2023 SOCIETY OF ENGINEERING SCIENCE

ANNUAL TECHNICAL MEETING

OCT. 9 – 11, 2023

Hosted By University of Minnesota

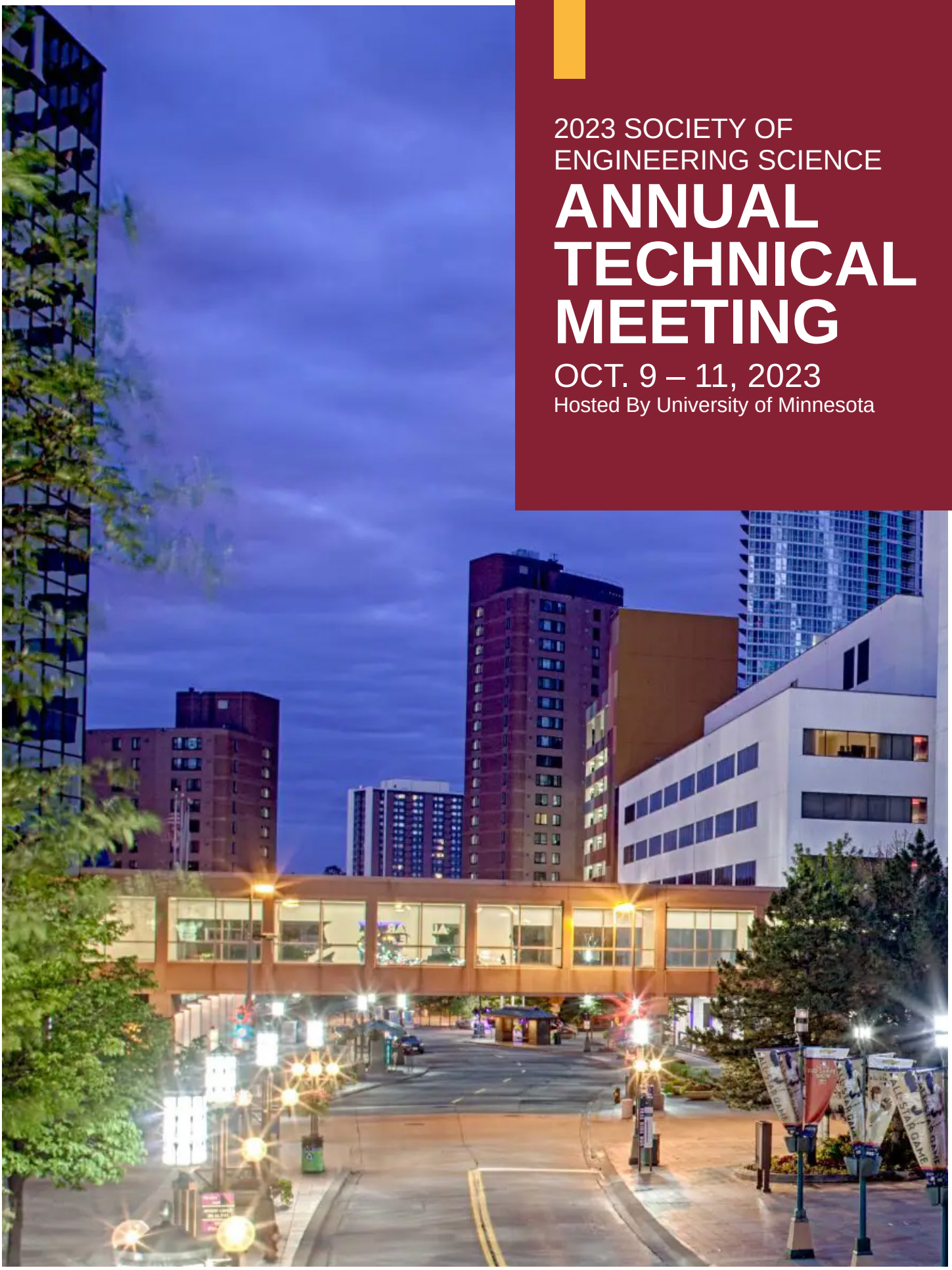


TABLE OF CONTENTS

PROGRAM OVERVIEW

Sunday, Oct. 8, 2023

4:00 – 7:00 pm	Early Registration Open (4th Floor)

Monday, Oct. 9, 2023

All Day – Registration Open (4th Floor)

7:30 – 8:00 am	Morning Coffee (Great Lakes Promenade)
8:00 – 8:15 am	Welcome Message (Great Lakes Ballroom)
8:15 – 9:15 am	Prager Medal Plenary Lecture (Great Lakes Ballroom)
9:15 – 9:30 am	Break
9:30 – 11:10 am	Technical Sessions (Various)
11:10 – 11:25 am	Break
11:25 – 1:05 pm	Technical Sessions (Various)
1:05 – 2:30 pm	Lunch (Great Lakes Ballroom)
2:30 – 4:10 pm	Technical Sessions (Various)
4:10 – 4:25 pm	Break
4:25 – 6:05 pm	Technical Sessions (Various)
6:15 – 8:15 pm	Poster Presentation & Reception (Northstar Ballroom)

Tuesday, Oct. 10, 2023

All day – Registration (4th Floor)

7:30 – 8:15 am	Morning Coffee (Great Lakes Promenade)
8:15 – 9:15 am	Taylor Medal Plenary Lecture (Great Lakes Ballroom)
9:15 – 9:30 am	Break
9:30 – 11:10 am	Technical Sessions (Various)
11:10 – 11:25 am	Break
11:25 AM – 1:05 pm	Technical Sessions (Various)
1:05 – 2:30 pm	Lunch (Great Lakes Ballroom)
2:30 – 4:10 pm	Technical Sessions (Various)
4:10 – 4:25 pm	Break
4:25 – 6:05 pm	Technical Sessions (Various)
6:15 – 7:00 pm	Cocktail Hour (Great Lakes Promenade)
7:00 – 9:00 pm	Awards Banquet (Great Lakes Ballroom)

Wednesday, Oct. 11, 2023

Morning – Registration (4th Floor)

7:30 – 8:15 am	Morning Coffee (Great Lakes Promenade)
8:15 – 9:15 am	Eringen Medal Plenary Lecture (Great Lakes Ballroom)
9:15 – 9:30 am	Break
9:30 – 11:10 am	Technical Sessions (Various)
11:10 – 11:25 am	Break
11:25 am – 1:05 pm	Technical Sessions (Various)
1:05 – 2:05 pm	Lunch (Grab & Go) (Great Lakes Ballroom)
2:05 – 3:45 pm	Technical Sessions (Various)
3:45 – 4:00 pm	Break
4:00 – 5:40 pm	Technical Sessions (Various)

2023 SES Medalists

William Prager Medalist

Professor Norman Fleck (Cambridge University)

For seminal combined theoretical and experimental contributions to micro-architectured materials, composites, ferroelectrics, and strain gradient plasticity with important engineering implications to aero-engines, defense and ship-building.

G. I. Taylor Medalist

Professor Julio Ottino (Northwestern University)

For pioneering theoretical and experimental contributions to the fluid mechanics of mixing.

A. C. Eringen Medalist

Professor Glaucio Paulino (Princeton University)

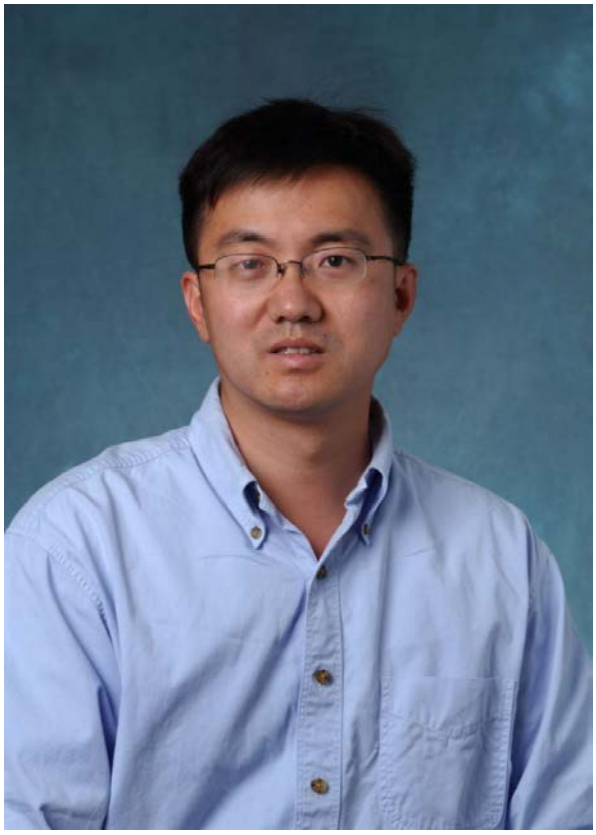
For sustained outstanding contributions in geometric mechanics associated with origami and tensegrity engineering, which led to the creation of multifunctional structures and configurational metamaterials with unprecedented properties.

Engineering Science Medalist

Professor Pradeep Sharma (University of Houston)

For theoretical developments in flexoelectricity, leading to the design of novel multifunctional materials and explanation of natural phenomena.

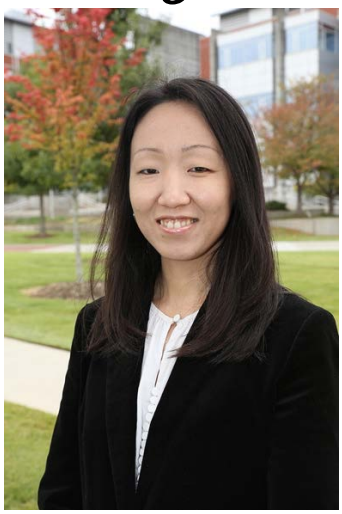
James R. Rice Medalist



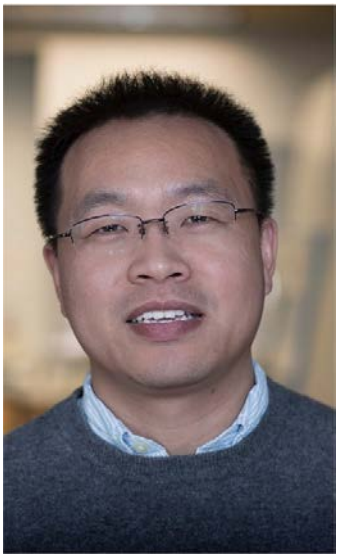
Professor H. Jerry Qi (Georgia Institute of Technology)

For pioneering understanding of mechanical and multiphysical behavior of soft active materials, developing novel applications for these materials in recycling and 4D printing.

Young Investigator Medalists



Professor Yuhang Hu (Georgia Institute of Technology)
For the study of chemomechanics of soft active materials, an interdisciplinary field between mechanics and polymer chemistry, covering fundamental science toward new materials design, integrating experiments and theory.



Professor Baoxing Xu (University of Virginia)
For outstanding contributions to multiphysics mechanics of materials and associated unusual engineering design and nanomanufacturing of heterogeneous structures, soft-hard integrated materials, and transferred film structures.

Monday, October 9

Prager Lecture

Multi-material lattices: are they worth the effort?

Norman A Fleck
Cambridge University

8:15 – 9:15 am
Great Lakes Ballroom

Lattices materials range from open and closed cell foams across a wide range of length scale to micro-architectured, multi-phase solids that are manufactured by additive manufacture. Size effects are important too: lattices with struts of small diameter are subjected to high gradients of strain in bending and are consequently have a higher material strength than large scale lattices. The focus of this talk is on the effect of filling of a 2D hexagonal lattice or a 3D Kelvin lattice upon their macroscopic stress versus strain responses. To first order, the presence of an incompressible in-fill reduces the degrees of freedom by which the lattice can deform. Consequently, the deformation mode of the lattice can switch from bending-dominated to stretching dominated with a large concomitant elevation to stiffness and strength. Instabilities can develop, and cavitation plays a major role.

Bio of the speaker:

Norman Fleck is Professor of Mechanics of Materials (since 1997), and Director of the Cambridge Centre for Micromechanics (1990) at Cambridge University Engineering Department. He was Head of the Mechanics, Materials and Design Division of the Cambridge University Engineering Department 1996-2008. He conducted a PhD in metal fatigue at Cambridge University (1980-1984), followed by post-doctoral research at Cambridge University and at Harvard University, USA with John Hutchinson and Bernard Budiansky. He is a leader in the experimental and theoretical mechanics of engineering materials. He has been elected to several learned Societies (Fellow of the London Royal Society, Fellow of the Royal Academy of Engineering, US National Academy of Engineering, European Mechanics Society, Academia Europea and the European Academy of Sciences). He is the currently President of IUTAM.

Tuesday, October 10

Taylor Lecture

The Art of Mixing with an Admixture of Art: From Stretching and Folding to Cutting and Shuffling: Origins, Connections, and Possible Lessons

Julio M. Ottino
Northwestern University

8:15 – 9:15 am
Great Lakes Ballroom

Being honored with the GI Taylor Medal offers an opportunity to reflect on one's work. Not surprisingly, how the ideas emerged and how the pieces fit together becomes clear upon reflection. But, more humblingly, how the crystalized ideas may have emerged earlier becomes clear as well. That a continuum is connected, and that deformation of matter can be captured by one-to-one mappings, gave rise to the lamellar model and with it, the centrality of stretching to mixing. The critical missing piece, folding, came via the Smale horseshoe map, opening mixing to the world of nonlinear dynamics and chaos. Though contemporaries, Osborne Reynolds and Henri Poincaré never met. Had they been aware of each other's work, the connection mixing-chaos could have happened much sooner.

With the chaotic fabric established, work followed to capture the various audiences associated with practical aspects of mixing: geometries and types of fluids, processes involving breakup, fragmentation, aggregation, chemical reactions, and more. Geometric thinking, in a model of avalanche mixing, provided an entry to the world of granular materials, and with it, the wonderfully intertwined processes of mixing and unmixing. Relaxing the restriction of one-to-one mappings expanded the landscape from stretching and folding to cutting and shuffling. This has taken us into one of the fine strands of today's math world: piece-wise isometries. A new world of possibilities opened in front of us.

Somewhat surprisingly, given its complexity, mixing of granular matter became the closest the terms of reduction to practice. In 2001 article I said "…many of the necessary building blocks for understanding of industrial systems are already here. However, there is still a mismatch between basic and research needs. This is not likely to be bridged: Basic research is divergent and long-term, whereas technological needs are convergent and tied to deadlines." Sometimes it is good to have been wrong.

Bio of the speaker:

Julio M. Ottino is Distinguished McCormick Institute Professor and Walter P. Murphy Professor of Chemical and Biological Engineering, professor (by courtesy) of mechanical engineering, and former dean of the McCormick School of Engineering and Applied Science at Northwestern. He received his Ph.D. at the University of Minnesota, his undergraduate degree from the University of Plata in Argentina, and had previously held positions at UMass Amherst, as well as chaired and senior appointments at Caltech, Stanford, and Minnesota. His work on fluid mixing, granular dynamics, and complex systems has impacted a wide range of fields in physical and geophysical sciences, engineering, and nonlinear dynamics. Ottino is member of the National Academy of Engineering, the National Academy of Sciences, and the American Academy of Arts and Sciences. He is an American Physical Society (APS) Fellow, a Guggenheim Fellow, and the recipient of the APS Fluid Dynamics Prize. Within the American Institute of Chemical Engineers AIChE), he is the recipient of the Alpha Chi Sigma Award, the W.H. Walker Award, and its Founders Award. AIChE identified Ottino as one of the “100 Engineers of the Modern Era” and selected him to deliver its Institute Lecture.

Wednesday, October 11

Eringen Lecture
Origami

Glaucio H. Paulino
Princeton University

8:15 – 9:15 am
Great Lakes Ballroom

We study the geometric mechanics of origami assemblages and investigate how geometry affects behavior and properties. Understanding origami from a structural standpoint allows for conceptualizing and designing feasible applications across scales and disciplines of engineering. We review the basic mathematical rules of origami and use 3D-printed origami legos to illustrate those concepts. We then present a reduced-order-model, which consists of an improved bar-and-hinge model, to simulate origami assemblages. We explore the stiffness of tubular origami and kirigami structures based on the Miura-ori folding pattern. A unique orientation for zipper coupling of rigidly foldable origami tubes substantially increases stiffness in higher order modes and permits only one flexible motion through which the structure can deploy. We couple compatible origami tubes into a variety of cellular assemblages that enhances mechanical characteristics and geometric versatility, leading to the design of structures and configurational metamaterials that can be deployed, stiffened, and tuned. We have designed, fabricated (using DLW, direct laser writing), and tested (in-situ SEM) this metamaterial at the micron-scale. This resulted not only in the smallest scale origami assembly, but also in a metamaterial with intriguing mechanical properties, such as anisotropy, reversible auxeticity, and large degree of shape recoverability. The presentation concludes with a vision toward the field of origami engineering, including origami robots with distributed actuation, allowing for on-the-fly programmability, and other interdisciplinary applications.

Bio of the speaker:

Professor Paulino is the Margareta E. Augustine Professor of Engineering at Princeton University. His seminal contributions in the area of computational mechanics include the development of methodologies to characterize the deformation and fracture behavior of existing and emerging materials; topology optimization for large-scale multiscale/multiphysics problems; variational methods; deployable and adaptable structures; and origami engineering. He is a fellow of ASME, EMI, AAM, USACM and IACM, and SES. Recently (past 3 years), he received Daniel C. Drucker Medal of ASME (2020), the Raymond D. Mindlin Medal of ASCE (2020), the Reddy Medal from Mechanics of Advanced Materials and Structures (MAMS 2020). He also received the 2015 Cozzarelli Prize from the National Academy of Sciences, “which recognizes recently published PNAS papers of outstanding scientific excellence and originality.” He is a member of the US National Academy of Engineering (NAE), and a former President of SES. More information about his research and professional activities can be found at the following link: http://paulino.princeton.edu/

Rice Medalist Lecture

Mechanics in 3D/4D Printing

H. Jerry Qi

George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, USA

9:30 – 10:10 am
Lake Superior B

3D printing (additive manufacturing, AM) where materials are deposited in a layer-by-layer manner to form a 3D solid has seen significant advances in recent decades. 3D printing also involves complex multiphysics processes where the properties of the printed material undergo rapid physical and chemical changes. The recent merge of 3D printing with active materials has led to the emergence of a new field of 4D printing. This talk presents our efforts in integrating the mechanics of soft active materials and 3D printing to push the boundary of 4D printing. These efforts are also promoted by the understanding of multiphysics and mechanics in 3D printing process. We start with a brief introduction of our initial work on using the shape memory effects of 3D printed polymers to create active composites, which are further used to generate shape morphing structures. We then discuss several mechanisms using curing-induced stresses for 4D printing. We also present a multiphysics modeling framework to consider the evolution of mechanical properties of photopolymers during 3D printing. Such a modeling framework has been used to establish strategies to reduce shape distortion and to improve the accuracy in 3D printing. We further introduce our recent efforts in developing multimaterial 3D printing methods. Finally, the challenges and opportunities in 3D/4D printing will be discussed.

Young Investigator Medalist Lectures

The Interplay Between Mechanics and Chemistry in Living Polymers

Yuhang Hu[a,b]
[a] George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, USA
[b] School of Chemical and Biomolecular Engineering, Georgia Institute of Technology, USA

10:10 – 10:40 am
Lake Superior B

A salient feature of living materials is their ability to grow and evolve their structures with time. As a vital adaptation, some organisms, such as Planaria, would not only increase in size, but also shrink and reverse the growth to preserve only the parts necessary to survive in nutrient-deficient environments. In contrast, synthetic objects formed through milling, molding, assembling, printing, extruding, etc., display fixed sizes and properties. While various methods have been developed to create new dynamic constructs that change size, shape, and physical properties in response to stimuli, these materials ultimately return to their initial size and shape after reconfiguration, and their properties cannot be post-modulated after fabrication. In this talk, I will discuss our most recent work in developing a new class of "growing" materials with the ability to controllably increase/decrease in mass and size, change multiple physical and chemical properties on-demand, and decompose when needed, mimicking the remarkable abilities of living organisms. Such living polymers are realized by introducing two essential biological mechanisms into the realm of synthetic materials: (1) nonequilibrium dynamic growth and (2) an osmotically driven "nutrient" supply and incorporation mechanism to support the growth. The performance of the system is orchestrated by a series of coordinated reactions, diffusion, deformation, and network remodeling. Through integrated theoretical modeling, experimental characterization and polymer synthesis, we decipher the coupled chemo-mechanical growth mechanism and explore the guiding rules toward accurate control in these materials.

Young Investigator Medalist Lectures

Mechanics-driven Extreme Manufacturing (MEM)

Baoxing Xu
Department of Mechanical and Aerospace Engineering, University of Virginia, USA.

10:40 – 11:10 am
Lake Superior B

Over the last few decades, manufacturing has evolved radically from its earliest forms, as labor-intensive exercise in craftsmanship, to a fully automated, information-rich digital process. This accelerating trend will continue to transform the means for creating products across length scales, from the mega-scale (e.g. buildings and bridges) to human-scale (e.g. furniture and cars) to the micro/nanoscale (e.g. integrated circuits and biomedical sensors). Meanwhile, the ever-growing demands of multifunctional structures in well-defined, often three-dimensional, layouts, together with the rapid emergence of new materials, will further call for innovative strategies and approaches to manufacturing with precisely-controlled, environmentally sustainable processes at low cost. At the root of manufacturing, its elementary steps rely critically on material/structural deformation and assembly, underpinned by mechanics. Understanding and utilizing principles of mechanics will not only lead to refinements of existing manufacturing techniques, but will also enable explorations of entirely new ones. In this talk, I will present several unusual manufacturing strategies, all driven by mechanics of solids with strong couplings to liquid environments and stimuli means, termed as mechanics-driven extreme manufacturing (MEM), where the adjective “extreme” aims to highlight a central, driving role of mechanics in the origins of these strategies. I will talk about the establishments of mechanics theories and their leading guidance to drive explorations of manufacturing approaches in detail and will also demonstrate their applications in manufacturing functional structures and electronics in a broad variety of materials and environments.

SPECIAL EVENTS

Monday, October 9, 2023
MORNING COFFEE | 7:30 – 8:00 am
Great Lakes Promenade - 4th Floor

WELCOME MESSAGE | 8:00 – 8:15 am
Great Lakes Ballroom - 4th Floor

PRAGER MEDAL PLENARY LECTURE | 8:15 – 9:15 am
Great Lakes Ballroom - 4th Floor

LUNCH | 1:05 – 2:30 pm
Great Lakes Ballroom

POSTER PRESENTATION AND RECEPTION | 6:15 – 8:15 pm
Northstar – 2nd Floor
The poster presentation session will be complemented with a reception and exhibitions. The poster presenters will have the opportunity to win “Outstanding Poster Presentation Awards.” All poster submissions are eligible for the poster competition. The posters will be judged per (technical) thematic area and the number of outstanding poster presentation awards per thematic area will depend on the number of posters in that thematic area.

