRS members Author(s): Baichuan Deng*, Teng Wu
	10:00 - 10:20	EP240667 Evaluation of RANS modeling of urban wind and temperature fields using OpenFOAM for uncertainty quantification Author(s): Sen Wang*, Harindra Fernando, Rao Kotamarthi

0706: Natural hazard assessment with monitoring, modeling, and uncertainty quantification Chairs(s): Weibing Gong and Yichuan Zhu		
Chicago Room	09:20 - 09:40	EP240932 Impact of missing source areas and volumes on back-calculating regional earthquake-induced landslides: A case study of the 2020 Mw 6.4 Puerto Rico earthquake Author(s): Weibing Gong*
	09:40 - 10:00	EP240034 Linear regression analysis of steady state water content in modified column tests using machine learning approach Author(s): Zafar Avzalshoev*, Taro Uchimura
	10:00 - 10:20	EP240269 Uncertainty quantification of negative samples and model structures in landslide susceptibility characterization based on Bayesian Network models Author(s): Yichuan Zhu*, Sahand Khabiri
	09:00 - 09:20	EP240949 A probabilistic assessment of the liquefaction potential evaluation by considering spatial variabilities of geological and geo-property models Author(s): Wan-Ying Chien, Yu-Chen Lu, Hui Wang*, Jia-Jyun Dong, C. Hsein Juang
0801: Advances in computer vision, deep learning and artificial intelligence for structural health monitoring and inspections Chairs(s): Rih-Teng Wu and Mijia Yang		
Salon 10	09:00 - 09:20	EP240571 Pixel-level unsupervised anomaly detection for tile spalling in noisy street view images Author(s): Hai-Wei Wang*, Rih-Teng Wu
	09:20 - 09:40	EP241116 Streamlining construction inspections using advanced video analytics Author(s): Malleswari Kachireddy*, Nikkhil Vijaya Sankar, Mohammad Jahanshahi
	09:40 - 10:00	EP240169 Reinventing disaster response: Integrated approach for enhanced 3D damage segmentation Author(s): Joe Kallas*, Rebecca Napolitano
	10:00 - 10:20	EP240472 Deep learning-based structural health monitoring through the infusion of optical photos and vibration data Author(s): Saleh Al-Qudah, Mijia Yang*
0807: Advancements of data-driven methods in computational mechanics Chairs(s): Nikolaos Vlassis		
Hancock Parlor	09:00 - 09:20	EP240067 A new paradigm for multiphysics and non-linear mechanics modeling: Integrated Finite Element Neural Networks (I-FENN) Author(s): Mostafa Mobasher*, Panos Pantidis, Diab Abueidda
	09:20 - 09:40	EP240306 Parametric grid convolutional encoding for physics-informed neural networks Author(s): Mehdi Shishehbor, Shirin Hosseinmardi*, Ramin Bostanabad
	09:40 - 10:00	EP240337 A constitutive neural network enhancement for multiscale fracture-to-damage modelling Author(s): Tsung-Hui Huang*, Yu-Chun Chou, Wen-Yi Hsieh, Yu-Zhen Li, Tsung-Yeh Hsieh, Po-Yu Chen
	10:00 - 10:20	EP241132 Topology optimization with graph neural network enabled thresholding Author(s): Georgios Barkoulis Gavris*, WaiChing Sun

0901: Computational methods for stochastic engineering dynamics Chairs(s): Ioannis Kougioumtzoglou		
Salon 9	09:20 - 09:40	EP240447 Determination of probabilistic power spectral density parameters by a data-driven and physics-based approach to estimate failure probabilites Author(s): Marco Behrendt*, Chao Dang, Michael Beer
	09:00 - 09:20	EP240722 Analysis of fractional dynamical systems using recursive Bayesian estimation methods and response data Author(s): Kalil Erazo*, Alberto Di Matteo, Pol Spanos
1003: Surrogate modeling for uncertainty quantification, optimization, and statistical inference in engineering applications Chairs(s): Alexandros Taflanidis		
LaSalle 2	09:00 - 09:20	EP240914 An adaptive surrogate-based multi-fidelity Monte Carlo scheme for probabilistic analysis of nonlinear systems subject to stochastic excitation Author(s): Liuyun Xu*, Seymour Spence
	09:20 - 09:40	EP240380 An iso-cost-region enrichment strategy for cost-free Reliability-Based Design Optimization Author(s): Alessio Faraci*, Maliki Moustapha, Stefano Marelli, Pierre Beaurepaire, Bruno Sudret, Nicolas Gayton
	09:40 - 10:00	EP240608 A sequential strategy based on Non-Deterministic Kriging and Subset Simulation for optimization of probabilistic systems with mixed continuous and discrete input variables Author(s): Jayasekara R. Jayasekara*, Sabarethinam Kameshwar
	10:00 - 10:20	EP241030 Bayesian neural networks for active learning and uncertainty quantification with big data Author(s): Pablo G. Morato*, Jonathan Moran A., Anna Maria Koniari, Nandar Hlaing, Seyran Khademi, Charalampos Andriotis
1005: Probabilistic, physics-guided, and multi-fidelity generative modeling for uncertainty quantification Chairs(s): Agnimitra Dasgupta and Roger Ghanem		
Wilson Room	09:00 - 09:20	EP241055 Multifidelity graph U-Net for physics simulations Author(s): Rini Gladstone, Hadi Meidani*
	09:20 - 09:40	EP240453 Generative wavelet neural operator for scientific machine learning Author(s): Tapas Tripura, Sai Teja Madda, Souvik Chakraborty*
	09:40 - 10:00	EP240970 Solving large-scale inverse problems with coupled deep generative models Author(s): Agnimitra Dasgupta*, Dhruv Patel, Deep Ray, Erik Johnson, Assad Oberai
	10:00 - 10:20	EP240698 Efficient sample-based sensitivity analysis for high-dimensional variables with normalizing flows Author(s): Ziluo Xiong*, Gaofeng Jia

1008: Infrastructure assessment automation with robotics, deep learning and digital twins Chairs(s): Vedhus Hoskere		
Water Tower Parlor	09:00 - 09:20	EP240979 3D radiance field-based novel view anomaly detection in infrastructure Author(s): Subin Varghese*, Vedhus Hoskere
	09:20 - 09:40	EP240853 Iterative active learning for damage segmentation of concrete dam structures through human-AI collaboration Author(s): Vahidreza Gharehbaghi*, Jian Li, Tasweer Ahmad, Caroline Bennett, Rémy Lequesne
	09:40 - 10:00	EP240883 Automating synthetic data generation for deep learning-based damage detection in concrete dams Author(s): Abhishek Doodgaon, Jian Li*, Caroline Bennett, Remy Lequesne
	10:00 - 10:20	EP240892 Enhancing building damage assessment in post-disaster scenarios using meta data-enriched transformer models Author(s): Deepank Singh*, Vedhus Hoskere, Pietro Milillo
1107: Objective resilience: Computational advancements for performance-based engineering and resilience assessment of communities Chairs(s): Alice Alipour and Paolo Gardoni		
Spire Parlor	09:00 - 09:20	EP240416 Long-range Ising model for performance states in regional seismic analysis Author(s): Sebin Oh*, Sang-ri Yi, Ziqi Wang
	09:20 - 09:40	EP240520 Maximum entropy-based modeling of community-level hazard responses for civil infrastructures Author(s): Xiaolei Chu*, Ziqi Wang
	09:40 - 10:00	EP241006 Methodology to assess and mitigate risk from sea level rise to water distribution infrastructure in coastal communities Author(s): Paola Vargas*, Iris Tien
	10:00 - 10:20	EP240704 Coupling effects of fragility fidelity and network resolution in infrastructure resilience Author(s): Raul Rincon*, Jamie Padgett
1108: Towards resilient communities: Improvements in natural hazard risk assessment using data-driven methods Chairs(s): Aikaterini Kyprioti and Jize Zhang		
LaSalle 1	09:00 - 09:20	EP240355 A machine learning approach for hurricane-induced flood depth estimation: A case study on Hurricane Harvey Author(s): Mario Di Bacco, Alessandro Contento, Anna Rita Scorzini*
	09:20 - 09:40	EP240872 Effect of strait topography on the risk assessment of extreme wind and wave induced by typhoon using WRF-ADCIRC-SWAN simulations Author(s): Li Haoyu, Wei Kai*, Cai Haowei, Ni Ming
	09:40 - 10:00	EP240856 Exploring dimensionality reduction in surrogate models for storm surge time-series predictions Author(s): Aikaterini Kyprioti*, Sujata Sahu
	10:00 - 10:20	EP240248 Selection of storm ensembles consistent with storm surge hazard maps across large geographic regions Author(s): WoongHee Jung*, Alexandros Taflanidis

10:30 – 10:50 Break | Exhibit Hall

Thursday, May 30, Late Morning Sessions, 10:50 – 12:20

0106: Advances in modeling of material damage and fracture Chairs(s): Aditya Kumar		
Salon 12	10:50 - 11:10	EP240568 A 3-D comprehensive analysis of adhesive models in a single lap joint Author(s): Ibrahim Adediran*, Timothy Truster
	11:10 - 11:30	EP240319 A three-dimensional anisotropic localizing gradient damage model for transverse isotropic materials: With emphasis on timber Author(s): Shqipron Shala*, Haim Waisman
	11:30 - 11:50	EP240479 Development of a computationally efficient large-scale three-dimensional model for fracture propagation using parallel computing and adaptive mesh refinement. Author(s): Wasim Niyaz Munshi*, Chandrasekhar Annavarapu, Shantanu Mulay, Antonio Rodríguez-Ferran, Wolfgang Bangerth
	11:50 - 12:10	EP240702 Efficient beam element model for analysis of sandwich beams with partial shear connectivity Author(s): Alaa Elsisi*, Hani Salim
0110: Characterization and modeling of physical processes in porous materials across scales Chairs(s): Pania Newell & Mostafa Mobasher		
Salon 9	11:30 - 11:50	EP240299 Microporomechanics of non-isotropic interactions among pores and solid matrix Author(s): Yifan Yang*, Dawei Xue, Giuseppe Buscarnera
	11:50 - 12:10	EP240325 A closed-form criterion to identify high-mobility flowslides Author(s): Yanni Chen*, Giuseppe Buscarnera
	10:50 - 11:10	EP240771 Micro-scale examination of altered fracture properties in shale rocks exposed to CO2-rich brine under high-temperature and high-pressure conditions Author(s): Samah A. Mahgoub, Sara Abedi*
	11:10 - 11:30	EP240782 Investigating microcapsule transport in fractured media through coupled CFD-DEM methods Author(s): Pania Newell*, Xiaoming Zhang

0120: Architected materials Chairs(s): Nilesh Mankame		
Salon 3	10:50 - 11:10	EP240692 A data-driven modeling framework on the mechanical behavior of vertebral body Author(s): Shengzhi Luan*, Elise Morgan
	11:10 - 11:30	EP240734 Physics-informed neural operator network: Acoustic simulations of arbitrary-shape scatterers Author(s): Siddharth Nair*, Timothy Walsh, Greg Pickrell, Fabio Semperlotti
	11:30 - 11:50	EP240115 Wave propagation in scutoid-based topologically interlocking material systems Author(s): Tanner Ballance*, Thomas Siegmund
	11:50 - 12:10	EP241027 Mechanics of architected microgranular materials Author(s): Samuel Figueroa*, Bastien Aymon, Ken Kamrin, Carlos Portela
0125: Discrete models for the simulation of infrastructure materials Chairs(s): Gianluca Cusatis and Mohammed Alnaggar		
Salon 8	10:50 - 11:10	EP240238 A comparative study of wood-plastic composite infused structural insulated panels and reinforced concrete for sustainable construction Author(s): Mohamed Elnakeb*, Marina Moawad, Mohamed Ashmawy, Marwan Shawki, Mohamed Atef, Ehab Abdelhamid, Mohamed Darwish, May Haggag, Donia Eldwib, Khaled Nassar, Maram Saudy, Safwan Khedr, Minas Guirguis, Elkhayam Dorra, Mohamed Abouzeid
	11:10 - 11:30	EP240145 Phase-field cohesive zone crack propagation model for hard-soft architected materials Author(s): Aimane Najmeddine*, Reza Moini
	11:30 - 11:50	EP241021 Mesoscale modeling of ultra-high performance concrete with randomly distributed steel fibers Author(s): Seda Mursel*, Berkin Dortdivanlioglu, Oguzhan Bayrak, Anca Ferche
0201: Failure and function in structural stability applications Chairs(s): Hayder Rasheed and Lawrence Virgin		
Salon 7	10:50 - 11:10	EP240004 On the buckling mechanics of monofilaments used in touch sensory perception Author(s): Lawrence Virgin*
	11:10 - 11:30	EP240193 Lateral torsional buckling of fixed-fixed anisotropic laminated beam under mid-span load Author(s): Hayder Rasheed*
	11:30 - 11:50	EP240233 Inelastic buckling and ultimate capacity of cruciform columns: Recent advances Author(s): Jurgen Becque*
	11:50 - 12:10	EP240863 Buckling analysis of MWCNT and functionally graded carbon nanotube reinforced composite quadrilateral plate Author(s): Jianfei Wang*, CW Lim

0206: Biological and biologically inspired materials and structures Chairs(s): Dr. John Brigham and Dr. Kalpana Katti		
LaSalle 3	10:50 - 11:10	EP240441 Mechanobiologically regulated wood growth predicted by means of a micromechanics-informed beam model Author(s): Antonia Wagner, Stefan Scheiner*
	11:10 - 11:30	EP240263 A thermoregulating model of the human eye for localized hypothermia treatment Author(s): Dipika Gongal*, Craig Foster, John Hetling
	11:30 - 11:50	EP240307 Inhomogeneous viscoelastic shear properties of human and porcine cornea Author(s): M.E. Emu, A.R. Djalilian, Hamed Hatami-Marbini*
	11:50 - 12:10	EP240308 Assessing anisotropic mechanical properties of cornea and the effect of CXL therapy Author(s): M.E. Emu*, A.R. Djalilian, H. Hatami-Marbini
0208: Meshfree, peridynamic, and particle methods: Advancements and applications Chairs(s): Sheng-Wei Chi and JS Chen		
Adams Room	10:50 - 11:10	EP240731 Taylor-series expansion for meshfree methods: Solids and shells Author(s): Yuri Bazilevs*
	11:10 - 11:30	EP240293 Strong form meshless analysis of solids using constrained polynomial differential operators Author(s): Sumedh Sharma*, Nikhil Potnuru, Petros Sideris
	11:30 - 11:50	EP240431 Multiphysics degradation modeling of energy storage materials via RKPM with a neural network-enhancement Author(s): Kristen Susuki*, Jeffery Allen, Jiun-Shyan Chen
	11:50 - 12:10	EP240383 Existence, Uniqueness and Multiplicity of RANS solutions in terms of the initial vorticity Author(s): Carla Valencia-Negrete*
0210: Assessing human-infrastructure interactions and their performance Chairs(s): Fernando Moreu		
Grant Park Parlor	10:50 - 11:10	EP241119 Development and verification of a data capturing algorithm in neuromorphic imagers for complex events Author(s): Wyatt Saeger*, Brandon Sisk, Duncan Gardner, Fernando Moreu
	11:10 - 11:30	EP240747 Vision-based monitoring for pedestrian suspention bridges Author(s): Hyungchul Yoon*, Youngseo Park
	11:30 - 11:50	EP241082 Human interface for indoor infrastructure maintenance using networked sensors, robots, and augmented reality Author(s): Alireza Fath*, Nicholas Hanna, Yi Liu, Scott Tanch, Tian Xia, Dryver Huston
	11:50 - 12:10	EP240869 When transfer learning meet low-rank dictionary learning: A fast crack detection method in SHM Author(s): Siyi Chen*, Youwu Wang, Yiqing Ni

