

Technical Sessions - Monday, October 17, 2022

Thematic Area 1. Medalist Symposia (Invited Only)		
1.1 Prager Medal Symposium		
Session: 1A, Room: MSC-2406A		
9:45 AM	10:15 AM	The Effect of an Implanted Filter on Valsalva-Compression and Respiratory-Compression of the Inferior Vena Cava
		<i>Robert McMeeking, University of California, Santa Barbara; Attila Kossa, Budapest University of Technology and Economics</i>
		Speaker: Robert McMeeking (Keynote Talk)
10:15 AM	10:45 AM	Diffusion-controlled delamination of sandwich layers
		<i>Norman Fleck, University of Cambridge</i>
		Speaker: Norman Fleck (Keynote Talk)
10:45 AM	11:05 AM	Viscoelastic Modelling: From Bench to Bedside
		<i>David Nordsletten, University of Michigan, King's College London</i>
		Speaker: David Nordsletten (Invited Talk)
11:05 AM	11:25 AM	Biomechanics and Mechanobiology of Pulmonary Arterial Hypertension
		<i>Daniela Valdez-Jasso, University of California San Diego</i>
		Speaker: Daniela Valdez-Jasso (Invited Talk)
Session: 2A, Room: MSC-2406A		
2:15 PM	2:45 PM	Mechanics of viscoelastic epicardial patch for treating myocardial infarction (for the Holzapfel Symposium)
		<i>Huajian Gao, Nanyang Technological University, Institute of High Performance Computing</i>
		Speaker: Huajian Gao (Keynote Talk)
2:45 PM	3:05 PM	Inferring Genotype-Dependent Mechanical Properties of Biological Tissues with Deep Learning
		<i>Enrui Zhang, Brown University; Bart Spronck, Maastricht University; Jay Humphrey, Yale University; George Karniadakis, Brown University</i>
		Speaker: Enrui Zhang (Invited Talk)
3:05 PM	3:25 PM	Simulating stress fibre remodelling under static and dynamic loading conditions
		<i>Patrick McGarry, National University of Ireland Galway</i>
		Speaker: Patrick McGarry (Invited Talk)
3:25 PM	3:55 PM	Active models for cochlear mechanics

		<i>Karl Grosh, Department of Mechanical Engineering, University of Michigan; Wen Cai, Department of Mechanical Engineering, University of Michigan; Vipin Agarwal, Department of Mechanical Engineering, University of Michigan</i>
		Speaker: Karl Grosh (Keynote Talk)
Session: 2B, Room: MSC-2406A		
4:10 PM	4:30 PM	Architected Materials Beyond the Laboratory: Scalable Aperiodicity and Dynamic Responses
		<i>Carlos Portela, MIT; Somayajulu Dhulipala, MIT; Thomas Butruille, MIT; Yun Kai, MIT</i>
		Speaker: Carlos Portela (Invited Talk)
4:30 PM	4:50 PM	Non-Equilibrium Microstructures and Mechanical Properties of Hydrogel Enabled Additively Manufactured Microarchitected Metallic Systems
		<i>Julia Greer, Engineering and Applied Science, California Institute of Technology, The Kavli Nanoscience Institute at Caltech; Rebecca Gallivan, Engineering and Applied Science, California Institute of Technology (Caltech); Max Saccone, Chemistry and Chemical Engineering, California Institute of Technology (Caltech); Wenxin Zhang, Engineering and Applied Sciences, California Institute of Technology (Caltech); Thomas Tran, Engineering and Applied Sciences, California Institute of Technology (Caltech)</i>
		Speaker: Julia Greer (Invited Talk)
4:50 PM	5:10 PM	Evaluating Smooth Muscle Contractility in the Murine Vagina
		<i>Shelby White, Tulane University; Niyousha Karbasian, Washington University, St. Louis; Matthew Bersi, Washington University, St. Louis; Kristin Miller, Tulane University, Department of Biomedical Engineering</i>
		Speaker: Kristin Miller (Invited Talk)
1.3 Engineering Science Medal Symposium		
Session: 1A, Room: MSC-2405		
9:45 AM	10:15 AM	Gap tests revealing the effects of crack parallel stresses on the fracture energy of aluminum, shale, fiber composites and concrete: A review
		<i>A. Abdullah Donmez, Associate Professor, Department of Civil Engineering, Istanbul Technical University; formerly Postdoctoral Associate, Northwestern University; Hoang Thai Nguyen, Civil and Environmental Engineering, Northwestern University; Zdenek Bazant, McCormick Institute Professor and W.P. Murphy Professor of Civil and Mechanical Engineering and Materials Science, Northwestern University</i>
		Speaker: Zdenek Bazant (Keynote Talk)
10:15 AM	10:35 AM	A Highly Sensitive, Stretchable, and Resilient Strain Sensor featuring Crack Advancing and Opening
		<i>Shuang Wu, North Carolina State University; Yong Zhu, North Carolina State University</i>
		Speaker: Yong Zhu (Invited Talk)
10:35 AM	10:55 AM	Perforated Auxetic Planar Structures: Multiscale Mechanics and Applications in Soft Robotic Actuators

		<i>Behrad Koohbor, Department of Mechanical Engineering, Rowan University, Advanced Materials and Manufacturing Institute, Rowan University; Nicholas Pagliocca, Department of Mechanical Engineering, Rowan University; Mitja Trkov, Department of Mechanical Engineering, Rowan University; George Youssef, Experimental Mechanics Laboratory, Department of Mechanical Engineering, San Diego State University</i>
		Speaker: Behrad Koohbor (Invited Talk)
Session: 1B, Room: MSC-2405		
11:40 AM	12:10 PM	Automated Single Cell Electroporation Platform for Effective Genetic Manipulation of Hard-to-Transfect Cells
		<i>Horacio Espinosa, Northwestern University; Prithvijit Mukherjee, Northwestern University; Cesar A. Patino Patino, Northwestern University; Nibir Pathak, Northwestern University</i>
		Speaker: Horacio Espinosa (Keynote Talk)
12:10 PM	12:40 PM	Fracture Behavior of Morphogenic Patterned Thermosetting Polymers
		<i>Luis Rodriguez Koett, University of Illinois Urbana Champaign; Justine Paul, University of Illinois Urbana Champaign; Tolga Topkaya, University of Illinois Urbana Champaign; Philippe Geubelle, University of Illinois Urbana Champaign; Nancy Sottos, University of Illinois Urbana-Champaign</i>
		Speaker: Nancy Sottos (Keynote Talk)
Session: 2A, Room: MSC-2405		
2:15 PM	2:35 PM	THREE-DIMENSIONAL FULL-FIELD VELOCITY MEASUREMENTS IN SHOCK COMPRESSION EXPERIMENTS USING DIGITAL IMAGE CORRELATION
		<i>Suraj Ravindran, University of Minnesota</i>
		Speaker: Suraj Ravindran (Invited Talk)
2:35 PM	2:55 PM	Rapid Acquisition of Full-field Large Deformations by in-situ Atomic Force Microscopy and Digital Image Correlation
		<i>Ioannis Chasiotis, Aerospace Engineering, University of Illinois at Urbana-Champaign; Debashish Das, Aerospace Engineering, University of Illinois at Urbana-Champaign; Dara Moronkeji, Aerospace Engineering, University of Illinois at Urbana-Champaign; Sean Lee, Aerospace Engineering, University of Illinois at Urbana-Champaign</i>
		Speaker: Ioannis Chasiotis (Invited Talk)
2:55 PM	3:15 PM	Direct Method for Material Property Identification in Heterogenous Materials Utilizing Full-Field Strain Measurements
		<i>Sreehari Rajan, University of South Carolina; Michael Sutton, University of South Carolina; Subramani Sockalingam, University of South Carolina; Tusit Weerasooriya, US Army Research Laboratory; Stephen Alexander, SURVICE Engineering Company</i>

		Speaker: Sreehari Rajan (Invited Talk)
3:15 PM	3:35 PM	Applications of digital image correlation for characterizing composite material systems – Collaborative research experiences with Prof. Michael Sutton
		<i>Karen Kodagali, Department of Mechanical Engineering, University of South Carolina; Frank Thomas, Department of Mechanical Engineering, University of South Carolina; Vijendra Gupta, Department of Mechanical Engineering, University of South Carolina; Sreehari Rajan, Department of Mechanical Engineering, University of South Carolina; Subramani Sockalingam, University of South Carolina</i>
		Speaker: Subramani Sockalingam (Invited Talk)
1.4 Taylor Medal Symposium		
Session: 1A, Room: MSC-2502		
9:45 AM	10:05 AM	Frost Pattern on Macrot textured Surfaces
		<i>Kyoo-Chul Park, Northwestern University</i>
		Speaker: Kyoo-Chul Park (Invited Talk)
10:05 AM	10:25 AM	Lagrangian stretching reveals polymeric stress field
		<i>Manish Kumar, Purdue University; Jeffrey Guasto, Tufts University; Arezoo Ardekani, Purdue University</i>
		Speaker: Arezoo Ardekani (Invited Talk)
10:25 AM	10:45 AM	Scaling: Taylor meets Ohnesorge
		<i>Marc-Antoine Fardin, Institut Jacques Monod; Mathieu Hautefeuille, Institut de Biologie Paris Seine; Vivek Sharma, University of Illinois at Chicago</i>
		Speaker: Marc-Antoine Fardin (Invited Talk)
10:45 AM	11:05 AM	Effects of Surface Viscosity in Breakup of Surfactant-Covered Liquid Threads
		<i>Osman Basaran, Purdue University; Hansol Wee, Purdue University; Brayden Wagoner, Purdue University</i>
		Speaker: Osman Basaran (Invited Talk)
Session: 1B, Room: MSC-2502		
11:40 AM	12:00 PM	Rheology, Stickiness, Gloopiness, Spinnability, and Printability
		<i>Vivek Sharma, University of Illinois at Chicago</i>
		Speaker: Vivek Sharma (Invited Talk)
12:00 PM	12:20 PM	Apparent temperature dependence of dense granular rheology
		<i>Ken Kamrin, MIT</i>
		Speaker: Ken Kamrin (Invited Talk)

Thematic Area 2. Biomechanics & Mechanobiology

2.1 Brain Physics and Mechanics		
Session: 1A, Room: Hotel-Laurel		
9:45 AM	10:05 AM	Discovery of hidden elasticity parameters using physics-informed neural networks
		<i>Kaveh Laksari, University of Arizona</i>
		Speaker: Kaveh Laksari (Invited Talk)
10:05 AM	10:25 AM	Mechanical and Biological Contributors to Consistent Cortical Thickness Patterns in Primates
		<i>Maria Holland, University of Notre Dame; Nagehan Demirci, University of Notre Dame</i>
		Speaker: Maria Holland (Invited Talk)
10:25 AM	10:45 AM	Role of axonal fibers in the cortical folding patterns
		<i>Poorya Chavoshnejad, Department of Mechanical Engineering, Binghamton University, Binghamton, NY 13902, USA; Mir Jalil Razavi, Department of Mechanical Engineering, Binghamton University, Binghamton, NY 13902, USA</i>
		Speaker: Poorya Chavoshnejad (Invited Talk)
10:45 AM	11:05 AM	Modeling and investigation of action potential propagation along myelinated axons
		<i>Rahul Gulati, University of Wisconsin-Madison; Shiva Rudraraju, University of Wisconsin-Madison</i>
		Speaker: Rahul Gulati (Contributed Talk)
11:05 AM	11:25 AM	Modeling the Effect of Stress-Dependent Growth on Cortical Fold Morphology
		<i>Ramin Balouchzadeh, Mechanical Engineering and Materials Science, Washington University in St. Louis, USA; Philip Bayly, Mechanical Engineering and Materials Science, Washington University in St. Louis, USA; Kara Garcia, School of Medicine-Evansville, Indiana University, USA</i>
		Speaker: Ramin Balouchzadeh (Invited Talk)
Session: 1B, Room: Hotel-Laurel		
11:40 AM	12:00 PM	Molecular insights into POPA-modulated gating of Kv channels
		<i>Nidhin Thomas, University of Houston; Wesley Combs, Rice University; Kranthi Mandadapu, U.C. Berkeley; Ashutosh Agrawal, University of Houston</i>
		Speaker: Ashutosh Agrawal (Contributed Talk)
12:00 PM	12:20 PM	On the material properties of brain microstructure
		<i>Poorya Chavoshnejad, Binghamton University; Mir Jalil Razavi, Binghamton University (State University of New York)</i>
		Speaker: Mir Jalil Razavi (Contributed Talk)
2.2 Cell and Tissue Mechanics in Health and Disease		
Session: 1A, Room: MSC-2404		
9:45 AM	10:15 AM	Towards Synthetic Catch Bonds
		<i>Sinan Keten, Northwestern University</i>

		Speaker: Sinan Keten (Keynote Talk)
10:15 AM	10:45 AM	Mechanobiology of Collective Cell Migration in Health and Cancer
		<i>Chwee Lim, National University of Singapore</i>
		Speaker: Chwee Teck Lim (Keynote Talk)
10:45 AM	11:05 AM	Curvotaxis: how cells sense and navigate curvatures
		<i>Sulin Zhang, Penn State University</i>
		Speaker: Sulin Zhang (Invited Talk)
11:05 AM	11:25 AM	Cell-cell collisions: geometry and wetting
		<i>Brian Camley, Johns Hopkins University</i>
		Speaker: Brian Camley (Invited Talk)
Session: 1B, Room: MSC-2404		
11:40 AM	12:00 PM	Vimentin intermediate filaments orchestrate stable persistent cell migration
		<i>Minh Thanh, Syracuse University; Renita Saldanha, Syracuse University; Alison Patteson, Syracuse University</i>
		Speaker: Alison Patteson (Invited Talk)
12:00 PM	12:20 PM	Crowd control: engineering cellular flocks and bioelectric 'sheepdogs'
		<i>Daniel Cohen, Princeton University</i>
		Speaker: Daniel Cohen (Invited Talk)
Session: 2A, Room: MSC-2404		
2:15 PM	2:35 PM	Nuclear Mechanotransduction in Confined Microenvironments
		<i>Panagiotis Mistriotis, Chemical Engineering, Auburn University</i>
		Speaker: Panagiotis Mistriotis (Invited Talk)
2:35 PM	2:55 PM	Actin Splits and Bends Flat Clathrin Lattices by Pushing at their Edges
		<i>Tatyana Svitkina, University of Pennsylvania; Changsong Yang, University of Pennsylvania; Patricia Colosi, University of Pennsylvania; Melike Lakadamyali, University Of Pennsylvania</i>
		Speaker: Tatyana Svitkina (Invited Talk)
2:55 PM	3:15 PM	Pentagalloyl Glucose (PGG) Prevents and Restores Mechanical Changes Caused by Elastic Fiber Degradation in the Mouse Ascending Aorta
		<i>Christie Crandall, Washington University in St. Louis; Bryant Caballero, Washington University in St. Louis; Jessica Wagenseil, Washington University in St. Louis</i>
		Speaker: Jessica Wagenseil (Invited Talk)
3:15 PM	3:35 PM	Using the nuclear piston to power 3D cell migration.
		<i>Ryan Petrie, Drexel University</i>
		Speaker: Ryan Petrie (Invited Talk)