Tuesday, October 10, 2023
MORNING COFFEE | 7:30 – 8:15 am
Great Lakes Promenade - 4th Floor

TAYLOR MEDAL PLENARY LECTURE | 8:15 – 9:15 am
Great Lakes Ballroom - 4th Floor

LUNCH | 1:05 – 2:30 pm
Great Lakes Ballroom

COCKTAIL HOUR | 6:15 – 7:00 PM
Great Lakes Promenade - 4th Floor

AWARDS BANQUET | 7:00 – 9:00 pm
Great Lakes Ballroom - 4th Floor

Wednesday, October 11, 2023
MORNING COFFEE | 7:30 – 8:15 am
Great Lakes Promenade - 4th Floor

ERINGEN MEDAL PLENARY LECTURE | 8:15 – 9:10 am
Great Lakes Ballroom - 4th Floor

LUNCH | 1:05 – 2:05 pm
Great Lakes Ballroom

Future Faculty Symposium

Tuesday, October 10

Chairs: Professors Kejie Zhao and Nanshu Lu

Sponsored by the National Science Foundation

Schedule:

9:30 – 11:25 am	Panel Discussion (Boundary Water Room D)
2:30 – 6:00 pm	Poster Presentation (Northstar Ballroom)

TECHNICAL SYMPOSIA & ORGANIZERS

Thematic Area 1 – Medalist Symposia	
1-1 Eringen Medal Symposium	Yonggang Huang, Northwestern University
	Shelly Zhang, University of Illinois Urbana Champaign
1-2 Taylor Medal Symposium	Pradeep Sharma, University of Houston
	Ivan Christov, Purdue University
	James Gilchrist, Lehigh University
1-3 Prager Medal Symposium	Vikram Deshpande, University of Cambridge
1-4 Rice & Young Investigator Medal Symposium	Jia-Liang Le, University of Minnesota
	Stefano Gonella, University of Minnesota
Thematic Area 2 – Fluid Mechanics & Granular Physics	
2-1 Mechanics of Granular Media: Experiments, Theory, and Modeling	David Henann, Brown University
	Ken Kamrin, Massachusetts Institute of Technology
	Ryan Hurley, Johns Hopkins University
2-2 Novel properties and applications of granular metamaterials	Dong Wang, Yale University
	Jack Logan, Yale University
	Corey O'Hern, Yale University
2-3 Bio-inspired complex geometric boundaries for passive flow control	Shabnam Raayai, Harvard University
Thematic Area 3 – Damage & Failure of Materials	
3-1 Mechanics of damage, fracture and friction in materials across scales	David Kammer, ETH Zurich
	John Kolinski, EPFL
	Ahmed Elbanna, UIUC
	Krishnaswamy Ravi-Chandar, UT Austin
3-2 Ductile Failure: Experiments and Modeling	Christian Roth, ETH Zurich
	Yanshan Lou, Xi'an Jiaotong University
3-3 Microstructural mechanisms of plasticity and ductile fracture	Christian Roth, ETH Zurich
	Jose Rodriguez-Martinez, University Carlos III of Madrid
	Krishnaswamy Ravi-Chandar, The University of Texas at Austin
3-4 Phase-Field Models of Fracture for Solids, Hard and Soft	Aditya Kumar, Georgia Institute of Technology
	Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign

	Trisha Sain, Michigan Technological University
3-5 Additive Manufacturing of Polymeric Composites and Nanocomposites and Their Mechanical/Fracture Behavior	Denizhan Yavas, Lamar University
Thematic Area 4 – Advances in Manufacturing	
4.1 Intelligent design and manufacturing of materials and structures by solid-liquid interactions	Baoxing Xu, University of Virginia
	Weiyi Lu, Michigan State University
Thematic Area 5 – Advances in Nanomechanics	
5-1 Interatomic Models in Materials Simulations: Theory, Standards, Infrastructure, and Applications	ilia Nikiforov, University of Minnesota
	Ellad Tadmor, University of Minnesota
	Ryan Elliott, University of Minnesota
	Ron Miller, Carleton University
5-2 Advances in multiscale modeling and machine learning in nanomechanics	Steven W. Cranford, Editor-in-Chief, Cell Press Matter, USA
	Dibakar Datta, New Jersey Institute of Technology (NJIT), USA
5-3 Fracture and Fatigue at the Nanoscale : Modeling and Testing	Samit Roy, University of Alabama
Thematic Area 6 – Soft Materials & Soft Robotics	
6-1 Functional Soft Composites - Design, Mechanics, and Manufacturing	Renee Zhao, Stanford University
	Jerry Qi, Georgia Institute of Technology
6-2 Origami and Kirigami-inspired Robotics	Evgueni Filipov, University of Michigan
	Renee Zhao, Stanford University
6-3 Soft Robotics: Matter, Structure, and Intelligence	Jie Yin, North Carolina State University
	Dan Preston, Rice University
	Kaitlyn Becker, Massachusetts Institute of Technology
	Ryan Truby, Northwestern University
	Sheila Russo, Boston University
	Wanliang Shan, Syracuse University
6-4 Mechanics of polymeric gels	Shawn Chester, New Jersey Institute of Technology

	Noy Cohen, Technion
	Meredith Silberstein, Cornell University
6-5 Mechanics and Physics of Soft Materials	Yuhang Hu, Georgia Institute of Technology
	Stephan Rudykh, University of Wisconsin-Madison
	Xuanhe Zhao, Massachusetts Institute of Technology
	Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign
Thematic Area 7 – Biomechanics & Biomaterials	
7-1 Mechanobiology of cell-matrix interactions	Farid Alisafaei, New Jersey Institute of Technology
	Guy Genin, Washington University in St. Louis
	Vikram Deshpande, Cambridge University
	Markus Buehler, Massachusetts Institute of Technology
	Roland Kaunas, Texas A&M University
	Sohan Kale, Virginia Tech
7-2 Plant and Fungal Biomechanics	Douglas Cook, Brigham Young University
	Anastasia Muliana, Texas A&M University
	Daniel Robertson, University of Idaho
	Christopher Stubbs, Fairleigh Dickinson University
7-3 Tissue Mechanics Across Time and Length Scales	Ottman Tertuliano, University of Pennsylvania
	Claire Acevedo, University of Utah
	David Kammer, ETH Zurich
7-4 Multiscale Cellular and Tissue Biomechanics for Human Health	Kalpana Katti, North Dakota State University
	Christian Hellmich, Technical University Vienna Austria
	Dinesh Katti, North Dakota State University
	Horacio Espinosa, Northwestern University
7-5 Emergent Behavior in Biological and Bio-Inspired Systems	Franck Vernerey, University of Colorado Boulder
	Brian Cox, N/A
	Taher Saif, University of Illinois, Urbana-Champaign
	David Pierce, University of Connecticut

7-6 Advances in Experimental and Computational Biomechanics and Mechanobiology	Corey Neu, University of Colorado Boulder
Thematic Area 8 – Machine Learning & AI in Engineering Science	
8-1 Data-driven Computational Solid Mechanics	Qizhi He, University of Minnesota
	WaiChing Sun, Columbia University
	Jiun-Shyan Chen, University of California San Diego
8-2 Data-Driven Approaches for Materials, Structures, and Multiphysics Systems	Yupeng Zhang, Caltech
	Juner Zhu, Northeastern University
	Emma Lejeune, Boston University
	Burigede Liu, University of Cambridge
8-3 Approaches for Materials Data Validation and Dataset Standardization	Alexander Landauer, National Institute of Standards and Technology
	Aaron Forster, National Institute of Standards and Technology
	Emma Lejeune, Boston University
	Jon Estrada, University of Michigan - Ann Arbor
	Orion Kafka, National Institute of Standards and Technology
8-4 Recent Advances in Scientific Machine Learning and Uncertainty Quantification Methods for Modeling Complex Systems	Ramin Bostanabad, University of California, Irvine
	Hongyi Xu, University of Connecticut
	Audrey Olivier, University of Southern California
	Wei Chen, Northwestern University
Thematic Area 9 – Architected Solids & Metamaterials	
9-1 Mechanics of morphing metamaterials and structures	Paolo Celli, Stony Brook University
	Paul Plucinsky, University of Southern California
	Manan Arya, Stanford University
	Damiano Pasini, McGill University
9-2 The Mechanics and Manufacturing of Programmable Soft Matter	Jochen Mueller, Johns Hopkins University
	Jordan Raney, University of Pennsylvania
9-3 Morphing Matter: Bioinspiration, Computational Design, Fabrication, Mechanics, and Sustainability	Teng Zhang, Syracuse University
	Lining Yao, Carnegie Mellon University

9-4 Advances in the Mechanics of Architected Materials	Carlos M. Portela (MIT), Reza Moini (Princeton),
	Tim Chen (Univ. of Houston), Emily Davidson (Princeton),
	Stavros Gaitanaros (JHU), Pablo Zavattieri (Purdue),
	Damiano Pasini (McGill), Glaucio Paulino (Princeton)
9-5 Programmable Material Systems: Mechanics, Design and Manufacturing	Wei Chen, Northwestern University
	Renee Zhao, Stanford University
	Yayue Pan, University of Illinois at Chicago
9-6 Controlling Mechanical Waves with Metamaterials	Ramathasan Thevamaran, University of Wisconsin-Madison
	Kathryn Matlack, University of Illinois at Urbana-Champaign
	Dorn Charles, ETH Zurich
	Şerife Tol, University of Michigan
Thematic Area 10 – Mechanics of Solids & Structures	
10-1 Self-healing structural materials	Nima Rahbar, Worcester Polytechnic Institute
10-2 Multiscale Modeling and Mechanics of Soft Matter and Hierarchical Materials	Zhaoxu Meng, Clemson University
	Anna Tarakanova, University of Connecticut
	Wenjie Xia, North Dakota State University
	Luis Ruiz Pestana, University of Miami
	Robert (Bobby) Sinko, Northern Illinois University
	Zhen Li, Clemson University
10-3 Adhesion, friction, and fracture at soft interfaces: Theory, simulation, and experiment	Berkin Dortdivanlioglu, University of Texas at Austin
	Ruobing Bai, Northeastern University
10-4 Elastomeric fracture	Shi-Qing Wang, University of Akron
	Lihua Jin, UCLA
	Ruobing Bai, Northeastern University
10-5 Multiscale Modeling of Phase Transformation in Materials	Kasra Momeni, University of Alabama
10-6 Thermodynamics, Kinetics, Structure and Mechanical	Qi An, Iowa State University
	Penghui Cao, University of California Irvine
	Yue Fan, University of Michigan

Behaviors of Metallic Glasses and High Entropy Alloys	Lin Li, Arizona State University
	Yang Yang, Penn State University
10-7 Mixed Low Dimensional Nanomaterials	Mohammad Naraghi, Texas A&M University
	Chenglin Wu, Missouri University of Science and Technology
10-8 Mechanics of Materials and Structures: Honoring Prof. Zhigang Suo on the Occasion of his 60th Birthday	Xuanhe Zhao, Massachusetts Institute of Technology
	John W. Hutchinson, Harvard University
	Teng Li, University of Maryland, College Park
	Nanshu Lu, University of Texas, Austin
10-9 Instabilities in Solids and Structures	Rainer Groh, University of Bristol
	Alberto Pirrera, University of Bristol
10-10 Mechanical response of Lithium-ion cells undergoing large deformation	Thomas Tancogne-Dejean, ETH Zurich
	Yong Xia, Tsinghua University
10-11 Recent Advances in Modeling Materials Across Nano- and Micro-scales	Swarnava Ghosh, Oak Ridge National Laboratory
	Mauricio Ponga, The University of British Columbia
	Juan Pedro Mendez Granado, Sandia National Laboratory
	Nikhil Chandra Admal, University of Illinois Urbana Champaign
	Vikram Gavini, University of Michigan
10-12 Mechanics of Electrochemical Systems	Claudio Di Leo, Georgia Institute of Technology
	Christos E. Athanasiou, Georgia Institute of Technology
	Matt Pharr, Texas A&M University
	Siva Nadimpalli, Michigan State University
	Shuman Xia, Georgia Institute of Technology
	Kejie Zhao, Purdue University
10-13 Structural energy storage systems	Tianyang Zhou, Texas A&M University
	Dimitris Lagoudas, Texas A&M University
	Jodie Lutkenhaus, Texas A&M University
10-14 Symposium honoring the many contributions of Prof. Roger Fosdick	Ryan Elliott, University of Minnesota
	Ellad Tadmor, University of Minnesota
	Perry Leo, University of Minnesota

10-15 Multiphysics mechanics of soft solids	Mrityunjay Kothari, University of New Hampshire
	Vikas Srivastava, Brown University
10-16 Computational Mechanics of Materials and Structures	Shawn Chester, New Jersey Institute of Technology
	WaiChing (Steve) Sun, Columbia University
	Nikolaos Bouklas, Cornell University
	Wei Gao, Texas A&M University
10-17 Micro-to-Macro Mechanics of Heterogeneous Solids and Granular Media	Aaron Baumgarten, Johns Hopkins University
	Liuchi Li, Johns Hopkins University
	Maytee Chantharayukhonthorn, Massachusetts Institute of Technology
	Konstantinos Karapiperis, ETH Zurich
	Ghassan Shahin, EPFL
	Sakshi Braroo, Johns Hopkins University

DAY-BY-DAY SCHEDULE OF TECHNICAL SYMPOSIA

Monday, October 9, 2023

Thematic Area 1. Medalist Symposia

1-1 Eringen Medal Symposium		
Session: M1 Room: Boundary Waters A		
Session Chair(s): Shelly Zhang		
9:30 AM	9:50 AM	**Leapfrog in Fracture and Damage Mechanics inspired by Gap Test and Curvature-Resisting Sprain Energy**
		Zdenek Bazant, Northwestern University; Yupeng Zhang, California Institute of Technology; Houlin Xu, Northwestern University; A. Abdullah Dönme, Northwestern University; Anh Nguyen, Northwestern University
9:50 AM	10:10 AM	**GRAFEA: A Novel Graph theory based Finite Element Approach for Simulating Microcracking in Materials**
		J. N. Reddy, Texas AM University; Ho Yong Shin, Texas A&M University; Sachin Velayudhan, Texas A&M University; Prakash Thamburaja, UKM, Malaysia; Arun Srinivasa, Texas A&M University; J. N. Reddy, Texas AM University
10:10 AM	10:30 AM	**Strain rate sensitivity of the hydrogen induced fracture of ferritic steels**
		Vikram Deshpande, Cambridge University; Siamak Shishvan, Cambridge University; Gabor Csanyi, Cambridge University
10:30 AM	10:50 AM	**Griffith Fracture in Viscoelastic Elastomers Done Right**
		Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign; Bhavesh Shrimali, University of Illinois at Urbana-Champaign
10:50 AM	11:10 AM	**Gurson-Cohesive Zone Modeling for 3D Ductile Fracture Investigation**
		Kyoungsoo Park, Yonsei University; Jihyuk Park, Yonsei University; Soondo Kweon, Southern Illinois University Edwardsville;
Session: M2 Room: Boundary Waters A		
Session Chair(s): Shelly Zhang		
11:25 AM	11:45 AM	**Art of attachment on rough surfaces under water - lessons from octopus**
		M Taher Saif, University of Illinois at Urbana Champaign; Abdallah Aly, University of Illinois at Urbana-Champaign;
11:45 AM	12:05 PM	**Physics-informed Data-driven Method for Discrepancy Modeling**
		Arif Masud, University of Illinois at Urbana-Champaign; Sharbel Nashar, University of Illinois at Urbana-Champaign; Shoaib Goraya, University of Illinois at Urbana-Champaign;
12:05 PM	12:25 PM	**Chemomechanics of hydrogels**
		Yuhang Hu, Georgia Institute of Technology; Haohui Zhang, Georgia Institute of Technology; Mohammad Dehghanydahaj, University of Pennsylvania
12:25 PM	12:45 PM	**Sustained Self-healing in Laminated Fiber-composites via in situ Thermal Remending**
		Jason Patrick, North Carolina State University; Alexander Snyder, North Carolina State University

Session: M3 Room: Boundary Waters A		
Session Chair(s): Shelly Zhang		
2:30 PM	2:50 PM	**Relation between blood pressure and pulse wave velocity for human arteries**
		Yonggang Huang, Northwestern University
2:50 PM	3:10 PM	**Modeling and design of heterogeneous hierarchical bioinspired spider web structures using generative deep learning and additive manufacturing**
		Markus J Buehler, MIT; Wei Lu, MIT; Nic Lee, MIT
3:10 PM	3:30 PM	**Kagome Nanostructures**
		NR Aluru, The University of Texas at Austin
3:30 PM	3:50 PM	**Anelasticity at the Nanoscale**
		Yong Zhu, North Carolina State University
3:50 PM	4:10 PM	**Bulging and Poking of 2D Materials**
		Nanshu Lu, The University of Texas at Austin
1-3 Prager Medal Symposium		
Session: M1, Room: Bemidji		
Session Chair(s): Vikram Deshpande		
9:30 AM	9:50 AM	**A dynamically reprogrammable surface with self-evolving shape morphing**
		Yonggang Huang, Northwestern University
9:50 AM	10:10 AM	**Experimental exploration of wave dispersion in truss lattices**
		Dennis M. Kochmann, ETH Zurich; Bastian Telgen, ETH Zurich; Vignesh Kannan, ETH Zurich; Charles Dorn, ETH Zurich
10:10 AM	10:30 AM	**Defect sensitivity in cellular structures**
		Matthew Begley, University of California, Santa Barbara
10:30 AM	10:50 AM	**Micro and Nano Technologies for Cellular Eng.**
		Horacio Espinosa, Northwestern University
Session: M2, Room: Bemidji		
Session Chair(s): Micheal Thouless		
11:25 AM	11:45 AM	**Fracture Branching Simulation via Smooth Crack Band Model with Osmotic Pressure Effects: A Way to Guide Fracking and Deep CO2 Sequestration**
		Zdenek P. Bazant, Northwestern University; Houlin Xu, Northwestern University; Anh Nguyen, Northwestern University; Mehsam Khan, Northwestern University; A. Abdullah Dönmez, Northwestern University;
11:45 AM	12:05 PM	**Mechanics of Peeling Induced Shape Morphing in Plastic Films**
		Huajian Gao, Nanyang Technological University
12:05 PM	12:25 PM	**Materials resist fatigue by deconcentrating stress**
		Zhigang Suo, Harvard University
12:25 PM	12:45 PM	**Delamination from corners**
		Michael Thouless, University of Michigan

Session: M3, Room: Bemidji		
Session Chair(s): Smyshlyaev		
2:30 PM	2:50 PM	**The elastic properties of dilute solid suspensions with imperfect interfacial bonding: asymptotic expansions, variational approximations, full-field s**
		Martin Ignacio Idiart, Universidad Nacional de La Plata / CONICET; Valentin Gallican, Universidad Nacional de La Plata; Miroslav Zecevic, Los Alamos National Laboratory; Ricardo Lebensohn, Los Alamos National Laboratory
2:50 PM	3:10 PM	**Twinning and soft modes of deformation in reinforced elastomers**
		Pedro Ponte Castañeda, University of Pennsylvania
3:10 PM	3:30 PM	**Dynamic homogenisation of periodic composites with random micro-resonances**
		Valery Smyshlyaev, University College London (UCL)
Session: M4, Room: Bemidji		
Session Chair(s): Vikram Deshpande		
4:25 PM	4:45 PM	**Stable shape-shifters**
		Kaushik Bhattacharya, California Institute of Technology
4:45 PM	5:05 PM	**Shape Memory Alloy Structures: Modeling, Simulation, and Experiments**
		Chad Landis, University of Texas at Austin; Hongrui Yu, University of Texas at Austin; Stelios Kyriakides, University of Texas at Austin; Solon Tsimpoukis, University of Texas at Austin
5:05 PM	5:25 PM	**Bees, honeycombs and size effects**
		Vikram Deshpande, Cambridge University; Padmanabha Saikia, Cambridge University; Angkur Shaikeea, Cambridge University

Thematic Area 3. Damage & Failure of Materials

3-1 Mechanics of damage fracture and friction in materials across scales		
Session: M1 Room: Greenway H		
Session Chair(s): David Kammer		
9:30 AM	9:50 AM	**Phase-field fracture with an effective energy for regularized crack face contact and crack nucleation**
		Maryam Hakimzadeh, Carnegie Mellon University; Vaibhav Agrawal, Carnegie Mellon University; Kaushik Dayall, Carnegie Mellon University; Carlos Mora-Corral, Universidad Autonóma de Madrid
9:50 AM	10:10 AM	**Cutting and tearing in highly deformable and tough hydrogels**
		Srividhya Sridhar, University of Illinois at Urbana Champaign; Shaobo Zhan, University of Illinois at Urbana Champaign; Nabila Ali, University of Illinois at Urbana Champaign; Alison Dunn, University of Illinois at Urbana Champaign; Shelby Hutchens, University of Illinois at Urbana Champaign
10:10 AM	10:30 AM	**A Novel Device For Simultaneous Extraction Of Mixed-Mode Cohesive Laws**
		Mohammad Ansari, University of Texas at Austin; Kenneth Liechti, University of Texas at Austin; Rui Huang, University of Texas at Austin

Session: M2 Room: Greenway H		
Session Chair(s): Ahmed Elbanna		
11:25 AM	11:45 AM	**Finite-element modeling of intermittent dynamic rupture in granulated shear zones using rate-and-state friction with flash heating**
		Shengduo Liu, California Institute of Technology; Nadia Lapusta, California Institute of Technology; Vito Rubino, California Institute of Technology; Ares Rosakis, California Institute of Technology
11:45 AM	12:05 PM	**Control of Static Friction by Designing Grooves in Frictional Interface**
		Wataru Iwashita, Osaka University; Hiroshi Matsukawa, Aoyama Gakuin University; Michio Otsuki, Osaka University
12:05 PM	12:25 PM	**Rubber friction with patterned surfaces: interface waves and squeaking sound**
		Adel Djellouli, Harvard University; Gabriele Albertini, University of Nottingham; Vincent Tournat, Harvard University / CNRS Le Mans; Katia Bertoldi, Harvard University
12:25 PM	12:45 PM	**Stability during fracture-like nucleation in frictional sliding**
		David Kammer, ETH Zurich; Gabriele Albertini, University of Nottingham; Miguel Castellano, ETH Zurich; Flavio Lorez, ETH Zurich
12:45 PM	1:05 PM	**In situ Synchrotron X-ray and Ultrasonic Characterization of a Sheared Fault**
		Chun-Yu Ke, Pennsylvania State University; Evan Bozek, Pennsylvania State University; Prabhav Borate, Pennsylvania State University; Clay Wood, Pennsylvania State University; Lalith Sai Srinivas Pillarisetti, Pennsylvania State University; Chris Marone, Pennsylvania State University; Derek Elsworth, Pennsylvania State University; Jacques Rivière, Pennsylvania State University; Parisa Shokouhi, Pennsylvania State University
Session: M3 Room: Greenway H		
Session Chair(s): K. Ravi-Chandar		
2:30 PM	2:50 PM	**Numerical Modelling of the Fatigue Life of Oil and Gas Pipeline with Plain Dent**
		Amir Abdelmawla, Iowa State University; Ashraf Bastawros
2:50 PM	3:10 PM	**Microscale fatigue deformation of additively manufactured nanolamellar alloys**
		Luc Capaldi, University of Pennsylvania; Jie Ren, University of Massachusetts Amherst; Wen Chen, University of Massachusetts Amherst; Ottman Tertuliano, University of Pennsylvania
3:10 PM	3:30 PM	Multiscale stress deconcentration amplifies fatigue resistance of rubber
		Jason Steck, Harvard University; Junsoo Kim, Harvard University; Yakov Kutsovsky, Harvard University; Zhigang Suo, Harvard University
3:30 PM	3:50 PM	**Geometric scaling rules associated with the microparticle impact testing of materials**
		Nicholas Jaegersberg, University of Wisconsin – Madison; Jizhe Cai, University of Wisconsin – Madison; Ramathasan Thevamaran, University of Wisconsin - Madison
3:50 PM	4:10 PM	**The Role of Geometric Scale in High-Velocity Impact Phenomena: From Micro- to Macro-Scale**
		Jacob Rogers, Texas A&M University; Kailu Xaio, Texas A&M University; Zhen Sang, Texas A&M University; Justin Wilkerson, Texas A&M University; Edwin Thomas, Texas A&M University; Thomas Lacy, Jr., Texas A&M University

Session: M4 Room: Greenway H		
Session Chair(s): David Kammer		
4:25 PM	4:45 PM	**A Novel Discrete, Mesoscale Modeling Framework for the Simulation of the Damaging and Fracturing Behavior of Composites**
		Marco Salviato, University of Washington; Sean Phenisee, University of Washington; Antonio Deleo, University of Washington; Daniele Pelessone, ES3 Inc; Mark Flores, AFRL
4:45 PM	5:05 PM	**Tailoring toughening effects in two-dimensional nanomaterial-reinforced ceramic matrix composites**
		Xing Liu, Georgia Institute of Technology; Christos Athanasiou, Georgia Institute of Technology; Ting Zhu, Georgia Institute of Technology; Nitin Padture, Brown University; Brian Sheldon, Brown University; Huajian Gao, Nanyang Technological University
5:05 PM	5:25 PM	**Monitoring And Analysis Of Failure Mechanisms In Hybrid Polymer-Matrix Composite Material Using Acoustic Emission**
		Daniel Slaughter, Iowa State University of Science and Technology; HyeokJae Lee, Iowa State University; Ashraf Bastawros, Iowa State University
5:25 PM	5:45 PM	**Matrix and Geometric effects on energy absorption of Hybrid Woven Composite Material**
		HyeokJae Lee, Iowa State University; Ashraf Bastawros, Iowa State University
5:45 PM	6:05 PM	**Conflict between strain recovery and damping capacity in VACNT foams**
		Abhishek Gupta, University of Wisconsin – Madison; Komal Chawla, University of Wisconsin-Madison; Bhanugoban Maheswaran, University of Wisconsin-Madison; Ramathasan Thevamaran, University of Wisconsin-Madison

Thematic Area 4. Advances in Manufacturing

4-1 Intelligent design and manufacturing of materials and structures by solid-liquid interactions		
Session: M1 Room: Greenway D		
Session Chair(s): Weiyi Lu		
9:30 AM	9:50 AM	**Micromolding of Metal Nanowires in Capillaries for Fabrication of Soft Electronics**
		Yong Zhu, North Carolina State University; Yuxuan Liu, North Carolina State University; Jennifer Lee, North Carolina State University
9:50 AM	10:10 AM	**Micro/nano manufacturing by capillary origami**
		David Gracias, Johns Hopkins University
10:10 AM	10:30 AM	**Building with Ice: The Physics Behind Printing Free-Standing 3D Ice Geometries with Water Microdroplets**
		Akash Garg, Carnegie Mellon University; Burak Ozdoganlar, Carnegie Mellon University; Philip LeDuc, Carnegie Mellon University
10:30 AM	10:50 AM	**Digital image correlation enabled real time defect detection and correction in additive manufacturing**
		Xiaodong Li, University of Virginia
10:50 AM	11:10 AM	**Computational multi-physics for metal additive manufacturing: methods and applications**
		Jinhui Yan, University of Illinois at Urbana Champaign

Session: M2 Room: Greenway D		
Session Chair(s): Baoxing Xu		
11:25 AM	12:05 PM	**Keynote: Dynamic Solid-Liquid Interfaces at the Atomic Limit**
		NR Aluru, The University of Texas at Austin
12:05 PM	12:25 PM	**Biomimetic water-responsive crystals as high-energy actuators**
		Xi Chen, CUNY Advanced Science Research Center
12:25 PM	12:45 PM	**Biomass converted carbon electrodes for energy-efficient water desalination technology**
		Pei Dong, George Mason University
12:45 AM	1:05 PM	**Gas promoted spontaneous liquid outflow from hydrophobic nanochannel**
		Weiyi Lu, Michigan State University; Mingzhe Li, Georgia Institute of Technology
Session: M3 Room: Greenway D		
Session Chair(s): Baoxing Xu		
2:30 PM	2:50 PM	**Conformal 3-dimensional surface patterning using solid-to-liquid phase changes**
		Gary Zabow, National Institute of Standards and Technology
2:50 PM	3:10 PM	**Eco-friendly screen printing of silver nanowires for flexible and stretchable electronics**
		Darpan Shukla, North Carolina State University; Yuxuan Liu, North Carolina State University; Yong Zhu, North Carolina State University
3:10 PM	3:30 PM	**Mechanics and Manufacturing of Biohybrid Pumping Machine Powered By Engineered Living Muscle Tissues**
		Zhengwei Li, University of Houston
3:30 PM	3:50 PM	**Electro-chemo-mechanics in Transfer Printing of Thin Films in Electrolyte Solutions**
		Yue Zhang, University of Pennsylvania; Baoxing Xu, University of Virginia