0213: 4M (modeling of multiphysics-multiscale-multifunctional) engineering materials and structures Chairs(s): Chung Song and Xiaoyu Song		
Salon 1	11:10 - 11:30	EP240489 Inverse characterization of desiccation-induced shrinkage and fracture properties of microfiber-reinforced buffer materials for geological repositories of nuclear spent fuel Author(s): Mohammad Rahmani, Abdullah Azzam, Yong-Rak Kim*, Jongwan Eun, Seunghee Kim
	11:30 - 11:50	EP240232 Modelling of concrete shrinkage at mesoscale in a multi-physics framework Author(s): Yilin Wang*, Giovanni Di Luzio, Jan Vorel, Jan Belis, Roman Wan-Wendner
	10:50 - 11:10	EP240085 A physics-based crystal plasticity model with applications in simulation of micropillar compression and strengthening effect of multilayered copper-graphene nanocomposites Author(s): George Z. Voyiadjis*, Juyoung Jeong
0301: Smart IoT sensors and artificial intelligence for civil infrastructure monitoring Chairs(s): Fu Yuguang and Li Jian		
Salon 2	10:50 - 11:10	EP240072 Vision-based vehicle axle load identification on highway infrastructures using semantic deep classifier of vehicle components Author(s): Cheng Peng*, Yi Jiang
	11:10 - 11:30	EP240264 Driving into the future: Exploring the efficacy of artificial intelligence in traffic monitoring and capacity assessment for Morelia City, Mexico Author(s): José A. Guzmán-Torres*, Francisco J. Domínguez-Mota, Gerardo Tinoco-Guerrero, Elia M. Alonso-Guzmán
	11:30 - 11:50	EP240371 Wind-induced vibration of high mast illumination poles – field monitoring and mitigation Author(s): Mona Shaheen*, Jian Li, William Collins, Caroline Bennett
0302: Analysis of heritage structures: Tools and methods for assessing unknowns in historic monuments and structures Chairs(s):		
Price Room	10:50 - 11:10	EP240911 An innovative only-output method useful for historic monuments Author(s): Salvatore Russotto, Chiara Masnata, Antonina Pirrotta*
	11:10 - 11:30	EP240655 On determining structural wall layout during the adaptive reuse process of unreinforced masonry buildings Author(s): Daniele Melo Santos Paulino*, Heather Ligler, Rebecca Napolitano
	11:30 - 11:50	EP240803 Structural challenges of working with existing cast-iron columns Author(s): Fatemeh Shirmohammadi*, Aydin Pekoz, Kevin Poulin
	11:50 - 12:10	EP240896 Evaluation historic masonry structures using nondestructive, destructive, and analytical tools Author(s): Peter Babaian*, Connor Bruns

0303: Innovations and advances in passive, active, and semi-active structural control Chairs(s): Scott Harvey and Nicholas Wierschem		
Monroe Room	10:50 - 11:10	EP240414 Deep reinforcement learning strategies for inerter-integrated devices with mechanical motion rectifier Author(s): Takehiko Asai*, Yuto Inaba, Kentaro Komori
	11:10 - 11:30	EP240210 Risk-based design of inerter vibration absorbers utilizing embodied energy sustainability criteria Author(s): Parisa Toofani Movaghar*, Alexandros Taflanidis, Agathoklis Giaralis, Dimitrios Vamvatsikos
	11:30 - 11:50	EP240428 Investigation of a variable lead rotational inertia mechanism Author(s): Anika Sarkar, Carter Manson, Nicholas Wierschem*
	11:50 - 12:10	EP240429 Experimental validation of a variable inertia rotational mechanism Author(s): Anika Sarkar*, Nicholas Wierschem
0305: Structural identification and damage detection Chairs(s): Vasilis Dertimanis and Manolis Chatzis		
Wabash Room	10:50 - 11:10	EP240652 Comparative study of Residual Kalman Filter, Physics-Informed Neural Networks, and optimization with Gaussian Processes for input-parameters identification in structural health monitoring Author(s): Antonina Kosikova*, Andrew Smyth
	11:10 - 11:30	EP240153 Decoupled Bayesian learning of process and measurement noise statistics in nonlinear Kalman filtering Author(s): Nihan Bilgin*, Audrey Olivier
	11:30 - 11:50	EP241163 Short-term memory Kalman filter-based data fusion method using intermittent-displacement and acceleration with time-varying bias Author(s): Ashish Pal*, Satish Nagarajaiah
	11:50 - 12:10	EP240995 A sub-structuring approach to overcome model limitations for input-state estimation of offshore wind turbines Author(s): Harry Simpson*, Eleni Chatzi, Manolis Chatzis
0306: Recent advances in sensing, SHM, and automated inspections for infrastructure condition assessment: Toward actionable solutions Chairs(s): Mohamad Alipour and Francisco Pena and Qipei (Gavin) Mei		
Crystal Room	10:50 - 11:10	EP240257 Pavement subsurface monitoring with embedded wireless passive RF sensing system Author(s): Kent Eng*, Zygmunt Haas, Petar Djuric, Samir Das, Milutin Stanacevic, Branko Glisic
	11:10 - 11:30	EP240719 Ground penetrating radar diagnostics for building envelopes: A data-driven approach Author(s): Ahmed Nirjhar Alam*, Reinhart Wesley, Rebecca Napolitano
	11:30 - 11:50	EP240850 Convolutional neural network for ultrasonic imaging of arbitrary fluid-filled inclusions in solid Author(s): Jinho Hahn*, Salma Abdelgawad, Boyoung Kim, Chanseok Jeong
	11:50 - 12:10	EP240922 Image-based real-time behavior measurement of physical infrastructure systems driven by deep learning Author(s): Zhidong Zhang*, Ayatollah Yehia, Zahra Zhiyanpour, Mehrdad Shafiei Dizaji, Devin Harris

0313: Complex dynamics and vibration control of infrastructure exposed to single/multiple hazards Chairs(s): Chao Sun and Mariantonieta Soto and Lin Chen		
Buckingham Room	11:30 - 11:50	EP241028 Experimental validation and mechanical characterization of additively manufactured lattice-core beams with digital image correlation Author(s): Seth Roth*, Kyra Kathleen-Le Martindale, Daniel Whisler, Mariantonieta Gutierrez Soto
	11:50 - 12:10	EP241196 Recent developments in surrogate and digital twin modeling of tall buildings Author(s): Maria Todorovska*, Eyerusalem A. Girmay, Haidar Ali, Lichiel Cruz, Mohammadtaghi Rahmani, Mihailo D. Trifunac
	10:50 - 11:10	EP241010 Dynamics of a prestressed concrete bridge with an accelerated bridge construction end-diaphragm system for seismic regions Author(s): Esteban Villalobos Vega*, P. Scott Harvey, Royce W. Floyd, Omar M. Yadak
	11:10 - 11:30	EP240787 Mitigating vortex-induced vibration challenges in long-span bridges: A comprehensive study of Chongqi Bridge Author(s): Zhen Sun*, Xuyong Ying
0315: Intelligent techniques and deep learning for bridge health monitoring Chairs(s): Yasutaka Narazaki and Hyunjoong Kim		
Chicago Room	11:30 - 11:50	EP240234 Partition modeling and heterogeneous solution of 3D train-track-bridge coupled system subjected to earthquake excitations Author(s): Peng Yuan*, Michael Beer
	10:50 - 11:10	EP240685 Deep learning based structural load identification Author(s): Hyunjoong Kim*, Richard Snyder
	11:50 - 12:10	EP240321 Vision-based cable displacement measurement using uni-KLT Author(s): GeonYeol Jeon*, Hyungchul Yoon
	11:10 - 11:30	EP240370 Fully autonomous bridge visual inspection based on mobile robots with visual recognition capabilities: Technical roadmap and prototype development Author(s): Yasutaka Narazaki*, Mingyu Shi, Linlong Meng
0401: Topology optimization: From algorithmic developments to applications Chairs(s): Shelly Zhang		
Salon 5	10:50 - 11:10	EP240070 Sustainable infrastructure through topology-optimization-based additive construction Author(s): Islam Mantawy*, Jenna Migliorino, Anthony Mackin, Aly Ahmed, Zaid Hanoun
	11:10 - 11:30	EP240503 Application of multiscale material modeling in structural topology optimization Author(s): Rowin Bol, Herm Hofmeyer, Akke Suiker, Payam Poorsolhjouy*
	11:30 - 11:50	EP241101 A Gridap-based implementation of topology optimization under uncertainty for brittle fracture resistance Author(s): Maryam Maghazeh*, Ayyappan Unnikrishna Pillai, Mohammad Masiur Rahaman, Subhayan De
	11:50 - 12:10	EP241169 A topology optimization study applied to structural foundation designs via the TOBS-GT method Author(s): Kamilla Emily Santos Silva, Gabriel Vicentin Pereira Lapa, Josue Labaki, Alfredo Gay Neto, Emilio Carlos Nelli Silva, Renato Picelli*

0501: Computational geomechanics Chairs(s): Shabnam Semnani		
Salon 4	10:50 - 11:10	EP240514 Modeling large deformation soil loading and failure under undrained conditions using a meshfree approach Author(s): Enrique del Castillo*, Ronaldo Borja
	11:10 - 11:30	EP240821 Numerical investigation of shear band formation during olivine transformation using integrated Reproducing Kernel Particle and Cracking Particle Method Author(s): S. Sindhusuta*, Sheng-Wei Chi, Craig Foster
	11:30 - 11:50	EP240761 Microstructure descriptors for predictive homogenization Author(s): Anna Gorgogianni*, Chloé Arson
	11:50 - 12:10	EP241128 A MPM Lagrangian-Eulerian hydrocode for simulating buried explosions in transversely isotropic geomaterials Author(s): Mian Xiao*, WaiChing Sun
0704: Advances in modeling wind and its effects on the built environment Chairs(s): Catherine Gorle and Teng Wu and Marco Giometto		
Salon 6	10:50 - 11:10	EP240666 Advancing aero-structural optimization methods for long-span bridges: from synoptic to non-synoptic wind design scenarios Author(s): Miguel Cid Montoya*, Sumit Verma
	11:10 - 11:30	EP240773 City-scale wind-induced simulation of building motions using oblique photography and time history analysis Author(s): Ahsan Kareem*, Ning Zhang, Zhen Xu, Donglian Gu, Xinzheng Lu
	11:30 - 11:50	EP241092 A two-way coupled fluid-structure interaction framework for aeroelastic modeling of tall buildings using large-eddy simulation Author(s): Abiy Melaku*, Girma Bitsuamlak
	11:50 - 12:10	EP240539 An aeroelastic emulator comprising shape, frequency, and mean angle of attack for the aero-structural design of bridges under non-synoptic winds. Author(s): Sumit Verma*, Miguel Cid Montoya, Ashutosh Mishra
0801: Advances in computer vision, deep learning and artificial intelligence for structural health monitoring and inspections Chairs(s): Rih-Teng Wu and Peng "Patrick" Sun		
Salon 10	11:30 - 11:50	EP240609 In-line quality control for additively constructed concrete structures using 3D-laser scanning Author(s): John Vrabel, Priyam Chowdhury*, Jenna Migliorino, Anthony Mackin, Zaid Hanoun, Aly Ahmed, Adriana Trias Blanco, Islam Mantawy
	10:50 - 11:10	EP240678 Measuring torsional displacement using multi-vision synchronization in shake table tests Author(s): Mohammad Vasef, Peng "Patrick" Sun*, Kevin Mackie
	11:10 - 11:30	EP240572 Physics-informed failure prediction framework using hysteretic loops of RC columns Author(s): Ting-Yan Wu*, Rih-Teng Wu, Ping-Hsiung Wang, Tzu-Kang Lin, Kuo-Chun Chang
	11:50 - 12:10	EP240867 Training accurate computer vision based infrastructure defect detection model under annotation noise Author(s): Chen Zhang*, Jize Zhang

0807: Advancements of data-driven methods in computational mechanics Chairs(s): Qizhi He		
Hancock Parlor	10:50 - 11:10	EP240484 Machine learning for force field parameterization - Application to fracture of 2D materials Author(s): Horacio Espinosa*, Yue Zhang, Kui Lin, Hoang Nguyen
	11:10 - 11:30	EP241029 A large language model and denoising diffusion framework for targeted design of microstructures with commands in natural language Author(s): Nikita Kartashov, Nikolaos Napoleon Vlassis*
	11:30 - 11:50	EP240273 A deep material network using micropolar mechanics Author(s): Noah Francis*, Dongil Shin, Ricardo Lebensohn, Fatemeh Pourahmadian, Rémi Dingreville
	11:50 - 12:10	EP240997 Multiscale materials modeling and optimization by bridging scales using a deep convolutional network Author(s): Ashwini Gupta*, Lori Graham-Brady
1003: Surrogate modeling for uncertainty quantification, optimization, and statistical inference in engineering applications Chairs(s): Abdollah Shafieezadeh		
LaSalle 2	10:50 - 11:10	EP240880 A generalized physics-informed polynomial chaos framework for surrogate modeling and uncertainty quantification Author(s): Michael Shields*, Himanshu Sharma, Lukas Novak
	11:10 - 11:30	EP240195 Physics-informed Graph Neural Network for predicting power generation of wave farms Author(s): Suraj Khanal*, Gaofeng Jia
	11:30 - 11:50	EP240933 Evaluation of a transfer learning approach to multi-fidelity wind loading predictions Author(s): Mattia Ciarlatani*, Catherine Gorlé
	11:50 - 12:10	EP240249 Statistical inference with high-dimensional surrogate models Author(s): Yulin Guo, Sankaran Mahadevan*
1005: Probabilistic, physics-guided, and multi-fidelity generative modeling for uncertainty quantification Chairs(s): Roger Ghanem and Agnimitra Dasgupta		
Wilson Room	10:50 - 11:10	EP240947 Unsupervised disentanglement and dimension reduction for large-scale engineering systems Author(s): Tiffany Fan*, Nathaniel Trask, Marta D'Elia, Alireza Doostan, Eric Darve
	11:10 - 11:30	EP240417 Dimensionality reduction as a surrogate model for high-dimensional forward uncertainty quantification Author(s): Jungho Kim*, Sang-ri Yi, Ziqi Wang
	11:30 - 11:50	EP240967 Cross entropy adaptive importance sampling using an expressive non-parametric mixture modeling approach Author(s): Tianyu Zhang*, Jize Zhang
	11:50 - 12:10	EP240487 Tailored Gröbner basis analysis of the Reynolds-Averaged Navier-Stokes equations Author(s): Manuel Romero De Terreros*, Carla Valencia-Negrete

1008: Infrastructure assessment automation with robotics, deep learning and digital twins Chairs(s): Jian Li		
Water Tower Parlor	10:50 - 11:10	EP241139 BIM development with damage detections based on UAV Author(s): Su-Kyeong Geum*, Hyun-Jin Jung, Jong-Han Lee
	11:10 - 11:30	EP241159 Automating the instance segmentation of RC bridges Author(s): Asad Ur Rahman*, Vedhus Hoskere
	11:30 - 11:50	EP240236 Scan-to-FEM: Digital Transformation of Truss Bridge Author(s): Jaehyuk Lee*, Hyungchul Yoon
1107: Objective resilience: Computational advancements for performance-based engineering and resilience assessment of communities Chairs(s): Alice Alipour and Paolo Gardoni		
Spire Parlor	10:50 - 11:10	EP240042 Integrative multi-hazard fragility assessment: Advancing community resilience through cumulative damage modelling Author(s): Mojtaba Harati*, John van de Lindt
	11:10 - 11:30	EP240305 Community resilience analysis under seismic hazards using agent-based modeling Author(s): Xu Han*, Maria Koliou
	11:30 - 11:50	EP240968 Towards a computational platform for integrated regional resilience assessment of interdependent systems Author(s): Nikola Blagojevic, Jinyan Zhao*, Sina Naeimi Dafchahi, Adam Zsarnoczay, Frank McKenna, Matthew DeJong, Bozidar Stojadinovic
	11:50 - 12:10	EP240699 Enhancing traffic resilience for emergency evacuation by efficient network-wide speed limit optimization under uncertainty Author(s): Ziluo Xiong*, Gaofeng Jia
1108: Towards resilient communities: Improvements in natural hazard risk assessment using data-driven methods Chairs(s): Jize Zhang and Aikaterini Kyprioti		
LaSalle 1	10:50 - 11:10	EP240750 TC-Diffusion: A deep Markov-chain tropical cyclone simulation model with application to typhoon wind hazard analysis Author(s): Wenjun Jiang, Xi Zhong, Jize Zhang*
	11:10 - 11:30	EP240576 Optimal retrofitting policy for earthquake-induced landslide hazard on transportation networks using graph neural networks Author(s): Debasish Jana*, Sven Malama, Sriram Narasimhan, Ertugrul Taciroglu
	11:30 - 11:50	EP240966 Estimating building-level seismic damage through selected structural members Author(s): Milad Cheragh Zade, Shenghan Zhang, Jize Zhang*
	11:50 - 12:10	EP240048 Mechanical analysis of segmented tunnel structures under active fault actions Author(s): Longjun Xu*, Heng Zhang, Lili Xie