3:35 PM	3:55 PM	Glioblastoma spheroid growth and chemotherapeutic responses in single and dual-stiffness hydrogels
		<i>Silviya Zustiak, Saint Louis University</i>
		Speaker: Silviya Zustiak (Invited Talk)
2.6 Injury Biomechanics Symposium		
Session: 2A, Room: Hotel-Laurel		
2:15 PM	2:45 PM	Traumatic Brain Injury Risk Prediction at the Cellular Level
		<i>Ashfaq Adnan, University of Texas at Arlington; Nahian Hossain, University of Texas at Arlington; Fuad Hasan, University of Texas at Arlington</i>
		Speaker: Ashfaq Adnan (Keynote Talk)
2:45 PM	3:05 PM	Effect of head membranes on brain simulant strains under blunt impact
		<i>Abhilash Singh, Indian Institute of Technology, Roorkee; Atul Kumar Harmukh, Indian Institute of Technology, Roorkee; Shailesh Govind Ganpule, Indian Institute of Technology, Roorkee</i>
		Speaker: Abhilash Singh (Contributed Talk)
3:05 PM	3:25 PM	Dynamic Thermomechanical Investigations of Helmet Liner Open Cell Foams
		<i>Leslie Lamberson, Colorado School of Mines; K.B. Bhagavathula, Colorado School of Mines; M Foster, Colorado School of Mines; D Morrison, Colorado School of Mines; S Koumlis, Colorado School of Mines</i>
		Speaker: Daniel Morrison (Invited Talk)
3:25 PM	3:45 PM	Towards Mild Traumatic Brain Injuries Prevention Using G-sensor-based Motion Reproduction Algorithm
		<i>Yang Wan, Brown University; Haneesh Kesari, Brown University</i>
		Speaker: Yang Wan (Contributed Talk)
Session: 2B, Room: Hotel-Laurel		
4:10 PM	4:30 PM	Cavitation of soft tissue surrogates under complex stress states
		<i>Yuan Ji, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Christopher Karber, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Travis Byrd, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Justin Wilkerson, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University</i>
		Speaker: Yuan Ji (Contributed Talk)
4:30 PM	4:50 PM	The Diversity and Energetics of Biological Puncture Systems
		<i>Philip Anderson, University of Illinois, Urbana-Champaign</i>
		Speaker: Philip Anderson (Contributed Talk)
4:50 PM	5:10 PM	Mechanical Stimulation of Cerebral Organoids Toward Understanding Human Neural Response after Traumatic Brain Injury (TBI)

		<p><i>Susana Beltrán, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; Justin Bobo, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; Lincoln Edwards, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA; Ahmed Habib, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA; Chowdari Kodavali, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA; Rebecca Taylor, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; Philip LeDuc, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Computational Biology, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; Pascal Zinn, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA</i></p>
		Speaker: Susana Beltrán (Contributed Talk)
Thematic Area 3. Data Science & Machine Learning		
3.2 Approaches for Materials Data Validation and Dataset Standardization		
Session: 2A, Room: MSC-1403		
2:15 PM	2:35 PM	Open Access Benchmark Datasets for Predicting the Mechanical Behavior of Heterogeneous Materials
		<i>Emma Lejeune, Boston University</i>
		Speaker: Emma Lejeune (Invited Talk)
2:35 PM	2:55 PM	A Materials Data Framework for Elastomeric Foams: Updates and Additions
		<i>Alexander Landauer, National Institute of Standards and Technology; Orion Kafka, National Institute of Standards and Technology; Newell Moser, National Institute of Standards and Technology; Ian Foster, Argonne National Laboratory; Ben Blaiszik, Argonne National Laboratory, University of Chicago; Aaron Forster, National Institute of Standards and Technology</i>
		Speaker: Alexander Landauer (Contributed Talk)
2:55 PM	3:15 PM	A new public database for in-situ x-ray computed tomography of pore deformations in directed energy deposition IN718
		<i>Orion Kafka, National Institute of Standards and Technology</i>
		Speaker: Orion Kafka (Contributed Talk)

3:15 PM	3:35 PM	Data Stewardship and Validation Methods for Mechanics of Materials at Sandia
		<i>Thomas Ivanoff, Sandia National Laboratories; Sharlotte L.B. Kramer, Sandia National Laboratories; Andrew Polonsky,, Sandia National Laboratories; John Emery, Sandia National Laboratories; Craig Hamel, Sandia National Laboratories; Elizabeth Jones, Sandia National Laboratories; Edmundo Corona, Sandia National Laboratories; Amanda Jones, Sandia National Laboratories</i>
		Speaker: Thomas Ivanoff (Invited Talk)
3:35 PM	3:55 PM	Challenges in producing, curating, and sharing large multimodal, multi-institutional data sets for additive manufacturing
		<i>Lyle Levine, National Institute of Standards and Technology; Brandon Lane, National Institute of Standards and Technology; Gerard Lemson, Johns Hopkins University; Jai Won Kim, Johns Hopkins University; Gretchen Greene, National Institute of Standards and Technology</i>
		Speaker: Lyle Levine (Invited Talk)
Session: 2B, Room: MSC-1403		
4:10 PM	4:30 PM	SpatioTemporally Adaptive Quadtree mesh (STAQ) Digital Image Correlation for resolving large deformations around complex geometries and discontinuities
		<i>Jin Yang, University of Wisconsin-Madison, University of Texas at Austin; Vito Rubino, California Institute of Technology; Zhan Ma, University of Wisconsin-Madison; Jialiang Tao, University of Wisconsin-Madison; Yue Yin, Carnegie Mellon University; Alexander McGhee, University of Wisconsin-Madison; Wenxiao Pan, University of Wisconsin-Madison; Christian Franck, University of Wisconsin-Madison</i>
		Speaker: Jin Yang (Invited Talk)
4:30 PM	4:50 PM	Benchmarking Magnetic Resonance Cartography for Material Characterization
		<i>Denislav Nikolov, University of Michigan; Ulrich Scheven, University of Michigan; Jonathan Estrada, University of Michigan</i>
		Speaker: Denislav Nikolov (Contributed Talk)
4:50 PM	5:10 PM	Data-Driven Approach to Discovery of Physical Mechanisms in Biological Systems
		<i>Siddhartha Srivastava, University of Michigan, Ann Arbor; Denislav Nikolov, University of Michigan; Kenneth Ho, University of Michigan; Patrick Kinnunen, University of Michigan; Kathy Luker, University of Michigan; Gary Luker, University of Michigan; Jon Estrada, University of Michigan; Krishna Garikipati, University of Michigan</i>
		Speaker: Siddhartha Srivastava (Invited Talk)
3.3 Data-Driven Approaches for Complex Multiphysics Systems, Structures, and Materials		
Session: 1B, Room: MSC-2505		
11:40 AM	12:10 PM	Data-driven topology optimization of spinodoid metamaterials

		<i>Siddhant Kumar, Delft University of Technology; Li Zheng, ETH Zurich; Dennis Kochmann, ETH Zurich</i>
		Speaker: Siddhant Kumar (Keynote Talk)
12:10 PM	12:40 PM	Data-Driven Analysis of Dynamics and Heterogeneity in Composite Electrodes of Batteries
		<i>Kejie Zhao, Purdue University</i>
		Speaker: Kejie Zhao (Keynote Talk)
Session: 2A, Room: MSC-2505		
2:15 PM	2:45 PM	Multi-fidelity Gaussian process model of pediatric tissue expansion
		<i>Adrian Buganza Tepole, Purdue University; Tianhong Han, Purdue University; Kaleem Ahmed, Northwestern University; Taeksang Lee, Myongji University</i>
		Speaker: Adrian Buganza Tepole (Keynote Talk)
2:45 PM	3:05 PM	Tailoring structural stochasticity in the computational design of microstructural materials
		<i>Leidong Xu, University of Connecticut; Hongyi Xu, University of Connecticut</i>
		Speaker: Leidong Xu (Invited Talk)
3:05 PM	3:25 PM	Harnessing interpretable machine learning for origami inverse design
		<i>Yi Zhu, University of Michigan; Evgueni Filipov, University of Michigan</i>
		Speaker: Yi Zhu (Invited Talk)
3:25 PM	3:45 PM	Learning Objective Functions from Data to Improve Running Performance
		<i>Sarah Fay, Massachusetts Institute of Technology</i>
		Speaker: Sarah Fay (Invited Talk)
Session: 2B, Room: MSC-2505		
4:10 PM	4:30 PM	Predicting full field quantities of interest in heterogeneous materials
		<i>Emma Lejeune, Boston University</i>
		Speaker: Emma Lejeune (Invited Talk)
4:30 PM	4:50 PM	Variational Method-Based Operator Neural Network for Dynamic Systems Governed by Gradient Flows
		<i>Wei Li, Massachusetts Institute of Technology; Avtar Singh, Massachusetts Institute of Technology; Juner Zhu, Massachusetts Institute of Technology</i>
		Speaker: Juner Zhu (Invited Talk)
4:50 PM	5:10 PM	End-to-end ProteinPerceiver to predict secondary protein structures and application to structural proteins
		<i>Bo Ni, Massachusetts Institute of Technology, Brown University; Markus Buehler, Massachusetts Institute of Technology</i>
		Speaker: Bo Ni (Invited Talk)
3.4 Data-driven and Machine-learning based Mechanics of Materials		
Session: 1A, Room: MSC-1400		

9:45 AM	10:15 AM	Data-driven and Topological Design of Structural Metamaterials for Fracture Resistance
		<i>Wei Chen, Northwestern University; Daicong Da, Northwestern University</i>
		Speaker: Wei Chen (Keynote Talk)
10:15 AM	10:45 AM	Data Driven Exploration of Bonding-Ductility Relationships in Ceramics
		<i>Krishna Rajan, Dept. of Materials Design and Innovation- University at Buffalo</i>
		Speaker: Krishna Rajan (Keynote Talk)
10:45 AM	11:05 AM	A New AI/ML Framework for Materials Development
		<i>Surya Kalidindi, Georgia Institute of Technology</i>
		Speaker: Surya Kalidindi (Invited Talk)
11:05 AM	11:25 AM	Cooperative data-driven modeling
		<i>Miguel Bessa, Brown University</i>
		Speaker: Miguel Bessa (Invited Talk)
Session: 1B, Room: MSC-1400		
11:40 AM	12:00 PM	Distance-preserving Manifold Denoising for Data-driven Mechanics
		<i>WaiChing Sun, Columbia University; Bahador Bahmani, Columbia University</i>
		Speaker: WaiChing Sun (Invited Talk)
12:00 PM	12:20 PM	Modeling Composites at Multiple Scale by Predicting the Stress in the Microstructure Using a Fast Deep Learning Model
		<i>Ashwini Gupta, Johns Hopkins University; Anindya Bhaduri, Johns Hopkins University; Lori Graham-Brady, Johns Hopkins University</i>
		Speaker: Lori Graham-Brady (Invited Talk)
12:20 PM	12:40 PM	Decoding Microstructure Statistics From Diffractograms Via Atomistic Simulations And Machine Learning
		<i>Remi Dingreville, Sandia National Laboratories</i>
		Speaker: Remi Dingreville (Invited Talk)
Session: 2A, Room: MSC-1400		
2:15 PM	2:45 PM	Multi-scale modeling and neural operators
		<i>Kaushik Bhattacharya, California Institute of Technology</i>
		Speaker: Kaushik Bhattacharya (Keynote Talk)
2:45 PM	3:15 PM	Integrated Simulation, Machine learning, and Experimental Approaches in Small-Scale Mechanical Characterization of Materials
		<i>Xing Liu, Brown University</i>
		Speaker: Xing Liu (Keynote Talk)
3:15 PM	3:35 PM	High-throughput impact experiments for modeling spall failure in metals

		<i>KT Ramesh, Johns Hopkins University; Christopher DiMarco, Johns Hopkins University</i>
		Speaker: K.T. Ramesh (Invited Talk)
3:35 PM	3:55 PM	Smart Constitutive Laws for Microstructural Damage
		<i>Julian Rimoli, Georgia Institute of Technology; Hernan Logarzo, Georgia Institute of Technology</i>
		Speaker: Julian Rimoli (Invited Talk)
Thematic Area 4. Fluid & Granular		
4.4 Mechanics of Granular Media: Experiments, Theory, and Modeling		
Session: 1A, Room: Hotel-Shield		
9:45 AM	10:15 AM	Linking Granular Micromechanics to Macroscopic Plasticity in Triaxial Tests and Other Geometries
		<i>Ryan Hurley, Johns Hopkins University; Ghassan Shahin, Johns Hopkins University; Surya Kolluri, Johns Hopkins University</i>
		Speaker: Ryan Hurley (Keynote Talk)
10:15 AM	10:35 AM	High-strength engineered granular crystals
		<i>Francois Barthelat, University of Colorado Boulder; Ashta Navdeep Karuriya, Ashta Navdeep Karuriya</i>
		Speaker: Ashta Navdeep Karuriya (Contributed Talk)
10:35 AM	10:55 AM	Validation of Borehole Shear Test Simulations for Cohesive Soils under Monotonic Loading Using Mohr-Coulomb and Hypoplasticity Models
		<i>Shen Wang, Lehigh University; Mu'ath Abu Qamar, Lehigh University; Muhannad Suleiman, Lehigh University; Natasha Vermaak, Lehigh University</i>
		Speaker: Shen Wang (Contributed Talk)
Session: 1B, Room: Hotel-Shield		
11:40 AM	12:00 PM	A predictive continuum model for coupled size segregation and flow in dense granular materials
		<i>Harkirat Singh, Brown University</i>
		Speaker: Harkirat Singh (Contributed Talk)
12:00 PM	12:20 PM	Linking Microscopic Force-Chains to Macroscale Mechanical Response in Granular Media
		<i>Adyota Gupta, Johns Hopkins University</i>
		Speaker: Adyota Gupta (Contributed Talk)
12:20 PM	12:40 PM	Mechanical Properties of Granular Metamaterials
		<i>Zhang Liheng, Yale University; Dong Wang, Yale University; Mark Shattuck, Yale University; Corey O'Hern, Yale University</i>
		Speaker: Liheng Zhang (Contributed Talk)
Session: 2A, Room: Hotel-Shield		