Thematic Area 5. Advances in Nanomechanics

5-1 Interatomic Models in Materials Simulations: Theory Standards Infrastructure and Applications		
Session: M1 Room: Greenway G		
Session Chair(s): Ron Miller		
9:30 AM	9:50 AM	**Reproducible high-fidelity molecular simulation through OpenKIM and ColabFit**
		Ellad Tadmor, University of Minnesota; Stefano Martiniani, New York University; Mark Transtrum, Brigham Young University; George Karypis, University of Minnesota; Ryan Elliott, University of Minnesota; Eric Fuemmeler, University of Minnesota; Amit Gupta, University of Minnesota; Yonatan Kurniawan, Brigham Young University; Ilia Nikiforov, University of Minnesota; Brendon Waters, University of Minnesota
9:50 AM	10:10 AM	**KIMRec: Interatomic Potential - Recommendation on OpenKIM**
		Zeren Shui, University of Minnesota Twin Cities; Daniel S. Karls, University of Minnesota - Twin Cities; Petros Karypis, University of California - San Diego; Mingjian Wen, University of Houston; Ilia Nikiforov, University of Minnesota - Twin Cities; Saurav Manchanda, Instacart; Brendon Waters, University of Minnesota - Twin Cities; George Karypis, University of Minnesota - Twin Cities; Ellad B. Tadmor, University of Minnesota - Twin Cities

10:10 AM	10:50 AM	**Keynote: Selecting and deploying interatomic models using OpenKIM: a demonstration**
		Ilia Nikiforov, University of Minnesota
Session: M2 Room: Greenway G		
Session Chair(s): ilia Nikiforov		
11:25 AM	11:45 AM	**Exploring atomistic calculations in high throughput with the NIST Interatomic Potentials Repository**
		Lucas Hale, NIST
11:45 AM	12:05 PM	**Python Framework for Automated Workflows for Materials Discovery**
		Tara Boland, DTU; Mikael Kuisma, DTU; Ask Larsen, DTU; Kristian Thygesen, DTU
12:05 PM	12:25 PM	**Capturing short-range order in high-entropy alloys with machine learning potentials**
		Rodrigo Freitas, Massachusetts Institute of Technology
12:25 PM	12:45 PM	**Design and Operations of the OpenKIM Testing Pipeline**
		Brendon Waters, University of Minnesota Twin Cities
12:45 PM	1:05 PM	**Predicting Grain Boundary Energy from Few-Atom Simulations: A Study Across Interatomic Potentials**
		Benjamin Jasperson, University of Illinois at Urbana-Champaign; Ilia Nikiforov, University of Minnesota; Harley Johnson, University of Illinois at Urbana-Champaign; Ellad Tadmor, University of Minnesota
Session: M3 Room: Greenway G		
Session Chair(s): ilia Nikiforov		
2:30 PM	2:50 PM	**Uncertainty Quantification and Sloppy Models in Atomistic Simulations**
		Mark Transtrum, Brigham Young University
2:50 PM	3:10 PM	**Uncertainty quantification toolbox for OpenKIM**
		Yonatan Kurniawan, Brigham Young University; Mark Transtrum, Brigham Young University; Mingjian Wen, University of Houston; Amit Gupta, University of Minnesota
3:10 PM	3:30 PM	**Reliable molecular simulation using uncertainty-quantified machine learning potentials**
		Mingjian Wen, University of Houston
3:30 PM	3:50 PM	**Dynamic properties of Si glass: A study of transferable MLIP**
		Amit Gupta, University of Minnesota Twin Cities
Session: M4 Room: Greenway G		
Session Chair(s): ilia Nikiforov		
4:25 PM	4:45 PM	**Uncertainty Quantification Enabled Transfer Learning for Electronic Structure Prediction of Large Bulk Systems**
		Amartya Banerjee, University of California, Los Angeles; Susanta Ghosh, Michigan Tech; Shivang Agarwal, University of California, Los Angeles; Shashank Pathrudkar, Michigan Tech; Ponkrshnan Thiagarajan, Michigan Tech
4:45 PM	5:05 PM	**Charge-informed machine learning interatomic models for ionic compounds**
		Chris Bartel, University of Minnesota
5:05 PM	5:25 PM	**ChIMES: A Machine Learning Framework for Quantum Accurate Models of Complex and Reacting Systems**
		Rebecca Lindsey, University of Michigan
5:25 PM	5:45 PM	**ColabFit: Informatics for Advanced Materials and Chemistry**
		Eric Fuemmeler, University of Minnesota; Joshua Vita, University of Illinois Urbana-Champaign; Stefano Martiniani, New York University; Ellad Tadmor, University of Minnesota

5-2 Advances in multiscale modeling and machine learning in nanomechanics		
Session: M1 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
9:30 AM	9:50 AM	**On the coupling of defects and thermal fluctuations in crystalline membranes**
		Fatemeh Ahmadpoor, New Jersey Institute of Technology (NJIT), USA
9:50 AM	10:10 AM	**Numerical Modeling of Heat Transport in Two-dimensional Materials and Interfaces**
		Zlatan Aksamija, University of Utah
10:10 AM	10:30 AM	**Breaking the Barriers of Traditional Materials Design: A Graph Neural Network Approach for Discovering Intercalation Hosts for Next-Generation Batteries**
		Joy Datta, New Jersey Institute of Technology
10:30 AM	10:50 AM	**Probing the effects of hydrogen on the materials used for large-scale transport through multi-scale simulations**
		Guang Cheng, Beijing University of Chemical Technology; T. A. Venkatesh, Stony Brook University
10:50 AM	11:10 AM	**Quantifying the Atomistic Structure of Grain Boundaries with Machine Learning**
		Huck Beng Chew, University of Illinois at Urbana-Champaign; William Noh, University of Illinois at Urbana-Champaign; Yue Cui, IHPC
Session: M2 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
11:25 AM	12:05 PM	**Keynote: Towards Large-scale Quantum Accuracy Materials Simulations**
		Vikram Gavini, University of Michigan; Sambit Das, University of Michigan; Bikash Kanungo, University of Michigan
12:05 PM	12:25 PM	**Utilizing a moving window concurrent atomistic-continuum (CAC) framework to model propagating shock waves through multicomponent alloys**
		Alexander Davis, Auburn University; Vinamra Agrawal, Auburn University
12:25 PM	12:45 PM	**Void Identification in incipient spall with multi-channel convolutional neural networks**
		Bruno Dobrovolski, University of Colorado Colorado Springs; Brandon Runnels, Iowa State University
Session: M3 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
2:30 PM	3:10 PM	**Keynote: A quantum-informed 0ght-binding total energy parameteriza0on for twisted bilayer graphene**
		Harley T. Johnson, University of Illinois at Urbana-Champaign; Dan Palmer, University of Illinois at Urbana-Champaign; Tawfiqur Rakib, University of Illinois at Urbana-Champaign; Naheed Ferdous, University of Illinois at Urbana-Champaign; Gabriel Brown, University of Illinois at Urbana-Champaign; Kilthat Krongchon, University of Illinois at Urbana-Champaign; Lucas K. Wagner, University of Illinois at Urbana-Champaign
3:10 PM	3:30 PM	**Thermal fluctuations (eventually) unfold molecular origami**
		Matthew Grasinger, Air Force Research Laboratory
3:30 PM	3:50 PM	**Achieving Enhanced Mechanical Stability through Machine Learning-Assisted Nanostructured Amorphous Alloy Design**
		Yucong Gu, The University of Alabama; Lin Li, Arizona State University

3:50 PM	4:10 PM	**Rate independent dissipation and Triboelastic Payne effect in hierarchical fibrous materials**
		Abhishek Gupta, University of Wisconsin-Madison; Bhanugoban Maheswaran, University of Wisconsin-Madison; Komal Chawla, University of Wisconsin-Madison; Ramathasan Thevamaran, University of Wisconsin-Madison
Session: M4 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
4:25 PM	5:05 PM	**Keynote: Generative AI and its applications in multiscale mechanics and mechanobiology: Forward, inverse, and degenerate problems**
		Markus Buehler, MIT
5:05 PM	5:25 PM	**DyFraNet: Predicting Fracture Dynamics in Crystalline Solids using a 2D to 3D Deep Neural Network**
		Yu-Chuan Hsu, Massachusetts Institute of Technology; Markus Buehler, Massachusett Institute of Technology
5:25 PM	5:45 PM	**Discovery of multi-functional polyimides through high-throughput screening using explainable machine learning**
		Ying Li, University of Wisconsin-Madison

Thematic Area 6. Soft Materials & Soft Robotics

6-1 Functional Soft Composites - Design Mechanics and Manufacturing		
Session: M1 Room: Lake Superior B		
Session Chair(s): Jerry Qi		
9:30 AM	10:10 AM	**Keynote: Mechanics-Based Workflows for the Design and Manufacture of Soft Composite Products**
		Martin Dunn, University of Colorado Denver
10:10 AM	10:30 AM	**Computational Design of Impact-Absorbing Metamaterials**
		Robert MacCurdy, University of Colorado Boulder
10:30 AM	10:50 AM	**Machine Learning Driven Inverse Design of Metamaterials with Adaptable Force-Displacement Characteristics for Soft Robots**
		Hatice Gokcen Guner, Carnegie Mellon University; Kaushik Dayal, Research Advisor; Alexandra Ion, Research Advisor
10:50 AM	11:10 AM	**Machine learning-enabled forward prediction and inverse design of 4D-printed active plates**
		Xiaohao Sun, Georgia Institute of Technology; Liang Yue, Georgia Institute of Technology; H. Jerry Qi, Georgia Institute of Technology
Session: M2 Room: Lake Superior B		
Session Chair(s): Jerry Qi		
11:25 AM	12:05 PM	**Keynote: Soft Composites Incorporating Liquid Metal**
		Michael Dickey, NC State University
12:05 PM	12:25 PM	**Organogels x EGaIn for Soft & Self-Healing Bioelectronics**
		Carmel Majidi, Carnegie Mellon University

12:25 PM	12:45 PM	**Liquid metal-elastomer composite acoustic matching layer**
		Ethan Krings, University of Nebraska-Lincoln; Benjamin Hage, University of Nebraska-Lincoln; Sequoia Truong, Worcester Polytechnic Institute; Kiersten Reeser, LeTourneau University; Matthew Snyder, University of Nebraska-Lincoln; Eli Fox, University of Nebraska-Lincoln; Gregory Bashford, University of Nebraska-Lincoln; Eric Markvicka, University of Nebraska-Lincoln
12:45 AM	1:05 PM	**Liquid Crystal Elastomer-Liquid Metal Composite: Ultrafast, Untethered, and Programmable Actuation by Induction Heating**
		Renee Zhao, Stanford University
Session: M3 Room: Lake Superior B		
Session Chair(s): Renee Zhao		
2:30 PM	2:50 PM	**Advanced Photo-active Composite Materials for Autonomous Soft**
		Ximin He, University of California, Los Angeles
2:50 PM	3:10 PM	**Controlling the lifetime of liquid metal-based conductors**
		Eric Markvicka, University of Nebraska Lincoln; Ethan Krings, University of Nebraska Lincoln; Kasey Moomau, University of Nebraska Lincoln
3:10 PM	3:30 PM	**Soft conductive composites embedded with liquid metal fibers: fabrication and constitutive modeling**
		Pu Zhang, SUNY Binghamton; Jiexian Ma, SUNY Binghamton; Quang-Kha Nguyen; SUNY Binghamton
3:30 PM	3:50 PM	**Optimal Design of 3D Printed Soft Responsive Actuators**
		Andrew Akerson, California Institute of Technology; Seelay Tasmim, Texas A&M University; Asaf Dana, Texas A&M University; Taylor Ware, Texas A&M University; Kaushik Bhattacharya, California Institute of Technology
3:50 PM	4:10 PM	**Multi-Axis Conformal Direct Ink Write 3D Printing for Appending Structures on Unstructured Surfaces**
		Connor Armstrong, University of Illinois at Urbana-Champaign; Stuart Montgomery, Georgia Institute of Technology; Liang Yue, Georgia Institute of Technology; Frédéric Demoly, Belfort-Montbeliard University of Technology; Kun Zhou, Nanyang Technological University; Jerry Qi, Georgia Institute of Technology
Session: M4 Room: Lake Superior B		
Session Chair(s): Renee Zhao		
4:25 PM	5:05 PM	**Keynote: 4D Continuous Fiber Structures from Frontal Polymerization of 2D Composites made with CF3D Additive Manufacturing**
		Jeffery Baur; University of Illinois Urbana Champaign; Ivan Wu, University of Illinois at Urbana-Champaign; Michael Zakoworotny, University of Illinois at Urbana-Champaign; Philippe Geubelle, University of Illinois at Urbana-Champaign
5:05 PM	5:25 PM	**Designing Polymer Nanocomposites for Functional Additive Manufacturing**
		Weinan Xu, University of Akron; Naifu Shen, University of Akron
5:25 PM	5:45 PM	**3D printing of continuous fiber thermosetting composites with new methods and reactive resins**
		Kai Yu, University of Colorado Denver; Martin Dunn, University of Colorado Denver; Huan Jiang, University of Colorado Denver; Yuchen Ding, University of Colorado Denver
5:45 PM	6:05 PM	**Liquid metal enabled VIA connection between two different planes**
		Dong Hae Ho, Virginia Tech; Chenhao Hu, Virginia Tech; Ling Li, Virginia Tech; Michael Bartlett, Virginia Tech

6-3 Soft Robotics: Matter Structure and Intelligence		
Session: M1 Room: Boundary Waters B		
Session Chair(s): Ryan Truby		
9:30 AM	9:50 AM	**Shining Light on Closing the Loop: Toward Intelligent Soft Robots**
		Sheila Russo, Boston University
9:50 AM	10:10 AM	**Wireless Miniature Soft Robots for Sensing Physiological Properties of Biological Tissues**
		Xiaoguang Dong, Vanderbilt University
10:10 AM	10:30 AM	**Textiles for Soft Wearable Robots**
		Vanessa Sanchez, Stanford University
10:30 AM	10:50 AM	**Reinventing the wheel using odd active matter**
		Corentin Coulais, University of Amsterdam
10:50 AM	11:10 AM	Physically intelligent autonomous soft robotic maze escaper
		Yao Zhao, NC State University; Yaoye Hong, NC State University; Yanbin Li, NC State University; Fangjie Qi, NC State University; Haitao Qing, NC State University; Hao Su, NC State University; Jie Yin, NC State University
Session: M2 Room: Boundary Waters B		
Session Chair(s): Sheila Russo		
11:25 AM	11:45 AM	**DenseTact: Soft Optical-Tactile Force and Shape Sensing Robotic Fingertip**
		Monroe Kennedy, Stanford University; Won Kyung Do, Stanford University; Bianca Aumann, Stanford University
11:45 AM	12:05 PM	**Stretch- and Shear-Insensitive Hybrid Response Pressure Sensors**
		Nanshu Lu, The University of Texas at Austin
12:05 PM	12:25 PM	**Elastic Robotic Skins with Distributed Sensing and Cognition Functions**
		Cunjiang Yu, Pennsylvania State University
12:25 PM	12:45 PM	**Metamaterials for tactile sensing and object classification**
		Andres Arrieta, Purdue University; Juan Osorio, Purdue University; Katherine Riley, Purdue University
12:45 PM	1:05 PM	**Looping pattern creates anisotropy in weft-knitted wale-axis strain sensor**
		Sonia Roberts, Northeastern University, Boston; Kristen Dorsey, Northeastern University
Session: M3 Room: Boundary Waters B		
Session Chair(s): Ryan Truby		
2:30 PM	2:50 PM	**Liquid Metals for Soft Robotics**
		Michael Dickey, NC State University
2:50 PM	3:10 PM	**Design and Additive Manufacturing of Robotic Metamaterials**
		Xiaoyu (Rayne) Zheng, University of California, Berkeley
3:10 PM	3:30 PM	**Towards An Autonomous Tensegrity Robot**
		Xiaonan Huang, Robotics Department, University of Michigan
3:30 PM	3:50 PM	**Fully soft deployable structures via kirigami cuts and active learning**
		Mohammad Khalid Jawed, University of California, Los Angeles; Leixin Ma, University of California, Los Angeles; Mrunmayi Mungekar, University of California, Los Angeles; Vwani Roychowdhury, University of California, Los Angeles

3:50 PM	4:10 PM	**Micropolar Metamaterials for Soft Robots**
		Jeffrey Lipton, Northeastern University; Sawyer Thomas, University of Washington
Session: M4 Room: Boundary Waters B		
Session Chair(s): Sheila Russo		
4:25 PM	4:45 PM	**Tunable Mechanical Interfaces for Robots**
		Kevin Turner, University of Pennsylvania
4:45 PM	5:05 PM	**Multimodal in vitro, in silico and in vivo simulations of cardiovascular pathophysiology**
		Ellen Roche, MIT
5:05 PM	5:25 PM	**Tough adhesion for healing and robotics**
		Jianyu Li, McGill University
5:25 PM	5:45 PM	**Soft Robotics for intravascular beating-heart applications**
		Tommaso Ranzani, Boston University
5:45 PM	6:05 PM	**Adhesion Mechanics of Soft Hollow Pillars for Highly Tunable Dry Adhesion**
		Wanliang Shan, Syracuse University; Guangchao Wan, Syracuse University
6-4 Mechanics of polymeric gels		
Session: M1 Room: Greenway E		
Session Chair(s): Shawn A Chester		
9:30 AM	9:50 AM	**A Subdivision-stabilized Isogeometric Material Point Method for Strongly Coupled Diffusion in Hydrogels**
		Ashkan Ali Madadi, University of Texas at Austin; Berkin Dortdivanlioglu, University of Texas at Austin
9:50 AM	10:10 AM	**Transparent Ionogels with Extreme Toughness, Strength and Stiffness by In Situ Phase Separation**
		Michael Dickey, NC State University; Meixiang Wang, NC State University
10:10 AM	10:30 AM	**Mechanics and energetics of highly compressible hydrogels**
		Konstantinos Garyfallogiannis, University of Pennsylvania; Prashant Purohit, University of Pennsylvania; John Bassani, University of Pennsylvania
10:30 AM	10:50 AM	**Chemically Identical Gels**
		Wei Hong, Southern University of Science and Technology
10:50 AM	11:10 AM	**Fracture tolerance induced by dynamic bonds in hydrogels**
		Hang Yang, Harvard University; Xi Chen, Xi'an Jiaotong University; Bonan Sun, Xi'an Jiaotong University; Jingda Tang, Xi'an Jiaotong University; Joost Vlassak, Harvard University
Session: M2 Room: Greenway E		
Session Chair(s): Meredith Silberstein		
11:25 AM	11:45 AM	**Non-regular Conformal Subset Digital Image Correlation for Radial Strain Field Characterization**
		Joseph Beckett, University of Michigan - Ann Arbor; Jon Estrada, University of Michigan
11:45 AM	12:05 PM	**Probing the mechanics of photopolymer hydrogel cure using in-situ, AFM-based NanoEc**
		Orion Kafka, National Institute of Standards and Technology; Thomas Kolibaba, National Institute of Standards and Technology; Callie Higgins, National Institute of Standards and Technology; Jason Killgore, National Institute of Standards and Technologies
12:05 PM	12:25 PM	**Characterizing mechanical properties of degrading polymer gels**
		Olga Kuksenok, Clemson University; Vaibhav Palkar, Clemson University

12:25 PM	12:45 PM	**Gels under constraints: Measurement of swelling-induced stress**
		Michal Levin, Technion - Israel Institute of Technology; Noy Cohen, Technion - Israel Institute of Technology
12:45 PM	1:05 PM	**Design and mechanics of tough cellular hydrogels**
		Jianyu Li, McGill University
Session: M3 Room: Greenway E		
Session Chair(s): Noy Cohen		
2:30 PM	2:50 PM	**Spider silk mechanics: A continuum-based model for the humidity-induced response**
		Noy Cohen; Technion-Israel Institute of Technology
2:50 PM	3:10 PM	**From bacterial cellulose hydrogels to foams**
		Eleftheria Roumeli, University of Washington; Hareesh Iyer, University of Washington; Michael Holden, University of Washington; Paul Grandgeorge, University of Washington; Aban Mandal, University of Washington; Eleftheria Roumeli, University of Washington
3:10 PM	3:30 PM	**Low-water-content polyelectrolyte hydrogels inspired by human epidermal stratum corneum**
		Zihang Shen, Zhejiang University; Jie Ma, Zhejiang University; YiJie Cai, Zhejiang University; Siyang Li, Zhejiang University; Shufen Dai, Zhejiang University; Zhi Sheng, Zhejiang University; Jiabao Bai, Zhejiang University; Daochen Yin, Zhejiang University; Jianfeng Ping, Zhejiang University; Zheng Jia, Zhejiang University
3:30 PM	3:50 PM	**Swelling kinetics of programmable DNA-crosslinked hydrogels are governed by Donnan exclusion**
		Brandon Zimmerman, Lawrence Livermore National Laboratory; Bibekananda Datta, Johns Hopkins University; Ruohong Shi, Johns Hopkins University; Rebecca Schulman, Johns Hopkins University; Thao Nguyen, Johns Hopkins University
6-5 Mechanics and Physics of Soft Materials		
Session: M1 Room: Boundary Waters C		
Session Chair(s): Yuhang Hu		
9:30 AM	9:50 AM	**Ultra-fast mechanics of acoustically responsive scaffolds**
		Bachir Abeid, University of Michigan; Mitra Aliabouzar, University of Michigan; Jonathan Estrada, University of Michigan; Mario Fabiilli, University of Michigan
9:50 AM	10:10 AM	**Effect Of Twist On Complex Deformations Of Femoropopliteal Artery In A Finite Element Study**
		Ali Ahmadi, University of Nebraska at Omaha; Anastasia Desyatova, University of Nebraska at Omaha
10:10 AM	10:30 AM	**Characterization of the Mullins Effect in Filled Rubber-like Materials**
		Keven Alkhoury, New Jersey Institute of Technology; Justin Polanco, New Jersey Institute of Technology; Robert Ivko; New Jersey Institute of Technology; Shawn Chester, New Jersey Institute of Technology
10:30 AM	10:50 AM	**Mechanics of Cutting and Tearing of Soft Solids**
		Bharath Antarvedi Goda, University of British Columbia, Vancouver; Mattia Bacca, University of British Columbia, Vancouver
10:50 AM	11:10 AM	**Mechanics Models for Programmable Drug Delivery with Injectable Bioelectronics.**
		Raudel Avila, Rice University; Yonggang Huang, Northwestern University

Session: M2 Room: Boundary Waters C		
Session Chair(s): Stephan Rudykh		
11:25 AM	11:45 AM	**From Linear to Nonlinear: Advancing Eshelby's Theory for Soft Materials**
		Joseph Bonavia, Massachusetts Institute of Technology; Tal Cohen, Massachusetts Institute of Technology; Chockalingam Senthilnathan, Massachusetts Institute of Technology
11:45 AM	12:05 PM	**In Situ Measurement of Solvent Diffusion and Adhesion Properties of Polymer Binders for Rechargeable Batteries**
		Martina Borges, Michigan State University; Akshay Pakhare, Michigan State University; Siva Nadimpalli, Michigan State University
12:05 PM	12:25 PM	**Kuttsukugami Design**
		Andrew Croll, North Dakota State University; Timothy Twohig, North Dakota State University; Ravi Tutika, Virginia Polytechnic Institute; Wuzhou Zu, Virginia Polytechnic Institute; Michael Bartlett, Virginia Polytechnic Institute
12:25 PM	12:45 PM	**Spontaneous entanglement of tumbled elastic rods**
		Fani Derveni, École Polytechnique Fédérale de Lausanne (EPFL); Vishal P. Patil, Stanford University; Jörn Dunkel, Massachusetts Institute of Technology (MIT); Pedro M. Reis, École Polytechnique Fédérale de Lausanne (EPFL)
Session: M3 Room: Boundary Waters C		
Session Chair(s): Xuanhe Zhao		
2:30 PM	2:50 PM	**Harnessing instabilities of spherical shells to program the response of fluids**
		Adel Djellouli, Harvard University; Bert Van Raemdonck, KU Leuven; Yang Wang, Harvard University; Yi Yang, Harvard University; Shmuel Rubinstein, Harvard University; David Weitz, Harvard University; Benjamin Gorissen, KU Leuven; Katia Bertoldi, Harvard University
2:50 PM	3:10 PM	**Electroelasticy of copolymers networks**
		Idan Friedberg, Ben-Gurion University; Gal deBotton, Ben-Gurion University
3:10 PM	3:30 PM	**Effect of compressibility on deformation and stress in an elastomer layer confined between two rigid blocks**
		Sida Hao, University of Texas at Austin; Rui Huang, University of Texas at Austin; Gregory Rodin, University of Texas at Austin
3:30 PM	3:50 PM	**Exploring hyperelastic material model discovery for human brain cortex: multiple regression vs. artificial neural network approaches**
		Jixin Hou, University of Georgia; Xianqiao Wang, University of Georgia
3:50 PM	4:10 PM	**Impact and energy absorption with sticky crumpled matter.**
		Wathsala Jayawardana, North Dakota State University; Andrew Croll, North Dakota State University
Session: M4 Room: Boundary Waters C		
Session Chair(s): Oscar Lopez-Pamies		
4:25 PM	4:45 PM	**Enhance the fracture resistance of hydrogels by structurally regulating the energy release rate: Theory and experiments**
		Zheng Jia, Zhejiang University
4:45 PM	5:05 PM	**The soft overcomes the hard: Dynamic toughening of a bicontinuously nanoarchitected copolymer**
		Hanxun Jin, California Institute of Technology; Catherine Machnicki, Brown University; Rodney Clifton, Brown University; Kyung-Suk Kim, Brown University