12:20 – 13:20 Lunch | Exhibit Hall

12:20 – 13:20 Student Awards | Grand Ballroom

13:20 – 14:20 Keynote 4 | Grand Ballroom
Thinking that Connects Domains: Evolution of Ideas Across Art, Math, Science, and Technology
Julio M. Ottino, Ph.D., Walter P. Murphy Professor of Chemical and Biological Engineering and Mechanical Engineering, Distinguished Robert R. McCormick Institute Professor

14:20 – 18:00 Company Showcase and Student Engagement | Red Lacquer

Thursday, May 30, Afternoon Sessions, 14:20 – 15:50

0110: Characterization and modeling of physical processes in porous materials across scales Chairs(s): Yanni Chen & Mostafa Mobasher		
Salon 9	14:20 - 14:40	EP241056 Localization and instability in fluid infiltrated sheared granular materials Author(s): Ahmed Elbanna*, Xiao Ma
	14:40 - 15:00	EP240110 Chemo-mechanical couplings at the micro scale in porous geomaterials Author(s): Alexandre Sac-Morane*, Hadrien Rattez, Manolis Veveakis
	15:00 - 15:20	EP240696 Determination of the relative permeability response of water-CO2 through poromechanical measurements and its validation Author(s): Majd Awarke, Kiseok Kim*
	15:20 - 15:40	EP240799 Effects of reactive permeating fluid on deformation of elastic solids in coupled porous systems Author(s): John Hickman*, Ignasius Wijaya, Arif Masud, Scott Roberts

0113: Advances and applications of elasticity within applied mechanics Chairs(s): Sofia Mogilevskaya and Evgueni Todorov Filipov		
Salon 6	14:20 - 14:40	EP240222 Modeling materials with prestressed thin and stiff reinforcements of circular cross-sections Author(s): Sofia Mogilevskaya*, Zhilin Han, Anna Zemlyanova
	14:40 - 15:00	EP240246 Eshelby inclusion-based technique for modeling heterogeneous elastic formations under the condition of incomplete field data Author(s): Hadis Amirinezhad*, Sofia Mogilevskaya, Emmanuel Detournay
	15:00 - 15:20	EP240301 Tailor the buckling resistance of a thin-walled tube filled with a granular lattice by prestress Author(s): Chao Liu*, Byung Wook Kim, Mehdi Zadshir, Huiming Yin
	15:20 - 15:40	EP240798 Nanoscale cylindrical defects in flexoelectric solids Author(s): Jinchen Xie*, Christian Linder
0120: Architected materials Chairs(s): Pablo Zavattieri		
Salon 3	14:20 - 14:40	EP240254 Efficient computation framework for recurrent identification of bandgaps in metamaterials Author(s): Jesus Pereira, Rafael Ruiz*
	14:40 - 15:00	EP240334 Shock dynamics of architected materials Author(s): Shengzhi Luan, James Guest, Stavros Gaitanaros*
	15:00 - 15:20	EP240650 Geometric phase in elastic waves: Exploring differential geometry, topology, and design applications Author(s): Mohit Kumar*, Fabio Semperlotti
	15:20 - 15:40	EP240895 Source localization with 1D metamaterial arrays for acoustic applications Author(s): Weidi Wang*, Shayan Razi, Arghavan Louhghalam, Mazdak Tootkaboni, Alireza Amirkhizi
0201: Failure and function in structural stability applications Chairs(s): Hannah Blum and Hyeyoung Koh		
Salon 7	14:20 - 14:40	EP240194 Experimental lateral torsional buckling of simply supported anisotropic laminated web beams subjected to a single mid-span loading Author(s): Mohammad Bani Hani*, Hayder Rasheed
	14:40 - 15:00	EP240358 New experimental apparatus for testing of thin-walled systems prone to instabilities Author(s): Hyeyoung Koh, Thomas Sputo, Hannah Blum*
	15:00 - 15:20	EP240687 Full-scale shake table collapse testing of a three-story post tensioned mass timber rocking wall building Author(s): Prashanna Mishra*, John W. Van De Lindt, Andre Barbosa, Patricio Uarac, Shiling Pei, Steve Pryor, Steven Kontra, Barbara Simpson, Arijit Sinha, Tara Hutchinson
	15:20 - 15:40	EP240530 Buckling detection of profiled steel deck using innovative measurement techniques Author(s): Hyeyoung Koh*, Gowshikan Arulananthan, Nate Opperman, Jesse Hampton, Hannah Blum

0204: Design and additive manufacturing of engineering structures and materials Chairs(s): Xiaojia Shelly Zhang		
Salon 12	14:20 - 14:40	EP240069 Repairable concentric braced frames through additive manufacturing Author(s): Islam Mantawy*, Hamdy Farhoud
	14:40 - 15:00	EP240797 Mechanical characterization of nano-modified 3D-printable ultra high-performance concrete: A novel approach Author(s): Elmer Irizarry*, Shady Gomaa, Ayesha Ahmed, Raul Marrero Rosa, Gianluca Cusatis
	15:00 - 15:20	EP240133 Validation of system-level assumptions in seismic analysis of RC structures: An experimental framework based on 3D printing of the reinforcement Author(s): Medhat Elmorsy*, Michalis Vassiliou
	15:20 - 15:40	EP240178 Additive repair of corroded bridge beams: Cold spray additive manufacturing Author(s): Brian Schagen*, Wen Chen, Shengbiao Zhang, Haden Edward Quinlan, Anastasios John Hart, Simos Gerasimidis
0206: Biological and biologically inspired materials and structures Chairs(s): Dr. Stefan Scheiner and Dr. Elisa Budyn		
LaSalle 3	14:20 - 14:40	EP240724 A shape-based computational approach for in vivo cardiac tissue property estimation from clinical imaging data Author(s): Elaheh Mehdizadeh*, Amin Pourasghar, Timothy Wong, Arvind Hoskoppal, John Brigham
	14:40 - 15:00	EP240826 Molecular dynamics study of biopolymer composites Author(s): Ali Shomali, Jan Carmeliet, Dominique Derome*
	15:00 - 15:20	EP241199 Engineered biological construction material: self-healing carbon negative enzymatic construction materials (ECM) Author(s): Shuai Wang, Nima Rahbar*, Suzanne Scarlata
0208: Meshfree, peridynamic, and particle methods: Advancements and applications Chairs(s): Pablo Seleson and Mike Hillman		
Adams Room	14:20 - 14:40	EP240681 Data-driven peridynamic model for fragmentation in the crushing of solids Author(s): Stewart Silling*
	14:40 - 15:00	EP240032 A versatile computational framework for continuum-kinematics-inspired peridynamics using hyper-dual numbers Author(s): Soheil Firooz*, Ali Javili, Paul Steinmann
	15:00 - 15:20	EP240801 Aspects of continuum-kinematics-inspired peridynamics Author(s): Ali Javili*
	15:20 - 15:40	EP240316 Adaptive Spacetime Wavelet Method for the Solution of Partial Differential Equations Author(s): Cody Cochran*, Karel Matouš

0210: Assessing human-infrastructure interactions and their performance Chairs(s): Haeyoung Noh		
Grant Park Parlor	14:20 - 14:40	EP241122 Human-machine-structures interfaces enabling new theories for management and safety Author(s): Fernando Moreu*, Kaveh Malek
	14:40 - 15:00	EP240963 Bridge structure maintenance and disaster mitigation using UAV and AI-human interaction Author(s): Ji Dang*, Tonan Fujishima, Pang-jo Chun
	15:00 - 15:20	EP240622 Automated mapping of human-human and human-infrastructure interactions to social benefits using privacy-preserving sensing Author(s): Cheyu Lin*, Katherine Flanigan
	15:20 - 15:40	EP240557 Integrating gait biomechanics and structural dynamics to estimate lower-limb joint motion for human gait health Author(s): Yiwen Dong*, Sung Eun Kim, Kornél Schadl, Jessica Rose, Hae Young Noh
0213: 4M (modeling of multiphysics-multiscale-multifunctional) engineering materials and structures Chairs(s): Yong-Rak Kim and Qiming Wang		
Salon 1	14:40 - 15:00	EP240449 Singum modeling of multiscale and multiphysical behavior of lattice-based materials Author(s): Huiming Yin*
	15:00 - 15:20	EP240126 Modeling the uncoupled damage-healing behavior of self-healing cementitious material with phase field method Author(s): Hsiao Wei Lee*, Li Meng, Amirreza Sadighi, Alireza Ashkpour, Mohammad Irfan Iqbal, Geetika Mishra, Christopher Sales, Yaghoob Amir Farnam, Ahmad Najafi
	14:20 - 14:40	EP240122 Challenges in integrating CFD modeling with UNLETB for gravel erosion analysis Author(s): Basil Abualshar*, Chung Song
0214: Finite element modeling and simulation of train derailments and their role in assessing tank car safety Chairs(s): Paul Gharzouzi		
Salon 5	14:20 - 14:40	EP241189 Probabilistic modeling of optimal placement strategies of hazardous materials railcars in freight trains Author(s): Chen-Yu Lin, Xinhao Liu*, Christopher Barkan
	14:40 - 15:00	EP241073 Validation of tank car derailment models Author(s): Paul Gharzouzi*, Paolo Gardoni, Todd Treichel, Steven Kirkpatrick, Leandro Iannacone, Chen-Yu Lin, Christopher Barkan

0301: Smart IoT sensors and artificial intelligence for civil infrastructure monitoring Chairs(s): Fu Yuguang and Li Jian		
Salon 2	14:20 - 14:40	EP240665 Global-local 3D Digital Image Correlation for full-field strain mapping on concrete structures Author(s): Mostafa Iraniparast*, Peng "Patrick" Sun, Kevin Mackie, Georgios Apostolakis
	14:40 - 15:00	EP240228 Acoustic emission-based damage localization: A time-frequency analysis and deep learning approach Author(s): Van Vy*, Hyungchul Yoon
	15:00 - 15:20	EP241124 Wireless Intelligent Sensor Ecosystem (WISE): An open-source framework for cost-effective Structural Health Monitoring Author(s): Jordan Kooyman, Andrew Bryan, Andrew Holm, Lucas Wilkerson, Ali Ozdagli*
0302: Analysis of heritage structures: Tools and methods for assessing unknowns in historic monuments and structures Chairs(s):		
Price Room	14:20 - 14:40	EP240642 Comparative structural analysis of historic Midwestern timber barn typologies under wind actions Author(s): Moriah Hughes*, Branko Glisic
	14:40 - 15:00	EP240929 Structural assessment of 19th century wood trusses: A case study of the Brooklyn Friends Meeting House roof Author(s): Melanie McCloy*
	15:00 - 15:20	EP241009 Understanding historic wood structures and how to assess them Author(s): Steven Hall*
	15:20 - 15:40	EP241094 Computational simulation of tornado damage and response for historical masonry buildings from field reconnaissance data Author(s): Saanchi Kaushal, Mariantonieta Gutierrez Soto, Rebecca Napolitano*
0303: Innovations and advances in passive, active, and semi-active structural control Chairs(s): Scott Harvey and Nicholas Wierschem		
Monroe Room	14:20 - 14:40	EP241200 Multi-objective feedback design for self-powered structural control systems Author(s): Jonathan Shell*, Connor Ligeikis, Jeff Scruggs
	14:40 - 15:00	EP240109 Innovative latched mass damper for vibration control inspired by wave energy converter Author(s): Hao Wang*, Songye Zhu
	15:00 - 15:20	EP240614 High-order implicit-explicit scalar auxiliary variable (SAV) time integration schemes for structural dynamics Author(s): Sun-Beom Kwon*, Arun Prakash
	15:20 - 15:40	EP240835 Experimental study of segmental elastic spines with joint stiffness for buildings Author(s): Sima Abolghasemi*, Nicholas Wierschem, Mark Denavit

0305: Structural identification and damage detection Chairs(s): Vasilis Dertimanis		
Wabash Room	14:20 - 14:40	EP240250 Impurity gas monitoring for spent nuclear fuel canisters using a variational autoencoder (VAE) Author(s): Bozhou Zhuang*, Bora Gencturk, Assad Oberai, Harisankar Ramaswamy, Ryan Meyer, Anton Sinkov, Morris Good
	14:40 - 15:00	EP240625 Detection of selective leaching damage in buried cast iron pipes using ultrasonic wave pitch-catch Author(s): Dongjin Du, Pranav Karve*, Sankaran Mahadevan
	15:00 - 15:20	EP240990 Structural Health Monitoring for risk assessment and reliability of a bridge after an extreme loading like earthquake Author(s): Umesh Chand*, Chandrasekhar Putcha
	15:20 - 15:40	EP240767 Vibration-based Structural Health Monitoring of an aging post-tensioned concrete girder bridge Author(s): Menno van de Velde*, Dimitrios Anastasopoulos, Hans De Backer, Edwin Reynders, Geert Lombaert
0306: Recent advances in sensing, SHM, and automated inspections for infrastructure condition assessment: Toward actionable solutions Chairs(s): Mohamad Alipour and Qipei Mei and Gbandi Nikabou		
Crystal Room	14:20 - 14:40	EP240996 A hybrid machine learning and image processing approach for scale invariant crack width quantification Author(s): Ishan Pradhan*, Rodrigo Sarlo
	14:40 - 15:00	EP241014 MDT bridge deck cracking evaluation - instrumentation and monitoring based solution Author(s): Jack Dai*, Todd Nelson
	15:00 - 15:20	EP240534 Distributed structural health monitoring of a five-span bridge Author(s): Chengwei Wang*, Antonio Domel, Farhad Ansari
	15:20 - 15:40	EP241174 Automatic detection and quantification of spalling damage level in reinforced concrete elements using foundational models Author(s): Melissa M. Trigueros*, Luis A. Bedriñana
0311: Eco-friendly systems, devices, and metamaterials for structural vibration control Chairs(s): Nicolo' Vaiana		
Wilson Room	15:00 - 15:20	EP240438 Mitigating vortex-induced vibrations in offshore structures through metamaterial-based control Author(s): Raffaele Capuano*, Muhammad Hajj
	15:20 - 15:40	EP240715 Seismic response of slender structures equipped with inertial devices. Author(s): Christian Malaga-Chuquitaype*
	14:20 - 14:40	EP240345 Nonlinear dynamic analysis of structures equipped with eco-friendly hysteretic devices by using NextFEM designer Author(s): Nicolo' Vaiana*, Giovanni Rinaldin
	14:40 - 15:00	EP240654 Response modification of moment resisting frames using sustainable structural systems: Rocking walls Author(s): Mehrdad Aghagholizadeh*