2:15 PM	2:35 PM	Systematic Variation of Friction of Rods
		<i>Bashir Khoda, University of Maine; Md Khalil, University of Maine; Dezhong Tong, University of California, Los Angeles; Guanjin Wang, University of California, Los Angeles; Mohammad Jawed, University of California, Los Angeles</i>
		Speaker: Dezhong Tong (Contributed Talk)
2:35 PM	2:55 PM	An Experimental Study of Rock Cutting Process with Scratch Tests
		<i>Jia-Liang Le, University of Minnesota; He Zhang, University of Minnesota; Emmanuel Detournay, University of Minnesota</i>
		Speaker: Jia-Liang Le (Contributed Talk)
2:55 PM	3:15 PM	Thin Power-Law Fluid Bridges Squeezed By Two Rigid Surfaces
		<i>Gregory Rodin, University of Texas at Austin</i>
		Speaker: Gregory Rodin (Contributed Talk)
3:15 PM	3:35 PM	Effect of vibration intensity on the self-assembly of granular spheres
		<i>Sara AlMahri, Department of Engineering, Cambridge University, Cambridge CB2 1PZ, UK, Advanced Materials Research Centre, Technology Innovation Institute, Masdar City, P.O. Box 9639, Abu Dhabi, UAE; Ivan Grega, Department of Engineering, Cambridge University, Cambridge CB2 1PZ, UK; Angkur Shaikkea, Department of Engineering, Cambridge University, Cambridge CB2 1PZ, UK; Vikram Deshpande, Department of Engineering, Cambridge University, Cambridge CB2 1PZ, UK</i>
		Speaker: Sara AlMahri (Contributed Talk)
3:35 PM	3:55 PM	Avalanches in 2D granular media
		<i>Florent Pollet, Harvard University; Adel Djellouli, Harvard University; Gabriele Albertini, Harvard University; Ilya Svetlizky, Harvard University; Arthur Young, Harvard University; Chris Rycroft, Harvard University; Shmuel Rubinstein, The Hebrew University of Jerusalem; Katia Bertoldi, Harvard University</i>
		Speaker: Florent Pollet (Contributed Talk)
Thematic Area 5. Manufacturing & Infrastructure		
5.1 3D Printing of Multifunctional Structures		
Session: 1A, Room: MSC-2503		
9:45 AM	10:15 AM	Soft medical robots: 3D printing, mechanics, and clinical applications
		<i>Xuanhe Zhao, MIT</i>
		Speaker: Xuanhe Zhao (Keynote Talk)
10:15 AM	10:35 AM	Multimaterial 3D/4D Printing for Functional Composites
		<i>H. Jerry Qi, Georgia Institute of Technology</i>

		Speaker: H. Jerry Qi (Invited Talk)
10:35 AM	10:55 AM	Automated Design and Fabrication of Multimaterial Soft Robots
		<i>Robert MacCurdy, University of Colorado Boulder; Lawrence Smith, University of Colorado Boulder</i>
		Speaker: Robert MacCurdy (Invited Talk)
10:55 AM	11:15 AM	Responsive Feedstocks for Next Generation AM
		<i>Caitlyn Krikorian (Cook), Lawrence Livermore National Laboratory</i>
		Speaker: Caitlyn Krikorian (Cook) (Contributed Talk)
Session: 1B, Room: MSC-2503		
11:40 AM	12:00 PM	Towards Optimisation of Fatigue Performance of 3D-printed Titanium Structures for Biomedical Applications
		<i>Jieming Zhang, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Yuanbo Tang, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Hui Fang Liu, Dept of Engineering Science, University of Oxford, Parks Road, Oxford, OX1 3PJ, UK; Satoshi Utada, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Nicole Kuek, Alloyed (OxMet Technologies), Unit 15, Yarnton, Kidlington, OX5 1QU, UK; Andrew Lui, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Patrick Grant, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Alan Cocks, Dept of Engineering Science, University of Oxford, Parks Road, Oxford, OX1 3PJ, UK; Enrique Alabort, Alloyed (OxMet Technologies), Unit 15, Yarnton, Kidlington, OX5 1QU, UK; Roger Reed, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK, Dept of Engineering Science, University of Oxford, Parks Road, Oxford, OX1 3PJ, UK</i>
		Speaker: Jieming Zhang (Contributed Talk)
12:00 PM	12:20 PM	Liquid Crystal Elastomer Based Dynamic Device for Urethral Support: Potential Treatment for Stress Urinary Incontinence
		<i>Seelay Tasmim, Department of Biomedical Engineering, Texas A&M University, College Station, TX, 77843, USA; Zuha Yousuf, Departments of Bioengineering and Biomedical Science, University of Houston, Houston, TX, 77004, USA; Farial Rahman, Departments of Bioengineering and Biomedical Science, University of Houston, Houston, TX, 77004, USA; Emily Seelig, Department of Biomedical Engineering, Texas A&M University, College Station, TX, 77843, USA; Mario Romero-Ortega, Departments of Bioengineering and Biomedical Science, University of Houston, Houston, TX, 77004, USA; Philippe Zimmermann, Department of Urology, The University of Texas Southwestern, Dallas, TX, 75390, USA; Taylor Ware, Department of Biomedical Engineering, Texas A&M University, College Station, TX, 77843, USA</i>
		Speaker: Seelay Tasmim (Contributed Talk)
Session: 2A, Room: MSC-2503		

2:15 PM	2:35 PM	Effective properties of metal struts and thin walls fabricated via additive manufacturing
		<i>Matthew Begley, University of California, Santa Barbara; Sara Messina, University of California, Santa Barbara</i>
		Speaker: Matthew Begley (Contributed Talk)
2:35 PM	2:55 PM	Self-assembly and phase transformation of 3D printed colloidal polyhedra
		<i>Wendy Gu, Stanford University; David Doan, Stanford University; John Kulikowski, Stanford University</i>
		Speaker: Wendy Gu (Contributed Talk)
2:55 PM	3:15 PM	Field-Assisted Assembly of Patterned Storage Materials
		<i>Keith Johnson, University of California Santa Barbara; Emilee Armstrong, University of Washington; Daniel Gianola, University of California Santa Barbara; Corie Cobb, University of Washington; Matthew Begley, University of California Santa Barbara</i>
		Speaker: Keith Johnson (Contributed Talk)
5.2 Advanced Manufacturing: Materials, Mechanics, Processing and Data		
Session: 2A, Room: MSC-2502		
2:15 PM	2:45 PM	Advanced Materials, Systems and Data Analytics in the Manufacturing Research at Oak Ridge National Laboratory
		<i>Ryan Dehoff, Oak Ridge National Laboratory; Lonnie Love, Oak Ridge National Laboratory; Craig Blue, Oak Ridge National Laboratory; Moe Khaleel, Oak Ridge National Lab</i>
		Speaker: Moe Khaleel (Keynote Talk)
2:45 PM	3:05 PM	Strength and Toughness of Lattice Metamaterials
		<i>Enze Chen, Johns Hopkins University; Shengzhi Luan, Johns Hopkins University; Stavros Gaitanaros, Johns Hopkins University</i>
		Speaker: Stavros Gaitanaros (Invited Talk)
3:05 PM	3:25 PM	Deterministic Material Control of the Shape Memory Performance of Polymers via Fused Filament Fabrication
		<i>ANDREAS LIANOS, Texas A&M University; Dimitris Lagoudas, Texas A&M University; Satish Bukkapatnam, Texas A&M</i>
		Speaker: Andreas Lianos (Contributed Talk)
3:25 PM	3:45 PM	A unified failure criterion for topology optimization with local stress constraints
		<i>Oliver Giraldo-Londoño, University of Missouri</i>
		Speaker: Oliver Giraldo-Londoño (Invited Talk)
5.3 Mechanics and Materials for Infrastructure and Construction		
Session: 2A, Room: MSC-2504		
2:15 PM	2:35 PM	Semicircular Bending Fracture Test for Cementitious Materials

		<i>Xijun Shi, Texas State University</i>
		Speaker: Xijun Shi (Invited Talk)
2:35 PM	2:55 PM	Mechanistic Modeling of Conventional and Asphaltic Rail Tracks to Enhance Safety, Operational Speed, and Performance of Indonesian Railway Systems
		<i>Dian Setiawan, Texas A&M University; Yong-Rak Kim, Texas A&M University; Mohammad Rahmani, Texas A&M University</i>
		Speaker: Dian Setiawan (Invited Talk)
2:55 PM	3:15 PM	Statistical Evaluation of IDEAL-CT Test for Asphalt Concrete Using Discrete Element Method
		<i>Maria El Asmar, California State University Long Beach; Shadi Saadeh, California State University Long Beach; Enad Mahmoud, Division Deputy Director at Texas Department of Transportation</i>
		Speaker: Shadi Saadeh (Invited Talk)
3:15 PM	3:35 PM	Combining Machine Learning and Computational Analysis for Predicting Nanostructure Responses of Asphalt Binders
		<i>Mohammad Aljarrah, Texas A&M University; Ayman Karaki, Texas A&M University at Qatar; Eyad Masad, Texas A&M University at Qatar</i>
		Speaker: Eyad Masad (Invited Talk)
Session: 2B, Room: MSC-2504		
4:10 PM	4:30 PM	Prediction of Permanent Deformation of Granular Layers in Asphalt Pavements using PANDA-AP (Pavement Analysis using Nonlinear Damage Approach-Airfield Pavements)
		<i>Ghaith Khresat, The University of Kansas; Masoud Darabi, The University of Kansas</i>
		Speaker: Ghaith Khresat (Invited Talk)
4:30 PM	4:50 PM	Damage and Healing Model of Asphaltic Materials and Its Corroboration Using X-ray Computed Tomography Imaging
		<i>Joelle Katbeh, Texas A&M University</i>
		Speaker: Joelle Katbeh (Invited Talk)
4:50 PM	5:10 PM	A unified top-down/bottom-up fatigue cracking structural model based on continuum damage mechanics
		<i>Seyed Farhad Abdollahi, Michigan State University; M. Emin Kutay, Michigan State University</i>
		Speaker: Seyed Farhad Abdollahi (Invited Talk)
5.5 Multiscale Models and Experiments for In-Space Manufacturing		
Session: 1B, Room: MSC-2504		
11:40 AM	12:00 PM	Laser Shaping: An Approach to Tune the Microstructure of Laser Powder Bed Additive Manufacturing Technique

		<i>Hamed Attariani, Department of Mechanical and Materials Engineering, Wright State University, Dayton, OH</i>
		Speaker: Hamed Attariani (Invited Talk)
12:00 PM	12:20 PM	Mechanical performance of aluminum aerospace alloys modified for application to in-space manufacturing processes
		<i>Jonathan Raush, University of Louisiana at Lafayette; Kasra Momeni, The University of Alabama; Gabriela Petculescu, University of Louisiana at Lafayette; Shengmin Guo, Louisiana State University</i>
		Speaker: Jonathan Raush (Invited Talk)
12:20 PM	12:40 PM	Simulation of solid-state sintering for Aluminum alloy AL7075: a phase-field analysis
		<i>Nurruzaman Sakib, The University of Alabama; Jonathan Raush, University of Louisiana; Shengmin Guo, Louisiana State University; Kasra Momeni, The University of Alabama</i>
		Speaker: Kasra Momeni (Invited Talk)
Thematic Area 6. Multifunctional & Multifield		
6.1 Adaptive Structures		
Session: 1A, Room: MSC-2500		
9:45 AM	10:15 AM	Design, Build, and Test of Adaptive Structure for Low Boom Supersonic
		<i>James Mabe, Texas A&M University; Ryan Ward, Texas A&M; David Nguyen, Texas A&M; Matt Kehn, Texas A&M; Benjamin McAdams, Texas A&M; Darragh Padraig, Texas A&M; Ryan Lotz, Texas A&M; Steven Qiang, Texas A&M</i>
		Speaker: James Mabe (Keynote Talk)
10:15 AM	10:35 AM	Design and Optimization of the Conformal Surface for a Supersonic Morphing Aircraft
		<i>Alejandro Martinez, Texas A&M College Station Department of Aerospace Engineering; Darren Hartl, Texas A&M College Station Department of Aerospace Engineering; Dimitris Lagoudas, Texas A&M College Station Department of Aerospace Engineering</i>
		Speaker: Alejandro Martinez (Contributed Talk)
10:35 AM	10:55 AM	A Systems Integration Framework for Sonic Boom Prediction and Minimization Using Adaptive Structures
		<i>Troy Abraham, Utah State University; Nolan Dixon, Utah State University; Douglas Hunsaker, Utah State University; James Mabe, Texas A&M University</i>
		Speaker: Troy Abraham (Contributed Talk)
10:55 AM	11:15 AM	Phase and Strain Analysis using Synchrotron Radiation X-Ray Diffraction on Ni-rich High Temperature Shape Memory Alloys after Partial Thermal Cycled Fatigue Testing

		<i>Faith Gantz, University of North Texas; Alexander Demblon, Texas A&M University; Ibrahim Karaman, Texas A&M University; Marcus Young, University of North Texas</i>
		Speaker: Faith Gantz (Contributed Talk)
Session: 2A, Room: MSC-2500		
2:15 PM	2:35 PM	A Set-Based Design Approach for Advanced Aircraft Utilizing Adaptive Structures
		<i>Darren Hartl, Texas A&M University; Richard Malak, Texas A&M University; James Mabe, Texas A&M University</i>
		Speaker: James Mabe (Contributed Talk)
2:35 PM	2:55 PM	Mission-Driven Adaptive Aerostructural Rotorcraft Design and Optimization
		<i>Allen Davis, Texas A&M University; Darren Hartl, Texas A&M University</i>
		Speaker: Allen Davis (Contributed Talk)
2:55 PM	3:15 PM	Parametric Optimization for Control Design of Adaptive Aeroelastic Structures
		<i>Ying-Kuan Tsai, Texas A&M University; Richard Malak Jr., Texas A&M University</i>
		Speaker: Ying-Kuan Tsai (Contributed Talk)
3:15 PM	3:35 PM	The MO-EPO Algorithm for Adaptive Structure Design
		<i>Jonathan Weaver-Rosen, Texas A&M University</i>
		Speaker: Jonathan Weaver-Rosen (Contributed Talk)
Session: 2B, Room: MSC-2500		
4:10 PM	4:30 PM	Continuous Equilibrium Structures that Counteract Gravity in any Orientation
		<i>Maria Redoutey, University of Michigan; Evgueni Filipov, University of Michigan</i>
		Speaker: Maria Redoutey (Contributed Talk)
4:30 PM	4:50 PM	Connecting the Branches of Positively Curved Multistable Non-Euclidian Origami Using Crease Stretching
		<i>Clark Addis, Programmable Structures Lab, School of Mechanical Engineering, Purdue University; Andres Arrieta, Programmable Structures Lab, School of Mechanical Engineering, Purdue University; Salvador Rojas, Programmable Structures Lab, School of Mechanical Engineering, Purdue University</i>
		Speaker: Clark Addis (Contributed Talk)
4:50 PM	5:10 PM	Adaptive hierarchical origami-based structures
		<i>Yanbin Li, Mr.; Jie Yin, Dr.</i>
		Speaker: Yanbin Li (Contributed Talk)
6.4 Effective Properties of Multifunctional Composite Materials		
Session: 2B, Room: Hotel-Ross II		
4:10 PM	4:30 PM	Effective Property Prediction of Multifunctional CNT-Polymer Nanocomposites via Reduced-order Two-point Cluster and Blocking Functions