5:05 PM	5:25 PM	**Characterization and detection of acceleration induced cavitation in a heterogenous hydrogel using drop tower based integrated system**
		Sachan Johny, University of Texas at Arlington; Jacob Navarro, University of Texas at Arlington; Ashfaq Adnan, University of Texas at Arlington
5:25 PM	5:45 PM	**The Interplay of Materials and Topologies on the Degradation of Biodegradable Polymer Stents**
		Nithin Veerendranath Kammara, Texas A&M University; Muliana Anastasia, Texas A&M University
5:45 PM	6:05 PM	**Sonodynamic cancer therapy: combining ultrasound with sonosensitizers**
		Gun Kim, Ulsan National Institute of Science and Technology (UNIST); Seungo Baek, Ulsan National Institute of Science and Technology; Jeong Soo Kim, O2MEDi; Tae-Hyuk Kwon, Ulsan National Institute of Science and Technology

Thematic Area 7. Biomechanics & Biomaterials

7-1 Mechanobiology of cell-matrix interactions		
Session: M1 Room: Greenway C		
Session Chair(s): Farid Alisafaei		
9:30 AM	10:10 AM	**Keynote: Disrupted Cell-Matrix Interactions in Thoracic Aortic Aneurysms**
		Jay Humphrey, Yale University
10:10 AM	10:30 AM	**Analysis of Cell-Matrix Mechanosignaling at Systems-Scale**
		Adele Doyle, Physics of Life Cluster of Excellence, TU Dresden
10:30 AM	10:50 AM	**Development Of An Activating And Inactivating Optogenetic Toolbox For Perturbation Of Rhoa-Yap Mechanotransductive Feedback**
		Erin Berlew, University of Pennsylvania; Paula Camacho Sierra, University of Pennsylvania; Annapurna Pranatharthi-Haran, University of Pennsylvania; Brian Chow, University of Pennsylvania; Joel Boerckel, University of Pennsylvania
10:50 AM	11:10 AM	**A mechano-chemical continuum framework for modeling axonal deformation and neuronal-ECM molecular pathways underlying traumatic brain injury**
		Debabrata Auddya, University of Wisconsin-Madison; Shiva Rudraraju, University of Wisconsin-Madison
Session: M2 Room: Greenway C		
Session Chair(s): Sohan Kale		
11:25 AM	12:05 PM	**Keynote: The compositional and microstructural evolution of the cervical ECM and its role in deformation**
		Amy Wagoner Johnson, University of Illinois at Urbana-Champaign; Amir Ostadi Moghaddam, University of Illinois at Urbana-Champaign; Mahmuda Arshee, University of Illinois at Urbana-Champaign
12:05 PM	12:25 PM	**Septins Mechanobiologically Pre-Programs T-Cell Circumnavigation Within Complex 3D Environments**
		Erdem Tabdanov, Penn State College of Medicine; Alexander Zhovmer, Center for Biologics Evaluation & Research, FDA; Denis Tsygankov, Georgia Tech and Emory University; Alexis Manning, Center for Biologics Evaluation & Research, FDA; Chynna Smith, NIH; Alexander Cartagena-Rivera, NIH; Dimitrios Vavylonis, Lehigh University; Erdem Tabdanov; Penn State College of Medicine

12:25 PM	12:45 PM	**Viscoplasticity of the extracellular matrix regulates mechanical memory in fibroblasts**
		Farid Alisafaei, New Jersey Institute of Technology; Yuan Hong, Washington University in St. Louis; Xiangjun Peng, Washington University in St. Louis; Haomin Yu, Washington University in St. Louis; Mohammad Jafari, New Jersey Institute of Technology; Delaram Shakiba, Saint Louis University School of Medicine; Aliza Mujahid, New Jersey Institute of Technology; Justin Sacks, Washington University in St. Louis School of Medic; Elliot Elson, Washington University in St. Louis; Guy Genin, Washington University in St. Louis
12:45 AM	1:05 PM	**Programmable and reversible cell ligation reveals that actin retains memory of previous mechanical loading**
		Min Lin, Xi'an Jiaotong University; Zheng Zhang, Xi'an Jiaotong University; Hongyuan Zhu, Xi'an Jiaotong University; Guoqing Zhao, Xi'an Jiaotong University
Session: M3 Room: Greenway C		
Session Chair(s): Farid Alisafaei		
2:30 PM	3:10 PM	**Keynote: An inverse modeling approach to estimate 3D aortic valve interstitial cell stress fiber force levels**
		Michael Sacks, University of Texas at Austin
3:10 PM	3:30 PM	**Quantification of dynamic loading-induced fluid effects on bone cell responses**
		Kailin Chen, University of Pennsylvania
3:30 PM	3:50 PM	**Modelling the Mechanics and Dynamics of Blood Clot Retraction in Wound Closure and Hemostasis**
		Matteo Ferraresso, The University of British Columbia; Christian Kastrup, Versiti Blood Research Institute; Mattia Bacca, The University of British Columbia
3:50 PM	4:10 PM	**Alterations in Microglia Morphology and Expression Following an in vitro Model of Traumatic Brain Injury**
		Emily Blick, University of Wisconsin – Madison; Christian Franck, University of Wisconsin – Madison; Aviad Hai, University of Wisconsin - Madison
Session: M4 Room: Greenway C		
Session Chair(s): Farid Alisafaei		
4:25 PM	4:45 PM	**Mechanosensitivity of Actin Structures in Cells**
		Anders Carlsson, Washington University
4:45 PM	5:05 PM	**Crystal ribcage: a platform for probing real-time lung function at cellular resolution in health and disease**
		Hadi Nia, Department of Biomedical Engineering, Boston University
5:05 PM	5:25 PM	**Nucleus shapes in fibrous environments**
		Amrinder Nain, Virginia Tech
5:25 PM	5:45 PM	**Neutrophil Interaction with Candida auris on Differing Substrate Stiffnesses**
		Karina Buttram, University of Wisconsin - Madison
5:45 PM	6:05 PM	**An osmotic snap-through instability drives decohesion of lung cancer cells from a substrate**
		Shaobao Liu, Nanjing University of Aeronautics and Astronautics

7-6 Advances in Experimental and Computational Biomechanics and Mechanobiology		
Session: M4 Room: Greenway E		
Session Chair(s): David Pierce, Corey Neu		
4:25 PM	4:45 PM	**A Chemo-Mechano-Biological Framework for Evolving Cartilage implemented in 3-D, Nonlinear Finite Elements**
		Muhammed M. Rahman, University of Connecticut, Storrs; Paul N. Watton, University of Sheffield, University of Pittsburgh; Corey P. Neu, University of Colorado, Boulder; David M. Pierce, University of Connecticut, Storrs
4:45 PM	5:05 PM	**The Passive Multiscale Mechanics of Right Ventricular Myocardium**
		Manuel Rausch, University of Texas at Austin; Sotirios Kakaletsis, The University of Texas at Austin; Matthew Lohr, The University of Texas at Austin
5:05 PM	5:25 PM	**Biophysical Modeling of Anisotropic Brain Tumor Growth**
		Mutaz Mohammad, Yarmouk University & Texas A&M University

Thematic Area 8. Machine Learning & AI in Engineering Science

8-1 Data-driven Computational Solid Mechanics		
Session: M1 Room: Greenway J		
Session Chair(s): Qizhi He, Jiun-Shyan Chen		
9:30 AM	10:10 AM	**Keynote: Neural Network-Partition of Unity (NN-PU) Enrichment for Solving Partial Differential Equations**
		J. S. Chen, University of California, San Diego; Jonghyuk Baek, University of California, San Diego
10:10 AM	10:30 AM	**A Nonlinear-Manifold Reduced Order Model and Machine Learning Operator Inference for Partial Differential Equations with Sharp Gradients**
		Peiyi Chen, Duke University; Tianchen Hu, Argonne National Laboratory; Johann Guilleminot, Duke University
10:30 AM	10:50 AM	**Multiscale Damage Via Physics-Informed Recurrent Neural Networks**
		Shiguang Deng, UCI; Ramin Bostanabad, UCI
10:50 AM	11:10 AM	**Robust and scalable graph neural networks for solid mechanics applications**
		Zeqing Jin, University of California Berkeley; Bowen Zheng, University of California, Berkeley; Changgon Kim, Hyundai Motor Company; Grace Gu, University of California, Berkeley
8-2 Data-Driven Approaches for Materials Structures and Multiphysics Systems		
Session: M1 Room: Lake Minnetonka		
Session Chair(s): Yupeng Zhang, Juner Zhu, Emma Lejeune, Burigede Liu		
9:30 AM	10:10 AM	**Keynote: Data-driven analysis on the dynamics and heterogeneity of particle network in composite electrodes**
		Kejie Zhao, Purdue University
10:10 AM	10:30 AM	**Computational Discovery of Microstructured Composites with Optimal Strength-Toughness Trade-Offs**
		Bolei Deng, Massachusetts Institute of Technology; Beichen Li, Massachusetts Institute of Technology; Wan Shou, University of Arkansas; Tae-Hyun Oh, POSTECH; Wojciech Matusik, Massachusetts Institute of Technology

10:30 AM	10:50 AM	**Efficient multiscale mechanics modeling by using a deep convolutional network to bridge scales**
		Ashwini Gupta, Johns Hopkins University; Lori Graham-Brady, Johns Hopkins University
10:50 AM	11:10 AM	**Fill in the Blank: Transferrable Deep Learning Approaches to Recover Missing Physical Field Information**
		Zhenze Yang, Massachusetts Institute of Technology; Markus Buehler, Massachusetts Institute of Technology
Session: M2 Room: Lake Minnetonka		
Session Chair(s): Yupeng Zhang, Juner Zhu, Emma Lejeune, Burigede Liu		
11:25 AM	11:45 AM	**Self-directed Online Machine Learning for Material and Structure Optimization**
		Wei Lu, University of Michigan
11:45 AM	12:05 PM	**Accelerating Topology Optimization via Deep Learning-Based Super-Resolution with Mixed Patch Strategy and Artificial Defects**
		Jaekyung LIM, Seoul National University; Kyusoon Jung, Seoul National University; Do-Nyun Kim, Seoul National University
12:05 PM	12:25 PM	**Unifying the design space of truss metamaterials by generative modeling**
		Li Zheng, ETH Zurich; Siddhant Kumar, TU Delft; Dennis Kochmann, ETH Zurich
12:25 PM	12:45 PM	**A Neural Operator Approach to Learning Drastically Varying Spatial Behavior in Photonic Metamaterials**
		Doksoo Lee, Northwestern University; Lu Zhang, Lehigh University; Wei Chen, Northwestern University, Yue Yu, Lehigh University
12:45 PM	1:05 PM	**Active Learning Framework for Material Structure-Property Relations in Energetic Materials**
		Ozge Ozbayram, Johns Hopkins University; Maruthi Annamaraju, Georgia Institute of Technology; Aditya Venkatraman, Georgia Institute of Technology; Andreas Robertson, Georgia Institute of Technology; Daniel Olsen, Georgia Institute of Technology; Min Zhou, Georgia Institute of Technology; Lori Graham-Brady, Johns Hopkins University; Surya Kalidindi, Georgia Institute of Technology
Session: M3 Room: Lake Minnetonka		
Session Chair(s): Yupeng Zhang, Juner Zhu, Emma Lejeune, Burigede Liu		
2:30 PM	3:10 PM	**Keynote: Data-Driven Viscoelasticity (DDV): Applications in Ultrasonic Biomechanics**
		(Amir)Hossein Salahshoor, California Institute of Technology; Michael Ortiz, California Institute of Technology
3:10 PM	3:30 PM	**Primary sequence-based interpretable machine learning model for the mechanical property prediction in spider silk**
		Akash Pandey, Northwestern University; Wei Chen, Northwestern University; Sinan Keten, Northwestern University
3:30 PM	3:50 PM	**Inverse modeling of interfacial traction separation relations using an energy conservation integral based deep complex network**
		Congjie Wei, Missouri University of Science and Technology; Jiaxin Zhang, Oak Ridge National Laboratory; Kenneth Liechti, The University of Texas at Austin; Chenglin Wu, Missouri University of Science and Technology
3:50 PM	4:10 PM	**Enhancing the detection capabilities of nano-avalanches via data-driven classification of acoustic emission signals**
		Emil Bronstein, Mechanical Engineering, Technion; Jonathan Zimmerman, Materials Science and Engineering, Technion; Eugen Rabkin, Materials Science and Engineering, Technion; Eilon Faran, Mechanical Engineering,

		Technion; Ronen Talmon, Electrical and Computer Engineering, Technion; Doron Shilo, Mechanical Engineering, Technion
Session: M4 Room: Lake Minnetonka		
Session Chair(s): Yupeng Zhang, Juner Zhu, Emma Lejeune, Burigede Liu		
4:25 PM	4:45 PM	**Physics-informed deep operator neural network for fast simulations of pattern formation governed by gradient flows of free-energy functionals**
		Juner Zhu, Northeastern University, Boston; Wei Li, Northeastern University
4:45 PM	5:05 PM	**Machine Learning-assisted Characterization of Electrolyte Transport Properties from Operando Concentration Profiles**
		Aashutosh Mistry, Colorado School of Mines; Hans-Georg Steinruck, Universität Paderborn; Michael Toney, University of Colorado, Boulder; Nitash Balsara, University of California, Berkley; Venkat Srinivasan, Argonne National Laboratory
5:05 PM	5:25 PM	**A cGAN-based Deep Learning Framework for Predicting Grain Boundary Evolution in Nanocrystalline Materials under Mechanical Loadings**
		Shengfeng Yang, Indiana University Purdue University Indianapolis; Yuheng Wang, Indiana University Purdue University Indianapolis
5:25 PM	5:45 PM	**Effective property prediction and inverse microstructural design of CNT-polymer nanocomposites using Convolution Neural Networks and Autoencoders**
		Kavan Nailesh Shah, Virginia Tech; Gary Seidel, Virginia Tech
5:45 PM	6:05 PM	**Electronic structure prediction of bulk metals and alloys at large scales using machine learning**
		Shashank Pathrudkar, Michigan Technological University; Ponkrshnan Thiagrajan, Michigan Technological University; Shivang Agarwal, University of California, Los Angeles; Amartya Banerjee, University of California, Los Angeles; Susanta Ghosh, Michigan Technological University
8-3 Approaches for Materials Data Validation and Dataset Standardization		
Session: M4 Room: Greenway D		
Session Chair(s): Jon Estrada		
4:25 PM	4:45 PM	**Full-Field Strain Measurements in Homogeneous Solids: High-Resolution Speckle-Free Flux Enhanced Tomography**
		Zifan Wang, University of Cambridge; Akshay Joshi, University of Cambridge; Angkur Jyoti Dipanka Shaikeea, University of Cambridge; Vikram S. Deshpande, University of Cambridge
4:45 PM	5:05 PM	**Discovery of constitutive behaviour with tomography based full field measurements**
		Akshay Joshi, University of Cambridge; Zifan Wang, University of Cambridge; Angkur Shaikeea, University of Cambridge; Vikram Deshpande, University of Cambridge
5:05 PM	5:25 PM	**Dataset Generation for Digital Image/Volume Correlation and Particle Tracking: Applications to Machine Learning-Based Techniques**
		Alexander Landauer, National Institute of Standards and Technology

5:25 PM	5:45 PM	**Kinematic optimization for soft material calibration**
		Denislav Nikolov, University of Michigan - Ann Arbor; Joseph Beckett, University of Michigan - Ann Arbor; Arjun Sundararajan, University of Michigan - Ann Arbor; Lark Sawyer, University of Michigan - Ann Arbor; Jonathan Estrada, University of Michigan - Ann Arbor
5:45 PM	6:05 PM	**Navigating the future of Additive Manufacturing: defect and geometric prediction of 3D-printed parts using machine learning**
		Sara AlMahri, University of Cambridge; Angkur Shaikeea, Department of Engineering, Cambridge University; Sri Karlapati, Amazon Research, Cambridge, UK Vikram Deshpande, Department of Engineering, Cambridge University
8-4 Recent Advances in Scientific Machine Learning and Uncertainty Quantification Methods for Modeling Complex Systems		
Session: M1 Room: Greenway I		
Session Chair(s): Ramin Bostanabad, Hongyi Xu, Audrey Oliver, Wei Chen		
9:30 AM	10:10 AM	**Keynote: Algorithms and Approaches for Multifidelity Uncertainty Quantification**
		Alex Gorodetsky, University of Michigan
10:10 AM	10:30 AM	**Calibration and Data-fusion Under Multiple Co-existing Uncertainty Sources**
		Ramin Bostanabad, University of California, Irvine; Sanaz Zanjani-Foumani, UCI; Amin Yousefpour, UCI; Carlos Mora Sardina, UCI
10:30 AM	10:50 AM	**Modeling Diffuse Shadows is Critical for Maximizing Solar Harvesting in Dynamic and 3D Urban Environments**
		Andrés Arias-Rosales, Carnegie Mellon University; Philip R. LeDuc, Carnegie Mellon University
Session: M2 Room: Greenway I		
Session Chair(s): Ramin Bostanabad, Hongyi Xu, Audrey Oliver, Wei Chen		
11:25 AM	11:45 AM	**The effect of noise uncertainty in experimental data on Bayesian inference: analytically and numerically**
		Yupeng Zhang, California Institute of Technology; Jeffrey Hart, Professor Emeritus of Statistics, Texas A&M
11:45 AM	12:05 PM	**Robust graph neural network predictions of formation energy for organic and inorganic compounds using uncertainty quantification**
		Massimiliano (Max) Lupo Pasini, Oak Ridge National Laboratory; Samuel Temple Reeve, Oak Ridge National Laboratory; Pei Zhang, Oak Ridge National Laboratory; Siyan Liu, Oak Ridge National Laboratory; Dan Lu, Oak Ridge National Laboratory
Session: M3 Room: Greenway I		
Session Chair(s): Ramin Bostanabad, Hongyi Xu, Audrey Oliver, Wei Chen		
2:30 PM	2:50 PM	**A Unified Adaptive Sampling Framework for Multi-Fidelity Modeling and Bayesian Optimization via Latent Variable Gaussian Process**
		Yi-Ping Chen, Northwestern University; Liwei Wang, Northwestern University; Yigitcan Comlek, Northwestern University; Wei Chen, Northwestern University
2:50 PM	3:10 PM	**Accelerated Training of RNN Plasticity Models Through Multi-task Learning**
		Julian Heidenreich, ETH Zurich; DirkMohr, ETH Zurich
3:10 PM	3:30 PM	**Topology optimization with physics-informed neural networks: application to noninvasive detection of hidden geometries**
		Saviz Mowlavi, Mitsubishi Electric Research Labs; Ken Kamrin, Massachusetts Institute of Technology

Session: M4 Room: Greenway I		
Session Chair(s): Ramin Bostanabad, Hongyi Xu, Audrey Oliver, Wei Chen		
4:25 PM	4:45 PM	**CAMERA: A Method for Cost-aware, Adaptive, Multifidelity, Efficient Reliability Analysis**
		Ashwin Renganathan, Pennsylvania State University; Vishwas Rao, Argonne National Lab; I. Michael Navon, Florida State University
4:45 PM	5:05 PM	**Interlaced Characterization and Calibration of Elastoplastic Constitutive Models**
		Daniel Seidl, Sandia National Laboratories; Denielle Ricciardi, Sandia National Laboratories; Brian Lester, Sandia National Laboratories; Amanda Jones, Sandia National Laboratories; Elizabeth Jones, Sandia National Laboratories
5:05 PM	5:25 PM	**Uncertainty Quantification Driven Dataset Balancing for Improving Machine Learning Accuracy**
		Tuba Dolar, Northwestern University; Jie Chen, Northwestern University; Wei Chen, Northwestern University

Thematic Area 9. Architected Solids & Metamaterials

9-1 Mechanics of morphing metamaterials and structures		
Session: M1 Room: Lake Harriet		
Session Chair(s): Paolo Celli		
9:30 AM	9:50 AM	**Inverse design of shape-morphing structures based on kirigami**
		Yunlan Zhang, University of Texas at Austin; Jingyi Yang, University of Oxford; Mingchao Liu, Nanyang Technological University; Dominic Vella, University of Oxford
9:50 AM	10:10 AM	**The effect of local geometric parameters of a kirigami rotational system unit on its buckling behavior**
		Isabel M. de Oliveira, Princeton University; Eduardo M. Sosa, West Virginia University; Sigrid Adriaenssens, Princeton University
10:10 AM	10:30 AM	**Inverse design of functionally-graded kirigami-inspired morphing structures**
		Hirak Kansara, Queen Mary University of London; Wei Tan, Queen Mary University of London; Mingchao Liu, University of Birmingham; Yinfeng He, University of Nottingham
Session: M2 Room: Lake Harriet		
Session Chair(s): Paul Plucinsky		
11:25 AM	11:45 AM	**Regular and Semi-Regular Tessellations of Origami Flashers**
		Nachat Jatusripitak, Stanford University; Manan Arya, Stanford University
11:45 AM	12:05 PM	**Integrated Tensegrity and Origami Systems for Deployable Space Structures**
		Muhao Chen, Texas A&M University; Shuo Ma, Zhejiang University of Technology; Robert Skelton, Texas A&M University
12:05 PM	12:25 PM	**Optimal origami as a limit of confined thin elastic sheets**
		Samuel Wallace, Rutgers University; Ian Tobasco, Rutgers University

12:25 PM	12:45 PM	**Trajectory Visualization of Multistable Origami Structures**
		Kevin Sheehan, University of Minnesota-Twin Cities; Huan Liu, University of Minnesota-Twin Cities; Matt Grasinger, Air Force Research Laboratory; Phil Buskohl, Air Force Research Laboratory; Richard James, University of Minnesota-Twin Cities
Session: M3 Room: Lake Harriet		
Session Chair(s): Manan Arya		
2:30 PM	2:50 PM	**Geometrically Tuning Bistable Shell Behavior for Morphing Structures**
		Ian Boyd, UES Inc.; Matthew Grasinger, Air Force Research Laboratory; Philip Buskohl, Air Force Research Laboratory
2:50 PM	3:10 PM	**Multistable Inflatables for Reconfigurable Structures**
		Yi Yang, Harvard University; HyeJun Youn, Harvard University; Renate Sachse, Harvard University; Jin Feng, Harvard University; Jose Vidal, Harvard University; Katia Bertoldi, Harvard University
3:10 PM	3:30 PM	**Structural morphing surfaces based on self-standing, snap-through building blocks**
		Asifur Rahman, Stony Brook University; Samuele Ferracin, Stony Brook University; Sujata Tank, Stony Brook University; Paolo Celli, Stony Brook University
3:30 PM	3:50 PM	**Designing a Patterned Axisymmetric Shell Structure with Multi-stability**
		Seungkwan Lee, Seoul National University; Do-Nyun Kim, Seoul National University
3:50 PM	4:10 PM	**Frustrated metamaterials as pop-up dome structures**
		Paolo Celli, Stony Brook University; Lucas Annink, Stony Brook University; Imtiar Niloy, Stony Brook University; Olivine Silier, California Institute of Technology; Chiara Daraio, California Institute of Technology
Session: M4 Room: Lake Harriet		
Session Chair(s): Paolo Celli		
4:25 PM	4:45 PM	**Coarse graining planar kirigami, Part 1: Continuum PDE description**
		Paul Plucinsky, University of Southern California; Ian Tobasco, University of Illinois Chicago; Yue Zheng, Drexel University; Paolo Celli, Stony Brook University
4:45 PM	5:05 PM	**Coarse graining planar kirigami, Part 2: A Mechanism Gradient Theory**
		Ian Tobasco, University of Illinois Chicago; Yue Zheng, University of Southern California; Paolo Celli, Stony Brook University; Paul Plucinsky, University of Southern California
5:05 PM	5:25 PM	**The macroscopic behavior of the Kagome lattice metamaterial**
		Xuenan Li, New York University; Robert Kohn, New York University
5:25 PM	5:45 PM	**Derivation of an effective plate theory for parallelogram origami from bar and hinge elasticity**
		Hu Xu, University of Southern California; Ian Tobasco, Univerisity of Illinois at Chicago; Paul Plucinsky, University of Southern California
9-4 Advances in the Mechanics of Architected Materials		
Session: M1 Room: Lake Superior A		
Session Chair(s): Reza Moini		
9:30 AM	9:50 AM	**Multi-physical properties of a fixed volume fraction metamaterial with optimally-shaped periodic inclusions**
		Niloufar Adab, University of Houston; Tian Chen, University of Houston