0312: Seismic isolation: Theoretical advancements, experimental insights, and innovative applications Chairs(s): Dimitrios Konstantinidis and Michalis Vassiliou		
Buckingham Room	14:20 - 14:40	EP241181 Buckling behavior of fiber-reinforced elastomeric isolators under elevated temperatures Author(s): Sarranya Banerjee*, Akanshu Sharma, Vasant Matsagar
	14:40 - 15:00	EP240410 Experimental development of a seismic isolation device for lunar surface habitat resilience Author(s): Oscar Forero*, Shirley Dyke, Julio Ramirez
	15:00 - 15:20	EP240768 An assessment of the vibration mitigation performance of seismic metasurfaces on layered soils by means of power flow Author(s): David Carneiro, Zohre Kabirian, Geert Degrande, Geert Lombaert*
	15:20 - 15:40	EP240795 Intermediate Isolation System for existing buildings Author(s): Francesco Esposito, Diana Faiella, Elena Mele*
0315: Intelligent techniques and deep learning for bridge health monitoring Chairs(s): Jian Guo and Hyungchul Yoon		
Chicago Room	14:20 - 14:40	EP240408 Graded protection analysis of sea-crossing bridges for ship collision Author(s): Jian Guo*, Zheng Wang, Yuhao Cui
	14:40 - 15:00	EP240189 Bayesian two-stage structural identification with equivalent formulation and EM algorithm Author(s): Jia-Xin Zhu*, Siu-Kui Au
0501: Computational geomechanics Chairs(s): Craig Foster		
Salon 4	14:20 - 14:40	EP240076 A physics informed constrained optimization approach to modeling geomaterial visco-elastoplasticty Author(s): Bozo Vazic*, Eric Cushman Bryant, Kane Bennett
	14:40 - 15:00	EP240244 A fiber-reinforced constitutive model for earthen material in partially saturated conditions Author(s): Persid Koci*, Craig Foster
	15:00 - 15:20	EP240764 Sequential stress and fabric analysis by a Non-Linear Variational Auto-Encoder Author(s): Daniel Chou*, Chloe Arson

0801: Advances in computer vision, deep learning and artificial intelligence for structural health monitoring and inspections Chairs(s): Rih-Teng Wu and Vedhus Hoskere		
Salon 10	14:20 - 14:40	EP240465 A novel generalizable opening detection model for rapid disaster response Author(s): Hong-Bo Huang*, Rih-Teng Wu
	14:40 - 15:00	EP241149 Classification of bridge members using PCD training and parametric BIM algorithms Author(s): MinJin Lee*, Dahyeon Yang, Jong-Han Lee
	15:00 - 15:20	EP240913 Unsupervised domain adaptative semantic segmentation of building components using a synthetic image source domain. Author(s): Charles Abdo*, Vedhus Hoskere
	15:20 - 15:40	EP241183 Machine and Deep Learning applications for damage quantification on reinforced concrete columns Author(s): Juan-Carlos Singaucho*, Vangelis Metsis, Andreas Stavridis
0803: Data-scarce modeling in engineering mechanics: Probabilistic learning, information maximization & transfer learning Chairs(s): Audrey Olivier and Michael Shields		
LaSalle 1	14:20 - 14:40	EP240937 Probabilistic convolutional neural networks for surrogate modeling and uncertainty quantification in solid mechanics Author(s): George D. Pasparakis*, Michael Shields, Lori Graham-Brady
	14:40 - 15:00	EP240770 Enhancing uncertainty quantification in structural damage classification using weighted ensembles of neural networks Author(s): Javad Ghorbanian*, Jayne Bottarini, Audrey Olivier
	15:00 - 15:20	EP240690 Integrating physics-based deep learning models and data augmentation for hysteresis prediction and quantifying model uncertainty Author(s): Jaehwan Jeon*, Junho Song, Oh-Sung Kwon
	15:20 - 15:40	EP240669 Deep reinforcement learning based heterogeneous sensor placement under non-stationary input Author(s): Amin Jabini*, Erik Johnson
0804: Data-driven approaches to engineering mechanics Chairs(s): Tom Seidl and John Brigham and Evgueni Filipov and Alessandro Fascetti and Fatemeh Pourahmadian		
Salon 8	14:40 - 15:00	EP240147 Calibration of hybrid constitutive models from full-field data Author(s): Daniel Seidl*, Brian Granzow, Reese Jones, Ravi Patel
	15:00 - 15:20	EP241144 ML-regularized functionals for imaging in complex environments Author(s): Fatemeh Pourahmadian*, Yang Xu, Jian Song, Todd Murray, Venkatalakshmi Narumanchi
	15:20 - 15:40	EP241165 Extreme sparsification of physics-augmented neural networks for interpretable model discovery in solid mechanics Author(s): Jan Niklas Fuhg*, Reese Jones, Nikolaos Bouklas
	14:20 - 14:40	EP240752 Accelerating multiscale simulation with machine learning Author(s): Reese Jones*, Craig Hamel, Dan Bolintineanu, Jan Niklas Fuhg, Nikolaos Bouklas

0807: Advancements of data-driven methods in computational mechanics Chairs(s): Waiching Sun		
Hancock Parlor	14:40 - 15:00	EP240579 Enhancing robot-soil interaction policy optimization through hybrid differentiable simulation and global search techniques Author(s): Cheng-Hsi Hsiao*, Krishna Kumar
	15:00 - 15:20	EP240446 Neural network enhanced differentiable meshfree method for modeling inelastic materials Author(s): Honghui Du, Qizhi He*
	14:20 - 14:40	EP240805 Agentic language-based strategies for mechanics and materials modeling to connect scales, disciplines, and modalities using hierarchical architectures Author(s): Markus Buehler*
1003: Surrogate modeling for uncertainty quantification, optimization, and statistical inference in engineering applications Chairs(s): Gaofeng Jia		
LaSalle 2	14:20 - 14:40	EP241022 A generalized polynomial chaos expansion for high-dimensional design optimization under dependent random variables Author(s): Dongjin Lee, Sharif Rahman*
	15:20 - 15:40	EP240324 Graph neural Bayesian optimization for seismic retrofit prioritization of transportation networks Author(s): Min Li*
	15:00 - 15:20	EP240849 Graph neural networks for optimal power flow solutions under high-dimensional uncertainty Author(s): Kamiar Khayambashi*, Md Abul Hasnat, Negin Alemazkoor
	14:40 - 15:00	EP240894 Multi-objective performance-based risk optimization of steel structures subjected to seismic actions Author(s): Isabela D. Rodrigues*, André T. Beck, Seymour Spence
1008: Infrastructure assessment automation with robotics, deep learning and digital twins Chairs(s): Wei Song		
Water Tower Parlor	15:20 - 15:40	EP240615 Advancing the accuracy and interpretability of digital twins with hybrid physics-informed models Author(s): Sizhe Ma*, Katherine Flanigan, Mario Bergés
	14:20 - 14:40	EP240229 Vision-based structural displacement measurement using transforming model prediction Author(s): Tinh Nguyen*, Hyungchul Yoon
	14:40 - 15:00	EP240087 Forensic technique for structural material identification of reinforced concrete structures using 2D DIC and metaheuristic optimization Author(s): Tabish Ali*, Robin Eunju Kim
	15:00 - 15:20	EP241187 Deep learning based initial deformation modeling in shield tunnel: Preliminary results Author(s): Yimin Qin*, Wei Song, Xian Liu

1107: Objective resilience: Computational advancements for performance-based engineering and resilience assessment of communities Chairs(s): Alice Alipour and Paolo Gardoni		
Spire Parlor	14:20 - 14:40	EP240138 A methodology for prioritizing simulation-based stress tests for transportation systems Author(s): Hossein Nasrazadani*, Bryan T. Adey, Maria Nogal, Stergios Mitoulis
	14:40 - 15:00	EP240535 Probabilistic numerical analysis on the fire resilience of composite floors designed per performance-based approach Author(s): Chenzhi Ma*, Thomas Gernay
	15:00 - 15:20	EP240364 Structural performance sensitivity of buildings to wind-induced interference effects in growing cities Author(s): Azin Ghaffary*, Luis Ceferino
	15:20 - 15:40	EP240624 Data-enabled performance improvement of buildings located in high wind hazard regions Author(s): Bahareh Dokhaei*, Behrouz Shafei, Alice Alipour

15:50 – 16:10 Break | Exhibit Hall

Thursday, May 30, Evening Sessions, 16:10 – 18:00

0103: Mechanics of granular materials: Modeling and characterization Chairs(s): Dawa Seo and Jibril Coulibaly		
Salon 3	16:10 - 16:30	EP240054 Modeling shock attenuation in granular materials: The role of particle shape Author(s): Jibril Coulibaly*, Joel Clemmer, Robert Buarque de Macedo
	16:30 - 16:50	EP240064 Bonded discrete element method analysis of landfast sea ice fracture by ocean currents Author(s): Rigoberto Moncada Lopez*, Jacinto Ulloa, Mukund Gupta, Andrew Thompson, Jose Andrade
	16:50 - 17:10	EP240159 Efficient modeling approaches for lattice discrete particle models Author(s): Jiajia Wang*, Jan Vorel, Wouter Botte, Roman Wan-Wendner
	17:10 - 17:30	EP240163 Mesoscale computational modeling on square-shaped granular salt under weak shock compaction Author(s): Dawa Seo*, Nitin Daphalapurkar, Darby Luscher
0110: Characterization and modeling of physical processes in porous materials across scales Chairs(s): Yanni Chen & Mostafa Mobasher		
Salon 9	16:10 - 16:30	EP240362 Fault friction under thermal pressurization during large seismic slip Author(s): Alexandros Stathas*, Ioannis Stefanou
	16:30 - 16:50	EP240202 An analytical model for hygroscopic bilayers based on surface poromechanics theory Author(s): Mohammadali Behboodi*

0113: Advances and applications of elasticity within applied mechanics Chairs(s): Fatemeh Pourahmadian and John Charles Brigham		
Salon 6	16:10 - 16:30	EP240027 Vibration problems in the coupled theory thermoelastic nanomaterials with triple porosity Author(s): Merab Svanadze*
	16:30 - 16:50	EP240018 Numerical analysis of bandgap-inducing properties of 1D and 2D sandwich foundations Author(s): Luis Filipe do Vale Lima, Leonardo Antoniazzi Marques, Euclides Mesquita, Josue Labaki*
	16:50 - 17:10	EP240311 The general equilibrium of elastic layered systems (GELS), an open-source implementation in Python Author(s): David Yang*
	17:10 - 17:30	EP240959 Inelastic processes in material evolution with application to frontal polymerization Author(s): Ignasius Wijaya*, Arif Masud
0126: Mechanics and modeling of pavement structures and materials Chairs(s): Ramez Hajj		
Hancock Parlor	16:10 - 16:30	EP240781 Development of plasticity-based fatigue model in asphalt binder Author(s): Haifang Wen*
	16:30 - 16:50	EP240991 Variability in compaction of asphalt mixtures--experimental investigation and probabilistic modeling Author(s): Tianhao Yan*, Jia-Liang Le, Mugurel Turos, Mihai Marasteanu
	16:50 - 17:10	EP240844 Effects of confinement condition on ductility of asphalt binders Author(s): Ramez Hajj*
0201: Failure and function in structural stability applications Chairs(s): Hayder Rasheed and Stelios Yiatros		
Salon 7	16:10 - 16:30	EP240285 Buckliphilia to the rescue: Prototypes for buckling-driven shading solutions Author(s): Stylianos Yiatros*
	16:30 - 16:50	EP240387 Influence of sinusoidal filament geometry on interface interlayer bond strength of 3D printed concrete Author(s): Pardis Pourhaji*, Mobin Vandadi, Nima Rahbar
	16:50 - 17:10	EP240593 Variations in the development length of a high-strength steel wire in a bridge cable under the influence of wrapping force and axial loading Author(s): Linda Teka*, Raimondo Betti, Huiming Yin

0203: Recent advances in hybrid simulation and real-time hybrid simulation Chairs(s): Richard Christenson and Wei Song		
Salon 2	16:30 - 16:50	EP240452 Advanced real-time force control and its application to the seismic performance evaluation of base isolation bearings Author(s): Yunbyeong Chae*, Chunghyun Lee
	16:50 - 17:10	EP241086 Real-time hybrid simulation for infrastructure degradation assessment: Conceptual framework and application example Author(s): Manuel Salmeron*, Herta Montoya, Edwin Patino, Ingrid E. Madera Sierra, Shirley Dyke
	17:10 - 17:30	EP240543 Aero-hydro-geotechnical real-time hybrid simulation of monopile offshore wind turbine structures under operational and extreme conditions Author(s): Safwan Al-Subaihawi, Qasim Abu-Kassab, James Ricles*, Muhannad Suleiman, Richard Sause, Arindam Banerjee, Justin Jaworski, Thomas Marullo, Kevin Wyckoff, Liam Magargal
	16:10 - 16:30	EP240113 Robust dynamic compensation of multi-actuator real-time hybrid simulation testing of stiff specimens using a compliant beam connector Author(s): Diego Araya, Maria Quiroz, Gaston Fermandois*
0204: Design and additive manufacturing of engineering structures and materials Chairs(s): Josephine V. Carstensen and Xiaojia Shelly Zhang		
Salon 12	16:10 - 16:30	EP240046 Influence of infill patterns on the mechanical and fatigue characteristics of fused filament fabricated polymer parts Author(s): Mohamad Alagheband, Sungmoon Jung*, Qian Zhang
	16:30 - 16:50	EP240175 Investigating the mechanical behavior of 3D-printed Inconel 718 hexagonal honeycomb structures: A comprehensive study Author(s): George Z. Voyiadjis*, Reem Abo Znemah, Paul Wood
	16:50 - 17:10	EP240071 Is additive construction ready for seismic regions? – A new seismic protective system enabled by additive construction Author(s): Islam Mantawy*, Anthony Mackin, Jenna Migliorino, Hamdy Farhoud
	17:10 - 17:30	EP240601 Long short-term memory network based surrogate model for predicting fracture in metals Author(s): Surajit Dey*, Ravi Yellavajjala
0205: Origami/kirigami inspired structures and metamaterials Chairs(s): John Brigham and Evgueni Filipov		
Salon 5	16:30 - 16:50	EP240470 Optimal kirigami-inspired façade cut designs for building energy performance in varying environmental conditions Author(s): Rodrigo Arauz, John Brigham*
	16:50 - 17:10	EP240258 Framework for uncertainty identification of bandgaps in Kirigami-based structures Author(s): Jesus Pereira*, Rafael Ruiz
	17:10 - 17:30	EP240958 Origami via instability Author(s): Yi Yang*, Helen Read, David Melancon, Katia Bertoldi
	16:10 - 16:30	EP240177 A coarse-grained “Theorema Egregium” for origami tessellations Author(s): Hussein Nassar*, Andrew Weber

0208: Meshfree, peridynamic, and particle methods: Advancements and applications Chairs(s): Mike Hillman and Pablo Seleson		
Adams Room	16:10 - 16:30	EP240537 N-Adaptivity: A neural network enriched Partition of Unity for solving boundary value problems based on potential energy minimization Author(s): Jonghyuk Baek, Yanran Wang*, Jiun-Shyan Chen
	16:30 - 16:50	EP240328 A space-time modularized neural network approach for shock wave modeling Author(s): Tsung-Yeh Hsieh*, Yang-Ming Tsai, Tsung-Hui Huang
	16:50 - 17:10	EP240312 Modeling phase-transformation induced strain localization using a neural-network enhanced reproducing kernel particle method Author(s): Xuejun Li*, Sheng-Wei Chi
0210: Assessing human-infrastructure interactions and their performance Chairs(s): Fernando Moreu		
Grant Park Parlor	16:10 - 16:30	EP241117 Real-time concrete crack detection and sensing using Augmented Reality Author(s): Fernando Moreu, Yen-ting Liu, Ali Khorasani*, Kaveh Malek, Chia-Ming Chang
	16:30 - 16:50	EP240854 Evaluating human-machine collaboration in augmented reality-based bridge inspections Author(s): Alan Smith, Rodrigo Sarlo*
	16:50 - 17:10	EP241107 Enhancing system diagnostics and performance by embedding human interaction within digital twins Author(s): John Martins*, Katherine Flanigan
0213: 4M (modeling of multiphysics-multiscale-multifunctional) engineering materials and structures Chairs(s): Huiming Yin		
Salon 1	16:30 - 16:50	EP240497 Carbonation of one-part alkali-activated materials incorporated by MgO and CaO: Phase evolution, micromechanical properties, and surface free energy Author(s): Shayan Gholami, Yong-Rak Kim*, Dallas Little, Jong Suk Jung
	16:50 - 17:10	EP240123 Seasonally fluctuating strength of soils in Mid-Western USA and CPT based quantification method Author(s): Bashar Al-Nimri*, Chung Song
	16:10 - 16:30	EP240524 Dynamic responses of viscoelastic composite beams with spherical inclusions under harmonic excitation Author(s): Jinming Zhang*, Chunlin Wu, Huiming Yin
	17:10 - 17:30	EP240786 Non-extensive statistical mechanics of fracture in fibre reinforced cementitious composites using acoustic emission Author(s): Kashif Naukhez*, R Vidya Sagar, Chandra Kishen