		<i>Kavan Shah, Virginia Polytechnic Institute and State University; Gary Seidel, Virginia Polytechnic Institute and State University</i>
		Speaker: Kavan Shah (Contributed Talk)
4:30 PM	4:50 PM	Strength and Damage Sensing in Lunar Regolith-Polymer-CNT Composites
		<i>Joseph Cunningham, Virginia Polytechnic Institute and State University; Gary Seidel, Virginia Polytechnic Institute and State University</i>
		Speaker: Joseph Cunningham (Contributed Talk)
4:50 PM	5:10 PM	Effective Impedance Condition for Thin Metasurfaces
		<i>Zachary Jermain, Louisiana State University; Robert Lipton, Mathematics Department Louisiana State University</i>
		Speaker: Zachary Jermain (Contributed Talk)
6.8 Mechanics of Electrochemical Systems		
Session: 1A, Room: Hotel-Reveille I		
9:45 AM	10:15 AM	The impact of Interface layer on Li Plating and Stripping morphology
		<i>Yue Qi, Brown University</i>
		Speaker: Yue Qi (Keynote Talk)
10:15 AM	10:35 AM	Investigating Next Generation Electrode Material for Ca ion Battery
		<i>JOY DATTA, GRADUATE STUDENT; Dibakar Datta, Assistant Professor</i>
		Speaker: Joy Datta (Contributed Talk)
10:35 AM	11:05 AM	Coupling of Electrochemistry and Mechanics across Length Scales: Some Lessons Learned from V2O5, a Canonical Intercalation Cathode
		<i>Sarbajit Banerjee, Texas A&M University</i>
		Speaker: Sarbajit Banerjee (Keynote Talk)
11:05 AM	11:25 AM	Large deformation response of lithium-ion pouch cells during indentation: experiments and modeling
		<i>Thomas Tancogne-Dejean, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH); Dirk Mohr, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH); Paul Meyer, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH) Zurich</i>
		Speaker: Paul Meyer (Contributed Talk)
Session: 1B, Room: Hotel-Reveille I		
11:40 AM	12:00 PM	A Continuum Theory for Mixed Ionic Electronic Conductors
		<i>Xiaokang Wang, Purdue University; Kejie Zhao, Purdue University</i>
		Speaker: Xiaokang Wang (Contributed Talk)

12:00 PM	12:20 PM	A Thermodynamically Consistent, Phase-Field Electro-Chemo-Mechanical Theory with Account for Damage in Solids: Application to Metal Filament Growth in Solid-State Batteries
		<i>Donald Bistri, Georgia Institute of Technology; Claudio Di Leo, Georgia Institute of Technology</i>
		Speaker: Donald Bistri (Contributed Talk)
12:20 PM	12:40 PM	Deflection and Arrest of Metal Dendrites In Solid State electrolytes
		<i>Cole Fincher, Massachusetts Institute of Technology; Christos Athanasiou, Brown University; Brian Sheldon, Brown University; Craig Carter, Massachusetts Institute of Technology; Yet-Ming Chiang, Massachusetts Institute of Technology</i>
		Speaker: Cole Fincher (Contributed Talk)
Session: 2A, Room: Hotel-Reveille I		
2:15 PM	2:35 PM	A computational framework of electrochemistry and mechanical degradation in NMC cathodes
		<i>Jiaxiu han, Purdue University; Kejie Zhao, Purdue University</i>
		Speaker: Jiaxiu Han (Contributed Talk)
2:35 PM	2:55 PM	Crystallographic engineering of intercalation electrodes
		<i>Ananya Renuka Balakrishna, University of Southern California</i>
		Speaker: Ananya Renuka Balakrishna (Contributed Talk)
2:55 PM	3:15 PM	Micromechanics Modeling of Electrochemo-mechanical Coupling in Reduced Graphene Oxide Supercapacitor Electrodes
		<i>Tianyang Zhou, Texas A&M University; Dimitrios Loufakis, Texas A&M University; James Boyd, Texas A&M University; Jodie Lutkenhaus, Texas A&M University; Dimitris Lagoudas, Texas A&M University</i>
		Speaker: Tianyang Zhou (Contributed Talk)
3:15 PM	3:35 PM	Stretchable Batteries, Science and Applications
		<i>Haleh Ardebili, University of Houston</i>
		Speaker: Haleh Ardebili (Contributed Talk)
3:35 PM	3:55 PM	In Situ Experiments and a Coupled Electrochemical-Large Deformation Model for Characterizing Cyclic Behavior of Battery Electrodes
		<i>Akshay Pakhare, Michigan State University; Shawn Chester, New Jersey Institute of Technology; Siva Nadimpalli, Michigan State University</i>
		Speaker: Akshay Pakhare (Contributed Talk)
Session: 2B, Room: Hotel-Reveille I		
4:10 PM	4:30 PM	Inelastic deformation mechanisms in ceramic and glass electrolytes
		<i>Christos Athanasiou, Brown University; Xing Liu, Brown University; John Lewis, Georgia Tech; Matthew McDowell, Georgia Tech; Huajian Gao, Nanyang Technological University; Brian Sheldon, Brown University</i>

		Speaker: Christos Athanasiou (Contributed Talk)
4:30 PM	4:50 PM	In-situ Electrochemo-mechanical Coupling of Reduced Graphene Oxide Supercapacitor Electrodes
		<i>Dimitrios Loufakis, Texas A&M University; Tianyang Zhou, Texas A&M University; James Boyd, Texas A&M University; Jodie Lutkenhaus, Texas A&M University; Dimitris Lagoudas, Texas A&M University</i>
		Speaker: Tianyang Zhou (Contributed Talk)
4:50 PM	5:10 PM	Anisotropic elasticity properties of single-crystal NMC cathode materials for lithium-ion batteries
		<i>Nikhil Sharma, Purdue University; Kejie Zhao, Purdue University</i>
		Speaker: Nikhil Sharma (Contributed Talk)
6.9 Mesoscale Mechanics of Multifunctional Materials		
Session: 1A, Room: Hotel-Leadership		
9:45 AM	10:05 AM	Phase-Field Nano- and Scale-Free Approaches to Interaction between Phase Transformations and Plasticity
		<i>Valery Levitas, Iowa State University, Departments of Aerospace Engineering and Mechanical Engineering, Ames, IA, USA</i>
		Speaker: Valery Levitas (Invited Talk)
10:05 AM	10:25 AM	Multiscale Modeling of Carbon Fiber Reinforced Composites with a Local Interface Model
		<i>Neslihan Genckal, Ph.D. Candidate, Kevin T. Crofton Department of Aerospace and Ocean Engineering, Virginia Tech; Gary Seidel, Kevin T. Crofton Department of Aerospace and Ocean Engineering, Virginia Tech, Associate Professor</i>
		Speaker: Neslihan Genckal (Contributed Talk)
10:25 AM	10:45 AM	Analysis of Defect Formation in Multi-Layer Graphene using an Atomistic Multi-Lattice Kinetic Monte Carlo (KMC) Model
		<i>Sharon Edward, University of Illinois at Urbana Champaign; Harley Johnson, University of Illinois at Urbana Champaign</i>
		Speaker: Sharon Edward (Contributed Talk)
10:45 AM	11:15 AM	Unexepcted mechanical and functional behavior in shape memory alloys beyond shape memory and superelsticity
		<i>Ibrahim Karaman, Texas A&M University, Department Head, Materials Science & Engineering, Chevron Professor</i>
		Speaker: Ibrahim Karaman (Keynote Talk)
Session: 1B, Room: Hotel-Leadership		
11:40 AM	12:00 PM	Design of soft magnetic materials
		<i>Ananya Renuka Balakrishna, University of Southern California</i>
		Speaker: Ananya Renuka Balakrishna (Contributed Talk)

12:00 PM	12:20 PM	Thermomechanical Behavior of Shape Memory Alloy Tension Springs
		<i>John Shaw, University of Michigan; Ryan Foster, University of Michigan</i>
		Speaker: John Shaw (Invited Talk)
12:20 PM	12:40 PM	To Enable Promising 4D Printing of Time-temperature Sensitive Intelligent Polymeric Materials
		<i>Ijaz Akbar, Arts et Metiers Institute of Technology, MSMP, HESAM Université; Mourad EL HADROUZ, Arts et Metiers Institute of Technology, MSMP, HESAM Université; Mohamed El Mansori, Arts et Metiers Institute of Technology, MSMP, HESAM Université, Texas A&M Engineering Experiment Station; Dimitris Lagoudas, Department of Aerospace Engineering, Texas A&M University</i>
		Speaker: Mohamed El Mansori (Contributed Talk)
Session: 2A, Room: MSC-1401		
2:15 PM	2:35 PM	Towards Understanding the Evolution of the Martensitic Transformation in Shape Memory Alloys: a Novel High-Energy Synchrotron Study
		<i>Asaf Dana, Technion - Israel Institute of Technology, Israel; Emil Bronstein, Technion - Israel Institute of Technology, Israel; Eilon Faran, Technion - Israel Institute of Technology, Israel; Veijo Honkimaki, European Synchrotron Radiation Facility (ESRF), Grenoble, France; Klaus-Dieter Liss, Guangdong-Technion Israel Institute of Technology, China, Technion - Israel Institute of Technology, Israel; Doron Shilo, Technion - Israel Institute of Technology, Israel</i>
		Speaker: Asaf Dana (Contributed Talk)
2:35 PM	2:55 PM	Viscoelastic-viscoplastic homogenization of randomly-oriented short glass-fiber reinforced polyamide composites with evolving interphase and matrix damage: theoretical framework and experimental validation
		<i>Fodil Meraghni, Arts et Métiers Institute of Technology; Qiang Chen, Arts et Métiers Institute of Technology; George Chatzigeorgiou, CNRS, Arts et Metiers Institute of Technology, LEM3, Université de Lorraine;; Gilles Robert, Polytechnyl Sas, Domochemicals</i>
		Speaker: George Chatzigeorgiou (Contributed Talk)
2:55 PM	3:15 PM	Multifunctional Zirconia-Reinforced Metal-Matrix Composite for Energy Dissipation and High Temperature Applications
		<i>Marwa Yacouti, Virginia Tech; Maryam Shakiba, Virginia Tech</i>
		Speaker: Marwa Yacouti (Contributed Talk)
3:15 PM	3:35 PM	Stochastic Aspects and Homogenization in Polycrystalline Ferroelectrics
		<i>Stephan Lange, University of Kassel; Andreas Ricoeur, University of Kassel</i>
		Speaker: Stephan Lange (Contributed Talk)
6.12 Multiscale Extreme Behavior of Materials: Structure, Mechanisms, and Kinetic Process		
Session: 1A, Room: Hotel-Traditions		

9:45 AM	10:15 AM	Metallurgical Metamaterials: A strategy for manipulating shock waves using metallurgy
		<i>Jeffrey Lloyd, DEVCOM Army Research Laboratory</i>
		Speaker: Jeffrey Lloyd (Keynote Talk)
10:15 AM	10:45 AM	Hypervelocity Deformation of Polymers
		<i>Ned Thomas, Dept. Materials Science and Engineering Texas A&M University</i>
		Speaker: Ned Thomas (Keynote Talk)
10:45 AM	11:05 AM	Vortical flow and the modulation of jetting processes
		<i>William Schill, Lawrence Livermore National Laboratory</i>
		Speaker: William Schill (Invited Talk)
11:05 AM	11:25 AM	In Situ TEM Observations of Dislocation and Twinning Activities of Mg via Nanoindentation
		<i>Kelvin Xie, Texas A&M University</i>
		Speaker: Kelvin Xie (Invited Talk)
Session: 1B, Room: Hotel-Traditions		
11:40 AM	12:00 PM	Expansion of Heterogeneous Metal Alloys at Dynamic Strain Rates
		<i>Dingyi Sun, Lawrence Livermore National Laboratory; Michael Callahan, Lawrence Livermore National Laboratory; Marissa Linne, Lawrence Livermore National Laboratory; Amanda Wu, Lawrence Livermore National Laboratory; Hye-Sook Park, Lawrence Livermore National Laboratory</i>
		Speaker: Dingyi Sun (Invited Talk)
12:00 PM	12:20 PM	Synergistic improvement of mechanical properties through impact-induced nanostructural evolution in silver single crystals
		<i>Claire Griesbach, University of Wisconsin-Madison; Jizhe Cai, University of Wisconsin-Madison; Ramathasan Thevamaran, University of Wisconsin-Madison</i>
		Speaker: Ramathasan Thevamaran (Invited Talk)
12:20 PM	12:40 PM	Understanding the Role of Architecture on the Impact Response of Metamaterials
		<i>Thomas Butruille, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology</i>
		Speaker: Thomas Butruille (Invited Talk)
Session: 2A, Room: Hotel-Traditions		
2:15 PM	2:45 PM	Real-time imaging and spectroscopy of materials under laser-generated shock loading and microparticle impact
		<i>Keith Nelson, MIT</i>
		Speaker: Keith Nelson (Keynote Talk)
2:45 PM	3:05 PM	Tailoring Lightweight Alloys for Extreme Environments
		<i>Swarnava Ghosh, Oak Ridge National Laboratory</i>