9:50 AM	10:10 AM	**The Effect of Long-Range Order on the Mechanical Response of Metamaterials**
		Kate Ainger, University of California, Irvine; Alexander Groetsch, University of California, Irvine; Lorenzo Valdevit, University of California, Irvine
10:10 AM	10:30 AM	**Edge cell analysis and characterization for finite-sized mechanical metamaterial arrays**
		Alireza Amirkhizi, University of Massachusetts, Lowell; Weidi Wang, University of Massachusetts, Lowell; Joshua Morris, University of Massachusetts, Lowell; Willoughby Cheney, University of Massachusetts, Lowell; Erdem Caliskan; University of Tennessee; Reza Abedi, University of Tennessee
10:30 AM	10:50 AM	**A robust framework to find the hidden patterns in acoustic and mechanical metamaterials**
		Catherine Brinson, Duke University; Mary Bastawrous, Duke University; Zhi Chen, Duke University; Alex Ogren, Caltech; Chiara Daraio, Caltech; Cynthia Rudin, Duke University
10:50 AM	11:10 AM	**Curvature-guided design of shell-based spinodal metamaterials**
		Somayajulu Dhulipala, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
Session: M2 Room: Lake Superior A		
Session Chair(s): David Restrepo		
11:25 AM	11:45 AM	**Including AM-Fabrication Induced Anisotropy in Topology Optimization of Material Architectures**
		Josephine Carstensen, MIT; Jackson Jewett, MIT; Hajin Kim-Tackowiak, MIT
11:45 AM	12:05 PM	**Optimization Towards the Theoretical Limit for Ceramic Lattices Subjected to Hydrostatic Pressure**
		Andrew Gross, University of South Carolina; Fakhreddin Emami, University of South Carolina
12:05 PM	12:25 PM	**Advances in Effective Parameter Optimization for B**
		Juan C. Velasquez-Gonzalez, The University of Texas at San Antonio; Juan D Navarro, The University of Texas at San Antonio; Franco Garces, The University of Texas at San Antonio; David Restrepo, The University of Texas at San Antonio
Session: M3 Room: Lake Superior A		
Session Chair(s): Reza Moini		
2:30 PM	3:10 PM	**Keynote: Granular crystals as strong and fully dense architectured materials**
		Francois Barthelat, University of Colorado Boulder
3:10 PM	3:30 PM	**Tough, Strong, and Lightweight Architected Materials Using Material and Structural Size Effects**
		Zainab Patel, University of Washington; Abdulaziz Alrashed, University of Washington; Lucas Meza, University of Washington
3:30 PM	3:50 PM	**Low-Density 2D Kagome Lattices under Tension: Elastic Instability, Strength and Toughness**
		Rui Huang, University of Texas at Austin; Soham Mane, University of Texas at Austin; Kenneth Liechti, University of Texas at Austin
3:50 PM	4:10 PM	**Tensile response of architected cellulose fiber networks of low areal density**
		Shubham Agarwal, The University of British Columbia; Prabhat Srivastava, The University of British Columbia; Sheldon Green, The University of British Columbia; Srikantha Phani, The University of British Columbia

Session: M4 Room: Lake Superior A		
Session Chair(s): Stavros Gaitanaros		
4:25 PM	4:45 PM	**Decomposing Contributions to Energy Dissipation in Impact of Architected Materials**
		Thomas Butruille, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology; Joshua Crone, Army Research Laboratory
4:45 PM	5:05 PM	**Effect of hierarchical order on mechanical properties of architected carbon nanotube foams**
		Komal Chawla, Postdoc, University of Wisconsin Madison; Abhishek Gupta, PhD Student, University of Wisconsin Madison; Ramathasan Thevamaran, Assistant Professor, University of Wisconsin Madison
5:05 PM	5:25 PM	**Engineered disorder for isotropic, extreme resilience and dissipation**
		Hansohl Cho, Korea Advanced Institute of Science and Technology; Jehoon Moon, Korea Advanced Institute of Science and Technology
5:25 PM	5:45 PM	**Ideal shock absorbers enabled by yield buckling**
		Wenfeng Liu, University of Amsterdam; Shahram Janbaz, University of Amsterdam; David Dykstra, University of Amsterdam; Bernard Ennis, Tata Steel Europe; Corentin Coulais, University of Amsterdam
5:45 PM	6:05 PM	**Managing impact-induced rotational kinetic energy through unravelling of collectively buckled VACNT foams**
		Bhanugoban Maheswaran, University of Wisconsin-Madison; Komal Chawla, University of Wisconsin-Madison; Ramathasan Thevamaran, University of Wisconsin-Madison
9-6 Controlling Mechanical Waves with Metamaterials		
Session: M1 Room: Greenway B		
Session Chair(s): Ramathasan Thevamaran		
9:30 AM	10:10 AM	**Keynote: Extreme programmability in piezoelectric metamaterials: from reciprocity breaking to exceptional points**
		Erturk Alper, Georgia Institute of Technology
10:10 AM	10:30 AM	**Self-adapting torsional band gaps in rotating elastic metamaterials**
		Ignacio Arretche, University of Illinois at Urbana-Champaign; Kathryn Matlack, University of Illinois at Urbana-Champaign
10:30 AM	10:50 AM	**Exploring Elastic Self-Dual Kagome Metamaterials: Emergence of Fragile Topology and Corner Modes**
		Pegah Azizi, University of Minnesota; Siddhartha Sarkar, University of Michigan; Kai Sun, University of Michigan; Stefano Gonella, University of Minnesota
10:50 AM	11:10 AM	**Inverse-design of nonlinear mechanical metamaterial cloaks**
		Giovanni Bordiga, Harvard University; Jean-Gabriel Argaud, MINES ParisTech; Vincent Tournat, LAUM - CNRS, Le Mans Université; Katia Bertoldi, Harvard University
Session: M2 Room: Greenway B		
Session Chair(s): Kathryn Matlack		
11:25 AM	11:45 AM	**Curvature-driven anomalous wave propagation in surface-based architected metamaterials**
		Maria Carrillo-Munoz, Wichita State University; Bhisham Sharma, Wichita State University
11:45 AM	12:05 PM	**Superkagome: a framework for augmented topological lattices**
		Mohammad Charara, University of Minnesota; Stefano Gonella, University of Minnesota

12:05 PM	12:25 PM	**Super-resolution Lamb wave imaging with evanescent wave amplification via bounded phonon slab modes**
		Hrishikesh Danawe, University of Michigan; Serife Tol, University of Michigan
12:25 PM	12:45 PM	**Representation Theory for Wave Propagation through Buckled Phononic Crystals**
		Tejas Dethe, Princeton University; Alison Root, Princeton University; Andrej Kosmrlj, Princeton University
12:45 PM	1:05 PM	**Conformally graded metamaterials for low-pass elastic wave manipulation**
		Charles Dorn, ETH Zurich; Dennis Kochmann, ETH Zurich
Session: M3 Room: Greenway B		
Session Chair(s): Serife Tol		
2:30 PM	2:50 PM	**Transmission Revival by Symmetry Violation in Non-Hermitian Systems**
		Yanghao Fang, University of Wisconsin-Madison; William Tuxbury, Wesleyan University; Tsampikos Kottos, Wesleyan University; Ramathasan Thevamaran, University of Wisconsin-Madison
2:50 PM	3:10 PM	**Vibration modes and wave localization in disordered mechanical networks**
		Samuele Ferracin, University of Pennsylvania; Jordan Raney, University of Pennsylvania
3:10 PM	3:30 PM	**Lightweight Metasurfaces for Acoustic Wave Actuation**
		Sam Keller, University of Minnesota; Matthew Stein, University of Minnesota; Yujie Luo, University of Minnesota; Ognjen Ilic, University of Minnesota
3:30 PM	3:50 PM	**An Elastic Neuromorphic Metasurface**
		Mohamed Mousa, University at Buffalo (SUNY); Mohammadreza Moghaddaszadeh, University at Buffalo (SUNY); Amjad Aref, University at Buffalo (SUNY); Mostafa Nouh, University at Buffalo (SUNY)
3:50 PM	4:10 PM	**Locally resonant metamaterials as ocean wave breakers for energy generation**
		Raj Kumar Pal, Kansas State University; Reza Abedi, University of Tennessee
Session: M4 Room: Greenway B		
Session Chair(s): Charles Dorn		
4:25 PM	5:05 PM	**Keynote: Topological Sonic Defects**
		Christensen Johan
5:05 PM	5:25 PM	**On the Characteristics of Truncation resonances in Bilayer Rods and Beams**
		Sangwon Park, University of Illinois at Urbana-Champaign; Kathryn Matlack, University of Illinois at Urbana-Champaign
5:25 PM	5:45 PM	**A seismic metabarrier to suppress surface waves in a heterogenous granular half-space**
		Lalith Sai Srinivas Pillarisetti, Pennsylvania State University; Cliff J Lissenden, Pennsylvania State University; Parisa Shokouhi, Pennsylvania State University

Thematic Area 10. Mechanics of Solids & Structures

10-7 Mixed Low Dimensional Nanomaterials		
Session: M1 Room: Lake of the Isles		
Session Chair(s): Mohammad Naraghi, Chenglin Wu		
9:30 AM	9:50 AM	**Mixed-Mode Crack Propagation in Micrometer Scaled Bilayer Graphene Sheets**
		Muhammad Usama Arshad, Texas A&M University; Yuxiang Gan, Missouri University of Science and Technology; Congjie Wei, Missouri University of Science and Technology; Jiaoli Li, Missouri University of Science and Technology; Chenglin Wu, Missouri University of Science and Technology; Mohammad Naraghi, Texas A&M University
9:50 AM	10:10 AM	**Understanding the effect of twin boundaries in electrical reliability of metallic nanowires**
		Rodrigo Bernal, University of Texas at Dallas; Mohammad Waliullah, University of Texas at Dallas
10:10 AM	10:30 AM	**A Numerical Study on Nano and Microscale Graphene Blisters with Periodic Van der Waals Interactions**
		Ganbin Chen, The University of Texas at Austin; Rui Huang; The University of Texas at Austin
Session: M2 Room: Lake of the Isles		
Session Chair(s): Mohammad Naraghi, Chenglin Wu		
11:25 AM	11:45 AM	**Interface Properties of Low Dimensional Carbon-Based Materials on Metallic Substrates**
		Abigail Eaton, University of Arkansas; Arun Nair, University of Arkansas
11:45 AM	12:05 PM	**In-situ SEM MEMS Characterizes Fracture of High-Entropy MXene**
		Yuxiang Gan, Missouri University of Science and Technology; Congjie Wei, Missouri University of Science and Technology; Jiaoli Li, Missouri University of Science and Technology; Xiaoqing He, University of Missouri; Chenglin Wu, Missouri University of Science and Technology
12:05 PM	12:25 PM	**In-situ Fracture Characteristics of Mixed Dimensional Graphene-Carbon Nanofiber-Graphene Composites**
		Yuxiang Gan, Missouri University of Science and Technology; Muhammad Usama Arshad, Texas A&M University; Congjie Wei, Missouri University of Science and Technology; Jiaoli Li, Missouri University of Science and Technology; Xiaoqing He, University of Missouri; Mohammad Naraghi, Texas A&M University; Chenglin Wu, Missouri University of Science and Technology
Session: M3 Room: Lake of the Isles		
Session Chair(s): Mohammad Naraghi, Chenglin Wu		
2:30 PM	2:50 PM	**Transformation of the structure of monolayer materials from 2D to 1D**
		Kasra Momeni, University of Alabama; Hamed Attariani, Wright State University
2:50 PM	3:10 PM	**In-Plane Mechanics of 2D Hybrid Organic-Inorganic Perovskites**
		Qing Tu, Texas A&M University; Doyun Kim, Texas A&M University; Eugenia S. Vasileiadou, Northwestern University; Ioannis Spanopoulos, University of South Florida; Xuguang Wang, University of Illinois Urbana-Champaign; Jinhui Yan, University of Illinois Urbana-Champaign; Mercouri G. Kanatzidis, Northwestern University
3:10 PM	3:30 PM	**In Situ Investigation of Deformation Mechanisms in Polycrystalline Metallic Nanowires**
		Hongyu Wang, North Carolina State University; Zhi Li, A*STAR; Junyu Ge, Nanyang Technological University; Hong Li, Nanyang Technological University; Huajian Gao, A*STAR, Nanyang Technological University; Yong Zhu, North Carolina State University

10-8 Mechanics of Materials and Structures: Honoring Prof. Zhigang Suo on the Occasion of his 60th Birthday		
Session: M4 Room: Boundary Waters A		
Session Chair(s): Xuanhe Zhao		
4:25 PM	4:55 PM	**Keynote: Three Classes of Entanglements In Polymer Networks**
		Michael Rubinstein, Duke University; Danyang Chen, Duke University; Sergey Panyukov, P. N. Lebedev Physics Institute; Tetsuya Yamamoto, Institute for Chemical Reaction Design & Discovery; Liel Sapir, Duke University
4:55 PM	5:25 PM	**Keynote: Mechanics-guided 3D assembly of complex mesostructures and functional devices**
		Yonggang Huang, Northwestern University
5:25 PM	5:45 PM	**Contact Mechanics of Soft Hydrated Materials**
		Yuhang Hu, Georgia Institute of Technology; Yang Lai, Georgia Institute of Technology; Dongjing He, Georgia Institute of Technology
10-11 Recent Advances in Modeling Materials Across Nano- and Micro-scales		
Session: M1 Room: Greenway A		
Session Chair(s): Swarnava Ghosh		
9:30 AM	9:50 AM	**Solid Mechanics and Superconductivity**
		Shoham Sen, University of Minnesota; Shivam Sharma, University of Minnesota; Gunjan Pahlani, Intel Corporation; Patricia Pop-Ghe, Cell Technology at Electric Hydrogen; Giorgos Grekas, Institute of Applied and Computational Mathematics; Richard James, University of Minnesota
9:50 AM	10:10 AM	**Advanced algorithms for electronic structure calculations: from one to a million atoms**
		John Pask, LLNL
10:10 AM	10:30 AM	**MXE: A tool for simulating atomistic long-term diffusive mass transport**
		Juan Pedro Mendez Granado, Sandia National Laboratories; Mauricio Ponga, University of British Columbia
10:30 AM	10:50 AM	**Torsional Strain Engineering of Nanotubes with Flat Bands**
		Shivam Sharma, University of Minnesota-Twin Cities; Amartya Banerjee, University of California Los Angeles; Richard James, University of Minnesota-Twin Cities
Session: M2 Room: Greenway A		
Session Chair(s): Vikram Gavini		
11:25 AM	12:05 PM	**Keynote: Objective molecular dynamics in classical and quantum mechanics**
		Richard James, University of Minnesota
12:05 PM	12:25 PM	**Strain and Defect Engineering in Magnetic Topological Insulators**
		Swarnava Ghosh, Oak Ridge National Laboratory; Markus Eisenbach, Oak Ridge National Laboratory; Mina Yoon, Oak Ridge National Laboratory
12:25 PM	12:45 PM	**Modeling Strain Solitons in 2D Heterostructures**
		Md Tusher Ahmed, University of Illinois at Urbana Champaign; Chenhaoyue Wang, University of California, Los Angeles; Amartya Banerjee, University of California, Los Angeles; Nikhil Chandra Admal, University of Illinois at Urbana Champaign
12:45 AM	1:05 PM	**Chemo - mechanical Behavior and Mechanisms of MXene**
		Jianyu Dai, Missouri University of Science and Technology; Congjie Wei, Missouri University of Science and Technology; Chenglin Wu, Missouri University of Science and Technology

Session: M3 Room: Greenway A		
Session Chair(s): John Pask		
2:30 PM	2:50 PM	**GPU acceleration of large-scale parallel SPARC electronic structure code**
		Abhiraj Sharma, Lawrence Livermore National Laboratory; Alfredo Metere, Lawrence Livermore National Laboratory; Phanish Suryanarayana, Georgia Institute of Technology; Lucas Erlandson, Georgia Institute of Technology; Edmond Chow, Georgia Institute of Technology; John Pask, Lawrence Livermore National Laboratory
2:50 PM	3:10 PM	**Stochastic thermodynamics with internal variables: a statistical mechanics framework for constructing non-equilibrium thermodynamic models**
		Travis Leadbetter, University of Pennsylvania; Prashant Purohit, University of Pennsylvania; Celia Reina, University of Pennsylvania
3:10 PM	3:30 PM	**Molecular dynamics simulations of nanoparticles interacting with bacterial membranes**
		Danh Nguyen, University of Wisconsin – Madison; Ying Li, University of Wisconsin – Madison; Yan Yu, Indiana University Bloomington; Jared Wiemann, Indiana University Bloomington
3:30 PM	3:50 PM	**Data Driven Approach for Effective Hamiltonians for Statistical Mechanics of Alloy Ordering**
		Markus Eisenbach, Oak Ridge National Laboratory; Mariia Karabin, Oak Ridge National Laboratory; Junqi Yin, Oak Ridge National Laboratory; Massimiliano Lupo Pasini, Oak Ridge National Laboratory
Session: M4 Room: Greenway A		
Session Chair(s): Mauricio Ponga		
4:25 PM	4:45 PM	**A mesoscale field dislocation mechanics study- Micropillar confined thin film plasticity and Kink banding in metallic nanolaminates**
		Abhishek Arora, Carnegie Mellon University; Rajat Arora, Advanced Micro Devices; Amit Acharya, Carnegie Mellon University
4:45 PM	5:05 PM	**A Multiscale Computational Study of Shape Memory and Ferroelastic Responses of Zirconia-based Ceramics**
		Mohsen Asle Zaeem, Colorado School of Mines
5:05 PM	5:25 PM	**Three-Dimensional Micro-Mechanical Framework for Deformation Twinning**
		Akhilesh Pedgaonkar, University of Wisconsin-Madison; Anderson Nascimento, University of California, Santa Barbara; Curt Bronkhorst, University of Wisconsin-Madison; Irene Beyerlein, University of California, Santa Barbara
5:25 PM	5:45 PM	**Dendrite Inhibition Strategy using Hetero-epitaxial Residual Stresses in Thin Film Deposition Mechanics**
		Musanna Galib, The University of British Columbia; Jian Liu, The University of British Columbia; Mauricio Ponga, The University of British Columbia
5:45 PM	6:05 PM	**Crystallographic aspects of ductile void growth and coalescence in HCP materials**
		Shailendra Joshi, University of Houston
10-12 Mechanics of Electrochemical Systems		
Session: M1 Room: Greenway F		
Session Chair(s): Christos Athanasiou		
9:30 AM	9:50 AM	**Dendrite mitigation and chemomechanical phenomena in solid electrolytes**
		Brian Sheldon, Brown University; Truong Cai, Brown University; Cole Fincher, Massachusetts Institute of Technology; Chenjie Gan, Brown University; Alex Mijailovic, Brown University; Sydney Morris, Brown University; Changmin Shi,

		Brown University; Zikang Yu, Brown University; Christos Athanasiou, Georgia Institute of Technology; Xing Liu, Georgia Institute of Technology
9:50 AM	10:10 AM	**Strain gradient viscoplasticity of constrained thin lithium layers in compression and shear**
		Alessandro Leronni, University of Cambridge; Vikram Deshpande, University of Cambridge; Norman Fleck, University of Cambridge
10:10 AM	10:30 AM	**A mechanistic study of solid electrolyte interphase (SEI) instability in Li metal anode batteries.**
		Shabnam Konica, Brown University; Brian Sheldon, Brown University; Vikas Srivastava, Brown University
10:30 AM	10:50 AM	**On the use of photoelasticity to quantify and visualize dendrite-induced stresses in ceramic electrolytes**
		Christos Athanasiou, Georgia Institute of Technology
10:50 AM	11:10 AM	**Investigating Anode Mechanics and Stability in All-Solid-State Batteries: A Focus on Li Metal and Nano Si Anodes**
		Hongli Zhu, Northeastern University; Daxian Cao, Northeastern University; Tongtai Ji, Northeastern University; Yuxuan Zhang, Oak Ridge National Lab
Session: M2 Room: Greenway F		
Session Chair(s): Christos Athanasiou		
11:25 AM	12:05 PM	**Keynote: Predictive Fracture and Photochemical Reaction Kinetics Modeling for Reliability of Photovoltaic Module Encapsulants Undergoing Field Aging**
		Reinhold Dauskardt, Stanford University
12:05 PM	12:25 PM	**A Continuum Electro-Chemo-Mechanical Gradient Theory Coupled with Damage**
		Claudio Di Leo, Georgia Institute of Technology; Donald Bistri, Georgia Institute of Technology
12:25 PM	12:45 PM	**Engineering ductility into solid state Li-ion conductors: case study of Lipon**
		Sergiy Kalnaus, Oak Ridge National Laboratory; Andrew Westover, Oak Ridge National Laboratory; Mordechai Kornbluth, Robert Bosch Research and Technology Center; Erik Herbert, Oak Ridge National Laboratory; Nancy Dudney, Oak Ridge National Laboratory (retired)
12:45 AM	1:05 PM	**External Pressure Affecting Li Dendrite Growth in Li Metal Battery During Cycles**
		Li Ting Gao, Shanghai University; Zhan-Sheng Guo, Shanghai University
Session: M3 Room: Greenway F		
Session Chair(s): Christos Athanasiou		
2:30 PM	2:50 PM	**Large deformation of battery modules leading to internal short circuit**
		Sergiy Kalnaus, Oak Ridge National Laboratory; Abhishek Kumar, Wentworth Institute of Technology; Hsin Wang, Oak Ridge National Laboratory; Thomas Watkins, Oak Ridge National Laboratory; Srdjan Simunovic, Oak Ridge National Laboratory; John Turner, Oak Ridge National Laboratory; Phillip Gorney, National Highway Traffic Safety Administration
2:50 PM	3:10 PM	**A continuum mechanics model coupled with transient electrochemical kinetics for high performance rechargeable batteries**
		Akshay Pakhare, Michigan State University; Shawn Chester, New Jersey Institute of Technology; Siva Nadimpalli, Michigan State University

3:10 PM	3:30 PM	**Charactering the effect of electrochemical cycling on interface failure between composite electrode binder and active material**
		Akshay Pakhare, Michigan State University; Siva Nadimpalli, Michigan State University
3:30 PM	3:50 PM	**Martensite-like microstructures in intercalation materials**
		Ananya Renuka Balakrishna, University of California Santa Barbara; Tao Zhang, University of California Santa Barbara; Delin Zhang, University of Southern California
3:50 PM	4:10 PM	**Experimental and Theoretical Investigation of the Effect of Functionalized Nanoparticles on Hydrogen Crossover and Open-circuit Voltage**
		Xiangfa Wu, North Dakota State University; Oksana Zholobko, North Dakota State University; Adbul Salam, North Dakota State University
Session: M4 Room: Greenway F		
Session Chair(s): Matt Pharr		
4:25 PM	4:45 PM	**A study of the mechanical properties of Ca metal at various length scales and its potential use in rechargeable batteries**
		Jungho Shin, Texas A&M University; Cole Fincher, Massachusetts Institute of Technology; Matt Pharr, Texas A&M University
4:45 PM	5:05 PM	**Fabrication and Characterization of Mechanically Flexible Intermediate-temperature Proton Exchange Membranes for Electrochemical Energy Conversion**
		Xiangfa Wu, North Dakota State University; Oksana Zholobko, North Dakota State University
5:05 PM	5:25 PM	**Chemomechanical origins of the dynamic evolution of isolated Li filaments in inorganic solid-state electrolytes**
		Rong Xu, Xi'an Jiaotong University
5:25 PM	5:45 PM	**Designing intercalation materials that undergo symmetry-breaking transformations**
		Delin Zhang, University of Southern California; Ananya Renuka Balakrishna, University of California Santa Barbara
10-13 Structural energy storage systems		
Session: M3 Room: Nokomis		
Session Chair(s): Jodie Lutkenhaus		
2:30 PM	2:50 PM	**Keynote: Carbon fibre battery composites for massless energy storage**
		Leif Asp, Chalmers University of Technology
2:50 PM	3:10 PM	**Dynamic voltage stability design for solid-state batteries**
		Xin Li, Harvard University
3:10 PM	3:30 PM	**Glyme-based structural battery electrolytes produced by polymerization-induced phase separation for low-temperature applications**
		Sayyam Deshpande, Texas A&M University; Vishaal Vidyaprakash, Texas A&M University; Suyash Oka, Texas A&M University; Jodie Lutkenhaus, Texas A&M University; Micah Green, Texas A&M University
3:30 PM	3:50 PM	**Modeling of Bicontinuous Electrolyte for Structural Batteries**
		Tianyang Zhou, Texas A&M University; Jaybelle Pranada, Texas A&M University; Sayyam Deshpande, Texas A&M University; Vishaal Vidyaprakash, Texas A&M University; Jodie Lutkenhaus, Texas A&M University; Micah Green, Texas A&M University; Dimitris Lagoudas, Texas A&M University

Session: M4 Room: Nokomis		
Session Chair(s): Tianyang Zhou		
4:25 PM	4:45 PM	**Non-Equilibrium Microstructures and Mechanical Properties of Hydrogel Enabled Additively Manufactured Micro-architected Metallic Systems**
		Julia Greer, California Institute of Technology
4:45 PM	5:05 PM	**Textile Composite Electrodes for Wearable Batteries**
		Zijian Zheng, The Hong Kong Polytechnic University
5:05 PM	5:25 PM	**Polymer-derived ceramic paper-like electrodes for multifunctional alkali-metal ion batteries**
		Sonjoy Dey, Kansas State University; Shakir Bin Mujib, Kansas State University; Gurpreet Singh, Kansas State University
5:25 PM	5:45 PM	**Electro-chemo-mechanical coupling of redox-active polymer-based electrodes in structural batteries**
		Jaybelle A. Pranada, Texas A&M University; Tianyang Zhou, Texas A&M University; Suyash Oka, Texas A&M University, Chen Wang, Texas A&M University; Jodie L. Lutkenhaus, Texas A&M University; Dimitris C. Lagoudas, Texas A&M University
10-15 Multiphysics mechanics of soft solids		
Session: M4 Room: Lake of the Isles		
Session Chair(s): Mrityunjay Kothari, Vikas Srivastava		
4:25 PM	5:05 PM	**Keynote: Strain, strain rates, and their thresholds for predicting traumatic brain injury**
		Haneesh Kesari, Brown University; Yang Wan, Brown University; Rafael González-Cruz, Brown University; Rika Wright Carlsen, Robert Morris University; Diane Hoffman-Kim, Brown University
5:05 PM	5:25 PM	**Machine Learning-Assisted Finite Element Simulations for Characterizing Human Brain Morphology**
		Xianqiao Wang, University of Georgia; Jixin Hou, University of Georgia
5:25 PM	5:45 PM	**A large deformation model for quasi-static to high strain rate response of rate-stiffening soft polymers**
		Aditya Konale, Brown University; Zahra Ahmed, Brown University; Piyush Wanchoo, University of Rhode Island; Vikas Srivastava, Brown University
10-16 Computational Mechanics of Materials and Structures		
Session: M2 Room: Greenway J		
Session Chair(s): Shawn A. Chester		
11:25 AM	11:45 AM	**Constitutive Modeling of the Mullins Effect in Filled Rubber-like Materials**
		Keven Alkhoury, New Jersey Institute of Technology; Justin Polanco, New Jersey Institute of Technology; Robert Ivko, New Jersey Institute of Technology; Shawn Chester, New Jersey Institute of Technology
11:45 AM	12:05 PM	**FE Implementation for Nematic Liquid Elastomers Modelled as Viscoelastic Media with a Viscous Director**
		Ali El Hajj Chehade, University of California Berkeley; Beijun Shen, Johns Hopkins University; Thao D. Nguyen, John Hopkins University; Sanjay Govindjee, University of California Berkeley
12:05 PM	12:25 PM	**Mechanical Behavior and Segmental Dynamics of Cross-linked Thermosets with Additives**
		Kamrun Nahar Keya, Iowa State University, North Dakota State University; Wenjie Xia, Iowa State University
12:25 PM	12:45 PM	**Physics and Chemistry-based Constitutive Framework for Multi-Physics Aging in Polymeric Materials**
		Maryam Shakiba, Ann and H.J. Smead Aerospace Engineering Sciences, the University of Colorado – Boulder; Aimane Najmeddine, Department of Civil and Environmental Engineering, Princeton University

