

***Engineering Mechanics Institute Conference Minisymposia***

Baltimore, MD; May 31 – June 3, 2022

**100 HONORARY**

MS 101: [The Next Frontiers in Natural Hazards Engineering: Advancing the Vision of Ahsan Kareem \(by invitation only\)](#)

Tracy Kijewski-Correa, Alexandros Taflanidis

**200 SOLIDS**

MS 201: [Multiscale Behavior of Damage and Failure Mechanics](#)

Leong Hien Poh, Lizhi Sun, Jiann-Wen Ju, George Z. Voyiadjis, Glauco Paulino

MS 202: [Cementitious Materials: Experiments and Modeling Across the Scales](#)

Bernhard Pichler, Franz-Josef Ulm, Günther Meschke, Christian Hellmich, Gilles Pijaudier-Cabot

MS 203: [Physics-Based Data-Driven Modeling and Uncertainty Quantification in Computational Materials Science and Engineering](#)

Johann Guilleminot, Michael Shields, Lori Graham-Brady, Kirubel Teferra

MS 204: [Architected Materials](#)

Stavros Gaitanaros, James Guest, Mazdak Tootkaboni, Evgueni Filipov, Alireza Asadpoure, Lorenzo Valdevit, Pablo Zavattieri

MS 206: [Waves in Elastic Metamaterials and Phononic Crystals](#)

Loukas Kallivokas, Bojan Guzina, Heedong Goh

MS 207: [Dispersive Waves and Shock in Solid Domains with Micro-Structure](#)

Reza Abedi, Alireza Amirkhizi, Thomas Plaisted

MS 208: [Mechanics and Physics of Granular Materials](#)

Anthony Rosato, Marcial Gonzalez, Matthew Kuhn, Ryan Hurley, Jidong Zhao, Anil Misra, Mahdia Hattab

MS 209: [Coupled Processes in Natural and Synthetic Porous Media: Experimental and Numerical Studies](#)

Pania Newell, Sara Abedi, Giuseppe Buscarnera, David N. Espinoza, Jean-Michel Pereira, Manolis Veveakis

MS 210: [Reduced-Order and Surrogate Models for Mechanics of Porous Media](#)

Dakshina Valiveti, Xiao-Hui Wu, Daniel Thomas Seidl

MS 211: [Challenges and Advances in Material Damage Modeling](#)

Mostafa Mobasher, Haim Waisman, Ravindra Duddu, Jia-Liang Le, Gilles Pijaudier-Cabot

MS 212: [The Link Between Composition, Structure, and Properties in Engineered and Natural Materials](#)

Mohammad Javad Abdolhosseini Qomi, Kemal Celik, Mathieu Bauchy, Enrico Masoero, Konrad Krakowiak

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- MS 213: [Advances in Experimental, Theoretical, and Computational Fracture Mechanics](#)  
Ange-therese Akono, Arghavan Louhghalam, Haim Waisman, Arturo Montoya
- MS 214: [Integrated Computational Materials Engineering \(ICME\) Mini-Symposium](#)  
Mohammadreza Yaghoobi, George Voyiadjis
- MS 215: [Computational Methods and Applications for Solid and Structural Mechanics](#)  
Xiang Zhang, Soheil Soghrati, Ravindra Duddu, Timothy Truster, Pinlei Chen
- MS 216: [Quasibrittle Fracture of Heterogeneous Composites: Modeling and Characterization](#)  
Kedar Kirane, Marco Salviato, Jialiang Le
- MS 217: [Seventh Symposium on Molecular Scale Modeling and Experimentation](#)  
Dinesh Katti, Nima Rahbar, Sinan Keten, Rouzbeh Shahsavari, Kalpana Katti, Steve Cranford, Wenjie Xia
- MS 218: [Advances and Applications of Elasticity Within Applied Mechanics](#)  
Euclides Mesquita, Evgueni Filipov, Ney Dumont, John C. Brigham, Sonia Mogilevskaya, Anil C. Wijeyewickrema
- MS 219: [Mechanics of Wood and Wood Based Materials](#)  
Markus Lukacevic, Sanjay Arwade, Josef Füssl
- MS 222: [6th Mini-Symposium on 4M \(Modeling of Multiphysics-Multiscale-Multifunctional\) Engineering Materials and Structures](#)  
Xiaoyu Song, Yong-Rak Kim, Chung Song, Huiming Yin, Qiming Wang
- MS 223: [Meshfree, Peridynamics, and Particle Methods: Contemporary Methods and Applications](#)  
Mike Hillman, Sheng-Wei Chi, J.S. Chen, John Foster, Pablo Seleson
- MS 225: [Integration of Physics-Based Models with Data for Identification, Monitoring, Estimation, and Uncertainty Quantification](#)  
Hamed Ebrahimiyan, Hae Young Noh, Babak Moaveni, Yang Wang
- MS 228: [Mitigating Risks of Large-Scale Lithium-Ion Batteries as Energy Storage Systems or Electric Vehicles in Urban Environments](#)  
Ali Ashrafi, Mahesh Bailakanavar
- MS 229: [Additive Manufacturing: Novel Processing, Design, Materials, Structures and Functions](#)  
(Merged with MS 314 and MS 408)  
Morgan Trexler, Gianna Valentino