		Speaker: Swarnava Ghosh (Invited Talk)
3:05 PM	3:25 PM	Spall of Tin and its Sensitivity to Microscale Behaviors – A Computational Study
		<i>Kazem Alidoost, Lawrence Livermore National Laboratory; Nathan Barton, Lawrence Livermore National Laboratory; Garry Maskaly, Lawrence Livermore National Laboratory; Fady Najjar, Lawrence Livermore National Laboratory</i>
		Speaker: Kazem Alidoost (Invited Talk)
3:25 PM	3:45 PM	On the competition between plugging and spallation failure under impact
		<i>Sayyad Qamar, Texas A&M University, Lawrence Livermore National Laboratory; Nathan Barton, Lawrence Livermore National Laboratory; Amine Benzerga, Texas A&M University</i>
		Speaker: Sayyad Qamar (Invited Talk)
Session: 2B, Room: Hotel-Traditions		
4:10 PM	4:30 PM	Dynamic recrystallization of FCC metallic particles during high-velocity impacts
		<i>Mauricio Ponga, The University of British Columbia</i>
		Speaker: Mauricio Ponga (Invited Talk)
4:30 PM	4:50 PM	FFT based numerical study of elastic wave propagation in polycrystals
		<i>Javier Segurado, Universidad Politécnica de Madrid, IMDEA-Materials Institute; Ricardo Lebensohn, Los Alamos NL; Rafael Sancho, Universidad Poitécnica de Madrid; Paul Lafourcade, CEA, France; Victor Rey de Pedraza, Universidad Politécnica de Madrid</i>
		Speaker: Javier Segurado (Invited Talk)
4:50 PM	5:10 PM	Modelling single crystal tantalum across a dynamic range of strain rates with a new crystal plasticity model
		<i>Robert Carson, Lawrence Livermore National Laboratory; Matthew Nelms, Lawrence Livermore National Labortatory; Nicolas Bertin, Lawrence Livermore National Laboratory; Jonathan Lind, Lawrence Livermore National Laboratory</i>
		Speaker: Robert Carson (Invited Talk)
Thematic Area 7. Robotics & Controls		
7.1 Tensegrity Systems: Mechanics, Control and Manufacturing Principles		
Session: 1A, Room: MSC-2504		
9:45 AM	10:05 AM	Minimal Mass Tensegrity Prisms
		<i>David Capps, Texas A&M University; Benjamin Ingalls, Texas A&M University; Manoranjan Majji, Texas A&M University</i>
		Speaker: David Capps (Invited Talk)

10:05 AM	10:25 AM	Minimal mass plate design: A tensegrity prism approach
		<i>David Capps, Texas A&M University; Manoranjan Majji, Texas A&M University</i>
		Speaker: David Capps (Contributed Talk)
10:25 AM	10:45 AM	Mass Efficient Double-Helix Tensegrity
		<i>Muhao Chen, Department of Aerospace Engineering, Texas A & M University, College Station, Texas 77840; Manoranjan Majji, Department of Aerospace Engineering, Texas A & M University, College Station, Texas 77840; Robert Skelton, Department of Aerospace Engineering, Texas A & M University, College Station, Texas 77840</i>
		Speaker: Muhao Chen (Contributed Talk)
10:45 AM	11:05 AM	Experimental Design and Control of Tensegrity Systems
		<i>Nate Osikowicz, Penn State University; Puneet Singla, Penn State University</i>
		Speaker: Nate Osikowicz (Contributed Talk)
11:05 AM	11:25 AM	Shape Control of Gyroscopic Tensegrity Robots
		<i>Raman Goyal, Palo Alto Research Center; Manoranjan Majji, Texas A&M University, College Station; Robert Skelton, Texas A&M University, College Station</i>
		Speaker: Manoranjan Majji (Contributed Talk)
7.4 Soft Robotics: Matter, Structure, and Intelligence		
Session: 1A, Room: MSC-2401		
9:45 AM	10:05 AM	Shape Morphing Mechanical Metamaterials for Soft Machines
		<i>Michael Bartlett, Virginia Tech</i>
		Speaker: Michael Bartlett (Invited Talk)
10:05 AM	10:25 AM	Enabling complex multi-DoF soft robots with onboard control
		<i>Tommaso Ranzani, Boston University</i>
		Speaker: Tommaso Ranzani (Invited Talk)
10:25 AM	10:45 AM	Programming Mechano-Intelligence for Soft Robotics
		<i>Shu Yang, University of Pennsylvania</i>
		Speaker: Shu Yang (Invited Talk)
10:45 AM	11:05 AM	Mechano-Intelligence with Origami and its Application to Soft Robotics
		<i>Suyi Li, Virginia Tech, Clemson University</i>
		Speaker: Suyi Li (Invited Talk)
11:05 AM	11:25 AM	Twisting for soft intelligent autonomous robot in unstructured environments
		<i>Jie Yin, North Carolina State University; Yao Zhao, North Carolina State University; Yinding Chi, North Carolina State University; Yaoye Hong, North Carolina State University; Yanbin Li, North Carolina State University; Shu Yang, University of Pennsylvania</i>

		Speaker: Jie Yin (Contributed Talk)
Session: 1B, Room: MSC-2401		
11:40 AM	12:00 PM	Reconfigurable metamaterials for soft robotics
		<i>Damiano Pasini, McGill University</i>
		Speaker: Damiano Pasini (Invited Talk)
12:00 PM	12:20 PM	Soft Robots in the Wild – Achieving Untethered Function-ality for Autonomous Operation in Natural Environments
		<i>Carmel Majidi, Carnegie Mellon University</i>
		Speaker: Carmel Majidi (Invited Talk)
12:20 PM	12:40 PM	Soft Material Robotics and Next-Generation Surgical Robots
		<i>Sheila Russo, Boston University</i>
		Speaker: Sheila Russo (Invited Talk)
Session: 2A, Room: MSC-2401		
2:15 PM	2:35 PM	Compliant Manipulation through Dynamically Tunable Dry Adhesion
		<i>Wanliang Shan, Syracuse University</i>
		Speaker: Wanliang Shan (Invited Talk)
2:35 PM	2:55 PM	3D Printing Soft, Sensorized Robots as Robotic Materials
		<i>Ryan Truby, Northwestern University</i>
		Speaker: Ryan Truby (Invited Talk)
2:55 PM	3:15 PM	Soft and Stochastically Distributed Contact
		<i>Kaitlyn Becker, MIT</i>
		Speaker: Kaitlyn Becker (Invited Talk)
3:15 PM	3:35 PM	Robot Adaptation Under Operator Cognitive Fatigue States Using Reinforcement Learning
		<i>Jay Shah, Texas A&M University; Sarah Hopko, Texas A&M University; Prabhakar Pagilla, Texas A&M University; Ranjana Mehta, Texas A&M University</i>
		Speaker: Jay Shah (Contributed Talk)
3:35 PM	3:55 PM	Inflatable Fabric Actuators for Soft Wearable and Aerial Robotics
		<i>Wenlong Zhang, Arizona State University</i>
		Speaker: Wenlong Zhang (Invited Talk)
Session: 2B, Room: MSC-2401		
4:10 PM	4:30 PM	Inflatable origami: multimodal deformation via multistability
		<i>katia bertoldi, Harvard University; David Melancon, Harvard University; Antonio Forte, Harvard University; Leon Kamp, Harvard University; Benjamin Gorissen, Harvard University</i>
		Speaker: Katia Bertoldi (Invited Talk)

4:30 PM	4:50 PM	Smart Soft Grippers and Manipulators Capable for Hard Challenges
		<i>Changyong Cao, Case Western Reserve University</i>
		Speaker: Changyong (Chase) Cao (Invited Talk)
Thematic Area 8. Soft & Flexible		
8.1 3D Printing of Polymers and Composites		
Session: 2A, Room: Hotel-Oak		
2:15 PM	2:45 PM	Hydrogel bioelectronics: 3D printing, mechanics, and clinical applications
		<i>Xuanhe Zhao, MIT</i>
		Speaker: Xuanhe Zhao (Keynote Talk)
2:45 PM	3:05 PM	Dynamic Covalent Chemical Polymer Design for Improved 3D Printing
		<i>Ronald Smaldone, University of Texas, Dallas</i>
		Speaker: Ronald Smaldone (Invited Talk)
3:05 PM	3:25 PM	Stimuli-Responsive Multifunctional Molecular Ferroelectrics
		<i>Shenqiang Ren, University at Buffalo, The State University of New York</i>
		Speaker: Shenqiang Ren (Invited Talk)
3:25 PM	3:45 PM	Volumetric Additive Manufacturing of Glass and Ceramic Composites and Precursors
		<i>Johanna Schwartz, Lawrence Livermore National Laboratory; Dominique Porcincula, Lawrence Livermore National Laboratory; Rebecca Walton, Lawrence Livermore National Laboratory; Martin De Beer, Lawrence Livermore National Laboratory</i>
		Speaker: Johanna Schwartz (Invited Talk)
Session: 2B, Room: Hotel-Oak		
4:10 PM	4:30 PM	The Journey from UV to Visible to NIR 3D Printing
		<i>Zachariah Page, The University of Texas at Austin; Lynn Stevens, The University of Texas at Austin; Clotilde Tagnon, The University of Texas at Austin; Kevin Zhou, The University of Texas at Austin</i>
		Speaker: Zachariah Page (Invited Talk)
4:30 PM	4:50 PM	Additive Manufacturing of Thermosetting Resins via Direct Ink Writing and Radio Frequency Heating and Curing
		<i>Anubhav Sarmah, Texas A&M University; Suchi Desai, Texas A&M University; Ava Crowley, Texas A&M University; Gabriel Zolton, Texas A&M University; Ethan Harkin, Texas A&M University; Micah Green, Texas A&M University</i>
		Speaker: Anubhav Sarmah (Contributed Talk)

4:50 PM	5:10 PM	Additive Manufacturing Highly Conductive Dynamic Polymer Nanocomposites with Permanent Shape Reconfiguration
		<i>Zhen Sang, Texas A&M University; Qing Zhou, Texas A&M University; Kartik Rajagopalan, Texas A&M University; Edwin Thomas, Texas A&M University; Frank Gardea, DEVCOM Army Research Laboratory South; Svetlana Sukhishvili, Texas A&M University</i>
		Speaker: Zhen Sang (Contributed Talk)
8.2 Sustainability in Soft and Polymeric Materials		
Session: 1A, Room: Hotel-Oak		
9:45 AM	10:05 AM	Sustainability Development in Polyurethane Materials
		<i>Weijun Zhou, Dow; Paul Gillis, Dow; Hans Kramer, Dow</i>
		Speaker: Weijun Zhou (Invited Talk)
10:05 AM	10:25 AM	Structural Diversity for Sustainable, Degradable Polymers Derived from Carbohydrates & an Introduction to RESURGE
		<i>Karen Wooley, Texas A&M University</i>
		Speaker: Karen Wooley (Invited Talk)
10:25 AM	10:45 AM	Deconstruction and Upcycling Approaches to Valorize Polymer Plastics Waste
		<i>Michael Berg, Center for Plastics Innovation, University of Delaware</i>
		Speaker: Michael Berg (Invited Talk)
10:45 AM	11:05 AM	Harnessing the power of natural products towards the synthesis of high performance materials
		<i>Samantha Kristufek, Texas Tech University</i>
		Speaker: Samantha Kristufek (Invited Talk)
Session: 1B, Room: Hotel-Oak		
11:40 AM	12:00 PM	3D printed CO2-based triblock copolymers and post-printing modification
		<i>Peiran Wei, Texas A&M University; Gulzar Bhat, University of Kashmir; Ciera Cipriani, Texas A&M University; Hamza Mohammad, Texas A&M University; Krista Schoonover, Texas A&M University; Emily Pentzer, Texas A&M University; Donald Darensbourg, Texas A&M University</i>
		Speaker: Peiran Wei (Contributed Talk)
12:00 PM	12:20 PM	Processes of Environmental Plastic Weathering and Biodegradation in Natural Systems
		<i>Melissa Duhaime, University of Michigan</i>
		Speaker: Melissa Duhaime (Invited Talk)
12:20 PM	12:40 PM	Technical enablers for polyethylene mono-material packaging designs
		<i>Nicolas Mazzola, The Dow Chemical Company; Jill Martin, The Dow Chemical Company; Jackie deGroot, The Dow Chemical Company</i>
		Speaker: Nicolas Mazzola (Invited Talk)

Session: 2A, Room: MSC-2402		
2:15 PM	2:45 PM	Sustainable and Degradable Epoxy Resins Containing Multifunctional Lignin-Based Components
		<i>Megan Robertson, University of Houston; Minjie Shen, University of Houston; Rosalie Berg, University of Houston; Venkatesh Balan, University of Houston</i>
		Speaker: Megan Robertson (Keynote Talk)
2:45 PM	3:05 PM	A fast and scalable approach to fabricating sustainable cellulose-graphite foam
		<i>Teng Li, University of Maryland, College Park</i>
		Speaker: Teng Li (Contributed Talk)
3:05 PM	3:25 PM	Self-healable, Recyclable and Lego-like Reconfigurable Thermoelectric Generator for Wearable Energy Harvesting
		<i>Jianliang Xiao, University of Colorado Boulder</i>
		Speaker: Jianliang Xiao (Contributed Talk)
8.5 Functional Soft Materials in Additive Manufacturing: from Design to Application		
Session: 2A, Room: Hotel-Leadership		
2:15 PM	2:45 PM	Support Bath-Assisted 3D Printing of Functional Soft Materials
		<i>Yifei Jin, University of Nevada Reno</i>
		Speaker: Yifei Jin (Keynote Talk)
2:45 PM	3:15 PM	Additive Manufacturing of Soft Hybrids for Environmentally-responsive Cooling and Warming
		<i>Yuchen Liu, Texas A&M University; Ruochen Liu, Texas A&M University; SHIREN WANG, Texas A&M University</i>
		Speaker: Ruochen Liu (Keynote Talk)
3:15 PM	3:35 PM	Multi-objective Shape Optimization and Additive Manufacturing of Porous Polymeric Bone Scaffolds
		<i>Ali Foroughi, State University of New York at Binghamton; Mir Jalil Razavi, State University of New York at Binghamton</i>
		Speaker: Ali H. Foroughi (Contributed Talk)
3:35 PM	3:55 PM	Modular Platform for 3D Printing Fluid-containing Monoliths

		<i>Ciera Cipriani, Department of Materials Science and Engineering, Texas A&M University, 3003 TAMU; College Station, TX 77843 (USA); Nicholas Starvaggi, Department of Chemistry, Texas A&M University, 3255 TAMU; College Station, TX 77843 (USA); Katelynn Edgehouse, Department of Chemistry, Texas A&M University, 3255 TAMU; College Station, TX 77843 (USA); Jordan Price, Department of Materials Science and Engineering, Texas A&M University, 3003 TAMU; College Station, TX 77843 (USA); Stephanie Vivod, NASA Glenn Research Center, 21000 Brookpark Road; Cleveland, OH 44135 (USA); Emily Pentzer, Department of Materials Science and Engineering, Texas A&M University, 3003 TAMU; College Station, TX 77843 (USA), Department of Chemistry, Texas A&M University, 3255 TAMU; College Station, TX 77843 (USA)</i>
		Speaker: Ciera Cipriani (Contributed Talk)
Session: 2B, Room: Hotel-Leadership		
4:10 PM	4:30 PM	4D Printing of Functional Polymer Materials Derived from Natural Products
		<i>Yunchong Yang, Department of Materials Science & Engineering; Department of Chemistry; Yidan Shen, Department of Materials Science & Engineering; Department of Chemistry; Ashlee Jahnke, Department of Chemistry; David Tran, Department of Chemistry; Hongming Guo, Department of Materials Science & Engineering & Department of Chemistry; Karen Wooley, Department of Chemistry; Department of Chemical Engineering; Department of Materials Science & Engineering</i>
		Speaker: Yunchong Yang (Contributed Talk)
4:30 PM	4:50 PM	Additive manufacturing of functional emulsions
		<i>Eric Markvicka, University of Nebraska-Lincoln; Aaron Haake, University of Nebraska-Lincoln; Ravi Tutika, Virginia Tech; Gwyn Schloer, Virginia Tech; Michael Bartlett, Virginia Tech</i>
		Speaker: Eric Markvicka (Contributed Talk)
8.6 Mechanics and Physics of Soft Materials		
Session: 1A, Room: Hotel-Hullabaloo		
9:45 AM	10:15 AM	Peculiar behavior of polydomain liquid crystal elastomers
		<i>Kaushik Bhattacharya, California Institute of Technology</i>
		Speaker: Kaushik Bhattacharya (Keynote Talk)
10:15 AM	10:45 AM	Metamaterials with Reprogrammable Frustration
		<i>Glaucio Paulino, Princeton University, Princeton, New Jersey, 08544, USA; Ke Liu, Peking University, Beijing 100871, China; Phanisri Pratapa, Indian Institute of Technology Madras, Chennai 600036, TN, India; Diego Misseroni, University of Trento, Trento 38123, Italy; Tomohiro Tachi, University of Tokyo, Tokyo 153-8902, Japan</i>
		Speaker: Glaucio Paulino (Keynote Talk)
10:45 AM	11:05 AM	Harnessing instabilities of shells to program the response of fluids