12:45 PM	1:05 PM	**Experimental investigation of strain sensing of PDMS binder with MWCNTs and aluminum fuel under cyclic compressive loads**
		Viswajit Talluru, Virginia Tech., Aerospace Engineering Department; Gary Seidel, Virginia Tech., Aerospace Engineering Department
Session: M3 Room: Greenway J		
Session Chair(s): Wei Gao		
2:30 PM	2:50 PM	**Macromechanical modeling of hBN aided by molecular dynamics simulations provide key insights on novel toughening and strengthening mechanism**
		Simanta Lahkar, Indian Institute of Technology Gandhinagar, India
2:50 PM	3:10 PM	**An Atomistic-Based Continuum Computational Model for Janus Nanotubes**
		Jonathan Oleson, Michigan Technological University; Susanta Ghosh, Michigan Technological University
3:10 PM	3:30 PM	**Tailoring Graphene Oxide Thin Films for Impact Resistance**
		Heather White, Northwestern University; Andrea Giuntoli, University of Groningen; Müge Fermen-Coker, U.S. Army Research Laboratory; Sinan Keten, Northwestern University
3:30 PM	3:50 PM	**An integrated experimental and atomistic computational analysis of the slip-GB reactions in SrTiO3**
		Kiet Tuong Tran, Iowa State University; Kuan Ding, TU Darmstadt; Jurgen Rodel, TU Darmstadt; Atsutomo Nakamura, Osaka University; Xufei Fang, TU Darmstadt; Liming Xiong, Iowa State University
3:50 PM	4:10 PM	**Atomistic Computational Analysis of Slip-Grain Boundary Reactions in SrTiO3**
		Kiet Tuong Tran, Iowa State University; Kuan Ding, TU Darmstadt; Jurgen Rodel, TU Darmstadt; Atsutomo Nakamura, Osaka University; Xufei Fang, TU Darmstadt; Liming Xiong, Iowa State University
Session: M4 Room: Greenway J		
Session Chair(s): Nikolaos Bouklas		
4:25 PM	4:45 PM	**A General Higher-Order Shell Theory for incompressible and anisotropic hyperelastic materials using Orthonormal Moving Frame**
		Archana Arbind, Indian Institute of Technology, Kharagpur
4:45 PM	5:05 PM	**Material Characterization of Porous Media using a 3-D Multiscale Quasi Static Material Point Method**
		Rashmi Chawla, Virginia Tech
5:05 PM	5:25 PM	**Quantum Computing for Solid Mechanics and Structural Engineering – a Demonstration with Variational Quantum Algorithms**
		Yunya Liu, University of Utah; Jiakun Liu, University of Pennsylvania; Jordan R. Raney, University of Pennsylvania; Pai Wang, University of Utah
5:25 PM	5:45 PM	**An Adaptive Wavelet Method for Nonlinear Partial Differential Equations with Multiple Spatial and Temporal Scales**
		Karel Matous, University of Notre Dame; Cody Cochran, University of Notre Dame
5:45 PM	6:05 PM	**Navier-Stokes Solver for Phase Field Modeled Solid-Fluid Interactions**
		Emma Schmidt, University of Colorado Colorado Springs; J. Matt Quinlan, University of Colorado Colorado Springs; Maycon Meier Dos Santos, University of Colorado Colorado Springs; Brandon Runnels, University of Colorado Colorado Springs

10-17 Micro-to-Macro Mechanics of Heterogeneous Solids and Granular Media		
Session: M1 Room: Nokomis		
Session Chair(s): Shashank Agarwal, Adyota Gupta & Sakshi Braroo		
9:30 AM	9:50 AM	**Mechanical behavior of heterostructured iron films with precisely defined bimodal architectures**
		Rohit Berlia, Arizona State University; Jagannathan Rajagopalan, Arizona State University
9:50 AM	10:10 AM	**Processing, structure, and nanomechanical behavior of hcp/bcc nanolaminates containing wide 3D interfaces**
		Mauricio De Leo, University of Minnesota; Justin Cheng, University of Minnesota; Shuozhi Xu, University of Oklahoma; Jon Kevin Baldwin, Los Alamos National Laboratory; Irene Beyerlein, University of California; Nathan Mara, University of Minnesota
10:10 AM	10:30 AM	**Improved mechanical performance elicited through gradient plasticity**
		Claire Griesbach, University of Wisconsin – Madison; Curt Bronkhorst, University of Wisconsin – Madison; Ramathasan Thevamaran, University of Wisconsin - Madison
10:30 AM	10:50 AM	**Micromechanics based homogenization of truss lattices with experimental validation**
		Ranganathan Parthasarathy, Tennessee State University; Kehinde Omotayo, Tennessee State University; Samal Aminashairi, Tennessee State University; Russell Byers, Tennessee State University; Mohammad Hodaei, Tennessee State University
Session: M2 Room: Nokomis		
Session Chair(s): Shashank Agarwal, Adyota Gupta & Sakshi Braroo		
11:25 AM	11:45 AM	**High-speed characterization of the dynamic strain field around a collapsing pore in PMMA via x-ray digital image correlation**
		Tom Pilvelait, Brown University; Srijan Neogi, Brown University; David Henann, Brown University; Pradeep Guduru, Brown University
11:45 AM	12:05 PM	**Modeling Shock-induced Void Collapse in Single-crystal BCC Metals at the Mesoscales**
		AvinashDongare, University of Connecticut, Storrs; Ke Ma, University of Connecticut; Sergey Galitskiy, University of Connecticut
12:05 PM	12:25 PM	**Grain shape effects in sediment transport**
		Ken Kamrin, MIT; Qiong Zhang, MIT; Eric Deal, ETH; J. Taylor Perron, MIT; Jeremy Venditti Simon, Frasier University; Santiago Benavides, University of Warwick; Matthew Rushlow, MIT
12:25 PM	12:45 PM	**Examining Carbon Fibre Tows: Unravelling Geometric Entanglement and Mechanics**
		Barty Wardell, University of Cambridge; Angkur Shaikeea, University of Cambridge; Benjamin Russell, Hexcel Composites; Pedro Camanho, University of Porto; Vikram Deshpande, University of Cambridge
12:45 PM	1:05 PM	**Uncertainty Quantification over Length Scales to Inform Design of Engineering Ceramics under Extreme Loading Conditions**
		Sakshi Braroo, Johns Hopkins University; K. T. Ramesh, Johns Hopkins University

Tuesday, October 10, 2023

Thematic Area 1. Medalist Symposia

1-1 Eringen Medal Symposium		
Session: T1 Room: Boundary Waters A		
Session Chair(s): Shelly Zhang		
9:30 AM	9:50 AM	**Generative Design of Multiscale Heterostructures with Blended Multiclass Metamaterials**
		Wei (Wayne) Chen, Texas A&M, Yu-Chin Chan, Siemens Corporation, Technology; Daicong Da, Boise State University; Wei Chen, Northwestern University
9:50 AM	10:10 AM	**Enabling reprogrammable behaviors in magnetically active structures: topology optimization and experimental validation**
		Xiaojia Shelly Zhang, University of Illinois at Urbana-Champaign; Zhi Zhao, University of Illinois at Urbana-Champaign; Chao Wang, University of Illinois at Urbana-Champaign;
10:10 AM	10:30 AM	**Topology optimization of tension-only cable nets under finite deformations**
		Emily D. Sanders, Georgia Institute of Technology; Adeildo Ramos Jr., Federal University of Alagoas; Glaucio Paulino, Princeton University
10:30 AM	10:50 AM	**Additive Manufacturing oriented thermal-fluid topology optimization**
		Heng Chi, Siemens Corporation; Tsz Ling Elaine Tang, Siemens Corporation; Elena Arvanitis, Siemens Corporation
10:50 AM	11:10 AM	**Stress-constrained topology optimization of anisotropic structures**
		Oliver Giraldo-Londoño, University of Missouri; Rogelio Muñeton-Lopez, University of Missouri; Chadwick Bettale, University of Missouri
Session: T2 Room: Boundary Waters A		
Session Chair(s): Evgueni Filipov		
11:25 AM	11:45 AM	**Mechanics of Metamaterials – Origami and Kirigami**
		Horacio Espinosa, Northwestern University; Nicolas Alderete, Northwestern University; Nibir Pathak, Northwestern University
11:45 AM	12:05 PM	**Origami-Inspired Engineered Matter with Embodied Programmability and Intelligence**
		Kon-Well Wang, University of Michigan
12:05 PM	12:25 PM	**Curved Origami for Robotics and Active Mechanical Haptics**
		Hanqing Jiang, Westlake University
12:25 PM	12:45 PM	**Statistical Mechanics of Active Functional Polymers**
		Kaushik Dayal, Carnegie Mellon University
12:45 PM	1:05 PM	**Reprogrammable Frustration and Tunable Auxeticity in Origami Metamaterials**
		Diego Misseroni, DICAM, University of Trento; Pradeep P. Pratapa, Indian Institute of Technology Madras; Ke Liu, Peking University, Beijing, China; Glaucio H. Paulino, Princeton University

Session: T3 Room: Boundary Waters A		
Session Chair(s): Evgueni Filipov		
2:30 PM	2:50 PM	**Soft Robots for a Hard World**
		Robert Ambrose, Texas A&M University
2:50 PM	3:10 PM	**Deployable Structures Based on Curved Beams**
		Katia Bertoldi, Harvard University; David Melancon, Polytechnique Montreal; Antonio Forte, King's College London; Saurabh Mhatre, Harvard University; Elisa Boatti, Harvard University; Martin Bechtold, Harvard University
3:10 PM	3:30 PM	**Using Origami to Build Large-Scale Systems that Support Structural Loads**
		Evgueni Filipov, University of Michigan
3:30 PM	3:50 PM	**Transformable hierarchical origami metastructures**
		Jie Yin, North Carolina State University
3:50 PM	4:10 PM	**Hypar origami: mathematics, computations, applications and extensions**
		Ke Liu, Peking University; Tomohiro Tachi; University of Tokyo; Glaucio Paulino, Princeton University; Qian Deng; Huazhong University
1-2 Taylor Medal Symposium		
Session: T1, Room: Greenway F		
Session Chair(s): James Gilchrist		
9:30 AM	10:10 AM	**Keynote: Intersections of mixing and imagination: The research of Julio Ottino**
		Howard A. Stone, Princeton University, Department of Mechanical and Aerospace Engineering
10:10 AM	10:30 AM	**The Quantum Mechanics of Mixing**
		Emmanuel Villermaux, Institut Universitaire de France
10:30 AM	10:50 AM	**Soft hydraulics: Fundamentals of flows through deformable confinements**
		Ivan C. Christov, Purdue University
10:50 AM	11:10 AM	**Modeling Size and Density Segregation in Dense Granular Flows**
		Richard M. Lueptow, Northwestern University
Session: T2, Room: Greenway F		
Session Chair(s): Ivan Christov		
11:25 AM	11:45 AM	**Mixing of gel particles in polar fluids. Structure, mechanics and diffusive characteristics of non-Gaussian, multi-arm, multi-functional networks**
		Nicholas A. Peppas, The University of Texas at Austin
11:45 AM	12:05 PM	**Chaos in confinement: How to make shear-thinning fluids flow thicken**
		Sujit Datta, Princeton University
12:05 PM	12:25 PM	**Sculpting liquids with electric fields: the art and science of electrohydrodynamic instabilities**
		Petia Vlahovska, Northwestern University
12:25 PM	12:45 PM	**On mixing and morphological instability during the growth of bulk, single crystals**
		Jeffrey J. Derby, University of Minnesota

Session: T3, Room: Greenway F		
Session Chair(s): James Gilchrist		
2:30 PM	2:50 PM	**Insights from chaotic advection, segregation, and diffusion applied to big-scale particle-fluid problems**
		Kimberly Hill, University of Minnesota
2:50 PM	3:10 PM	**Segregation Forces in Dense Granular Flows**
		Paul Umbanhowar, Northwestern University
3:10 PM	3:30 PM	**Hybridizing DEM and continuum modeling in granular flow simulation**
		Ken Kamrin, MIT
3:30 PM	3:50 PM	**The Kinematics of Dense Microroller Systems**
		James Gilchrist, Lehigh University; Samuel Wilson-Whitford, University of Leicester; Maria Chiara Roffin, University of Nottingham, Trent; Jinghui Gao, Lehigh University; Marietta Sisca, Lehigh University; William Buckley, University of Pennsylvania
3:50 PM	4:10 PM	**Quantitative analysis of the vertical-averaging approximation for evaporating thin liquid films**
		Satish Kumar, University of Minnesota; C Larsson
1-4 Rice & Young Investigator Medal Symposium		
Session: T1, Room: Lake Superior B		
Session Chair(s): Stefano Gonella, Jia-Liang Le		
9:30 AM	10:10 AM	**Mechanics in 3D/4D Printing**
		H. Jerry Qi, Georgia Institute of Technology
10:10 AM	10:40 AM	**The Interplay Between Mechanics and Chemistry in Living Polymers**
		Yuhang Hu, Georgia Institute of Technology
10:40 AM	11:10 AM	**Mechanics-driven Extreme Manufacturing (MEM)**
		Baoxing Xu, University of Virginia

Thematic Area 2. Fluid Mechanics & Granular Physics

2-3 Bio-inspired complex geometric boundaries for passive flow control		
Session: T2 Room: Greenway I		
Session Chair(s): Shabnam Raayai-Ardakani		
11:25 AM	11:45 AM	**High-resolution Deep Convolutional Neural Network of deep-sea sponges in extreme flow conditions**
		Adib Bazgir, University of Missouri; Yuwen Zhang, University of Missouri
11:45 AM	12:05 PM	**Undulated seal whisker geometry for passive flow control at swept angles**
		Trevor Dunt, University of Wisconsin-Madison; Christin Murphy, Naval Undersea Warfare Center – Newport; Raul Cal, Portland State University; Jennifer Franck, University of Wisconsin-Madison
12:05 PM	12:25 PM	**Effect of the angle of attack on the drag performance of shark-inspired riblet surfaces**
		Shuangjiu Fu, Harvard University; Shabnam Raayai, Harvard University

12:25 PM	12:45 PM	**Bio-Inspired Triangular Splitters for Enhanced Flow-Induced Vibration Suppression in Offshore Structures**
		Seyedmohammad Mousavisani, University of Massachusetts Dartmouth; Matthew Rausch, University of Massachusetts, Dartmouth; Banafsheh Seyed-Aghazadeh, University of Massachusetts, Dartmouth
12:45 PM	1:05 PM	**Optimizing the spatial arrangement of bird-inspired V-formations for drag reduction**
		Prasoon Suchandra, Harvard University; Shabnam Raayai, Harvard University

Thematic Area 3. Damage & Failure of Materials

3-1 Mechanics of damage fracture and friction in materials across scales		
Session: T1 Room: Greenway H		
Session Chair(s): John Kolinski		
9:30 AM	10:10 AM	**Keynote: Surface morphology of hydrogels and silicones correlates with conditions of controlled fracture**
		Nabila Ali, University of Illinois Urbana – Champaign; Srividhya Sridhar, University of Illinois Urbana-Champaign; Shaobo Zhan, University of Illinois Urbana-Champaign; Karina Herrera, University of Illinois Urbana-Champaign; Melissa Chin, University of Illinois Urbana-Champaign; Shelby Hutchens, University of Illinois Urbana-Champaign; Alison Dunn, University of Illinois Urbana-Champaign
10:10 AM	10:30 AM	**Isotropy and Anisotropy: Toward Understanding the Fracture Behavior of Magnetoactive Elastomers via Phase Field-Cohesive Zone Model**
		Nusrat Jahan Salim, University of Illinois at Urbana Champaign; Ignacio Arretche, University of Illinois Urbana-Champaign; Connor D. Pierce, University of Illinois Urbana-Champaign; Kathryn H. Matlack, University of Illinois Urbana-Champaign
10:30 AM	10:50 AM	**Unlocking the Mystery of Cavitation in Soft Solids: Examining Void Interaction and Merger**
		Hudson Borja da Rocha, Massachusetts Institute of Technology, Tal Cohen, Massachusetts Institute of Technology
Session: T2 Room: Greenway H		
Session Chair(s): Alison Dunn		
11:25 AM	11:45 AM	**Probing material damage after violently collapsing cavitation in soft viscoelastic materials**
		Jin Yang, The University of Texas at Austin
11:45 AM	12:05 PM	**Crack tip kinematics reveal the process zone structure in brittle hydrogel fracture**
		John Kolinski, EPFL; Chenzhuo Li, EPFL; Xinyue Wei, EPFL; Meng Wang, HUJI; Mokhtar Adda-Bedia, ENS-Lyon
12:05 PM	12:25 PM	**Toughening of brittle hydrogels via crack tip complexity**
		Xinyue Wei, Ecole Polytechnique Fédérale de Lausanne (EPFL); John Kolinski, Ecole Polytechnique Fédérale de Lausanne (EPFL)
12:25 PM	12:45 PM	**Crack Nucleation in Elastomers**
		Jinlong Guo, The University of Texas at Austin; Krishnaswamy Ravi-Chandar, The University of Texas at Austin
12:45 PM	1:05 PM	**Propagations of Self-Sustained Failure Front in Prince Rupert's Rods**
		Jia Zhang, Ningbo University; Yulong Li, Northwestern Polytechnic University; Fenghua Zhou, Ningbo University; Yuxuan Zheng, Ningbo University

Session: T3 Room: Greenway H		
Session Chair(s): John Kolinski		
2:30 PM	2:50 PM	**A peridynamic-informed deep learning network for brittle damage prediction**
		Roozbeh Eghbalpoor, Iowa State University; Azadeh Sheidaei, Iowa State University
2:50 PM	3:10 PM	**Mesh Sensitivity in Stochastic FE Simulations of Damage and Fracture of Quasibrittle Structures**
		Joshua Vievering, University of Minnesota Twin Cities; Jia-Liang Le, University of Minnesota Twin Cities
3:10 PM	3:30 PM	**Toughness and Essential Work of Fracture in Ductile Failure**
		Jianing Xie, The University of Texas at Austin; Krishnaswamy Ravi-Chandar, The University of Texas at Austin
3:30 PM	3:50 PM	**Rapid quantification of dynamic and spall strength of metals across strain rates**
		Suhas Eswarappa Prameela, Massachusetts Institute of Technology; Christopher Walker, TAMU; Christopher DiMarco, Johns Hopkins University; Debjoy Mallick, Army Research Lab; Xingsheng Sun, University of Kentucky; Taisuke Sasaki, NIMS; Justin Wilkerson, TAMU; KT Ramesh, Johns Hopkins University; George M. Pharr, TAMU; Timothy Weihs, Johns Hopkins University
Session: T4 Room: Greenway H		
Session Chair(s): Jin Yang		
4:25 PM	4:45 PM	**Effect of heat treatment on dynamic compressive behavior on additively manufactured 17-4 PH steel**
		Siddharth Sriram, Auburn University; Tahmina Keya, Auburn University; Bart Prorok, Auburn University; Vinamra Agrawal, Auburn University
4:45 PM	5:05 PM	**Understanding Size Effects and their Role in Ductile to Brittle Fracture Transitions**
		Zainab Patel, University of Washington; Abdulaziz Alrashed, University of Washington; Lucas Meza, University of Washington
5:05 PM	5:25 PM	**Notch insensitivity and quasi-brittle failure in network materials with pre-existing cracks**
		Nishan Parvez, Rensselaer Polytechnic Institute; Catalin R. Picu, Rensselaer Polytechnic Institute
3-3 Microstructural mechanisms of plasticity and ductile fracture		
Session: T2 Room: Lake Superior B		
Session Chair(s): Christian Roth		
11:25 AM	12:05 PM	**Keynote: Are shearing states always “less ductile” than axisymmetric states?**
		Amine Benzerga, Texas A&M University; R. Vigneshwaran, Texas A&M University
12:05 PM	12:25 PM	**Revealing the Micromechanics of Void Nucleation with Molecular Dynamics Simulations**
		Ryan Sills, Rutgers University; Qian Qian Zhao, Rutgers University
Session: T3 Room: Lake Superior B		
Session Chair(s): Krishnaswamy Ravi-Chandar		
2:30 PM	2:50 PM	**In-situ Laminography Experiments on AA2198-T8R: Ductile Fracture Mechanisms from Shear to Biaxial Tension**
		Christian Roth, ETH Zurich; Thomas Tancogne-Dejean, ETH Zurich; Xiang Kong, MINES ParisTech; Thilo Morgeneyer, MINES ParisTech; Dirk Mohr, ETH Zurich
2:50 PM	3:10 PM	**In-situ Laminography Experiments on AA2198-T8R: Quantitative analysis of void evolution through void tracking**
		Thomas Tancogne-Dejean, ETH Zurich; Christian Roth, ETH Zurich; Dirk Mohr, ETH Zurich

3:10 PM	3:30 PM	**In-situ X-ray imaging of dynamic shear localization on 3D-printed metals**
		Juan Carlos Nieto-Fuentes, University Carlos III of Madrid; Vishnu A. R., University Carlos III of Madrid; Javier García-Molleja, IMDEA Materials Institute; Federico Sket, IMDEA Materials Institute; Amitay Cohen, NRCN; David Levi-Hevroni, NRCN; Bratislav Lukic, ESRF—The European Synchrotron; Alexander Rack, ESRF—The European Synchrotron; Jose A. Rodríguez-Martínez, University Carlos III of Madrid
3:30 PM	3:50 PM	**Finite Element Simulations of Particle-Accelerated Shear Localization**
		Brandon D. Snow, MIT; G.B. Olson, MIT; D.M. Parks, MIT
Session: T4 Room: Lake Superior B		
Session Chair(s): Thomas Tancogne-Dejean		
4:25 PM	4:45 PM	**Network plasticity for multiscale modeling of deformation-driven microstructure evolution**
		Daniel Bugas, University of Colorado Colorado Springs; Brandon Runnels, University of Colorado Colorado Springs
4:45 PM	5:05 PM	**Atomic-Scale Insights into Magnesium's Deformation Mechanisms under Uniaxial Loading from Machine-Learning Potentiation**
		Kun Luo, Iowa State University; Jun Li, Iowa State University; Bin Li, University of Nevada-Reno; Qi An, Iowa State University
5:05 PM	5:25 PM	**3D Interfaces Discourage Shear Localization in Nanostructured Alloys**
		Justin Y. Cheng, University of Minnesota Twin Cities; Youxing Chen, University of North Carolina Charlotte; Shuozhi Xu, University of Oklahoma; J. Kevin Baldwin, Los Alamos National Laboratory; Irene J. Beyerlein, University of California Santa Barbara; Nathan A. Mara, University of Minnesota Twin Cities
3-5 Additive Manufacturing of Polymeric Composites and Nanocomposites and Their Mechanical/Fracture Behavior		
Session: T1 Room: Greenway I		
Session Chair(s): Carolyn Reidel		
9:30 AM	10:10 AM	**Keynote: Three-dimensional Printing of Wood-like Structures**
		Muhammad M. Rahman, Rice University; Md Shajedul Hoque Thakur, Rice University; Chen Shi, Rice University
10:10 AM	10:30 AM	**Mechanical response of nanoarchitected composites at quasi-static and high strain-rates**
		Kevin Nakahara, California Institute of Technology; Matias Kagias, California Institute of Technology; Barry Lawlor, California Institute of Technology; Julia Greer, California Institute of Technology
10:30 AM	10:50 AM	**Flow and deformation characteristics of 3D printed thermoplastics carbon fiber reinforced composites**
		Carolyn Riedel, Iowa State University; Ashraf Bastawros, Iowa State University

Thematic Area 5. Advances in Nanomechanics

5-2 Advances in multiscale modeling and machine learning in nanomechanics		
Session: T2 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
11:25 AM	11:45 AM	**First-principles modeling of phonon interactions with electrons and spins**
		Bolin Liao, University of California Santa Barbara