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**300 STRUCTURES**

- MS 301: [Structural Identification and Damage Detection](#)  
Eleni Chatzi, Babak Moaveni, Costas Papadimitriou
- MS 303: [Smart Sensor Networks for Civil Infrastructure Monitoring](#)  
Jian Li, Simon Laflamme, Hongki Jo, Austin Downey
- MS 306: [Practical Applications and Value of Advanced Computational and Probabilistic Modelling in the Life-Cycle of Structures](#)  
Paolo Bocchini, Alfred Strauss, Helder Sousa
- MS 308: [Origami/Kirigami Inspired Structures and Metamaterials](#)  
Evgueni Filipov, John Brigham, Phanisri Pradeep Pratapa, Mark Schenk, Martin Walker
- MS 310: [Computational Methods for Stochastic Engineering Dynamics](#)  
Ioannis Kougioumtzoglou, Mircea Grigoriu, Antonina Pierrotta
- MS 312: [Structural Instabilities: From Failure to Function](#)  
Stylios Yiatros, M. Ahmer Wadee, Chee W. Lim, Rainer Groh
- MS 313: [Analysis of Heritage Structures: Tools and Methods for Assessing Unknowns in Historic Monuments and Structures](#)  
Rebecca Napolitano, Linda Seymour, Branko Glisic, Admir Masic
- MS 314: Advances in Mechanics of Additive Manufacturing of Metallic Structures (Merged with MS 229 an MS 408) Nima Rahbar
- MS 315: [Coupled Chemical, Physical and Mechanical Processes in Cementitious Materials for Regular and 3D Printed Constructions](#)  
Mohammed Alnaggar, Roman Wan-Wendner, Giovanni Di Luzio, Liberato Ferrara
- MS 316: [Dimension and Model Reduction in Computational Mechanics and Engineering Systems](#)  
Ruda Zhang, Johann Guilleminot, Roger Ghanem

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**400 DESIGN AND OPTIMIZATION**

MS 401: [Topology Optimization: from Algorithmic Developments to Applications](#)

Mazdak Tootkaboni, James Guest, Alireza Asadpoure

MS 402: [Geometries & Design: Opportunities for Sustainable Construction](#)

Jialong Zhang, Agathe Robisson, Ann Sychterz, Mija Hubler

MS 403: [20th Symposium on Biological and Biologically Inspired Materials and Structures](#)

Dinesh Katti, Christian Hellmich

MS 404: [Probabilistic Learning, Stochastic Optimization, and Digital Twins](#)

Amir H Gandomi, Roger Ghanem, Christian Soize

MS 405: [Inverse Problems – Theory and Applications](#)

Loukas Kallivokas, Bojan Guzina, Ertugrul Taciroglu

MS 406: [Probabilistic Assessment, Inference, and Optimization Under Uncertainty](#)

Kostas Papakonstantinou, Charalampos Andriotis, George Deodatis

MS 407: [Advances in Computational Methods for Uncertainty Quantification and Robust/Performance-Based Design of Structures and Systems Exposed to Natural and Man-Made Hazards](#)

Seymour Spence, Alexandros Taflanidis, Michael Shields

MS 408: Additive Manufacturing of Programmable Matter (Merged with MS 229 and MS 314)

Jochen Mueller

**500 FLUID AND ENVIRONMENTAL MECHANICS**

MS 501: [Computational Fluid Dynamics \(CFD\) and Fluid-Structure Interaction \(FSI\): Method Development and Applications](#)

Jinhui Yan, Georgios Moutsanidis, Yuri Bazilevs

MS 502: [Advances of Fluid Dynamics in Modelling and Simulation](#)

Mritunjay Singh

MS 503: [Junction Flows, Local Scour Processes and Mitigation Strategies in Riverine and Coastal Environments](#)