		<i>Adel Djellouli, Harvard University; Bert Van Raemdonck, University of Leuven; Yi Yang, Harvard University; Benjamin Gorissen, University of Leuven; Shmuel Rubinstein, The Hebrew University of Jerusalem; Katia Bertoldi, Harvard University</i>
		Speaker: Adel Djellouli (Contributed Talk)
11:05 AM	11:25 AM	Mechanically-grown morphogenesis of Voronoi-type materials: computer design, 3D-printing and experiments
		<i>Zahra Hooshmand-Ahoor, CNRS, Ecole Polytechnique; Gabriella Tarantino, ICMO, University of Paris-Saclay; Kostas Danas, CNRS, Ecole Polytechnique</i>
		Speaker: Kostas Danas (Contributed Talk)
Session: 1B, Room: Hotel-Hullabaloo		
11:40 AM	12:00 PM	Regulating the growth of a gel network by its microscopic mechanics toward a homeostatic state
		<i>Qiyang Fan, Zhejiang University; Bin Chen, Zhejiang University</i>
		Speaker: Bin Chen (Contributed Talk)
12:00 PM	12:20 PM	The osmotic phase separation on rough gel surfaces
		<i>Qihan Liu, University of Pittsburgh</i>
		Speaker: Qihan Liu (Contributed Talk)
Session: 2A, Room: Hotel-Hullabaloo		
2:15 PM	2:35 PM	Changes in Mechanical Properties in Polymers due to Gamma, Electron Beam, and X-ray Sterilization
		<i>Md Kamrul Hasan, Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843, United States; Min Huang, Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843, United States; Suresh Pillai, National Center for Electron Beam Research, Texas A&M University, College Station, TX, 77843, United States; David Staack, Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843, United States; Matt Pharr, Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843, United States</i>
		Speaker: Md Kamrul Hasan (Contributed Talk)
2:35 PM	2:55 PM	An Eulerian Description of Surface Growth During Solidification in Deformable Solids
		<i>S. Kiana Naghibzadeh, CARNEGIE MELLON UNIVERSITY; Noel Walkington, CARNEGIE MELLON UNIVERSITY; Kaushik Dayal, CARNEGIE MELLON UNIVERSITY</i>
		Speaker: S. Kiana Naghibzadeh (Contributed Talk)
2:55 PM	3:15 PM	Statistical Mechanics of a Dielectric Polymer Chain in the Force Ensemble
		<i>Prashant Purohit, University of Pennsylvania</i>
		Speaker: Prashant Purohit (Contributed Talk)
3:15 PM	3:35 PM	Self-rupture of Swelling Hydrogels under Confinement

		<i>Abigail Plummer, Princeton University; Caroline Adkins, Princeton University; Sujit Datta, Princeton University; Andrej Košmrlj, Princeton University</i>
		Speaker: Abigail Plummer (Contributed Talk)
3:35 PM	3:55 PM	Characterizing the Mechanical Response of Soft Solids through Deep Indentation and Puncture
		<i>Christopher Barney, Department of Mechanical Engineering, University of California Santa Barbara, Department of Chemical Engineering, University of California Santa Barbara; Szabolcs Berezvai, Department of Applied Mechanics, Budapest University of Technology and Economics; Robert McMeeking, Department of Mechanical Engineering, University of California Santa Barbara, Materials Department, University of California; Matthew Helgeson, Department of Chemical Engineering, University of California Santa Barbara; Megan Valentine, Department of Mechanical Engineering, University of California Santa Barbara</i>
		Speaker: Christopher Barney (Contributed Talk)
Session: 2B, Room: Hotel-Hullabaloo		
4:10 PM	4:30 PM	Homogenization of elastomers filled with liquid inclusions: The small-deformation limit
		<i>Oscar Lopez-Pamies, Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign; Kamalendu Ghosh, Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign</i>
		Speaker: Oscar Lopez-Pamies (Contributed Talk)
4:30 PM	4:50 PM	A reduced-order, rotation-based model for thin hard-magnetic plates
		<i>Dong Yan, EPFL; Bastien Aymon, EPFL; Pedro Reis, EPFL</i>
		Speaker: Bastien Aymon (Contributed Talk)
4:50 PM	5:10 PM	Modeling Nematic Liquid Crystal Elastomers in Compression
		<i>Leila Rezaei, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA; Abby Haddox, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA; Nissrine Aziz, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA; Adrien Fau, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA; Giulia Scalet, Department of Civil Engineering and Architecture, University of Pavia, via Ferrata 3, 27100 Pavia, Italy; Michael Peigney, Laboratoire Navier (UMR 8205), CNRS, Université Paris-Est, Ecole des Ponts ParisTech, IFSTTAR, 77455, Marne-la-Vallée, France; Aurelie Azoug, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA</i>
		Speaker: Leila Rezaei (Contributed Talk)

8.7 Mechanics of Complex Networks in Materials and Biology		
Session: 1A, Room: Hotel-Ross I		
9:45 AM	10:05 AM	A Microfabricated Sensor for Mechanical Testing of Active Biomaterials with Microscale Specimens Self-Assembled in Situ
		<i>Bashar Emon, Mechanical Science and Engineering, University of Illinois at Urbana-Champaign; M Taher A Saif, Mechanical Science and Engineering, University of Illinois at Urbana-Champaign</i>
		Speaker: Bashar Emon (Contributed Talk)
10:05 AM	10:25 AM	Composite networks: how to control mechanical behavior by minimal reinforcement
		<i>Catalin Picu, Rensselaer Polytechnic Institute</i>
		Speaker: Catalin Picu (Contributed Talk)
10:25 AM	10:45 AM	Viscoelastic Constitutive Model of the Equine Hoof Wall
		<i>Christian Bonney, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, USA; Shashank Kushwaha, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, USA; Siyuan Pang, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, USA; Benjamin Lazarus, Materials Science and Engineering Program, University of California San Diego, USA; Marc Meyers, Materials Science and Engineering Program, University of California San Diego, USA, Department of Mechanical and Aerospace Engineering, University of California San Diego, USA, Department of Nanoengineering, University of California San Diego, USA; Iwona Jasiuk, Department. of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, USA</i>
		Speaker: Iwona Jasiuk (Contributed Talk)
10:45 AM	11:05 AM	Interactive Biological Networks: Phase-field Modeling of Fungi and Slime Molds
		<i>Farshad Ghanbari, Engineering Science and Mechanics, Penn State; Joe Sgarrella, Engineering Science and Mechanics, Penn State; Christian Peco, Engineering Science and Mechanics, Penn State</i>
		Speaker: Christian Peco (Contributed Talk)
Session: 1B, Room: Hotel-Ross I		
11:40 AM	12:00 PM	Extremely Deformable Fibrous Materials Inspired by Entangled Epithelial Intermediate Filament Networks

		<p>Marco Pensalfini, LaCàN, Universitat Politècnica de Catalunya · BarcelonaTech (UPC), 08034 Barcelona, Spain; Tom Golde, Institute for Bioengineering of Catalonia (IBEC), BIST, 08028 Barcelona, Spain; Xavier Trepas, Institute for Bioengineering of Catalonia (IBEC), BIST, 08028 Barcelona, Spain, Facultat de Medicina, University of Barcelona, 08036 Barcelona, Spain, Institució Catalana de Recerca i Estudis Avançats (ICREA), 08028 Barcelona, Spain, Centro de Investigación Biomédica en Red en Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), 08028 Barcelona, Spain; Marino Arroyo, LaCàN, Universitat Politècnica de Catalunya · BarcelonaTech (UPC), 08034 Barcelona, Spain, Institute for Bioengineering of Catalonia (IBEC), BIST, 08028 Barcelona, Spain, Centre Internacional de Mètodes Numèrics en Enginyeria (CIMNE), 08034 Barcelona, Spain</p>
		Speaker: Marco Pensalfini (Contributed Talk)
12:00 PM	12:20 PM	Investigation of the Poynting Effect of Anisotropic Soft Materials using Embedded, Discrete Fiber Networks.
		Sotirios Kakaletsis, The University of Texas at Austin; Emma Lejeune, Boston University; Manuel Rausch, The University of Texas at Austin
		Speaker: Sotirios Kakaletsis (Contributed Talk)
8.8 Mechanics of Soft Materials with Dynamic Non-Covalent Bonds		
Session: 1A, Room: Hotel-Corps I		
9:45 AM	10:05 AM	Tunable Viscoelasticity and Nonlinear Mechanical Response in 3D-Architected Metallo-Polyelectrolyte Complexes (MPEC)
		Seola Lee, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA); Zane Taylor, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA); Amylynn Chen, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA); Sophie Howell, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA); Julia Greer, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA)
		Speaker: Seola Lee (Contributed Talk)
10:05 AM	10:25 AM	A large deformation continuum theory for rate-dependent and material phase transition response of shear stiffening gels
		Aditya Konale, Brown University; Zahra Ahmed, Brown University; Vikas Srivastava, Brown University
		Speaker: Aditya Konale (Contributed Talk)
10:25 AM	10:45 AM	Mechanical Behavior of Hydrogen-Bonded Polymer Nanofibers
		Adwait Gaikwad, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843, USA; Pavan Kolluru, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843, USA

		Speaker: Adwait Gaikwad (Contributed Talk)
10:45 AM	11:05 AM	Modeling of Mechanical Response of Hydrogen Bonded Polymer Systems
		<i>Andrew Palughi, Texas A&M University; Tahir Cagin, Texas A&M University; Adwait Gaikwad, Texas A&M University; Pavan Kolluru, Texas A&M University</i>
		Speaker: Andrew Palughi (Contributed Talk)
Thematic Area 9. Solids & Structures		
9.3 Computational and Experimental Analysis of Damage at Interfaces		
Session: 1A, Room: Hotel-Eagle		
9:45 AM	10:15 AM	Grain Boundary Sliding and Slip Transmission in High Purity Aluminum
		<i>Marissa Linne, Lawrence Livermore National Laboratory; Tom Bieler, Michigan State University; Samantha Daly, University of California at Santa Barbara</i>
		Speaker: Samantha Daly (Keynote Talk)
10:15 AM	10:45 AM	Understanding Damage Nucleation and Evolution in Tantalum Microstructures during Spall Failure at the Atomic Scales
		<i>Avinash Dongare, University of Connecticut; Avnish Mishra, University of Connecticut; Marco Echeverria, University of Connecticut</i>
		Speaker: Avinash Dongare (Keynote Talk)
10:45 AM	11:05 AM	Failure Analysis of Architected-Material Structures using Moment-Curvature Relationships
		<i>ARUN SRINIVASA, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; JUNUTHULA REDDY, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; ALEKHYA BANKI, J. Mike Walker '66 Department of Mechanical Engineering Texas A&M University</i>
		Speaker: Alekhya Banki (Contributed Talk)
11:05 AM	11:25 AM	Adhesion Durability of Coatings on Aluminum Alloys Using the Blister Test
		<i>Drishya Dahal, University of Texas at San Antonio; DAVID RESTREPO, UNIVERSITY OF TEXAS AT SAN ANTONIO; BRENDY RINCON TROCONIS, UNIVERSITY OF TEXAS AT SAN ANTONIO</i>
		Speaker: Drishya Dahal (Contributed Talk)
Session: 1B, Room: Hotel-Eagle		
11:40 AM	12:00 PM	Time Dependent Energy Release Rate for Fracture in Viscoelastic Materials and Interfaces
		<i>Zhanrui Zhang, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin; Kenneth Liechti, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin; Rui Huang, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin</i>

		Speaker: Zhanrui Zhang (Contributed Talk)
12:00 PM	12:20 PM	Creating Tougher Interfaces in Additively Manufactured Multimaterial Polymer Composites
		<i>Denizhan Yavas, Lamar University; Umut Altuntas, Middle East Technical University; Demirkan Coker, Middle East Technical University</i>
		Speaker: Denizhan Yavas (Contributed Talk)
12:20PM	12:40PM	Examining Damage Evolution near Crystalline Amorphous Interface
		<i>Ashraf Bastawros, Iowa State University; Amir Abdelmawla, Iowa State University; Liming Xiong, Iowa State University; Thanh Phan, Iowa State University</i>
		Speaker: Ashraf Bastawros (Contributed Talk)
Session: 2A, Room: Hotel-Eagle		
2:15 PM	2:35 PM	Application of the J-integral and Linear Beam Theories to Single and Double Cantilever Beam Tests to Determine Mode I Interlaminar Fracture Toughness
		<i>Anthony Paris, University of Alaska Anchorage</i>
		Speaker: Anthony Paris (Contributed Talk)
2:35 PM	2:55 PM	Topological Metamaterials with Stress-Focusing Interfaces and Their Potential for Fracture Protection
		<i>Caleb Widstrand, University of Minnesota; Chen Hu, University of Minnesota; Xiaoming Mao, University of Michigan; Joseph Labuz, University of Minnesota; Stefano Gonella, University of Minnesota</i>
		Speaker: Stefano Gonella (Contributed Talk)
2:55 PM	3:15 PM	An experimental study on the delamination behaviour in interleaved composites manufactured using automated tape laying (ATL) method
		<i>Huifang Liu, University of Oxford; Yanhong Chen, Oxford of University; Drew Sommer, University of Oxford; Kai Liu, University of Oxford; Nik Petrinic, University of Oxford</i>
		Speaker: Huifang Liu (Contributed Talk)
3:15 PM	3:35 PM	Atomistic simulation of plastic deformation in nickel bi-crystals containing helium bubbles
		<i>Tung Yan Liu, Texas A&M University; Michael Demkowicz, Texas A&M University</i>
		Speaker: Tung Yan Liu (Contributed Talk)
3:35 PM	3:55 PM	Data Driven Modeling of Interfacial Traction Separation Relations using a Thermodynamically Consistent Neural Network
		<i>Congjie Wei, Dr.; Jiaxin Zhang, Oak Ridge National Laboratory; Kenneth Liechti, University of Texas at Austin; Chenglin Wu, Missouri University of Science and Technology</i>
		Speaker: Chenglin Wu (Contributed Talk)
9.5 Controlling Mechanical Waves with Metamaterials		
Session: 2A, Room: Hotel-Ross I		
2:15 PM	2:45 PM	Enhanced Signal-to-Noise Performance of EP-based Electromechanical Accelerometers