0303: Innovations and advances in passive, active, and semi-active structural control Chairs(s): Nicholas Wierschem and Scott Harvey		
Monroe Room	16:10 - 16:30	EP240036 The pressurized sand-damper: A low-cost, long-stroke, rate/temperature independent energy dissipation device Author(s): Nicos Makris*, Konstantinos Kalfas
	16:30 - 16:50	EP241146 Modelling tuned liquid dampers using smoothed particle hydrodynamics Author(s): Michael Tait*, Bishoy Awad, Shayne Love
	16:50 - 17:10	EP240879 Combating hardening behavior in shallow tuned sloshing dampers Author(s): Kevin McNamara*, Shayne Love
0311: Eco-friendly systems, devices, and metamaterials for structural vibration control Chairs(s): Nicolo Vaiana		
Wilson Room	16:10 - 16:30	EP240809 Numerical modeling of unbounded fiber-reinforced elastomeric isolators with recycled rubber Author(s): Shiv Prakash, Nicolò Vaiana*, Daniele Losanno
	16:30 - 16:50	EP240589 Vibration attenuation in a mass in mass frictional metamaterial unit cell: An analytical investigation Author(s): Muskaan Sethi*, Arnab Banerjee, Bappaditya Manna
0312: Seismic isolation: Theoretical advancements, experimental insights, and innovative applications Chairs(s): Dimitrios Konstantinidis and Michalis Vassiliou		
Buckingham Room	16:10 - 16:30	EP240656 Multiscale modeling of elastomeric seismic isolators Author(s): Eduardo Montalto*, Dimitrios Konstantinidis
	16:30 - 16:50	EP240443 Experimental and numerical studies on a low cost isolator based on rolling of a rubber sphere on concrete surfaces. Author(s): Sergio Reyes, Antonios Katsamakas, Michalis Vassiliou*
0315: Intelligent techniques and deep learning for bridge health monitoring Chairs(s): Ji Dang and Mohamad Alipour		
Chicago Room	16:10 - 16:30	EP240395 Reinforcement learning-powered model-free framework for UAS-based bridge column inspection mission planning Author(s): Yuxiang Zhao*, Mohamad Alipour
	16:30 - 16:50	EP240407 Bridge 3D model reconstruction from UAV videos and damage segmentation projection Author(s): Ji Dang*
	16:50 - 17:10	EP240779 A fast newton algorithm for Bayesian modal identification in multiple-setup ambient vibration test Author(s): Wei Zhu*, Binbin Li

0501: Computational geomechanics Chairs(s): Craig Foster		
Salon 4	16:10 - 16:30	EP240124 Discrete element modeling of flexible granular materials – from contact models to particle flow simulations Author(s): Qiushi Chen*
	16:30 - 16:50	EP240421 Wave propagation properties in granular media: Relating elastic waves to mechanical signatures Author(s): Li Zhang*, Jun Yang
0503: Uncertainty in geomechanical and geochemical processes: Their role on prediction of natural and engineered system behavior Chairs(s): Pouyan Asem		
Wabash Room	16:10 - 16:30	EP240495 The void ratio distribution in response to jacking installation of displacement piles: Findings from physical modeling Author(s): Amin Barari, Lars Bo Ibsen*
	16:30 - 16:50	EP241204 Uncertainty in silicate mineral dissolution rates and its role in constraining reaction paths in MgO-SiO2-H2O system Author(s): Pouyan Asem*
	16:50 - 17:10	EP240348 Assessing rainfall-induced slope failure fragility curves considering the effect of water erosion by a FEM hydromechanical model: case study in the road network of Biobío Region - Chile Author(s): Manuel Contreras-Jara, Esteban Sáez*, Cristina Contreras, Juan de Dios Guzmán, Carlos Bonilla, Jorge Gironás, Alondra Chamorro, Tomás Echaveguren
0705: Advancements in wind engineering: From atmospheric boundary-layer processes to resilient built environments Chairs(s): Aly Mousaad Aly		
LaSalle 3	16:30 - 16:50	EP241151 Enhancing wind resilience in photovoltaic systems: Integrating CFD simulations, design standards, and experimental insights Author(s): Aly Mousaad Aly*
	16:50 - 17:10	EP240401 Performance-based wind design of tall mass timber buildings with rocking post-tensioned cross laminated timber shear walls Author(s): Nahom K Berile, Matiyas A Bezabeh*
	16:10 - 16:30	EP241152 Numerical simulation of fluid-structure interaction based on different coupling mechanisms: A parametric study Author(s): Mohammad Asgari, Aly Mousaad Aly*

0801: Advances in computer vision, deep learning and artificial intelligence for structural health monitoring and inspections Chairs(s): Zhen Liu and Rih-Teng Wu		
Salon 10	16:10 - 16:30	EP240290 Toward green and intelligent transportation infrastructure: a novel double-YOLOv7 network and data autoaugment for road crack detection from CCD and GPR images Author(s): Zhen Liu*, Bingyan Cui, Shihui Shen
	16:30 - 16:50	EP240971 Optimized filter design framework for phase-based video motion estimation with controlled error distribution Author(s): Haifeng Wang*
	16:50 - 17:10	EP240473 Enhancing the visual structural inspections using AI-assisted crack detection tools Author(s): Kareem Eltouny*, Shivani Gandage, Nicholas Catella
	17:10 - 17:30	EP240104 Reinforcement learning-based bridge inspection management Author(s): Xin Zhang, Manuel Salmeron*, Lissette Iturburu, Xiaoyu Liu, Benjamin Wogen, Shirley Dyke
0803: Data-scarce modeling in engineering mechanics: Probabilistic learning, information maximization & transfer learning Chairs(s): Audrey Olivier and Hadi Meidani		
LaSalle 1	16:10 - 16:30	EP240374 Advancing material genomics with active learning and Bayesian analysis in polymer-bonded explosives Author(s): Ozge Ozbayram*, Maruthi Annamaraju, Andreas Robertson, Daniel Olsen, Min Zhou, Lori Graham-Brady, Surya Kalidindi
	16:30 - 16:50	EP240385 Constrained cost-aware multi-fidelity Bayesian optimization Author(s): Zahra Zanjani Foumani*, Amin Yousefpour, Ramin Bostanabad
0804: Data-driven approaches to engineering mechanics Chairs(s): Fatemeh Pourahmadian and Tom Seidl and John Brigham and Evgueni Filipov and Alessandro Fascetti		
Salon 8	16:10 - 16:30	EP240834 Multiplexed laser ultrasonic imaging via the Linear Sampling Method Author(s): Jian Song*, Fatemeh Pourahmadian, Todd Murray, Venkatalakshmi Narumanchi
	16:30 - 16:50	EP241001 Reliability-based optimization of minimum shear reinforcement in prestressed concrete beams via reserve shear strength index and Bayesian regression Author(s): Wonsuh Sung*, Nikhil Potnuru, Suhaib Alfaris, Stephanie Paal, Maria Koliou, Petros Sideris, Mary Beth Hueste, Anna Birely, Stefan Hurlebaus
1002: Uncertainty characterization and propagation in complex nonlinear structures Chairs(s): Zhi-Heng Wang and Meng-Ze Lyu		
Price Room	16:10 - 16:30	EP240703 Data-driven projection pursuit for uncertainty quantification and surrogate modeling in high-dimensional and dependent parameter spaces Author(s): Xiaoshu Zeng*, Roger Ghanem
	16:30 - 16:50	EP240444 Physically-driven dimension-reduced probability density evolution equation Author(s): Meng-Ze Lyu*, Jian-Bing Chen
	16:50 - 17:10	EP240059 A physics and data co-driven surrogate modeling method for high-dimensional rare event simulation Author(s): Jianhua Xian*, Ziqi Wang
	17:10 - 17:30	EP240915 Metamodeling of dynamic nonlinear systems by physics-informed LSTM networks and Taylor series expansions Author(s): Haimiti Atila*, Seymour Spence

1003: Surrogate modeling for uncertainty quantification, optimization, and statistical inference in engineering applications Chairs(s): Min Li		
LaSalle 2	16:10 - 16:30	EP240986 InVAErt networks: A data-driven framework for model synthesis and identifiability analysis Author(s): Guoxiang Grayson Tong*, Daniele Schiavazzi, Carlos Sing-Long
	16:30 - 16:50	EP240190 Surrogate models to capture the influence of neighboring structures on hydraulic demand modification Author(s): Jainish Maheshbhai Patel*, Jamie Padgett
	16:50 - 17:10	EP240216 A machine learning-based surrogate modeling approach for seismic response analysis of soil-structure systems Author(s): Hamid Taghavi Ganji*, Elnaz Seylabi
	17:10 - 17:30	EP241012 Decision variable-based inverse design of isolated steel frames using Gaussian process regression Author(s): Huy Pham*, Tracy Becker
1008: Infrastructure assessment automation with robotics, deep learning and digital twins Chairs(s): Vedhus Hoskere		
Water Tower Parlor	16:10 - 16:30	EP241004 Adaptive robotics for autonomous surface crack repair Author(s): Joshua Genova*, Vedhus Hoskere
	16:30 - 16:50	EP240298 Application of autonomous systems for noncontact aggregate stockpiles volume measurement Author(s): Faezeh Jafari*, Sattar Dorafshan
	16:50 - 17:10	EP240686 Digital twinned cyber-physical system for understanding infrastructure operational state Author(s): Zhidong Zhang*, Zahra Zhiyanpour, Mehrdad Shafiei Dizaji, Ayatollah Yehia, Devin Harris
1114: Advances in regional hazard modeling and risk assessment Chairs(s): Aakash Bangalore Satish		
Spire Parlor	16:50 - 17:10	EP240736 TC-SINDy: A data-driven framework to discover physics-based tropical cyclone track and intensity models Author(s): Xi Zhong, Wenjun Jiang, Jize Zhang*
	17:10 - 17:30	EP240208 Exploring the role of information fidelity when constructing reduced-order models (ROMs) for regional risk assessment seismic applications Author(s): Parisa Toofani Movaghar, Sang-ri Yi, Alexandros Taflanidis*, Carmine Galasso
	16:10 - 16:30	EP240227 Enhancing the efficiency of earthquake rupture forecasting models with adaptive importance sampling in regional seismic risk assessment Author(s): Jinyan Zhao*, Sang-ri Yi, Alexandros Taflanidis
	16:30 - 16:50	EP240673 An end-to-end framework for building inventory generation through public data fusion and artificial intelligence Author(s): Mohammad Askari*, Mohammad Hesam Soleimani-Babakamali, Ertugrul Taciroglu

18:30 – 21:00 Drinks and Banquet | Grand Ballroom

Friday, May 31

8:00 – 9:00 Keynote 5 | Grand Ballroom

Probing multi-hazard risk and resilience in coastal industrial settings: the promise of smart and equitable models

Jamie Ellen Padgett, Ph.D., Stanley C. Moore Professor and Department Chair, Department of Civil & Environmental Engineering

Friday, May 31, Early Morning Sessions, 9:00 – 10:30

0103: Mechanics of granular materials: Modeling and characterization Chairs(s): Dawa Seo and Jibril Coulibaly		
Salon 3	09:00 - 09:20	EP240332 Emergence of critical state predicted by continuum model based upon granular micromechanics approach Author(s): Anil Misra*, Luca Placidi, Nurettin Yilmaz, M. Erden Yildizdag
	09:20 - 09:40	EP240367 Data-driven mechanical behavior modeling of granular biomass materials Author(s): Xuyang Li, Wencheng Jin*
	09:40 - 10:00	EP240598 Spheroidal harmonics (SOH) for generalizing the analysis, reconstruction, and generation of granular materials Author(s): Mahmoud S. M. Shaqfa*, Wim M. van Rees
	10:00 - 10:20	EP240610 A Constitutive Model for Crushable Granular Materials with Non-Spherical Particles Author(s): Divyanshu Lal*, Giuseppe Buscarnera
0107: Multiscale organization, mechanics and physics of layer-like, fibrous materials and related structures Chairs(s): Pedro Miguel Godinho		
Salon 7	09:20 - 09:40	EP241050 Numerical modeling of a fiber reinforced polymer composite with interlaminar thermoplastic inclusions Author(s): Vikita Kamala*, Jack Turicek, Jason Patrick, Ghadir Haikal
	09:40 - 10:00	EP240434 Effect of fiber configuration on mechanical behavior of fiber-epoxy composites through computational analysis Author(s): Yizhou Lin*, Junyi Duan, Chengcheng Tao, Ying Huang
	09:00 - 09:20	EP241129 Tailoring mechanical properties of self-healing fiber-reinforced polymer composites Author(s): Jack Turicek*, Vikita Kamala, Ghadir Haikal, Jason Patrick

0113: Advances and applications of elasticity within applied mechanics Chairs(s): Josue Labaki and Sofia Mogilevskaya		
Salon 6	09:00 - 09:20	EP240012 Least square finite element model for analysis of multilayered composite plates under arbitrary boundary conditions Author(s): Christian Mathew*, Yao Fu
	09:20 - 09:40	EP240014 Modeling ribbons/strips as a Cosserat rod Author(s): Roushan Kumar*
	09:40 - 10:00	EP240569 Die swell of rubber: A Gibbs energy-based, elasto-viscous model informed by a comprehensive experimental campaign comprising compression, viscosity, and extrusion tests Author(s): Robert Plachy, Stefan Scheiner*, Florian Arthofer, Armin Holzner, Christian Hellmich
0124: Physics informed machine learning (PIML) for mechanics of porous media Chairs(s): Dakshina Valiveti and Yanhua Yuan		
Salon 9	09:00 - 09:20	EP240045 In-context operator learning with data prompts for differential equation problems Author(s): Liu Yang*, Siting Liu, Tingwei Meng, Stanley Osher
	09:20 - 09:40	EP240039 Operator learning for solving PDE forward and inverse problems Author(s): Haizhao Yang*
	10:00 - 10:20	EP240435 Physics informed neural networks for heterogeneous poroelastic media Author(s): Sumanta Roy, Chandrasekhar Annavarapu, Pratanu Roy, Brice Lecampion, Dakshina Murthy Valiveti*
	09:40 - 10:00	EP240182 Efficient DNN modeling of unknown PDE systems Author(s): Zhongshu Xu*, Dongbin Xiu
0203: Recent advances in hybrid simulation and real-time hybrid simulation Chairs(s): Richard Christenson and Wei Song		
Salon 2	09:00 - 09:20	EP241141 Validation of LHPOST6 Shake Table-Specimen Model using shake table test data Author(s): Chin-Ta Lai*, Joel Pascal Conte
	09:20 - 09:40	EP240278 Multi-element pseudo-dynamic hybrid simulations on high-performance ductile steel structures at the University of Toronto Author(s): Pedram Mortazavi*, Oh-Sung Kwon, Constantin Christopoulos
	09:40 - 10:00	EP240545 Multi-directional RTHS of a 3 story MRF with nonlinear viscous dampers and soil-structure interaction using neural networks Author(s): Faisal Nissar Malik*, Davide Noè Gorini, James Ricles, Safwan Al-Subaihawi, Thomas Marullo
	10:00 - 10:20	EP240053 Advancing real-time hybrid simulation: Complexities and innovations in boundary conditions Author(s): Amirali Najafi*