Celso Castro Bolinaga, Aly Mousaad Aly, Panayiotis Diplas

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**600 HAZARDS**

- MS 601: [The Sixth Mini-Symposium on Advanced Analysis for Earthquake Engineering](#)  
Ting Lin, Kevin Wong, Steven McCabe
- MS 603: [Innovations and Advances in Passive, Active, and Semi-Active Structural Control](#)  
Nicholas Wierschem, P. Scott Harvey
- MS 604: [Advances in Quantitative Resilience and Sustainability](#)  
Arghavan Louhghalam, Mazdak Tootkaboni, Hadi Meidani, Franz-Josef Ulm, Roger Ghanem
- MS 606: [Resilience of Coastal Structures, Systems, and Community Subjected to Hazards](#)  
Wei Zhang, Jamie Padgett, Andre Barbosa
- MS 607: [Developments in Performance-Based Structural Fire Engineering](#)  
Thomas Gernay, Negar Elhami-khorasani
- MS 608: [Civil Infrastructure in a Changing Climate: from Nonstationary Risk Assessment to Developing Adaptation Strategies](#)  
Eun Jeong Cha, Abdollah Shafieezadeh
- MS 609: [Analysis and Prediction of Wind Effects on the Built Environment](#)  
Marco Giometto, Teng Wu, Catherine Gorle
- MS 610: [Recent Advances in Computational Modeling on Tropical Cyclone Induced Multi-Hazards](#)  
Chao Sun, Ning Zhang, Celalettin Ozdemir
- MS 611: [Recent Advances in Experimental and Computational Wind Engineering](#)  
Aly Mousaad Aly, R. Panneer Selvam
- MS 613: [Recent Advances in Response Modification Devices and Strategies](#)  
Nicos Makris, Konstantinos Kalfas
- MS 614: [Modeling Deterioration of Structures and Infrastructure](#)  
Gaofeng Jia, Paolo Gardoni, Alessandro Contento

**700 AI, MACHINE LEARNING, DATA-DRIVEN METHODS AND EMERGING METHODS**

- MS 701: [Advances in Computer Vision, Deep Learning, and Artificial Intelligence for Structural Health Monitoring and Inspections](#)  
Vedhus Hoskere, Jian Li, Mohammad Jahanshahi, Fernando Moreu, Wei Song, Sriram Narasimhan
- MS 702: [Uncertainty Quantification-Aided Machine Learning in Engineering for Hazards](#)  
Som Dhulipala, Michael Shields, Henry Burton
- MS 703: [Civil Engineering and Artificial Intelligence: Where to go from here?](#)  
Mz Naser, Thomas Gernay

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- MS 704: [Advances in Machine Learning and Surrogate Modeling for Probabilistic Analysis and Optimal Operation, Control, and Planning of Infrastructure Systems](#)  
Negin Alemazkoo, Abdollah Shafieezadeh
- MS 705: [Advances in Deep Learning-Based Infrastructure Assessment](#)  
Zhilu Lai, Eleni Chatzi, Hae Young Noh, Satish Nagarajaiah
- MS 706: [AI Applications for Wind Engineering](#)  
Teng Wu, Yanlin Guo, Gang Hu, Xiaowei Deng
- MS 708: [2nd Mini Symposium on Machine Learning-Based Computational Modeling for Civil Engineering Applications](#)  
Alessandro Fascetti, Caglar Oskay, John Brigham
- MS 709: [Surrogate Modeling for Uncertainty Quantification, Optimization, and Statistical Inference in Engineering Applications](#)  
Gaofeng Jia, Abdollah Shafieezadeh
- MS 711: [Recent Advances in Real-Time Hybrid Simulation](#)  
Wei Song, Richard Christenson
- MS 712: [Data-Driven Approaches to Engineering Mechanics](#)  
Fatemeh Pourahmadian, Jeong-hoon Song
- MS 713: [Assessing Human-Infrastructure Interactions and their Performance](#)  
Fernando Moreu, Haeyoung Noh, Ken Loh

**800 GEOMECHANICS**

- MS 801: [Geomechanics of Geological Carbon Storage and Enhanced Hydrocarbon Recovery](#)  
Amin Mehrabian, Yanhui Han, Shengli Chen
- MS 802: [Computational Geomechanics 2022](#)  
Xiaoyu Song, Ronaldo Borja, Richard Regueiro, Jose Andrade, Majid Manzari, Steve Sun, Qiushi Chen, Jinhyun Choo, Shabnam Semnani
- MS 804: [Chemo-Mechanics of Asphalt Materials: Experimental Characterization and Numerical Modeling](#)  
Hao Wang, Ramez M. Hajj, Linbing Wang, Augusto Cannon Falchetto