		<i>Tsampikos Kottos, Wave Transport in Complex Systems Lab, Wesleyan University; Rodion Kononchuk, Wave Transport in Complex Systems Lab, Wesleyan University; Fred Ellis, Wesleyan University; Jizhe Cai, Department of Engineering Physics, University of Wisconsin-Madison; Ramathasan Thevamaran, Department of Engineering Physics, University of Wisconsin-Madison</i>
		Speaker: Tsampikos Kottos (Keynote Talk)
2:45 PM	3:05 PM	Nucleation of phase transitions via collisions of elastic vector solitons
		<i>Hiromi Yasuda, University of Pennsylvania; Hang Shu, University of Pennsylvania; Vincent Tournat, Laboratoire d'Acoustique de l'Université du Mans (LAUM); Weijian Jiao, University of Pennsylvania; Jordan Raney, University of Pennsylvania</i>
		Speaker: Hang Shu (Contributed Talk)
3:05 PM	3:25 PM	Phase space analysis of nonlinear wave propagation in a bistable mechanical metamaterial with a defect
		<i>Mohammed Mohammed, University of Nebraska-Lincoln; Piyush Grover, University of Nebraska-Lincoln</i>
		Speaker: Mohammed Mohammed (Contributed Talk)
3:25 PM	3:45 PM	Sensitivity and Uncertainty Quantification Analysis in Metamaterials Using the Hypercomplex-Variable Finite Element Method
		<i>David Restrepo, The University of Texas at San Antonio; Juan David Navarro, The University of Texas at San Antonio; Juan Camilo Velasquez, The University of Texas at San Antonio; Arturo Montoya, The University of Texas at San Antonio; Harry Millwater, The University of Texas at San Antonio</i>
		Speaker: David Restrepo (Contributed Talk)
Session: 2B, Room: Hotel-Ross I		
4:10 PM	4:30 PM	Wave Propagation in Topologically Interlocked Material Systems
		<i>Tanner Ballance, Purdue University; Thomas Siegmund, Purdue University</i>
		Speaker: Tanner Ballance (Contributed Talk)
4:30 PM	4:50 PM	Control of Wave Propagation through Phononic Crystals via Buckling-induced Symmetry Breaking
		<i>Tejas Dethe, Princeton University; Alison Root, Princeton University; Siddhartha Sarkar, University of Michigan, Ann Arbor; Andrej Kosmrlj, Princeton University</i>
		Speaker: Tejas Dethe (Contributed Talk)
4:50 PM	5:10 PM	A Complete Symmetry Guide to Design Cubic Elastic Metamaterials
		<i>Pai Wang, Department of Mechanical Engineering, University of Utah; Kern Christian, Department of Mathematics, University of Utah; Yunya Liu, Department of Mechanical Engineering, University of Utah</i>
		Speaker: Yunya Liu (Contributed Talk)
9.6 High-Strain-Rate Behavior of Heterogeneous Materials		
Session: 1A, Room: Hotel-Ross II		

9:45 AM	10:05 AM	Multi-Angle Imaging Studies of High-Strain-Rate Material Failure During Hypervelocity Impacts
		<i>Matthew Intardonato, Texas A&M University; Gavin Lukasik, Texas A&M University; Jacob Rogers, Texas A&M University; Thomas Lacy Jr., Texas A&M University; Waruna Kulatilaka, Texas A&M University</i>
		Speaker: Matthew Intardonato (Contributed Talk)
10:05 AM	10:25 AM	Investigation of Hypersonic Projectile-Particle Interactions Using Ultra-High-Speed Schlieren Imaging and Particle Tracking
		<i>Gavin Lukasik, Texas A&M University; Jacob Rogers, Texas A&M University; Thomas Lacy Jr., Texas A&M University; Waruna Kulatilaka, Texas A&M University</i>
		Speaker: Gavin Lukasik (Contributed Talk)
10:25 AM	10:45 AM	A Multiresolution Adaptive Wavelet Method for Nonlinear Partial Differential Equations
		<i>Karel Matous, University of Notre Dame; Cale Harnish, University of Notre Dame; Luke Dalessandro, Indiana University</i>
		Speaker: Karel Matous (Contributed Talk)
10:45 AM	11:05 AM	An integrated experimental and numerical study of the rate dependent behaviour of through-thickness reinforcement in Z-pinned CFRP laminates
		<i>Huifang Liu, Oxford of University; Kai Liu, University of Oxford; Drew Sommer, University of Oxford; Yanhong Chen, University of Oxford; Nik Petrinic, University of Oxford</i>
		Speaker: Huifang Liu (Contributed Talk)
11:05 AM	11:25 AM	Determining Mechanical Properties of Metals under Extreme Strains and Strain Rates using Cutting
		<i>Harshit Chawla, Texas A&M University; Hrayr Aprahamian, Texas A&M University; Dinakar Sagapuram, Texas A&M University</i>
		Speaker: Harshit Chawla (Contributed Talk)
Session: 1B, Room: Hotel-Ross II		
11:40 AM	12:00 PM	Grain-subdivision-dominated microstructure evolution in shear bands at high rates
		<i>Kelvin Xie, Texas A&M University</i>
		Speaker: Kelvin Xie (Contributed Talk)
12:00 PM	12:20 PM	Limitations of dynamic indentation to characterize strain-rate sensitivity of materials
		<i>Zahra Ghasemi, Texas A&M University, College Station, TX, USA; Jose Rodríguez-Martínez, University Carlos III of Madrid, Leganés, Madrid, Spain; Tiago dos Santos, Universidade Federal de Santa Maria, Santa Maria, Brazil; Ankit Srivastava, Texas A&M University, College Station, TX, USA</i>
		Speaker: Zahra Ghasemi (Contributed Talk)
12:20 PM	12:40 PM	Effect of free surfaces on dislocation mobility in the transonic regime
		<i>Ta Duong, Texas A&M University; Michael Demkowicz, Texas A&M University</i>

		Speaker: Ta Duong (Contributed Talk)
Session: 2A, Room: Hotel-Ross II		
2:15 PM	2:35 PM	Penalty-Based Coupling for Immersed Air-Blast Fluid--Structure Interaction: A Simple and Effective Solution for Modeling Fracture and Fragmentation
		<i>Yuri Bazilevs, Brown University; Shaunak Shende, Brown University; Masoud Behzadinasab, Brown University</i>
		Speaker: Yuri Bazilevs (Contributed Talk)
2:35 PM	2:55 PM	Effects of particle size and material on the 3D particle scale dynamics of shock compression in granular materials
		<i>Sohanjit Ghosh, Johns Hopkins University; Ryan Hurley, Johns Hopkins University</i>
		Speaker: Sohanjit Ghosh (Contributed Talk)
2:55 PM	3:15 PM	Revealing deformation mechanism of metals under high strain rate at submicron scale
		<i>Yuwei Zhang, Texas A&M University</i>
		Speaker: Yuwei Zhang (Contributed Talk)
3:15 PM	3:35 PM	Equine hoof wall: structure, properties, and bioinspired designs
		<i>Benjamin Lazarus, University of California San Diego; Rachel Luu, University of California San Diego; Samuel Ruiz-Pérez, Universidad Nacional Autónoma de México; Wendell Bezerra, Military Institute of Engineering-IME; Kevin Becerra-Santamaria, Universidad Autónoma de Baja California; Victor Leung, University of California San Diego; Victor Durazo, Universidad de Sonora; Iwona Jasiuk, University of Illinois Urbana-Champaign; Josiane Barbosa, University Center SENAI CIMATEC; Marc Meyers, University of California San Diego</i>
		Speaker: Benjamin Lazarus (Contributed Talk)
3:35 PM	3:55 PM	Recent advances in a 10-node composite tetrahedral element for solid mechanics
		<i>James Foulk III, Sandia National Laboratories</i>
		Speaker: James Foulk III (Invited Talk)
9.7 Micro-to-Macro Mechanics of Heterogeneous Solids and Granular Media		
Session: 1A, Room: Hotel-Reveille II		
9:45 AM	10:05 AM	Effective Toughness of Heterogeneous Materials with Rate-Dependent Fracture Energy
		<i>Gabriele Albertini, Harvard University, University of Nottingham; Mathias Lebihain, Ecole des Ponts ParisTech; François Hild, ENS Paris Saclay; Laurent Ponson, Université Pierre et Marie Curie; David Kammer, ETH Zurich</i>
		Speaker: David Kammer (Invited Talk)
10:05 AM	10:25 AM	Mechanical Response of Self-Assembled Nanoparticle Superlattices

		<i>Somayajulu Dhulipala, Massachusetts Institute of Technology; Daryl Yee, Massachusetts Institute of Technology; Ziran Zhou, California Institute of Technology; Rachel Sun, Massachusetts Institute of Technology; Jose Andrade, California Institute of Technology; Robert Macfarlane, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology</i>
		Speaker: Somayajulu Dhulipala (Invited Talk)
10:25 AM	10:45 AM	FEM-DEM bridging-zone coupling methods
		<i>Manon Voisin-Leprince, École polytechnique fédérale de Lausanne; Joaquin Garcia-Suarez, École Polytechnique Fédérale de Lausanne; Guillaume Anciaux, École polytechnique fédérale de Lausanne; Jean-Francois Molinari, École polytechnique fédérale de Lausanne</i>
		Speaker: Joaquin Garcia-Suarez (Invited Talk)
10:45 AM	11:05 AM	Upscaling Particle-Scale Simulations towards Continuum Modeling of Dense Granular Materials
		<i>Ishan Srivastava, Lawrence Berkeley National Laboratory</i>
		Speaker: Ishan Srivastava (Invited Talk)
11:05 AM	11:25 AM	Modeling Failure of Heterogenous Brittle Solids using an Interaction-Informed Anisotropic Damage Model
		<i>Sakshi Braroo, Johns Hopkins University; Kalia Ramesh, Johns Hopkins University</i>
		Speaker: Sakshi Braroo (Contributed Talk)
Session: 1B, Room: Hotel-Reveille II		
11:40 AM	12:00 PM	Smallest Feasible Statistical Volume Elements for Ductile Fracture of Metals with Non-Periodic Particle Morphology
		<i>Caleb Foster, Texas A&M University; Angela Olinger, Texas A&M University; Isabella Mihalic, Texas A&M University; Justin Wilkerson, Texas A&M University</i>
		Speaker: Caleb Foster (Contributed Talk)
12:00 PM	12:20 PM	Crack Band Model Generalized to Propagate without Directional Bias
		<i>Yupeng Zhang, Northwestern University; Hoang Nguyen, Northwestern University; Zdeněk Bažant, Northwestern University</i>
		Speaker: Yupeng Zhang (Contributed Talk)
12:20 PM	12:40 PM	Micro-to-Macro Mechanical Modeling of Corrosion-Induced Cracking
		<i>David Kammer, ETH Zurich; Mohit Pundir, ETH Zurich; Ueli Angst, ETH Zurich</i>
		Speaker: David Kammer (Contributed Talk)
Session: 2A, Room: Hotel-Reveille II		
2:15 PM	2:35 PM	Experimental and computational investigations of dynamic failure processes in glass-ceramics
		<i>Liuchi Li, Johns Hopkins University</i>
		Speaker: Liuchi Li (Contributed Talk)

2:35 PM	2:55 PM	A multisurface theory of porous material plasticity
		<i>Vigneshwaran Radhakrishnan, Texas A&M university; Amine Benzerga, Texas A&M university</i>
		Speaker: Vigneshwaran Radhakrishnan (Contributed Talk)
2:55 PM	3:15 PM	A Microvoid Coalescence Criterion Accounting for Strain Hardening
		<i>Sahil Wajid, PhD student at Texas A&M University (Department of Aerospace Engineering); Amine Benzerga, Professor, Department of Aerospace Engineering, Texas A&M University, Professor, Department of Materials Science & Engineering, Texas A&M University; Jean-Baptiste Leblond, Professor, Institut Jean Le Rond d'Alembert, Sorbonne Universités, Université Pierre-et-Marie-Curie (UPMC)</i>
		Speaker: Sahil Wajid (Contributed Talk)
3:15 PM	3:35 PM	Granular micromechanics approach inspired (meta)material design
		<i>Anil Misra, University of Kansas</i>
		Speaker: Anil Misra (Invited Talk)
Session: 2B, Room: Hotel-Reveille II		
4:10 PM	4:30 PM	Engineered, “architected” granular materials
		<i>Francois Barthelat, University of Colorado Boulder</i>
		Speaker: Francois Barthelat (Contributed Talk)
4:30 PM	4:50 PM	Chiral Behavior of Topologically Interlocked Material Systems
		<i>Dong-Young Kim, Purdue University; Thomas Siegmund, Purdue University</i>
		Speaker: Dong-Young Kim (Contributed Talk)
9.10 Multiscale Modeling of Phase Transitions, Dislocations, and Twinning in Materials		
Session: 1B, Room: Hotel-Corps I		
11:40 AM	12:00 PM	Non-Equilibrium Evolution of Metastable Grain Boundaries in Nanocrystals at Extreme Conditions
		<i>Yue Fan, University of Michigan, Ann Arbor</i>
		Speaker: Yue Fan (Invited Talk)
12:00 PM	12:20 PM	Investigation of avalanche phenomena by simultaneous measurements of different variables
		<i>Noam Zreihan, Technion, Israel Institute of Technology; Eilon Faran, Technion - Israel Institute of Technology; Emil Bronstein, Technion - Israel Institute of Technology; Eduard Vives, University of Barcelona; Antoni Planes, University of Barcelona; Doron Shilo, Technion - Israel Institute of Technology</i>
		Speaker: Doron Shilo (Contributed Talk)
12:20 PM	12:40 PM	Light-Induced Microstructure Evolution in Inorganic Semiconductors: Dislocation vs. Deformation Twinning
		<i>Qi An, Iowa State University</i>
		Speaker: Qi An (Invited Talk)