11:45 AM	12:05 PM	**Designing Failure-Resistance Using Gradient Spinodal Nanoarchitectures**
		Lucas Meza, University of Washington; Nishita Anandan, University of Washington; Colin Wilson, University of Washington
12:05 PM	12:25 PM	**MD-Informed Phase-Field Fracture Modeling in Heterogenous Porous Materials**
		Pania Newell, University of Utah; Bang He, Dassault Systemes Americas Corp.
12:25 PM	12:45 PM	**Generative design of de novo proteins based on secondary structure constraints using an attention-based diffusion model**
		Bo Ni, Massachusetts Institute of Technology; David Kaplan, Tufts University; Markus Buehler, Massachusetts Institute of Technology
12:45 PM	1:05 PM	**Computation of per atom strain in classical molecular dynamics simulations**
		Ranganathan Parthasarathy, Tennessee State University; Andrew Mikhaeil, Tennessee State University; Russell Byers, Tennessee State University
Session: T3 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
2:30 PM	3:10 PM	**Keynote: Machine Learning Enabled Rational Design of High Entropy Alloys**
		Teng Li, University of Maryland, College Park
3:10 PM	3:30 PM	**Understanding the Interface Strain Induced hcp→bcc Phase Transformation in Nanolaminate Mg**
		Sid Pathak, Iowa State University; Kevin Jacob, Iowa State University
3:30 PM	3:50 PM	**Predicting the Reaction between a Microscale Dislocation Slip and the Atomically Structured Interfaces**
		Thanh Phan, North Carolina State University; Yipeng Peng, North Carolina State University; Yang Su, Georgia Institute of Technology; Josh Kacher, Georgia Institute of Technology; Liming Xiong, North Carolina State University
3:50 PM	4:10 PM	**Parameterization-Based Neural Network: Predicting Non-Linear Stress-Strain Response from Composite Microstructure**
		Pavana Prabhakar, University of Wisconsin – Madison; Haotian Feng, University of Wisconsin-Madison
Session: T4 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
4:25 PM	4:45 PM	**Tune Mechanical and Thermal Properties of 2D Materials Through Nano Architectures in MD simulations**
		Zhao Qin, Syracuse University; Kamalendu Paul, Syracuse University
4:45 PM	5:05 PM	**Mass Diffusion in GNN-assisted Coarse-Grained Atomistics**
		Shashank Saxena, ETH Zurich; Jan-Hendrik Bastek, ETH Zurich; Miguel Spinola, ETH Zurich; Prateek Gupta, IIT Delhi; Dennis M. Kochmann, ETH Zurich
5:05 PM	5:25 PM	**Using Supervised Machine Learning to Design Optimal Fibrillar Adhesive Configuration**
		Matteo Ferraresso, University of British Columbia; Mohammad Shojaeifard, University of British Columbia; Mattia Bacca, University of British Columbia

Thematic Area 6. Soft Materials & Soft Robotics

6-1 Functional Soft Composites - Design Mechanics and Manufacturing		
Session: T2 Room: Greenway C		
Session Chair(s): Jay Sim		
11:25 AM	12:05 PM	**Keynote: Statistical Mechanics of Active Vesicles with Nonlinear Curvature Elasticity**
		Yashashree Kulkarni, University of Houston
12:05 PM	12:25 PM	**Composite Network Materials: Effective Elastic and Viscoelastic Properties**
		Catalin Picu, Rensselaer Polytechnic Institute; Mithun Dey, Rensselaer Polytechnic Institute
12:25 PM	12:45 PM	**Polynomial inclusions: definitions, applications, and open problems**
		Liping Liu, Rutgers University; Tianyu Yuan, Institute for Advanced Study, Chengdu University
Session: T3 Room: Greenway C		
Session Chair(s): Jay Sim		
2:30 PM	2:50 PM	**Driving soft machines with hierarchical twisted and coiled polymer actuators**
		Jeongmin Kim, University of Illinois Urbana – Champaign; Qiong Wang, University of Illinois Urbana – Champaign; Samuel Tsai, University of Illinois Urbana – Champaign; Liuyang Cheng, University of Illinois Urbana – Champaign; Seong Hyeon Kim, University of Illinois Urbana – Champaign; Montse Solis, University of Illinois Urbana – Champaign; Sameh Tawfick, University of Illinois Urbana - Champaign
2:50 PM	3:10 PM	**One-Pot Ternary Sequential Reactions for Photopatterned Gradient Multimaterials**
		Sijia Huang, Lawrence Livermore National Laboratory
3:10 PM	3:30 PM	**Cold programmed shape morphing structures based on grayscale digital light processing 4D printing**
		Liang Yue, Georgia Institute of Technology; Xiaohao Sun, Georgia Institute of Technology; Luxia Yu, Georgia Institute of Technology; Jerry Qi, Georgia Institute of Technology
3:30 PM	3:50 PM	**3D Printed Soft Composites with Tunable Mechanical Properties**
		Kimberlee Hughes, Washington State University; Arda Gozen, Washington State University
3:50 PM	4:10 PM	**Tailoring Conductivity in 3D-Printed Polymers Using Single-Vat Digital Light Processing**
		Farzad Gholami, The George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology; Liang Yue, Georgia Institute of Technology; H. Jerry Qi, Georgia Institute of Technology
Session: T4 Room: Greenway C		
Session Chair(s): Liang Yue		
4:25 PM	4:45 PM	**Active strength in non-vascular-plant-inspired closed-cell foam composites**
		Shelby Hutchens, University of Illinois at Urbana-Champaign; Jeongeu Ryu, Mechanical Science and Engineering, UIUC; Julia Lies, Materials Science and Engineering, UIUC; Yu-Chang (John) Chen, Materials Science and Engineering, UIUC; Amrita Kataruka, Civil and Environmental Engineering; Alexandra Spitzer, Materials Science and Engineering, UIUC
4:45 PM	5:05 PM	**Modulating lattices between soft and stiff states using electrochemistry**
		Jungtaek Kim, University of Pennsylvania; Zakaria Hsain, University of Pennsylvania; James H. Pikul, University of Pennsylvania

5:05 PM	5:25 PM	**Unique Mechanical Behaviors of Mechanical Metamaterials with Engineered Imperfections**
		Siyao Liu, Northeastern University, Boston; Yaning Li, Northeastern University, Boston
5:25 PM	5:45 PM	**Impact-protective bio-inspired flexible armor**
		Jinglun Qu, University of Wisconsin – Madison; Yuhai Xiang, University of Wisconsin – Madison; Hridyesh Tewani, University of Wisconsin – Madison; Stephan Rudykh, University of Wisconsin – Madison; Pavana Prabhakar, University of Wisconsin - Madison
5:45 PM	6:05 PM	**The chirality-induced actuation mechanism of twisted and coiled polymer actuators**
		Qiong Wang, University of Illinois at Urbana Champaign; Samuel Tsai, University of Illinois Urbana-Champaign; Liuyang Cheng, University of Illinois Urbana-Champaign; Jeongmin Kim, University of Illinois Urbana-Champaign; Anan Ghrayeb, University of Michigan; SeongHyeon Kim, Massachusetts Institute of Technology; Sameh Tawfick; University of Illinois Urbana-Champaign
6-3 Soft Robotics: Matter Structure and Intelligence		
Session: T1 Room: Boundary Waters B		
Session Chair(s): Wanliang Shan		
9:30 AM	9:50 AM	**Agile, robust, and multifunctional micro-aerial-robots powered by soft artificial muscles**
		Kevin Chen, MIT; Yi-Hsuan Hsiao, MIT
9:50 AM	10:10 AM	**Remote control of muscle-driven miniature robots with battery-free wireless optoelectronics**
		Zhengwei Li, University of Houston
10:10 AM	10:30 AM	**3D Printed Miniature Fluid-Driven Soft Actuators**
		Haitao Qing, North Carolina State University; Yinding Chi; North Carolina State University; Yao Zhao; North Carolina State University; Yanbin Li, North Carolina State University; Yaoye Hong, North Carolina State University; Fangjie Qi, North Carolina State University; Jie Yin, North Carolina State University
10:30 AM	10:50 AM	**Sub-Gram Soft Jumping Robots Inspired by The Locust**
		Samuel Tsai, University of Illinois at Urbana-Champaign; Yuzhe Wang, University of Illinois, Urbana-Champaign; Qiong Wang, University of Illinois, Urbana-Champaign; William King, University of Illinois, Urbana-Champaign; Sameh Tawfick, University of Illinois, Urbana-Champaign
10:50 AM	11:10 AM	**Protein-based magnetic composites for self-healing and reconfigurable actuators**
		Zenghao Zhang, University of Michigan - Ann Arbor; Abdon Pena-Francesch, University of Michigan - Ann Arbor; John Heron, University of Michigan - Ann Arbor
Session: T2 Room: Boundary Waters B		
Session Chair(s): Wanliang Shan		
11:25 AM	11:45 AM	**3D printed pneumatic woven textiles for soft robotic actuation**
		Tian Chen, University of Houston
11:45 AM	12:05 PM	**A Shape-Changing Wheeling and Jumping Robot Using Tensegrity Wheels and Bistable Mechanism**
		Jianguo Zhao, Colorado State University; Sydney Spiegel, Colorado State University; Jiefeng Sun, Yale University
12:05 PM	12:25 PM	**Exploiting Elastic Instabilities for Dynamic Shape Reconfigurable Multi Modal Soft Robots**
		Dinesh Patel, Carnegie Mellon University; Xiaonan Huang, Carnegie Mellon University; Yichi Luo, Carnegie Mellon University; Carmel Majidi, Carnegie Mellon University; Lining Yao, Carnegie Mellon University

12:25 PM	12:45 PM	**Multistable soft gripper with embedded mechanical logic**
		Juan Osorio, Purdue University; Harith Morgan, Purdue University; Andres Arrieta, Purdue University
12:45 PM	1:05 PM	**Self-Sustained Snapping Drives Autonomous Dancing and Motion in Free-Standing Wavy Rings**
		Fangjie Qi, North Carolina State University; Yao Zhao, North Carolina State University; Yaoye Hong, North Carolina State University; Yinding Chi, North Carolina State University; Hao Su, North Carolina State University; Jie Yin, North Carolina State University
Session: T3 Room: Boundary Waters B		
Session Chair(s): Jie Yin		
2:30 PM	3:10 PM	**Keynote: Current and Future Trends in Soft Robotics Research: A National Science Foundation Perspective**
		Siddiq Qidwai, National Science Foundation
3:10 PM	3:30 PM	**Leveraging Data and the Koopman Operator to Control Soft Robots**
		Daniel Bruder, University of Michigan
3:30 PM	3:50 PM	**Harnessing Spring Network Dynamics for Signal Processing**
		Philip Buskohl, AFRL; Daniel Nelson, UES; Steven Kiyabu, UES; Timothy Vincent, UES; Andrew Gillman, AFRL
3:50 PM	4:10 PM	**Nonlinear dynamics and control of ferrofluid interfaces towards softer robots**
		Ivan Christov, Purdue University; Zongxin Yu, Purdue University
Session: T4 Room: Boundary Waters B		
Session Chair(s): Jie Yin		
4:25 PM	4:45 PM	**Emergent behaviors in elasto-active structures**
		Pierre-Thomas Brun, Princeton University
4:45 PM	5:05 PM	**Zero-power shape retention in pneumatic multistable soft robots**
		Damiano Pasini, McGill University; Shakurur Rahman, McGill University; Lei Wu, McGill University; Asma El Elmi, McGill University
5:05 PM	5:25 PM	**Wearable Haptics Enabled by Fluidically Programmed Textiles**
		Barclay Jumet, Rice University; Zane A. Zook, Rice University; Nathaniel Fino, Rice University; Anas Yousaf, Rice University; Anoop Rajappan, Rice University; Doris Xu, Rice University; Te Faye Yap, Rice University; Zhen Liu, Rice University; Marcia K. O'Malley, Rice University; Daniel J. Preston; Rice University
5:25 PM	5:45 PM	**Textile metamaterials for Wearable Robotics**
		David Farrell, Harvard University; Connor McCann, Harvard University; Adrien Delpy, Harvard University, Mines Paris-PSL; Antonio Elia Forte, King's College London; Reza Sourki, University of British Columbia; Conor J. Walsh, Harvard University; Katia Bertoldi, Harvard University
5:45 PM	6:05 PM	**A Textile-Based Body Heat Recovery System to Power Wearable Soft Devices**
		Marquise Bell, Rice University; Aman Eujayl, Rice University; Barclay Jumet, Rice University; Anoop Rajappan, Rice University; Te Faye Yap, Rice University; Evan Noce, Rice University; Sofia Urbina, Rice University; Cat-Linh Tran, Rice University; Daniel Preston, Rice University

6-5 Mechanics and Physics of Soft Materials		
Session: T1 Room: Boundary Waters C		
Session Chair(s): Yuhang Hu, Stephan Rudykh, Xuanhe Zhao, Oscar Lopez-Pamies		
9:30 AM	9:50 AM	**Molecular Control via Dynamic Bonding Enables Material Responsiveness in Additively Manufactured Metallo-Polyelectrolytes**
		Seola Lee, California Institute of Technology; Seneca J. Velling, California Institute of Technology; Pierre J. Walker, California Institute of Technology; Amylynn Chen, California Institute of Technology, Zane W. Taylor, California Institute of Technology; Cyrus J.B.M Fiori, California Institute of Technology; Vatsa Gandhi, California Institute of Technology; Zhen-Gang Wang, California Institute of Technology; Julia R. Greer, California Institute of Technology
9:50 AM	10:10 AM	**The Influence of Geometry and Stress on Propagation of Frontal Polymerization**
		Xuanhe Li, Massachusetts Institute of Technology; Tal Cohen, Massachusetts Institute of Technology
10:10 AM	10:30 AM	**An analytical model for sensing microvascular blood flow in flaps and organ grafts**
		Shupeng Li, Northwestern University; Yonggang Huang, Northwestern University
10:30 AM	10:50 AM	**Strain-programmable Hopping Diffusion in Hydrogels**
		Shaoting Lin, Michigan State University
10:50 AM	11:10 AM	**Osmocapillary adhesion**
		Qihan Liu, University of Pittsburgh; Zefan Shao, University of Pittsburgh
Session: T2 Room: Boundary Waters C		
Session Chair(s): Yuhang Hu, Stephan Rudykh, Xuanhe Zhao, Oscar Lopez-Pamies		
11:25 AM	11:45 AM	**The effective shear modulus of a random isotropic suspension of monodisperse rigid n-spheres: From the dilute limit to the percolation threshold**
		Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign
11:45 AM	12:05 PM	**A highly flaw-insensitive single-network hydrogel**
		Jie Ma, Zhejiang University; Zheng Jia, Zhejiang University; Zihang Shen, Zhejiang University
12:05 PM	12:25 PM	**An Eulerian Phase-field Model for Surface Growth in Deformable Solids**
		S. Kiana Naghibzadeh, Carnegie Mellon University; Noel Walkington, Carnegie Mellon University; Kaushik Dayal, Carnegie Mellon University
12:25 PM	12:45 PM	**Rapid fabrication of stretchable liquid-metal electronic circuits for wearable biomonitoring**
		Merjen Palvanova, University of Nebraska Lincoln; Patrick McManigal, University of Nebraska Lincoln; Eric Markvicka, University of Nebraska Lincoln
12:45 PM	1:05 PM	**Mechanics of folds at soft, poroelastic interfaces**
		Anupam Pandey, Syracuse University
Session: T3 Room: Boundary Waters C		
Session Chair(s): Yuhang Hu, Stephan Rudykh, Xuanhe Zhao, Oscar Lopez-Pamies		
2:30 PM	2:50 PM	**Clustering of micropillars in soft solids**
		Abigail Plummer, Princeton University; Lebo Molefe, Ecole Polytechnique Federale de Lausanne; John Kolinski, Ecole Polytechnique Federale de Lausanne; Andrej Kosmrlj, Princeton University
2:50 PM	3:10 PM	**A novel toughening and fatigue-resistant strategy for polymer networks**
		Shaoxing Qu, Zhejiang University; Binhong Liu, Zhejiang University; Tenghao Yin, Zhejiang University

3:10 PM	3:30 PM	**Elasto-Centrifugal Blistering for Creating Soft Hairy Surfaces**
		Yifan Rao, University of Texas at Austin; Krishnaswamy Ravi-Chandar, The University of Texas at Austin; Nanshu Lu, The University of Texas at Austin
3:30 PM	3:50 PM	**A Smart Skin made of Liquid Crystal Elastomers to Treat and Prevent Pressure Ulcers**
		Leila Rezaei, Oklahoma State University; Abby Haddox, Oklahoma State University; Giulia Scalet, University of Pavia; Michael Peigney, Université Paris-Est; Aurelie Azoug, Oklahoma State University
3:50 PM	4:10 PM	**A large deformation swelling growth theory with application to growing tumors and bacterial biofilms**
		Chockalingam Senthilnathan, Massachusetts Institute of Technology; Tal Cohen, Massachusetts Institute of Technology
Session: T4 Room: Boundary Waters C		
Session Chair(s): Yuhang Hu, Stephan Rudykh, Xuanhe Zhao, Oscar Lopez-Pamies		
4:25 PM	4:45 PM	**A statistical-chain-based theory for dynamic living polymeric gels with concurrent diffusion, chain remodeling reactions and deformation**
		Haohui Zhang, Northwestern University; Yuhang Hu, Georgia Institute of Technology
4:45 PM	5:05 PM	**Magneto-viscoelasticity of hard-magnetic soft-elastomers: Application to modeling the dynamic snap-through behavior of a bistable arch**
		Eric Stewart, Massachusetts Institute of Technology; Lallit Anand; Massachusetts Institute of Technology
5:05 PM	5:25 PM	**Fatigue Resistant Materials and Heart valves**
		Jingda Tang, Xi'an Jiaotong University
5:25 PM	5:45 PM	**Physics-informed Data-driven Discovery of Constitutive Models with Application to Strain-Rate-sensitive Soft Materials**
		Kshitiz Upadhyay, Louisiana State University; Jan Niklas Fuhg, Cornell University; Nikolaos Bouklas, Cornell University; K.T. Ramesh, Johns Hopkins University

Thematic Area 7. Biomechanics & Biomaterials

7-1 Mechanobiology of cell-matrix interactions		
Session: T1 Room: Greenway C		
Session Chair(s): Sohan Kale		
9:30 AM	9:50 AM	**The mechanics of phenotypic transitions in fibroblasts**
		Farid Alisafaei, New Jersey Institute of Technology; Delaram Shakiba, Saint Louis University; Ghiska Ramahdita, Washington University in St. Louis; Yuan Hong, Washington University in St. Louis; Matthew Davidson, University of Pennsylvania; Jason Burdick, University of Colorado; Spencer Lake, Washington University in St. Louis; Nathaniel Huebsch, Washington University in St. Louis; Vivek Shenoy, University of Pennsylvania; Guy Genin, Washington University in St. Louis
9:50 AM	10:10 AM	**Determining Critical Cellular Traumatic Brain Injury Thresholds via in vitro Mechanical Impacts and Deep Learning-based Cell Phenotype Identification**
		Jessica Park, UW-Madison; Annalise Daul, UW-Madison; Jamie Sergay, UW-Madison; Jing Zhang, UW-Madison; Christian Franck, UW-Madison

10:10 AM	10:30 AM	**Vascular Smooth Muscle Cells Retain Their Material Properties In Mechanically Variant Microenvironments**
		Elizabeth Shih, University of Minnesota; Ryan Mahutga, University of Minnesota; Patrick Alford, University of Minnesota
10:30 AM	10:50 AM	**Thermal fluctuations and entropic force on a confined fluctuating biomembrane with surface tension**
		Rubayet Hassan, New Jersey Institute of Technology (NJIT); Fatemeh Ahmadpoor, New Jersey Institute of Technology
10:50 AM	11:10 AM	**Modeling Cell Adhesion and Spreading Mediated by Ligand Diffusivity**
		Di Wu, The University of Hong Kong; Yuan Lin, The University of Hong Kong
7-3 Tissue Mechanics Across Time and Length Scales		
Session: T4 Room: Boundary Waters A		
Session Chair(s): Ottman Tertuliano		
4:25 PM	5:05 PM	**Keynote: Blood Clot Fracture Across a Diverse Population**
		Manuel Rausch, The University of Texas at Austin; Grace Bechtel, The University of Texas at Austin; Gabriella Sugerman, The University of Texas at Austin; Matthew Lohr, The University of Texas at Austin; Osman Gultekin, The University of Texas at Austin; Adam Bush, The University of Texas at Austin
5:05 PM	5:25 PM	**The anomalous mechanical behavior of whole blood clots**
		Hannah Varner, Massachusetts Institute of Technology; Tal Cohen, Massachusetts Institute of Technology
5:25 PM	5:45 PM	**Unveiling Ultrastructural Characteristics and Nanomechanical Properties of Fibrillar Collagen within the Human Aorta**
		Meisam Asgari, University of South Florida; Horacio D. Espinosa, Northwestern University; Marco Amabili, McGill University
5:45 PM	6:05 PM	**Atherosclerosis Has a Multiresolution Effect on the Peel Tension of Human Aortas**
		Carly L. Donahue, University of Minnesota Twin Cities; Ruturaj M. Badal, University of Minnesota Twin Cities; Elena G. Tolkacheva, University of Minnesota Twin Cities; Victor H. Barocas, University of Minnesota Twin Cities
7-4 Multiscale Cellular and Tissue Biomechanics for Human Health		
Session: T1 Room: Lake Minnetonka		
Session Chair(s): Kalpana Katti, Horacio Espinosa		
9:30 AM	10:10 AM	**Keynote: Degradation of Red Blood Cells Due to Repeated Hypoxia and Mechanical Fatigue: Implications for Sickle Cell Disease**
		Ming Dao, Massachusetts Institute of Technology
10:10 AM	10:30 AM	**Influence of Fluid-Flow on Inducing Bone Metastasis Through Use of a Novel Bioreactor with In Vitro Cancer Models**
		Dinesh Katti, North Dakota State University; Sharad Jaswandkar, North Dakota State University; Preetham Ravi, North Dakota State University; Quyen Huang, North Dakota State University; Haneesh Jasuja, North Dakota State University; Kalpana Katti, North Dakota State University
10:30 AM	10:50 AM	**Mechanobiology of bone studied by means of multiscale modeling**
		Stefan Scheiner, TU Wien; Christian Hellmich, TU Wien; Nenad Filipovic, University of Kragujevac

10:50 AM	11:10 AM	**Influencing long-term mechanical behavior of tissue engineered bone using BMP activated 'lego-block' scaffolds for tissue regeneration and bone metas**
		Kalpana Katti, North Dakota State University; Krishna Kundu, North Dakota State University; Quyen Hoang, North Dakota State University; Dinesh Katti, North Dakota State University
Session: T2 Room: Lake Minnetonka		
Session Chair(s): Dinesh Katti, Stephan Schiener		
11:25 AM	12:05 PM	**Keynote: Multi-Scale Experimental Determination of Structure–Property Relationships in Spider Silk, a Hierarchical Protein Material**
		Hannes Schniepp, William & Mary
12:05 PM	12:25 PM	**3-D Rate-Dependent Viscoplastic Micromechanics of Fibrous Collagen Networks**
		Sinan Candan, University of Wisconsin – Madison; Jacob Notbohm, University of Wisconsin – Madison; Christian Franck, University of Wisconsin - Madison
12:25 PM	12:45 PM	**Understanding the Structural Characteristics of Cadherin·β-Catenin·α-Catenin Complex Using Steered Molecular Dynamic Simulation**
		Sharad V. Jaswandkar, North Dakota State University; Kalpana S. Katti, North Dakota State University; Dinesh R. Katti, North Dakota State University
12:45 PM	1:05 PM	**In silico and in vitro investigation to evaluate the biomineralization and cell adhesion mechanics of mesenchymal stem cells on nanoclay-based scaffol**
		Hanmant Gaikwad, North Dakota State University; Preetham Ravi, North Dakota State University; H. M. Nasrullah Faisal, North Dakota State University; Kalpana Katti, North Dakota State University; Dinesh Katti, North Dakota State University
Session: T3 Room: Lake Minnetonka		
Session Chair(s): Kalpana Katti, Hannes Schniepp		
2:30 PM	3:10 PM	**Keynote: A Comprehensive Approach to Characterize the Biomechanics of the Brain Tissue**
		George Z. Voyiadjis, Louisiana State University; Aref Samadi-Dooki, DuPont Electronics and Imaging
3:10 PM	3:30 PM	**Unraveling Combined Effects of Nanoparticle Size and External Blood Flow on Active Drug Delivery**
		Shengzhe Ding, University of Illinois Urbana-Champaign; Shengzhe Ding, University of Illinois Urbana-Champaign; Shoaib Ahmad Goraya, University of Illinois Urbana-Champaign; Hyunjoon Kong, University of Illinois Urbana-Champaign; Arif Masud, University of Illinois Urbana-Champaign
3:30 PM	3:50 PM	**Viscoelastic Characterization of Spectrin: A Major Constituent of Dendrites in Neuron Cell**
		Md Nahian Bin Hossain, The University of Texas at Arlington; Dr. Ashfaq Adnan, The University of Texas at Arlington
3:50 PM	4:10 PM	**In Vitro Traumatic Brain Injury Model to Assess Critical Mechanical Thresholds of Neural Network Signal Disruption**
		Jamie Sergay, University of Wisconsin – Madison; Aviad Hai, University of Wisconsin – Madison; Christian Franck, University of Wisconsin – Madison