0205: Origami/kirigami inspired structures and metamaterials Chairs(s): Martin Walker and Rafael Ruiz		
Salon 5	09:00 - 09:20	EP241044 Origami-wrapped thin-shell structures with corrugated unfolded forms: Design, analysis, and experiments Author(s): Matthew Kreider, Manan Arya*
	09:20 - 09:40	EP240930 Numerical modeling of the deployment mechanism of a metallic plate-lattice space frame Author(s): Isabel M. de Oliveira*, Eduardo M. Sosa, Sigrid Adriaenssens
	09:40 - 10:00	EP240103 Shape changing metamaterial Author(s): Dan Schlitz*, David Guinovart, Chui Tai Law, Omar Titi, Rani El Hajjar
	10:00 - 10:20	EP240643 Design considerations for thick origami with application in adaptable infrastructure Author(s): Yi Zhu*, Evgueni Filipov
0207: Data-driven methods and research for physical testing in structural engineering Chairs(s): Cristopher Moen and Hannah Blum		
Hancock Parlor	09:00 - 09:20	EP240925 Data-driven prediction models for the backbone curve of cold-formed steel fastener connections Author(s): Zhidong Zhang*, Kai Chen, Cristopher Moen
	09:20 - 09:40	EP240359 A data-driven approach to hollow structural section column design Author(s): Hyeyoung Koh*, Hannah Blum
	09:40 - 10:00	EP241160 Damage-spread and future condition ratings in PSC-I bridges considering combined damage types and compound deterioration Author(s): Hyun-Jin Jung*, Su-Kyeong Geum, Jong-Han Lee
	10:00 - 10:20	EP240924 Mechanics-informed data model prediction of steel column strength considering buckling deformation and initial geometric imperfections Author(s): Kai Chen, Cem Bartu Cevik, Cristopher Moen*, Yile Wang, Yuchen Yang, Zhidong Zhang
0305: Structural identification and damage detection Chairs(s): Manolis Chatzis		
Wabash Room	09:00 - 09:20	EP240050 Gradient-based sensor placement optimization for structural health monitoring systems design based on hypercomplex automatic differentiation (HYPAD) Author(s): Juan C. Velasquez-Gonzalez*, Juan David Navarro, Arturo Montoya, Harry Millwater, David Restrepo
	09:20 - 09:40	EP240973 Decomposed neural operator for parametric structural response estimation and system identification Author(s): Mingyuan Zhou*, Haoze Song, Zhilu Lai
	09:40 - 10:00	EP240691 Concurrent estimation of time-varying and time-invariant parameters in nonlinear aeroelastic systems Author(s): Brandon Robinson*, Philippe Bisaillon, Mohammad Khalil, Chris Pettit, Dominique Poirel, Abhijit Sarkar
	10:00 - 10:20	EP240721 Solving transient structural source inversion problems using randomized truncated singular value decomposition Author(s): Chandler Smith*, Timothy Walsh, Wilkins Aquino, Ryan Schultz

0306: Recent advances in sensing, SHM, and automated inspections for infrastructure condition assessment: Toward actionable solutions Chairs(s): Mohamad Alipour and Yasutaka Narazaki and Travis Fillmore		
Crystal Room	09:00 - 09:20	EP240218 Active and passive functionality of piezoelectric sensors for monitoring high-temperature piping systems in liquid metal reactors Author(s): Chenxi Xu*, Talha Khan, Muhammad Khan, Matthew Daly, Alexander Heifetz, Derek Kultgen, Miguel A. Gonzalez Nunez, Ed Lowenhar, Didem Ozevin
	09:20 - 09:40	EP240527 Field deployment validation of a low-cost and high-precision displacement sensor combining millimeter-wave radar and accelerometer Author(s): Zhanxiong Ma, Kyuwon Han, Jaemook Choi, Jigu Lee, Ohjun Kwon, Hoon Sohn*, Jingxiao Liu, Doyun Hwang, Jatin Aggarwal, Hae Young Noh, Enjian Cai, Yi Zhang
	09:40 - 10:00	EP241015 Photogrammetric reconstructions for bridge inspections: Performance evaluation of automated drone acquisition and inspection report report localization Author(s): Rodrigo Sarlo, Michael Sanchez, Emilie Hollingsworth*, Ishan Pradhan
0307: Recent advances in mechanical energy harvesting and its applications in structural health monitoring and control Chairs(s): Mohsen Amjadian and Chao Sun		
Wilson Room	09:20 - 09:40	EP240645 Experimental validation of a prototype self-powered structural control system Author(s): Connor Ligeikis*, Jeff Scruggs
	09:00 - 09:20	EP241085 Impact-driven electromagnetic energy harvester with dual resonators Author(s): Mohsen Amjadian*, Anil Kumar Agrawal
	09:40 - 10:00	EP240935 Electromagnetic energy harvester for rural railway crossings Author(s): Prince E. Mensah*, Mohsen Amjadian, Constantine Tarawneh, Joseph A. Turner
	10:00 - 10:20	EP240456 Modeling and evaluating performance of piezoelectric-multiple tuned mass dampers for vibration reduction and energy harvesting Author(s): Yong-An Lai*, Tsen-Han Zhong, Yun Tsao
0501: Computational geomechanics Chairs(s): Qiushi Chen		
Salon 4	09:00 - 09:20	EP240270 Thermomechanical enhanced finite element method with phase transformation for fault modeling in deep-focus earthquakes Author(s): Javad Mofidi Rouchi*, Craig Foster, Sheng-Wei Chi, Sinhusuta LNU, Ashay Panse
	09:20 - 09:40	EP240409 Large deformation analysis of pile installation effect for the open-ended pipe pile Author(s): Yibo Ma*, Jun Yang
	09:40 - 10:00	EP240653 Finite element model of fault zone of Northeast Japan subduction zone for deep earthquakes. Author(s): Ashay Panse*, Craig Foster
	10:00 - 10:20	EP240613 A study on the dynamic behaviour of a fully saturated idealized 2D embankment Author(s): Arun M George*, Swetha Veeraraghavan

0702: Understanding and managing the wildfire problem Chairs(s): Professor Hussam Mahmoud and Professor Hamed Ebrahimian		
Salon 1	09:40 - 10:00	EP240089 Validation case studies for the AGNI-NAR wildfire community vulnerability and damage model Author(s): Akshat Chulahwat*, Hussam Mahmoud
	10:00 - 10:20	EP240504 A framework for firebrand generation and fire spotting simulation within WRF-Fire Author(s): Kasra Shamsaei, Steven Wong, Hamed Ebrahimian*
	09:20 - 09:40	EP241130 Window failure during exterior fire exposure Author(s): Joseph Willi*, Daniel Gorham, Gavin Horn
	09:00 - 09:20	EP240989 Residential exterior wall assembly – response to exposure from adjacent post-flashover compartment fire Author(s): Daniel Gorham*, Joseph Willi, Gavin Horn
0801: Advances in computer vision, deep learning and artificial intelligence for structural health monitoring and inspections Chairs(s): Vedhus Hoskere and Arash Noshadravan and Yasutaka Narazaki		
Salon 10	09:20 - 09:40	EP240205 A large-scale synthetic 3D point cloud dataset for vision-based bridge condition assessment Author(s): Mingyu Shi*, Hyunjun Kim, Yasutaka Narazaki
	09:00 - 09:20	EP240956 AI-enhanced estimation of post-disaster debris using aerial imagery Author(s): Chih-Shen Cheng, Xukai Zhang*, Arash Noshadravan
0803: Data-scarce modeling in engineering mechanics: Probabilistic learning, information maximization & transfer learning Chairs(s): Hadi Meidani and Audrey Olivier		
LaSalle 1	09:00 - 09:20	EP240080 Evaluation of physics-informed machine learning for reduced data shear prediction Author(s): Jacob Murphy*, Stephanie Paal
	09:20 - 09:40	EP240166 Deep learning for model correction Author(s): Caroline Tatsuoka*, Dongbin Xiu
	09:40 - 10:00	EP241049 Physics-informed neural networks with strong imposition of Dirichlet boundary condition Author(s): Rini Gladstone*, Hadi Meidani
	10:00 - 10:20	EP240868 Transfer learning-based model for the service life prediction of façade materials Author(s): Felipe Basquiroto de Souza*, Anthoni Giam, Yijie Chen, Sida Wu, Jiaqi He, Sze Dai Pang

0804: Data-driven approaches to engineering mechanics Chairs(s): Fatemeh Pourahmadian and Tom Seidl and John Brigham and Evgueni Filipov and Alessandro Fascetti		
Salon 8	09:00 - 09:20	EP240282 Operator learning via neural networks with kernel-weighted corrective residuals Author(s): Carlos Mora*, Amin Yousefpour, Shirin Hosseinmardi, Ramin Bostanabad
	09:20 - 09:40	EP240928 Bayesian neural networks with physics-driven functional priors to enhance predictive modeling in engineering mechanics Author(s): Nicholas de Araujo Gonzalez Casaprima, Javad Ghorbanian, Audrey Olivier*
	09:40 - 10:00	EP240711 Uncertainty quantification for model-constrained deep-learning inverse solvers Author(s): Russell Philley*, Hai Nguyen, Tan Bui-Thanh
	10:00 - 10:20	EP240829 A neural operator learning approach to model poroelastodynamics of rocks Author(s): Yang Xu*, Fatemeh Pourahmadian
0805: Machine learning and its applications in civil and mechanical engineering Chairs(s):		
Salon 12	09:00 - 09:20	EP240102 Llm-based structure drawing generation from natural language description using retrieval-augmented generation technique Author(s): Xin Zhang, Lissette Iturburu*, Manuel Salmeron, Nicolas Villamizar, Xiaoyu Liu, Shirley Dyke, Julio Ramirez
	09:20 - 09:40	EP240111 Innovative approaches in modeling corrosion-induced degradation of steel structures: A machine learning perspective Author(s): Mohamed El Amine Ben Seghier*, Vagelis Plevris
	09:40 - 10:00	EP240217 Machine learning-based prediction of mechanical properties in thermally exposed recycled aggregate concrete Author(s): Huthaifa Alkhatatbeh, Mohammad Abu-Haifa*, Bara'a Etawi
	10:00 - 10:20	EP240418 Training machine learning model with metaheuristic algorithms to predict the compressive strength of GFRP- confined circular concrete specimens Author(s): Nima Khodadadi*, Francisco Decaso, Antonio Nanni
0808: A new horizon - Quantum computing and quantum materials (by invitation only) Chairs(s): Caglar Oskay		
Buckingham Room	09:00 - 09:20	EP241164 Quantum horizons for computational mechanics Author(s): Suvranu De*, Osama Raisuddin
	09:20 - 09:40	EP241161 Computing sparse approximate preconditioners for topology optimization on quantum annealing machines Author(s): Krishnan Suresh*
	09:40 - 10:00	EP241178 Quantum computing for simulating fluid flow through fractured media Author(s): John Golden*, Dan O'Malley
	10:00 - 10:20	EP241175 Element stiffness-based matrix decomposition for quantum computing implementation of the Finite Element Method Author(s): Caglar Oskay*, Abhishek Arora, Benjamin M. Ward

1001: Computational statistics for natural hazards engineering: Advances in uncertainty quantification, surrogate modeling, and dimension reduction for performance-based design of structures and systems Chairs(s): Alexandros Taflanidis		
Grant Park Parlor	09:00 - 09:20	EP240335 Gaussian process surrogate modeling of wind pressure statistics of two adjacent buildings Author(s): Sang-ri Yi*, Fei Ding, Alexandros Taflanidis, Ahsan Kareem
	09:20 - 09:40	EP240637 Adaptive covariance tapering for large spatial datasets: Applications to storm surge estimation Author(s): Christopher Irwin*, Alexandros Taflanidis
	09:40 - 10:00	EP240824 Neural operators for stochastic response of structures subjected to natural hazards Author(s): Dimitris Giovanis, Somdatta Goswami, Bowei Li, Seymour Spence*, Michael Shields
	10:00 - 10:20	EP240866 Stochastic surrogate modeling via Bayesian deep learning for seismic response estimation Author(s): Han Peng*, Jize Zhang, Shenghan Zhang
1002: Uncertainty characterization and propagation in complex nonlinear structures Chairs(s): Meng-Ze Lyu and Zhi-Heng Wang		
Price Room	09:00 - 09:20	EP241069 Wind-induced nonlinear behavior and collapse risk from non-stationary hurricane wind fields Author(s): Srinivasan Arunachalam, Seymour Spence*
	09:20 - 09:40	EP241118 Fragility estimation framework for performance-based structural design of Floating Offshore Wind Turbines Author(s): Do-Eun Choe*
	09:40 - 10:00	EP240131 Non-parametric directional environmental contours: A method for estimating bridge design load combinations of wind and temperature Author(s): Zhi-wei Wang*, Wen-ming Zhang, Michael Beer
	10:00 - 10:20	EP240916 Discrepancies in structural reliability: A comparative analysis of load and resistance factor design and probabilistic performance-based wind design Author(s): Jieling Jiang*, Seymour Spence
1008: Infrastructure assessment automation with robotics, deep learning and digital twins Chairs(s): Jian Li		
Water Tower Parlor	09:00 - 09:20	EP240276 A case study of detecting segment joints in shield tunnels using range images Author(s): Baichuan Zhang*, Song Wei, Xian Liu
	09:20 - 09:40	EP240646 Investigating and comparing 3D imaging techniques for inspections of structure retaining walls Author(s): Maxwell Wondolowski*, Alexandra Hain, Sarira Motaref, Michael Grilliot
	09:40 - 10:00	EP240651 UAV-based monitoring system for water ponding detection and volume estimation on municipal solid waste landfills Author(s): Syed Zohaib Hassan*, Peng "Patrick" Sun, Poyu Zhang, Jiannan Chen, Debra Reinhart

1009: Toward data-driven approaches for uncertainty quantification and propagation Chairs(s): Subhayan De		
LaSalle 2	09:00 - 09:20	EP241018 Network vulnerability assessment: Critical component identification Author(s): Kundan Goswami*, Michael Shields, Eric Sammarco
	09:20 - 09:40	EP240505 Data-driven discovery of governing equations and mechanical properties from experimental ultrasonic data with quantified uncertainty Author(s): Abigail Schmid*, Alireza Doostan, Fatemeh Pourahmadian
	09:40 - 10:00	EP240078 Creating a multi-fidelity surrogate for UNDEX events on ship structures Author(s): Patrick Brewick*
	10:00 - 10:20	EP241087 A comparative study of bi-fidelity transfer learning of Bayesian neural networks Author(s): Shaojie Wang, Aayush Dulal*, Patrick Brewick, Subhayan De
1010: Addressing uncertainties in infrastructure risk management Chairs(s): Jessica Boakye and Alessandro Contento		
Adams Room	09:00 - 09:20	EP240350 Assessing the impact of culvert failure in the Franklin County Watershed Author(s): Jessica Boakye*, Egemen Okte, Joshua Govina
	09:20 - 09:40	EP240160 Predicting real-time deterioration of bridges subject to spectrum-compatible ground motions Author(s): Leandro Iannacone*, Paolo Gardoni
	09:40 - 10:00	EP240864 Role of parametric risk transfer in bridging the protection gap in infrastructure risk management Author(s): Roberto Guidotti*, Guillermo Franco
	10:00 - 10:20	EP240544 Analysis of the joint effects of thermal stresses and corrosion on integral abutment bridges Author(s): Alessandro Contento*, Angelo Aloisio, Junqing Xue, Giuseppe Quaranta, Bruno Briseghella, Paolo Gardoni
1102: Objective resilience: Harnessing emerging technologies for enhancing infrastructure and community resilience Chairs(s): Milad Roohi and ZhiQiang Chen		
Chicago Room	09:00 - 09:20	EP240733 Disaster scene modeling: From photogrammetric to generative AI techniques Author(s): ZhiQiang Chen*, Bowu Chen
	09:20 - 09:40	EP240748 Reinforcement learning-based post disaster resource allocation for enhanced infrastructure resilience Author(s): Sandeep Acharya, Debarshi Sen*
	09:40 - 10:00	EP241170 Enhancing predictive accuracy in tornado community resilience models through hindcasting and post-event reconnaissance data analysis Author(s): Pramodit Adhikari*, Milad Roohi, Saeid Ghasemi, Richard L. Wood, David Roueche
	10:00 - 10:20	EP241188 Data-driven reliability and resilience evaluation of bridge networks for proactive infrastructure management Author(s): Saeid Ghasemi*, Vahid Aghaei Doost, Milad Roohi