Session: 2A, Room: Hotel-Corps I		
2:15 PM	2:45 PM	Plasticity and Plastic Strain-Induced Phase Transformations under High Pressure: Four-Scale Theories, In-Situ Experiments, and Phenomena
		<i>Valery Levitas, Iowa State University, Departments of Aerospace Engineering and Mechanical Engineering, Ames, IA, USA</i>
		Speaker: Valery Levitas (Keynote Talk)
2:45 PM	3:15 PM	Multiscale Modeling of Al-alloys
		<i>William Curtin, Ecole Polytechnique Federale de Lausanne</i>
		Speaker: William Curtin (Keynote Talk)
3:15 PM	3:35 PM	Modeling Plasticity Contributions from Dislocation Slip, Twinning, and Phase Transformation Behavior in metals at the Mesoscales
		<i>Avinash Dongare, University of Connecticut; Avinash Mishra, University of Connecticut; Ke Ma, University of Connecticut; Marco Marco Echeverria, University of Connecticut</i>
		Speaker: Avinash Dongare (Invited Talk)
3:35 PM	3:55 PM	Micromechanics of Damage during Ductile Fracture of Structural Metals
		<i>Qian Qian Zhao, Rutgers University; Yating Fang, Rutgers University; Ahmed Aziz Ezzat, Rutgers University; Ryan Sills, Rutgers University</i>
		Speaker: Ryan Sills (Invited Talk)
Session: 2B, Room: Hotel-Corps I		
4:10 PM	4:30 PM	Transformation-mediated twin nucleation in hexagonal close-packed metals
		<i>Lei Cao, University of Nevada, Reno</i>
		Speaker: Lei Cao (Invited Talk)
4:30 PM	4:50 PM	Unraveling mechanistic competition during deformation of CoCrNi Medium Entropy Alloys from nanoscale strain accommodation
		<i>Ankit Gupta, Department of Mechanical Engineering, Colorado School of Mines; Wurong Jian, Department of Mechanical Engineering, Stanford University; ShuoZhi Xu, School of Aerospace and Mechanical Engineering, University of Oklahoma; Irene Beyerlein, Department of Mechanical Engineering, Materials Department, University of California at Santa Barbara; Garritt Tucker, Department of Mechanical Engineering, Colorado School of Mines</i>
		Speaker: Garritt J. Tucker (Invited Talk)
4:50 PM	5:10 PM	Role of point and line defects in dislocation-starved cavitation failure
		<i>Justin Wilkerson, Texas A&M; Sara Adibi, Mississippi State University</i>
		Speaker: Justin Wilkerson (Invited Talk)
9.14 Thermodynamics, Kinetics and Mechanical Behaviors of Metallic Glasses and High Entropy Alloys		

Session: 1B, Room: Hotel-Corps II		
11:40 AM	12:00 PM	Dislocation Motions in Refractory High-entropy alloys and Effects of Chemical Order and Disorder
		<i>Xinyi Wang, University of California, Irvine; Francesco Maresca, Engineering and Technology Institute Groningen, Faculty of Science and Engineering, University of Groningen, 9747 AG Groningen, The Netherlands; Penghui Cao, Department of Mechanical and Aerospace, University of California, Irvine, Irvine, CA, 92697, USA.</i>
		Speaker: Xinyi Wang (Contributed Talk)
12:00 PM	12:20 PM	Nanoscale Precipitation Strengthening Mechanisms in CoCrNi-based Medium Entropy Alloys
		<i>Ning Zhang, University of Alabama; Rajesh Ramesh, The University of Alabama</i>
		Speaker: Ning Zhang (Contributed Talk)
12:20 PM	12:40 PM	Modeling Non-Schmid effect in High Entropy Alloys: A combined Molecular Dynamics and Phase Field Dislocation Dynamics study
		<i>Nithin Mathew, Los Alamos National Laboratory; Hyojung Kim, Los Alamos National Laboratory; Darby Luscher, Los Alamos National Laboratory; Abigail Hunter, Los Alamos National Laboratory</i>
		Speaker: Nithin Mathew (Contributed Talk)
Session: 2A, Room: Hotel-Corps II		
2:15 PM	2:35 PM	Deformation Behavior of Medium and High Entropy Alloys
		<i>Sezer Picak, Department of Materials Science & Engineering, Texas A&M University, College Station, TX 77843, USA, Department of Mechanical Engineering, Texas A&M University, College Station, TX 77843, USA; Daniel Salas, Department of Materials Science & Engineering, Texas A&M University, College Station, TX 77843, USA; Matheus Tunes, Material Science and Technology Division, Los Alamos National Laboratory, New Mexico 87545, USA; Ibrahim Karaman, Department of Materials Science & Engineering, Texas A&M University, College Station, TX 77843, USA</i>
		Speaker: Ibrahim Karaman (Invited Talk)
2:35 PM	2:55 PM	Promoting Disorder in Structural Materials to Influence Defect-Property Relationships
		<i>Daniel Gianola, University of California Santa Barbara</i>
		Speaker: Daniel Gianola (Invited Talk)
2:55 PM	3:15 PM	Controlling routes to amorphization for optimization of thermomechanical properties of materials
		<i>Izabela Szlufarska, University of Wisconsin - Madison; Vrishank Jambur, University of Wisconsin - Madison; Paul Voyles, University of Wisconsin - Madison; Chengrong Cao, University of Wisconsin - Madison</i>
		Speaker: Izabela Szlufarska (Invited Talk)
3:15 PM	3:35 PM	The role of short-range order on diffusion and deformation mechanisms in multi-principal element alloys

		<i>Penghui Cao, University of California Irvine</i>
		Speaker: Penghui Cao (Invited Talk)
3:35 PM	3:55 PM	In-situ 4D-STEM imaging of the synergistic deformation mechanisms responsible for the fracture resistance in CrCoNi
		<i>Yang Yang, The Pennsylvania State University; Sheng Yin, Lawrence Berkeley National Laboratory; Qin Yu, Lawrence Berkeley National Laboratory; Colin Ophus, Lawrence Berkeley National Laboratory; Mark Asta, Lawrence Berkeley National Laboratory; Robert Ritchie, Lawrence Berkeley National Laboratory; Andrew Minor, Lawrence Berkeley National Laboratory</i>
		Speaker: Yang Yang (Invited Talk)
Session: 2B, Room: Hotel-Corps II		
4:10 PM	4:30 PM	Deformation Mechanisms in Fluctuating Energy Landscapes
		<i>Matthew Daly, University of Illinois at Chicago</i>
		Speaker: Matthew Daly (Invited Talk)
4:30 PM	4:50 PM	Quantification and Characterization of Disorder in Compositionally Complex Alloys
		<i>Michael Falk, Johns Hopkins University</i>
		Speaker: Michael Falk (Invited Talk)
Thematic Area 10. Special Symposia		
10.1 Experimental & Theoretical Micro & Nano-Mechanics: Honoring Contributions Prof. Kyung-Suk Kim		
Session: 1A, Room: MSC-2406B		
9:45 AM	10:05 AM	Mechanics of Plasma-Surface Interactions
		<i>Huck Beng Chew, University of Illinois at Urbana-Champaign</i>
		Speaker: Huck Beng Chew (Invited Talk)
10:05 AM	10:25 AM	Inertial Cavitation in Soft Matter – Part 1: Ultra-high Strain-rate Material Characterization, Dynamic Instabilities, and Full-field Deformation Measurements
		<i>Jin Yang, University of Wisconsin-Madison; Alexander McGhee, University of Wisconsin-Madison; David Henann, Brown University; Christian Franck, University of Wisconsin-Madison</i>
		Speaker: Christian Franck (Invited Talk)
10:25 AM	10:45 AM	Inertial Cavitation in Soft Matter — Part 2: Modeling of bubble dynamics
		<i>Anastasia Tzoumaka, Brown University; Jin Yang, University of Wisconsin-Madison; Christian Franck, University of Wisconsin-Madison; David Henann, Brown University</i>
		Speaker: David Henann (Invited Talk)
10:45 AM	11:05 AM	Why do surgeons sleep better with plasticity in their knots?

		<i>Paul Johanns, École Polytechnique Fédérale de Lausanne (EPFL) Switzerland; Changyeob Baek, Department of Applied Mathematics, Harvard University, USA; Paul Grandgeorge, Materials Science & Engineering Department, University of Washington, USA; Shawn Chester, Mechanical & Industrial Engineering Department, New Jersey Institute of Technology, USA; Samia Guerid, Hirslanden Clinique Cecil, Lausanne, Switzerland; Pedro Reis, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland</i>
		Speaker: Pedro Reis (Invited Talk)
11:05 AM	11:25 AM	From Ruga Mechanics to Ruga Robots
		<i>Renee Zhao, Stanford University</i>
		Speaker: Renee Zhao (Invited Talk)
Session: 1B, Room: MSC-2406B		
11:40 AM	12:00 PM	Role of Elasticity in Regulating Liquid-Liquid Phase Separation in Cells
		<i>Mrityunjay Kothari, Department of Mechanical Engineering, University of New Hampshire, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology; Tal Cohen, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology</i>
		Speaker: Mrityunjay Kothari (Invited Talk)
12:00 PM	12:20 PM	Hydrogen Embrittlement in Steels and High Entropy Alloys
		<i>William Curtin, Ecole Polytechnique Federale de Lausanne</i>
		Speaker: William Curtin (Invited Talk)
12:20 PM	12:40 PM	In-situ Experimental Observations on Elastomers: Cavitation, Fracture Nucleation and Propagation
		<i>Jinlong Guo, University of Texas at Austin; Krishnaswamy Ravi-Chandar, University of Texas at Austin</i>
		Speaker: Krishnaswamy Ravi-Chandar (Invited Talk)
Session: 2A, Room: MSC-2406B		
2:15 PM	2:35 PM	Are Configurational Forces Real Forces?
		<i>Roberto Ballarini, University of Houston</i>
		Speaker: Roberto Ballarini (Invited Talk)
2:35 PM	2:55 PM	Identification of Power-Law Creep Parameters from Conical Indentation
		<i>Yupeng Zhang, Northwestern University; Alan Needleman, Texas A&M</i>
		Speaker: Alan Needleman (Invited Talk)
2:55 PM	3:15 PM	Dislocation mechanics is molecular versus monatomic crystals: the role of molecular flexibility
		<i>Catalin Picu, Rensselaer Polytechnic Institute</i>
		Speaker: Catalin Picu (Invited Talk)
3:15 PM	3:35 PM	Characterizing Pressure-Dependent Shear Modulus of Phase Transformed Iron
		<i>Vatsa Gandhi, California Institute of Technology; Guruswami Ravichandran, California Institute of Technology</i>

		Speaker: Vatsa Gandhi (Invited Talk)
3:35 PM	3:55 PM	Correlation of the Microstructure and Nanomechanical Properties of Additively Manufactured Metals for Aerospace Applications
		<i>Allen Kim, University of Washington; Lily Vu, University of Washington; Junlan Wang, University of Washington</i>
		Speaker: Junlan Wang (Invited Talk)
Session: 2B, Room: MSC-2406B		
4:10 PM	4:30 PM	Multi-Objective Parametrization of Interatomic Potentials for Large Deformation Pathways and Fracture of Two-Dimensional Materials
		<i>Horacio Espinosa, Northwestern University; Xu Zhang, Northwestern University; Hoang Nguyen, Northwestern University; Mohamed Ali, Northwestern University</i>
		Speaker: Horacio Espinosa (Invited Talk)
4:30 PM	4:50 PM	Theory of controlled fragmentation in cold drawing: towards a mechanics-based technological platform for large-scale manufacturing of structures at the micro- and nanoscale
		<i>Huajian Gao, Nanyang Technological University, Institute of High Performance Computing</i>
		Speaker: Huajian Gao (Invited Talk)
10.2 A Celebration of Peridynamics: Honoring the contributions of Dr. Stewart Silling		
Session: 1A, Room: MSC-2501		
9:45 AM	10:05 AM	Crack kinking in isotropic and orthotropic micropolar peridynamic solids
		<i>Roberto Ballarini, University of Houston</i>
		Speaker: Roberto Ballarini (Invited Talk)
10:05 AM	10:25 AM	Peridynamics: the Nebraska Perspective
		<i>Florin Bobaru, University of Nebraska-Lincoln</i>
		Speaker: Florin Bobaru (Invited Talk)
10:25 AM	10:55 AM	Peridynamics as a Discretization: From Concrete Fracture to Thin Shells
		<i>Yuri Bazilevs, Brown University; Masoud Behzadinasab, Brown University; John Foster, University of Texas at Austin; Mert Alaydin, Brown University</i>
		Speaker: Yuri Bazilevs (Keynote Talk)
10:55 AM	11:25 AM	Modeling Powder Compaction with Peridynamics
		<i>Stewart Silling, Sandia National Laboratories</i>
		Speaker: Stewart Silling (Keynote Talk)
Session: 1B, Room: MSC-2501		
11:40 AM	12:00 PM	A rigorous numerical approach for studying wave reflection in bi-material system
		<i>Xingjie Li, University of North Carolina Charlotte; Pablo Seleson, Oak Ridge National Laboratory</i>

		Speaker: xingjie Li (Invited Talk)
12:00 PM	12:20 PM	Four Mutual Properties of Classical and Nonlocal Wave Equations
		<i>Burak Aksoylu, Texas A&M University-San Antonio</i>
		Speaker: Burak Aksoylu (Invited Talk)
12:20 PM	12:40 PM	Direct Coupling of Dual Horizon Peridynamics and Finite Element Method in ANSYS Framework
		<i>Sundaram Anicode, University of Arizona; Erdogan Madenci, University of Arizona</i>
		Speaker: Erdogan Madenci (Invited Talk)
Session: 2A, Room: MSC-2501		
2:15 PM	2:45 PM	A method to reduce the surface effect and to impose in a local way the BC in Peridynamics models
		<i>Ugo Galvanetto, University of Padua; Francesco Scabbia, University of Padua; Mirco Zaccariotto, University of Padua</i>
		Speaker: Ugo Galvanetto (Keynote Talk)
2:45 PM	3:05 PM	A Comparison Study on Peridynamic Bond-Associated Correspondence Material Models
		<i>Hailong Chen, University of Kentucky; WaiLam Chan, University of Kentucky</i>
		Speaker: Hailong Chen (Invited Talk)
3:05 PM	3:25 PM	PERIDYNAMICS FOR QUASISTATIC FRACTURE MODELING
		<i>Robert Lipton, Louisiana State University; Debdeep Bhattacharya, Louisiana State University; Patrick Diehl, Louisiana State University</i>
		Speaker: Robert Lipton (Invited Talk)
3:25 PM	3:45 PM	Analysis of a nonlocal equation with variable horizon subject to local boundary condition
		<i>Tadele Mengesha, University of Tennessee Knoxville</i>
		Speaker: Tadele Mengesha (Invited Talk)