1110: Advances in resilience analytics and sustainable infrastructure: Bridging theory and practice Chairs(s): Arghavan Louhghalam		
Monroe Room	09:00 - 09:20	EP241193 Resilience deficit index: An alternative way to quantify resilience Author(s): Rohit Ranjan Singh*, Michel Bruneau, Andreas Stavridis, Kallol Sett
	09:20 - 09:40	EP241078 A Potential of Mean Force-Based Lattice Element Method for analysis of structural systems: Towards nonlinear and progressive collapse analysis Author(s): Shayan Razi*, Arghavan Louhghalam, Mazdak Tootkaboni
	09:40 - 10:00	EP240648 Determination of a building drag coefficient for flow resistance in complex urban forms Author(s): Sarah Balaian*, Brett Sanders, Mohammad Javad Abdolhosseini Qomi
	10:00 - 10:20	EP241076 Online parametric Gaussian process regression Author(s): Esmaeil Rezaei*, Arghavan Louhghalam, Mazdak Tootkaboni
1114: Advances in regional hazard modeling and risk assessment Chairs(s): Alexandros Taflanidis		
Spire Parlor	09:00 - 09:20	EP240660 Multi-objective optimization approach for placing water level sensors in coastal communities for real-time regional risk assessment Author(s): Jorge-Mario Lozano, Iris Tien*
	09:20 - 09:40	EP240762 Wind vulnerability model for components of refinery plants or industrial facilities: A preliminary study Author(s): Nahuel Bonfante*, Jean-Paul Pinelli
	09:40 - 10:00	EP241026 Modeling flood damage to residential buildings and contents with explicit uncertainty quantification for more informed decision-making Author(s): Mario Di Bacco*, Pradeep Acharya, Daniela Molinari, Anna Rita Scorzini
	10:00 - 10:20	EP241202 Advancing regional landslide risk assessment based on hybrid data-driven and physics-based susceptibility mapping model: a pixel-to-slope transformation Author(s): Xin Wei*, Lulu Zhang, Paolo Gardoni

10:30 – 10:50 Break | Red Lacquer

10:50 – 12:20 Career Path Panel | LaSalle 3

10:50 – 12:20 Panel for Women in Engineering | LaSalle 2

10:50 – 12:20 Industry Challenges in Engineering Mechanics | LaSalle 1

Friday, May 31, Late Morning Sessions, 10:50 – 12:20

0103: Mechanics of granular materials: Modeling and characterization Chairs(s): Dawa Seo and Jibril Coulibaly		
Salon 3	11:10 - 11:30	EP240739 Time-dependent properties of coral sand under triaxial stress states Author(s): Kaifeng Zeng, Huabei Liu*
	11:30 - 11:50	EP240926 A semi-resolved ALE-VMS-DEM Framework for particle-flow interaction Author(s): Haojia Cheng*, Jinhui Yan
	10:50 - 11:10	EP240632 Discrete element investigation of critical state soil fabric Author(s): Cyrena Ridgeway*, Debadrita Das, Fernando Garcia
0107: Multiscale organization, mechanics and physics of layer-like, fibrous materials and related structures Chairs(s): Pedro Miguel Godinho		
Salon 7	10:50 - 11:10	EP241136 Non-ageing, linear viscoelasticity of paper sheets: A continuum micromechanics approach Author(s): Pedro Miguel Jesus de Sousa Godinho*
	11:10 - 11:30	EP240636 Mechanics of prestressed fibrous network materials subjected to local contraction Author(s): Ashutosh Mishra*, Hamed Hatami-Marbini
0114: Phase change materials (PCMs)-based multifunctional architected construction composites Chairs(s): Qingxu (Bill) Jin and Hongyan Ma		
Salon 6	10:50 - 11:10	EP240300 Scalable, transportable thermochemical energy storage using cementitious materials Author(s): Paul Ginsberg*, Arpit Dwivedi, Lakshmi Amulya Nimmagadda
	11:10 - 11:30	EP240423 Investigation of the pozzolanic reaction of phase change material (PCM)-loaded diatomite Author(s): Wenyu Liao*, Hongyan Ma
	11:30 - 11:50	EP240713 Use of Phase Change Materials-Based Cementitious Composites for Pavement Overlay in Snow Melting Applications Author(s): Xiaoqiang "Antonio" Ni, Brennan Sollenberger, Qingxu "Bill" Jin*

0124: Physics informed machine learning (PIML) for mechanics of porous media Chairs(s): Yanhua Yuan		
Salon 9	11:30 - 11:50	EP240813 Probabilistic sensitivity analysis in optimizing operational conditions in CO2 sequestration using neural operators Author(s): Fernando Rochinha*, Alvaro Coutinho, Rômulo Silva, Rodolfo Freitas, Gabriel Barros, Ezequiel Santos
	11:50 - 12:10	EP240559 On the use of physics informed neural networks (PINNs) to solve inverse problems in heterogeneous materials Author(s): Dibakar Roy Sarkar*, Abhisek Chanda, Chandrasekhar Annavarapu, Pratanu Roy
	10:50 - 11:10	EP240108 Data-space inversion for CO2 storage with flow and geomechanics Author(s): Su Jiang*, Xiaowen He, Louis Durlofsky
	11:10 - 11:30	EP240723 Four-dimensional prediction of geological carbon sequestration using Fourier-DeepONet Author(s): Lu Lu*, Jonathan Lee
0203: Recent advances in hybrid simulation and real-time hybrid simulation Chairs(s): Richard Christenson and Wei Song		
Salon 2	11:10 - 11:30	EP241060 A delay compensation controller for multi-axial real-time hybrid simulation (RTHS) via adaptive control Author(s): Wei Song*, Santiago Ruiz
	11:50 - 12:10	EP240985 Dynamic characterization of architected metamaterials using real-time hybrid simulation Author(s): Tao Zhang*, Luz Maria Agudelo Urrego, Sun-Beom Kwon, Arun Prakash
	10:50 - 11:10	EP241131 Thermomechanical real-time hybrid simulation for lunar habitats Author(s): Herta Montoya*, Manuel Salmeron, Christian Silva, Shirley Dyke
	11:30 - 11:50	EP240478 Real-time hybrid simulation for floating wind turbines: Challenges and solutions in force control for fluid-structure interaction testing Author(s): Yun Ni*, Akiri Seki, Bret Bosma, Barbara Simpson, Ted Brekken, Bryson Robertson, Bryony DuPont, Andreas Schellenberg, Pedro Lomonaco
0205: Origami/kirigami inspired structures and metamaterials Chairs(s): Martin Walker and Rafael Ruiz		
Salon 5	10:50 - 11:10	EP240152 Energy absorption of metallic kirigami structures Author(s): Sahand Khalilzadeh Tabrizi, Martin Walker*
	11:30 - 11:50	EP240647 Origami of multi-layered spaced sheets Author(s): G. Wayne Tu*, Evgueni Filipov
	11:10 - 11:30	EP240011 Integrated origami and tensegrity systems dynamics based on the bar-hinge model Author(s): Muhao Chen*, Shuo Ma, Robert E. Skelton

0308: Advances in vibration and structural control Chairs(s): Aly Mousaad Aly and Sardar Malek		
Wilson Room	11:10 - 11:30	EP240442 Seismic isolation of structure using geofoam inserts in soil Author(s): Manoj Sharma*, Swetha Veeraraghavan
	11:30 - 11:50	EP240529 Floor vibration in mass timber office buildings Author(s): Sardar Malek*, Najmeh Cheraghi-Shirazi, Ariel Creagh, Fendy Setiawan, Roger Parra, Parham Khoshkbari
	10:50 - 11:10	EP240881 Sequential Optimal Control: A global optimal structural control of forced vibration system Author(s): Yongfeng Du*
0314: Advancing infrastructure management through structural health monitoring: A value of information perspective Chairs(s): Leandro Iannacone		
Wabash Room	11:30 - 11:50	EP241148 BIM-based condition assessment and BIM-FEM interconnection for bridges Author(s): Dahyeon Yang*, MinJin Lee, Jong-Han Lee
	11:50 - 12:10	EP241155 ARGOS: Revolutionizing bridge bearing monitoring with a computer vision-based system and cloud computing Author(s): Jongwoong Park*, Gunhee Kim, Junsik Shin
	10:50 - 11:10	EP240870 Value of Structural Health Monitoring based on linear Bayesian filter Author(s): Francesca Marsili, Leandro Iannacone*, Sylvia Keßler
	11:10 - 11:30	EP240353 Machine-learning assisted damage state identification for deteriorating bridges Author(s): Athanasia Kazantzi, Sokratis Moutsianos, Konstantinos Bakalis, Stergios-Aristoteles Mitoulis*
0702: Understanding and managing the wildfire problem Chairs(s): Professor Hussam Mahmoud and Professor Hamed Ebrahimian		
Salon 1	10:50 - 11:10	EP241171 Wildfire fragility assessment using damage inspection and satellite imagery Author(s): Prakash Singh Badal, Michele Barbato*
	11:10 - 11:30	EP240587 Probabilistic wildfire risk assessment and retrofitting optimization for hillside transportation networks in California Author(s): Sven Malama*, Debasish Jana, Fernando Szasdi-Bardales, Riyaaz Shaik, Sriram Narasimhan, Negar Elhami-Khorasani, Ertugrul Taciroglu
	11:30 - 11:50	EP240855 Heat transfer analysis of water service laterals during wildland-urban interface fires Author(s): Amy Metz*, Erica Fischer, Brad Wham
	11:50 - 12:10	EP240903 Enhancing electrical distribution network resilience to wildfires through simulation and risk assessment. Author(s): Richard Campos*, P. Scott Harvey, Kanthasamy K. Muraleetharan

0802: Machine learning applications in wind engineering Chairs(s): Pedro Fernández-Cabán and Sungmoon Jung and Haifeng Wang		
Salon 10	10:50 - 11:10	EP240309 Extrapolating wind-induced pressures on roof soffits of low-rise buildings using few-shot learning Author(s): Yanmo Weng*, Stephanie Paal
	11:10 - 11:30	EP240717 Integrating large- and small-scale atmospheric turbulence features into ML-based wind load prediction models Author(s): Pedro Fernández-Cabán*, Nasreldin Mokhtar
	11:30 - 11:50	EP240378 Surrogate-based cyber-physical aerodynamic shape optimization of high-rise buildings Author(s): Wei-Ting Lu, Brian Phillips*, Zhaoshuo Jiang
0805: Machine learning and its applications in civil and mechanical engineering Chairs(s): Aly Mousaad Aly		
Salon 12	10:50 - 11:10	EP240467 Reinforcement learning for multi-stability control of nonlinear dynamical system Author(s): Nida Ahsan*, Muhammad Hajj, Mahmoud Ayyad
	11:10 - 11:30	EP240716 Physics-informed AI models of rocking response and the role of ground-motion characteristics Author(s): Shirley Shen*, Christian Malaga-Chuquitaype
	11:30 - 11:50	EP240891 Applying machine learning to explore cohesive zone parameters in mixed-mode fractures within composite sandwich structures Author(s): Arash Ramian*, Rani Elhajjar
	11:50 - 12:10	EP241054 Enabling high-dimensional wave physics-informed learning Author(s): Joel Harley*, Amanda Beck, Woohyun Eum, Michael MacIssac, Matthew Stormant, Charlie Tran, Ghatu Subhash
1001: Computational statistics for natural hazards engineering: Advances in uncertainty quantification, surrogate modeling, and dimension reduction for performance-based design of structures and systems Chairs(s): Seymour Spence		
Grant Park Parlor	10:50 - 11:10	EP241071 Machine learning with knowledge transfer for rapid estimation of small failure probability of large-scale nonlinear dynamic system Author(s): Bowei Li*, Seymour Spence
	11:10 - 11:30	EP241102 Uncertainty quantification in wind-tunnel-informed stochastic wind models for applications in structural performance assessment Author(s): Thays Duarte, Srinivasan Arunachalam, Arthriya Subgranon*, Seymour Spence
	11:30 - 11:50	EP241109 Quantification and propagation of uncertainty in wind-tunnel-informed translation models for simulation of non-Gaussian stochastic wind pressures on buildings Author(s): Thays Duarte, Srinivasan Arunachalam, Arthriya Subgranon*, Seymour Spence
1002: Uncertainty characterization and propagation in complex nonlinear structures Chairs(s): Meng-Ze Lyu and Zhi-Heng Wang		
Price Room	10:50 - 11:10	EP240224 Random vibration analysis of maglev vehicle-bridge coupled systems with nonlinear electromagnetic force using equivalent linearization - explicit time domain method Author(s): Ran Chen*, Yu-Chen Zhao, Cheng Su, Yiqing Ni
	11:10 - 11:30	EP240581 Elucidating the effect of material uncertainty on seismic fragility of reinforced concrete frames Author(s): Iqra Latif*, Arnab Banerjee, Mitesh Surana

1012: Probabilistic learning, stochastic optimization, and digital twins Chairs(s): Roger Ghanem		
Adams Room	11:50 - 12:10	EP240483 Coupled MATLAB-ANSYS framework for the calibration of input parameters of a constitutive model for wood materials using genetic algorithms optimization Author(s): Bleriot Vincent Feujofack Kemda*, Cristiano Loss
	10:50 - 11:10	EP240167 Data-driven modeling of stochastic differential equations Author(s): Yuan Chen, Dongbin Xiu*
	11:10 - 11:30	EP241081 Probabilistic learning and Bayesian information fusion for the construction of a building digital twin Author(s): Jingwen Du*, Ibrahim Ahmed, Vinay Dhanvada, Gbandi Nikabou, Pranav Karve, Sankaran Mahadevan
	11:30 - 11:50	EP240701 Sparse learning of a semi-empirical aerodynamic model using Bayesian inference for nonlinear aeroelastic systems Author(s): David Clarabut*, Brandon Robinson, Rimple Sandhu, Mohammad Khalil, Chris Pettit, Dominique Poirel, Abhijit Sarkar
1102: Objective resilience: Harnessing emerging technologies for enhancing infrastructure and community resilience Chairs(s): Milad Roohi and ZhiQiang Chen		
Chicago Room	10:50 - 11:10	EP240044 Interdependent post-hazard functionality assessment approach for buildings exposed to flood hazards Author(s): Omar Nofal*, Nathanael Rosenheim, Sabarethinam Kameshwar, Jayant Patil, Xiangnan Zhou, John van de Lindt, Leonardo Duenas-Osorio, Eun Jeong, Amin Endrami, Elaina Sutley, Chen Wang
	11:10 - 11:30	EP241191 Infrastructure resilience quantification for developing seismic mitigation policies and recovery planning Author(s): Milad Roohi*, Saeid Ghasemi, Omar A. Sediek, John van de Lindt
	11:30 - 11:50	EP240842 Investigating and implementing alternative repair and replacement strategies for waterway infrastructures Author(s): Christine Lozano*
	11:50 - 12:10	EP240026 Intelligent agricultural management subject to climate variability Author(s): Shaoping Xiao*, Zhaoan Wang
1110: Advances in resilience analytics and sustainable infrastructure: Bridging theory and practice Chairs(s): Arghavan Louhghalam		
Monroe Room	10:50 - 11:10	EP241105 Uncovering the hidden emission of roadway network Author(s): Mohammad Pourghasemi Saghand*, Meshkat Botshekan, Franz-Josef Ulm, Arghavan Louhghalam, Mazdak Tootkaboni
	11:10 - 11:30	EP240954 Efficient uncertainty-informed damage assessment through multi-fidelity simulation and Lattice Element Method Author(s): Mojdeh GholamiShali*, Mazdak Tootkaboni, Arghavan Louhghalam

1112: Structural reliability, bridges, and truck loads **Chairs(s): Gongkang Fu**		
Water Tower Parlor	10:50 - 11:10	EP240114 Variation in reliability of bridge girders flexurally strengthened with externally bonded FRP Author(s): Chris Eamon*, Safaa Dardar, Gustavo Parra-Montesinos
	11:10 - 11:30	EP240392 Longitudinal multiple presence of trucks on continuous bridge spans Author(s): Qing Wang*, Gongkang Fu
	11:30 - 11:50	EP240008 Recent developments in WIM data gathering and application Author(s): Gongkang Fu*, Jingya Chi, Qing Wang
	11:50 - 12:10	EP241040 Parametric study of rotational restraint in prestressed concrete bridge joints Author(s): Narek Galustanian*
1114: Advances in regional hazard modeling and risk assessment **Chairs(s): Sang-ri Yi and Alexandros Taflanidis**		
Spire Parlor	11:10 - 11:30	EP240811 A unified consequence scale to account for cumulated effects in multi-hazard analysis Author(s): Leandro Iannacone*, Kenneth Otárola, Roberto Gentile, Carmine Galasso
	11:30 - 11:50	EP241061 Graph neural networks for assessing impacts of extreme events on regional mobility Author(s): Tong Liu*, Hadi Meidani
	10:50 - 11:10	EP240710 Reliability-based optimization of regional building retrofit strategy using buffered failure probability Author(s): Uichan Seok*, Ji-Eun Byun, Junho Song

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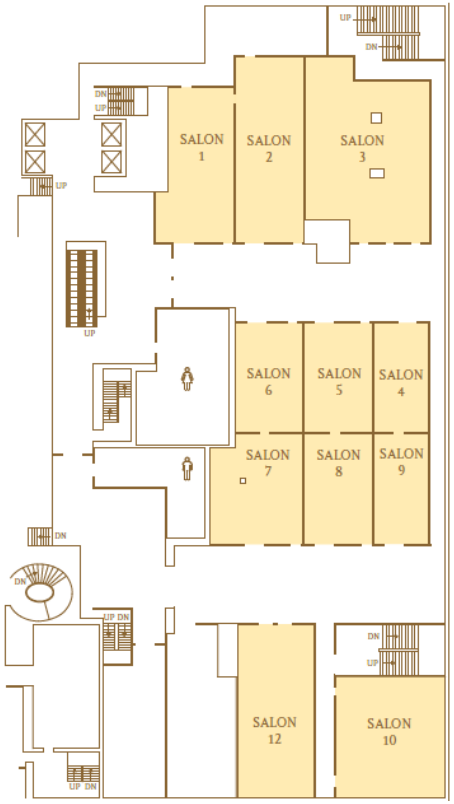
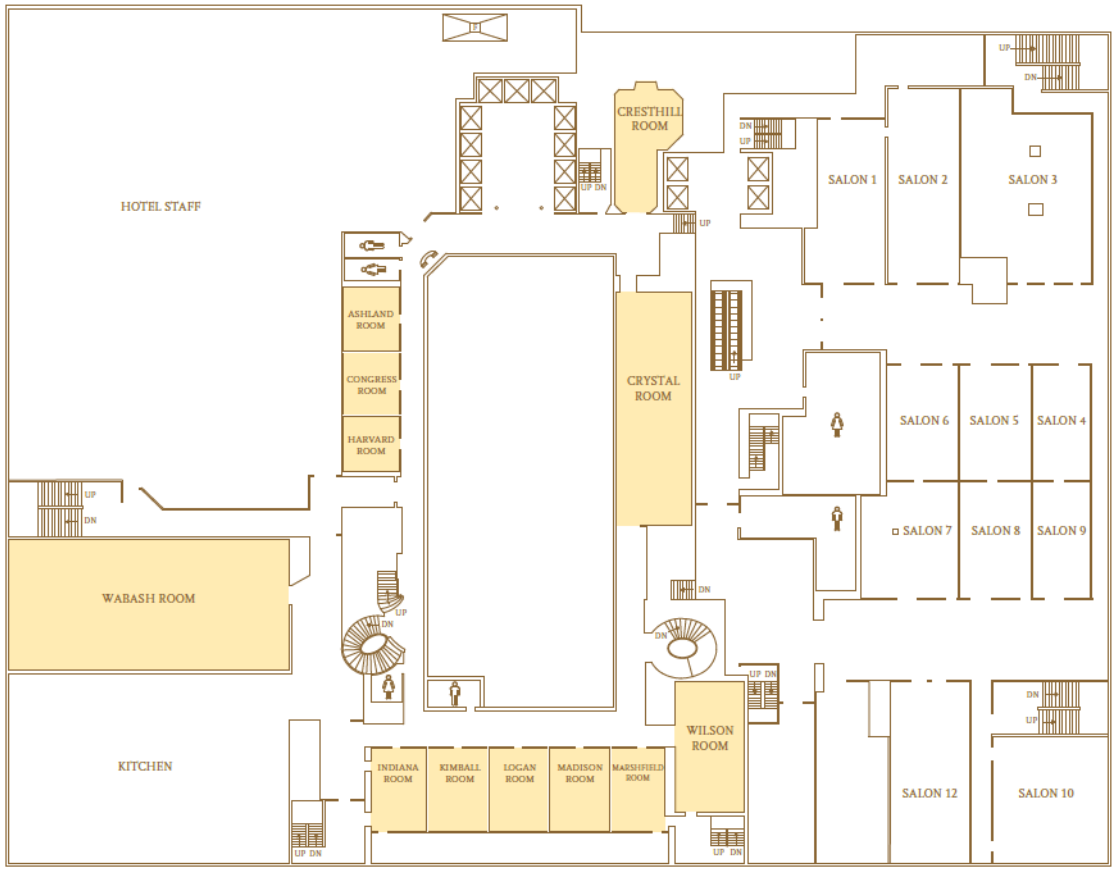
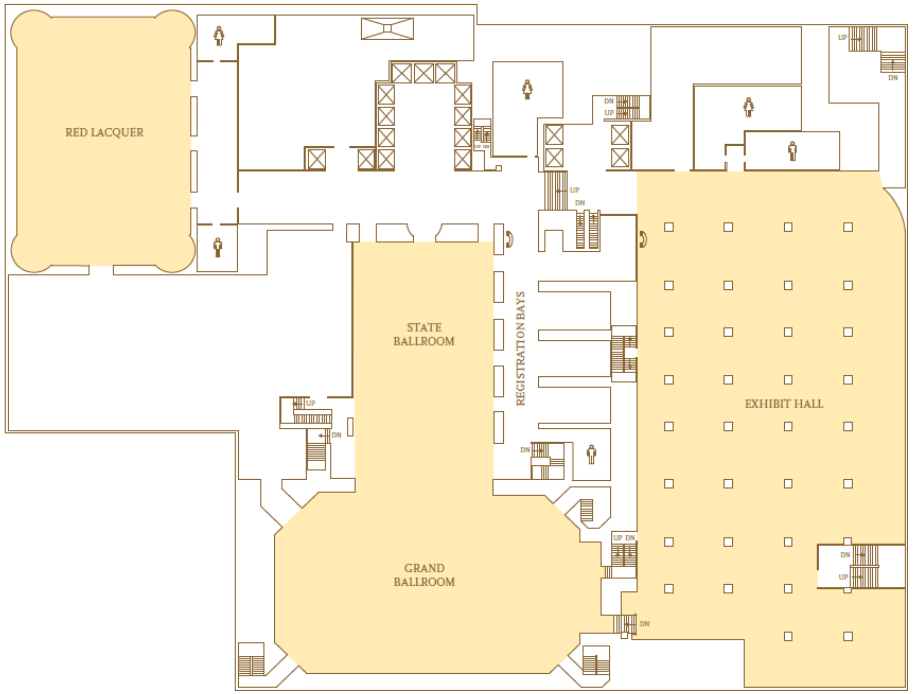
THIRD floor SALONS



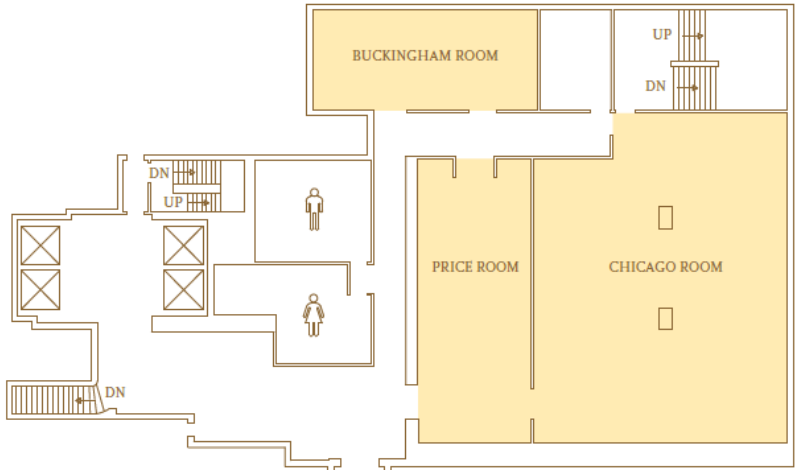
THIRD floor



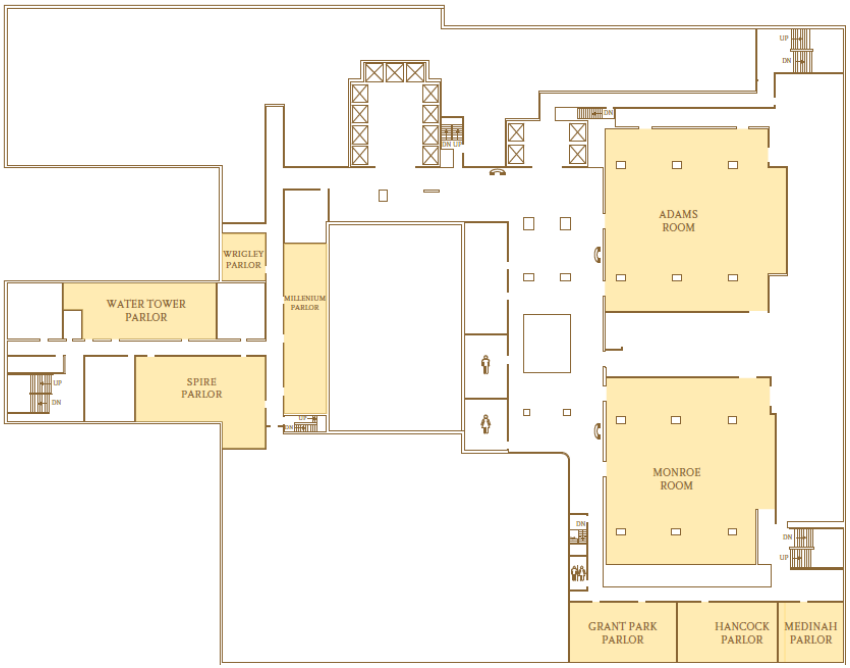
FOURTH floor



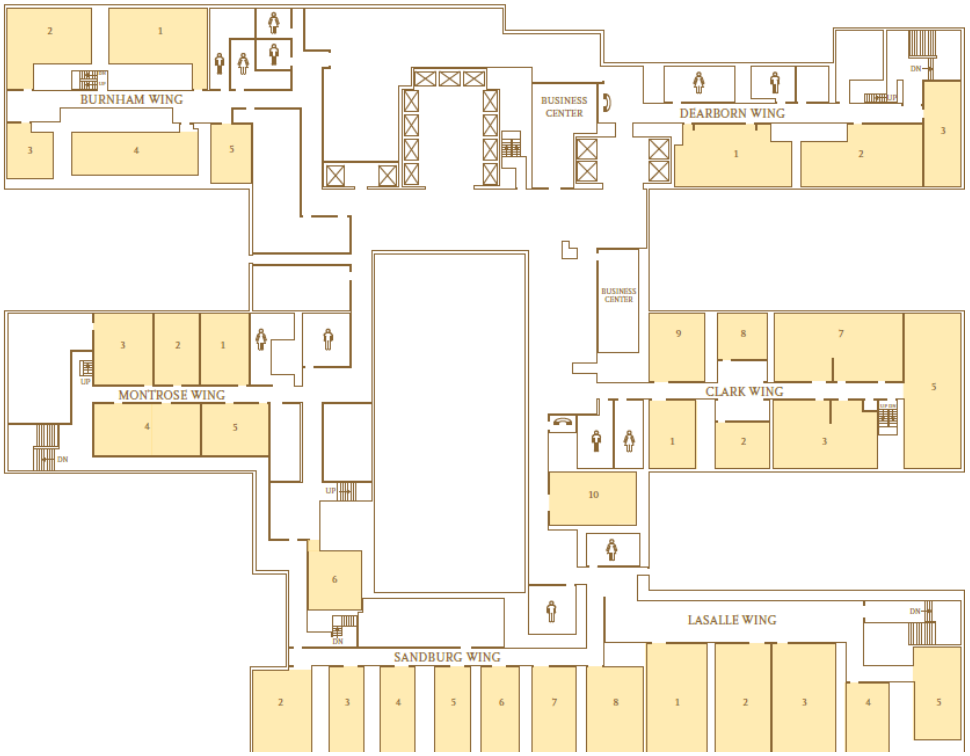
FIFTH floor



SIXTH floor



SEVENTH floor



ROOM relationships

Seventh Floor

- BURNHAM WING 1-5
- MONTROSE WING 1-6
- SANDBURG WING 2-8
- DEARBORN WING 1-3
- CLARK WING 1-3, 5, 7-10
- LASALLE WING 1-5

Sixth Floor

- WATER TOWER PARLOR
- SPIRE PARLOR
- MILLENIUM PARLOR
- ADAMS ROOM
- MONROE ROOM
- GRANT PARK PARLOR
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- MEDINAH PARLOR
- WRIGLEY PARLOR

Fifth Floor

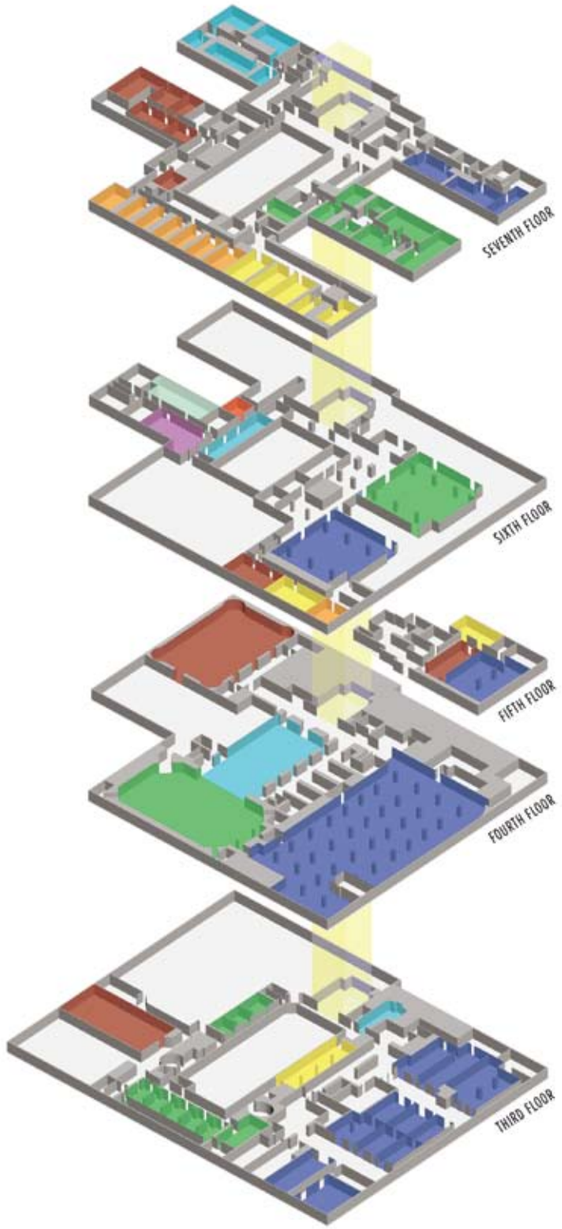
- CHICAGO ROOM
- PRICE ROOM
- BUCKINGHAM ROOM

Fourth Floor

- RED LACQUER
- GRAND BALLROOM
- STATE BALLROOM
- EXHIBIT HALL

Third Floor

- SALONS 1-10, 12
- CRESTHILL ROOM
- CRYSTAL ROOM
- MEETING ROOMS: ASHLAND, CONGRESS, HARVARD, INDIANA, KIMBALL, LOGAN, MADISON, MARSHFIELD, AND WILSON
- WABASH ROOM



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