Session: T4 Room: Lake Minnetonka		
Session Chair(s): Ming Dao, Dinesh Katti		
4:25 PM	5:05 PM	**Keynote: Exercise and mental health – an unexplored biomechanics link**
		M Taher Saif, University of Illinois at Urbana Champaign; Ki Yun Lee, University of Illinois at Urbana-Champaign; Saddam Joy, University of Illinois at Urbana-Champaign
5:05 PM	5:25 PM	**A finite rotation, small strain 2D elastic head model, with applications in mild traumatic brain injury**
		Yang Wan, Brown University; Haneesh Kesari, Brown University
5:25 PM	5:45 PM	**Effect of Neuroinflammation on the Action Potential Signal Transmission in Neuronal Axons**
		Md Navid Imtiaz Rifat, University of Texas at Arlington; Ashfaq Adnan, University of Texas at Arlington
5:45 PM	6:05 PM	**A biomechanical model of nodular and infiltrative brain tumors**
		Shuolun Wang, University of Notre Dame; Meenal Datta, University of Notre Dame; Maria Holland, University of Notre Dame
7-5 Emergent Behavior in Biological and Bio-Inspired Systems		
Session: T3 Room: Greenway E		
Session Chair(s): Taher Saif		
2:30 PM	2:50 PM	**Bio-inspired emergent principles for technology: from slime molds to robot swarms**
		Christian Peco, Penn State; Farshad Ghanbari, Penn State; Joe Sgarrella, Penn State; Yuanxin Xiao, Penn State; Manik Kumar, Penn State; Shishir Barai, Penn State
2:50 PM	3:10 PM	**Emergence of Hexatic Order in Biological Tissues**
		Yiwen Tang, Northeastern University; Siyuan Chen, University of California Santa Barbara; Mark Bowick, University of California Santa Barbara; Dapeng Bi, Northeastern University
3:10 PM	3:30 PM	**Collective Dynamics of Fire-Ant Rafts**
		Franck Vernerey, Univ of Colorado – Boulder; Robert Wagner, Cornell University
3:30 PM	3:50 PM	**Strain waves and strain cues as determinants of morphology and organ size**
		Brian Cox, Gentleman Scientist; Prashant K. Purohit, University of Pennsylvania
3:50 PM	4:10 PM	**Mechanically guided self-patterning of growing biofilms**
		Sulin Zhang, Penn State University; Changhao Li, Pennsylvania State University; Japinder Nijjer, Yale University; Jing Yan, Yale University; Sulin Zhang, Penn State University
Session: T4 Room: Greenway E		
Session Chair(s): Franck Vernerey		
4:25 PM	5:05 PM	**Keynote: Collective curvature sensing in three-dimentional multicellular systems**
		Ming Guo, MIT
5:05 PM	5:25 PM	**Cell shapes emerge from confined motion**
		Mark D Shattuck, The City College of New York; Andrew Ton, Yale University; Corey S. O'Hern, Yale University
5:25 PM	5:45 PM	**Disorder to order transition in multiple cellular living systems**
		M Taher Saif, University of Illinois at Urbana Champaign; Umnia Doha, University of Illinois at Urbana-Champaign
5:45 PM	6:05 PM	**Mechanics of Stabilized Inter-cellular Bridges**
		Krishna Garikipati, University of Michigan; Jaspreet Singh, Flatiron Institute; Jasmin Alsous, Flatiron Institute; Stanislav Shvartsman, Princeton University

7-6 Advances in Experimental and Computational Biomechanics and Mechanobiology		
Session: T1 Room: Greenway E		
Session Chair(s): David Pierce, Corey Neu		
9:30 AM	9:50 AM	**Method to Quantify Net Traction Applied by Individual Cells within a Confluent Cell Layer**
		Jonah Spencer, University of Wisconsin Madison; Aashrith Saraswathibhatla, Former lab member; Jacob Notbohm, Principal Investigator
9:50 AM	10:10 AM	**Understanding cytoskeletal fluidization of vascular smooth muscle cells: in vitro and computational approaches**
		Samuel Boland, University of Minnesota; Patrick Alford, University of Minnesota
10:10 AM	10:30 AM	**On mechano-electro-diffusive modeling of neurons and its relevance to action potential propagation and some disease conditions**
		Rahul Gulati, University of Wisconsin – Madison; Shiva Rudraraju, University of Wisconsin-Madison
10:30 AM	10:50 AM	**Mechanics of diffusion-mediated budding and implications for virus replication and infection**
		Mattia Bacca, University of British Columbia
Session: T2 Room: Greenway E		
Session Chair(s): David Pierce, Corey Neu		
11:25 AM	11:45 AM	**Sulcal Pits of Cortical Folds: Mechanics and Applications**
		Mir Jalil Razavi, Binghamton University
11:45 AM	12:05 PM	**Modeling the nonlinear and active biomechanics of the inner ear using a physiologically motivated computational model**
		Julien Meaud, Georgia Institute of Technology; George Samaras, Georgia Institute of Technology
12:05 PM	12:25 PM	**3D Full-field Biomechanics of Oral Surgery in Mandibular Bone**
		Yuxiao Zhou, Texas A&M University; Jing Du, Pennsylvania State University; Chujie Gong, Pennsylvania State University; Mehran Hossaini-Zadeh, Temple University School of Dentistry

Thematic Area 9. Architected Solids & Metamaterials

9-1 Mechanics of morphing metamaterials and structures		
Session: T1 Room: Lake Harriet		
Session Chair(s): Jordan Raney		
9:30 AM	9:50 AM	**Architected materials with effective water intake, storage, and release properties inspired by the feathers of namaqua sandgrouse**
		Jochen Mueller, Johns Hopkins University
9:50 AM	10:10 AM	**Magneto-thermomechanically reprogrammable mechanical metamaterials**
		Bihui Zou, Shanghai Jiao Tong University; Zihe Liang, Shanghai Jiao Tong University; Dijia Zhong, Shanghai Jiao Tong University; Zhiming Cui, Shanghai Jiao Tong University, Kai Xiao, Shanghai Jiao Tong University; Shuang Shao, Shanghai Jiao Tong University; Jaehyung Ju, Shanghai Jiao Tong University

10:10 AM	10:30 AM	**Inverse design of thermally activated morphing structures**
		Tamara Hanuhov, Technion-Israel Institute of Technology; Noy Cohen, Technion - Israel Institute of Technology
10:30 AM	10:50 AM	**Artificial Sunflowers: Photomechanically actuated self-orienting structures**
		Sathvik Sanagala, California Institute of Technology; Kaushik Bhattacharya, California Institute of Technology
Session: T2 Room: Lake Harriet		
Session Chair(s): Jochen Mueller		
11:25 AM	11:45 AM	**Locally switchable mechanologic digits for reprogrammable architected material networks**
		A B M Tahidul Haque, University of Pennsylvania; Samuele Ferracin, University of Pennsylvania; Jordan Raney, University of Pennsylvania
11:45 AM	12:05 PM	**3D Bioprinting with Engineered Living Materials for Advanced Biofabrication**
		Weinan Xu, University of Akron; Shan Liu, University of Akron
12:05 PM	12:25 PM	**Direct Ink Writing with Programmable Inter-filament Behavior**
		Daniel Ames, Johns Hopkins University; Sarah Propst, Johns Hopkins University; Shaoxuan Shuai, Johns Hopkins University; Jochen Mueller, Johns Hopkins University
12:25 PM	12:45 PM	**Particle-based modeling and simulation of elasto-magnetic metamaterials**
		Gabriel Alkuino, Syracuse University; Teng Zhang, Syracuse University
Session: T3 Room: Lake Harriet		
Session Chair(s): Damiano Pasini		
2:30 PM	2:50 PM	**Designer hinges for tunable shape-morphing materials**
		Anne Meeussen, Harvard University; Audrey Chang, Harvard University; Kaitlyn Becker, Massachusetts Institute of Technology; Giovanni Bordiga, Harvard University; Katia Bertoldi , Harvard University
2:50 PM	3:10 PM	**Tunable Bistability in Mechanical Metamaterials through Geometric Perturbations**
		Yingchao Peng, University of Southern California; Paul Plucinsky, University of Southern California; Paolo Celli, Stony Brook University; Imtiar Niloy, Stony Brook University
3:10 PM	3:30 PM	**Evidence of Bistability in Geometrically Perturbed Mechanical Metamaterials**
		Imtiar Niloy, Stony Brook University; Paolo Celli, Stony Brook University, Yingchao Peng, University of Southern California; Paul Plucinsky, University of Southern California
3:30 PM	3:50 PM	**Computational Framework for Quantifying Sensitivities in the Onset of Buckling and Post-buckling Behavior of Architected Materials**
		David Restrepo, The University of Texas at San Antonio; David Risk, The University of Texas at San Antonio; Juan Camilo Velasquez, The University of Texas at San Antonio; Mauricio Aristizabal, The University of Texas at San Antonio; Harry Millwater, The University of Texas at San Antonio
Session: T4 Room: Lake Harriet		
Session Chair(s): Jochen Mueller		
4:25 PM	4:45 PM	**Shearing Bistable Networks Enable Complex Shape Ch**
		Jeffrey Lipton, Northeastern University; Sawyer Thomas, University of Washington
4:45 PM	5:05 PM	**Manipulating Quasi-Two-Dimensional Piezoelectric Phononic Crystals with Electric Fields to Create Phononic Devices**
		Alison Root, Princeton University; Tejas Dethe, Princeton University; Andrej Kosmrlj, Princeton University

5:05 PM	5:25 PM	**Mechanics of Straw-Based Reconfigurable Truss Metamaterials**
		Dotan Ilssar, ETH Zürich; Dennis Kochmann, ETH Zürich
9-3 Morphing Matter: Bioinspiration Computational Design Fabrication Mechanics and Sustainability		
Session: T3 Room: Greenway B		
Session Chair(s): Teng Zhang, Lining Yao		
2:30 PM	3:10 PM	**Keynote: Incompatible sheets – Self-Morphing, Fracture and Locomotion**
		Eran Sharon, The Hebrew University of Jerusalem
3:10 PM	3:30 PM	**Sustainflatable: Harvesting, Storing and Utilizing Ambient Energy for Pneumatic Shape-changing Interfaces**
		Qiuyu Lu, Carnegie Mellon University; Tianyu Yu, Tsinghua University; Semina Yi, Carnegie Mellon University; Yuran Ding, Carnegie Mellon University; Haipeng Mi, Tsinghua University; Lining Yao, Carnegie Mellon University
3:30 PM	3:50 PM	**Active Morphing Textile Materials and Systems**
		Vanessa Sanchez, Stanford University
Session: T4 Room: Greenway B		
Session Chair(s): Teng Zhang, Daniel Preston		
4:25 PM	4:45 PM	**Morphing tunable materials and structures**
		Christian Santangelo, Syracuse University
4:45 PM	5:05 PM	**Reprogrammable bifurcated and multistable multifunctional mechanical computing metastructures**
		Yanbin Li, North Carolina State University; Jie Yin, North Carolina State University
5:05 PM	5:25 PM	**Kirigami for urban ventilation and shade**
		Lucia Stein-Montalvo, Princeton University; Liuyang Ding, Princeton University; Marcus Hultmark, Princeton University; Sigrid Adriaenssens, Princeton University; Elie Bou-Zeid, Princeton University
5:25 PM	5:45 PM	**Magnetic Morphing for Origami Self Assembly**
		Gabriel Unger, University of Pennsylvania; Cynthia Sung, University of Pennsylvania
9-4 Advances in the Mechanics of Architected Materials		
Session: T1 Room: Lake Superior A		
Session Chair(s): Pablo Zavattieri		
9:30 AM	9:50 AM	**Bio-Inspired Auxetic Functionally Graded Chevron Fiber-Matrix Composites**
		Ammar Batwa, Northeastern University; Yaning Li, Northeastern University
9:50 AM	10:10 AM	**Mechanics of Tough Cortical Bone-Inspired Architected Cementitious Material**
		Shashank Gupta, Princeton University; Reza Moini, Princeton University
10:10 AM	10:30 AM	**Feather-Inspired Versatile and Tunable Shape Memory Composites**
		Phani Saketh Dasika, Purdue University; Yunlan Zhang, The University of Texas at Austin; Pablo Zavattieri, Purdue University
10:30 AM	10:50 AM	**Functional significance of lamellar architecture in marine sponge fibers**
		Sayaka Kochiyama, Brown University; Benjamin Grossman-Ponemon, Brown University; Haneesh Kesari, Brown University

10:50 AM	11:10 AM	**Hierarchical twisted and coiled fibers mimicking the stretchability and energy absorption of biological ligaments**
		Liuyang Cheng, University of Illinois at Urbana-Champaign; Wonsik Eom, University of Illinois at Urbana Champaign; Joan Wang, University of Illinois at Urbana Champaign; Samuel Tsai, University of Illinois at Urbana Champaign; Roberto Guzman, University of Illinois at Urbana Champaign; Jeongmin Kim, University of Illinois at Urbana Champaign; Antonio Olmos, University of Illinois at Urbana Champaign; Shuhan Guo, University of Illinois at Urbana Champaign; Mariana Kersh, University of Illinois at Urbana Champaign; Sameh Tawfick, University of Illinois at Urbana Champaign
Session: T2 Room: Lake Superior A		
Session Chair(s): Yunlan Zhang		
11:25 AM	11:45 AM	**Exploring the Expanded Design Space of Composite Pre-curved Beams Using Machine Learning**
		Fan Liu, Brigham and Women's Hospital; Lifeng Wang, Stony Brook University, Zi Chen, Brigham And Women's Hospital
11:45 AM	12:05 PM	**Design of three-dimensional complex truss metamaterials with graph neural networks**
		Marco Maurizi, University of California Berkeley; Desheng Yao, University of California Berkeley; Xiaoyu (Rayne) Zheng, University of California Berkeley
12:05 PM	12:25 PM	**Unified Modelling of Architected Materials with Graphs**
		Paul Philipp Meyer; ETH Zurich; Thomas Tancogne-Dejean, ETH Zurich; Dirk Mohr, ETH Zurich
12:25 PM	12:45 PM	**Data-driven topology optimisation of architected cellular composites**
		Wei Tan, Queen Mary University of London; Siamak Khosroshahi, Queen Mary University of London; Hirak Kansara, Queen Mary University of London; Miguel Bessa, Brown University; Sid Kumar, TU Delft; Lucas Meza, University of Washington
12:45 PM	1:05 PM	**Language-based Deep Learning Design of Metamaterials**
		Prakash Thakolkaran, TU Delft; Li Zheng, ETH Zurich; Dennis Kochmann, ETH Zurich; Sid Kumar, TU Delft
Session: T3 Room: Lake Superior A		
Session Chair(s): Pablo Zavattieri		
2:30 PM	2:50 PM	**Coupled phase-field and cohesive zone crack propagation model for soft-hard architected multi-materials**
		Aimane Najmeddine, Princeton University; Reza Moini, Princeton University
2:50 PM	3:10 PM	**Stress focusing and damage protection in topological Maxwell metamaterials**
		Caleb Widstrand, University of Minnesota Twin Cities; Chen Hu, University of Minnesota Twin Cities; Joseph Labuz, University of Minnesota Twin Cities; Xiaoming Mao, University of Michigan; Stefano Gonella, University of Minnesota Twin Cities
3:10 PM	3:30 PM	**Doping Brittle Materials with Auxetics to Encourage Favorable Stress States**
		Thomas Vitalis, University of Massachusetts Amherst; Georgios Tzortzinis, TU Dresden; Andrew Gross, University of South Carolina; Simos Gerasimidis, University of Massachusetts Amherst

Session: T4 Room: Lake Superior A		
Session Chair(s): Lucas Meza		
4:25 PM	4:45 PM	**Tailoring the Mechanical Properties and Durability of Fine Recycled Concrete Aggregate Mortars with Nanomaterials**
		Nathanial Buettner, Northwestern University; Gass Iyacu, Northwestern University; Ange-Therese Akono, Northwestern University
4:45 PM	5:05 PM	**Impact of Graphene Oxide Nanoplatelets on the Microstructure and Mechanical Characteristics of Geopolymers**
		Haklae Lee, Northwestern University; Nathanial Buettner, Northwestern University; Ange-Therese Akono, Northwestern University
5:05 PM	5:25 PM	**Enhanced thermomechanical stability of nanolamellar composites containing thick 3-dimensional interfaces**
		Nathan Mara, University of Minnesota-Twin Cities; Justin Cheng, University of Minnesota-Twin Cities; Zezhou Li, University of Minnesota-Twin Cities; Shuozhi Xu, Oklahoma University; Youxing Chen, University of North Carolina, Charlotte; Mauricio De Leo, University of Minnesota-Twin Cities; Jonathan Poplawsky, Oak Ridge National Laboratory; Nan Li, Los Alamos National Laboratory; Jon Baldwin, Los Alamos National Laboratory; Irene Beyerlein, University of California, Santa Barbara
5:25 PM	5:45 PM	**A mixture model for chemo-mechanical curing in early-stage concrete**
		Ignasius Wijaya, University of Illinois Urbana-Champaign; Eric Kreiger, US Army CERL-ERDC; Arif Masud, University of Illinois Urbana-Champaign
5:45 PM	6:05 PM	**Programming Snapping Instabilities via Topology Optimization: from Truss Structures to Origami LEGO Metamaterials**
		Tuo Zhao, Princeton University; Glaucio Paulino, Princeton University
9-5 Programmable Material Systems: Mechanics Design and Manufacturing		
Session: T1 Room: Greenway D		
Session Chair(s): Wei Chen		
9:30 AM	9:50 AM	**Designing Mechanical Metamaterial Knee Implants with Sensing and Wireless Functionalities**
		Amir Alavi, University of Pittsburgh; Jianzhe Luo, University of Pittsburgh; Wenyun Lu, University of Pittsburgh; Wenxuan Meng, University of Pittsburgh; Qianyun Zhang, New Mexico State University
9:50 AM	10:10 AM	**Kerf structures for enhancing toughness and energy dissipation**
		Aryabhat Darnal, Texas A&M University; Kanak Mantri, Texas A&M University; Negar Kalantar, California College of the Arts; Anastasia Muliana, Texas A&M University
10:10 AM	10:30 AM	**Inverse Design of Surface Structures via Programmable Auxetics**
		Jida Huang, University of Illinois at Chicago; Sina Rastegarzadeh, University of Illinois at Chicago; Victor Jiron, University of Illinois at Chicago
10:30 AM	10:50 AM	**Magneto-Mechanical Bilayer Metasurface with Global Area-Preserving Density Tunability for Acoustic Wave Regulation**
		Jay Sim, Stanford University; Shuai Wu, Stanford University; Jize Dai, Stanford University; Ruike Renee Zhao, Stanford University

10:50 AM	11:10 AM	**Designing Programmable Ferromagnetic Soft Metastructures for Minimally Invasive Endovascular Therapy**
		Ran Zhuang, State University of New York at Stony Brook; Jiawei Tian, State University of New York at Stony Brook; Apostolos Tassiopoulos, State University of New York at Stony Brook; Chander Sadasivan, State University of New York at Stony Brook; Xianfeng Gu, State University of New York at Stony Brook; Shikui Chen, State University of New York at Stony Brook
Session: T2 Room: Greenway D		
Session Chair(s): Yayue Pan		
11:25 AM	11:45 AM	**Data-driven Design of Lightweight and High-performance Metamaterial Concrete Systems**
		Amir Alavi, University of Pittsburgh; Wenyun Lu, University of Pittsburgh; Jianzhe Luo, University of Pittsburgh; Wenxuan Meng, University of Pittsburgh; Qianyun Zhang, New Mexico State University
11:45 AM	12:05 PM	**Harnessing wrinkling morphologies of graphene on soft substrates for mechanically programmable interfacial thermal conductance**
		Qingchang Liu, University of Virginia; Baoxing Xu, University of Virginia
12:05 PM	12:25 PM	**Harnessing the vacuum-driven buckling behavior of elastomeric shells for complex actuation**
		Helen Read, Harvard University; Yi Yang, Harvard University; David Melancon, Ecole Polytechnique de Montreal; Katia Bertoldi, Harvard University
12:25 PM	12:45 PM	**Physics-aware differentiable inverse design of magnetically actuated kirigami for shape morphing**
		Liwei Wang, Northwestern University; Yilong Chang, Stanford University; Shuai Wu, Stanford University; Ruike Zhao, Stanford University; Wei Chen, Northwestern University
Session: T3 Room: Greenway D		
Session Chair(s): Renee Zhao		
2:30 PM	2:50 PM	**Field-assisted assembly and printing of functional materials**
		Matthew Begley, University of California Santa Barbara; Keith Johnson, University of California Santa Barbara; Daniel Gianola, University of California Santa Barbara
2:50 PM	3:10 PM	**Direct Printing of Hierarchically-structured Multimaterial Surfaces with Programmable Adhesion**
		Yayue Pan, University of Illinois at Chicago; Ketki Lichade, University of Illinois at Chicago
3:10 PM	3:30 PM	**Periodic Pattern Formation in Active Architected Materials**
		Vinod Ramakrishnan, University of California San Diego; Michael Frazier, University of California San Diego
3:30 PM	3:50 PM	**Programming and physical realization of extreme three-dimensional responses of metastructures under large deformations**
		Xiaojia Shelly Zhang, University of Illinois at Urbana-Champaign; Weichen Li, University of Illinois at Urbana-Champaign; Yingqi Jia, University of Illinois at Urbana-Champaign; Fengwen Wang, Technical University of Denmark; Ole Sigmund, Technical University of Denmark
Session: T4 Room: Greenway D		
Session Chair(s): Yayue Pan		
4:25 PM	4:45 PM	**Programmable Tentabots: Advancing Group Robotics through Physical Intelligence**
		Bolei Deng, Massachusetts Institute of Technology; Bohan Wang, Massachusetts Institute of Technology; Shucong Li, Massachusetts Institute of Technology; Minghao Guo, Massachusetts Institute of Technology; William Freeman, Massachusetts Institute of Technology; Wojciech Matusik, Massachusetts Institute of Technology

4:45 PM	5:05 PM	**Multistable machines with mechanical sensing**
		Leon Kamp, Harvard University; Benjamin Gorissen, KU Leuven; Mohamed Zanaty, Harvard University; Ahmad Zareei, Harvard University; Katia Bertoldi, Harvard University
5:05 PM	5:25 PM	**Low-energy Stiffness Programming in Laminated Structures**
		Maria Sakovsky, Stanford University; Kai Jun Chen, Stanford University
5:25 PM	5:45 PM	**Soft-Hard Material Integrated, Mechanical Janus Structures with Mechanically Programmable Organizations**
		Baoxing Xu, University of Virginia; Haozhe Zhang, University of Virginia
9-6 Controlling Mechanical Waves with Metamaterials		
Session: T1 Room: Greenway B		
Session Chair(s): Serife Tol		
9:30 AM	9:50 AM	**A transfer matrix approach for simulating the scat**
		Prasannakumar Salasiya, Unversity of Minnesota; Bojan Guzina, University of Minnesota; Shix Meng, Chinese Academy of Sciences
9:50 AM	10:10 AM	**Nonlinear impulse response of tail-inspired graded structures**
		Hang Shu, University of Pennsylvania; Weijian Jiao, University of Pennsylvania; Yucong Hua, University of Pennsylvania; Jordan Raney, University of Pennsylvania
10:10 AM	10:30 AM	**Acoustic Metamaterials at the Microscale**
		Rachel Sun, Massachusetts Institute of Technology; Yun Kai, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
10:30 AM	10:50 AM	**Which Dispersion Relations are Realizable?**
		Pai Wang, University of Utah; Sharat Paul, University of Utah; Kshiteej Deshmukh, University of Utah; Fei Chen, University of Utah; Yunya Liu, University of Utah; Henry Fu, University of Utah; Bolei Deng, Massachusetts Institute of Technology
Session: T2 Room: Greenway B		
Session Chair(s): Charles Dorn		
11:25 AM	11:45 AM	**Phase Patterning in Multi-stable Metamaterials: Transition Wave Stabilization and Conversion**
		Chongan Wang, University of California San Diego; Michael Frazier, University of California San Diego
11:45 AM	12:05 PM	**Nonlinear Waves for Reprogrammable Metamaterials with Memory**
		Audrey Watkins, Harvard University; Giovanni Bordiga, Harvard University; Vincent Tournat, Harvard University / CNRS Le Mans; Katia Bertoldi, Harvard University
12:05 PM	12:25 PM	**Duality of a 1-D Bar-based Phononic Crystal**
		Carson Willey, Air Force Research Laboratory/UES Inc.; Abigail Juhl, Air Force Research Laboratory; Vincent Chen, Air Force Research Laboratory/UES Inc.
12:25 PM	12:45 PM	**Inverse Design of Nano-photonic Devices using a Multi-physics Topology Optimization Approach**
		Fariha Haque, The Ohio State University; Alok Sutradhar, The Ohio State University

Thematic Area 10. Mechanics of Solids & Structures

10-2 Multiscale Modeling and Mechanics of Soft Matter and Hierarchical Materials		
Session: T1 Room: Greenway G		
Session Chair(s): Anna Tarakanova, Wenjie Xia		
9:30 AM	9:50 AM	**A Multiscale Model for Polymer Interfaces with Reversible Chain Scission and Healing**
		Mohammad Ansari, University of Texas at Austin; Rui Huang, University of Texas at Austin; Kenneth Liechti, University of Texas at Austin
9:50 AM	10:10 AM	**Mechanics of Non-Concatenated Ring Polymers – Effects of Topology Revealed by Molecular Simulations**
		Ting Ge, University of South Carolina; Jiuling Wang, University of South Carolina; Thomas O'Connor, Carnegie Mellon University; Gary Grest, Sandia National Labs
10:10 AM	10:30 AM	**Sticky Rouse Time Features the Self-Adhesion of Supramolecular Polymer Networks**
		Ying Li, University of Wisconsin-Madison
10:30 AM	10:50 AM	**Predicting mechanical and rheological properties of adhesives using coarse-grained molecular dynamics**
		Nitin Krishnamurthy Hansoge, 3M; Zhuonan Liu, 3M
10:50 AM	11:10 AM	**How Do Biofilms Wrinkle? A computational Study**
		Akhilesh Kumar Verma, University of Miami; Luis Ruiz Pestana, University of Miami
Session: T2 Room: Greenway G		
Session Chair(s): Anna Tarakanova, Wenjie Xia		
11:25 AM	12:05 PM	**Keynote: Bio-inspired Impact-Resistant Materials by Design**
		Zhaoxu Meng, Clemson University; Colby Caviness, Clemson University; Zhangke Yang, Clemson University; Yitong Chen, Clemson University; Haoyu Wang, Clemson University
12:05 PM	12:25 PM	**Microstructure and Dynamics of Nanocellulose Network: Insights into the Deformational Behaviors**
		Zhaofan Li, North Dakota State University; Wenjie Xia, North Dakota State University
12:25 PM	12:45 PM	**Modeling and Design Bamboo-Skin Inspired Composites for Tunable Strength and Toughness**
		Zhao Qin, Syracuse University; Weinan Xu, The University of Akron
Session: T3 Room: Greenway G		
Session Chair(s): Zhen Li and Zhaoxu Meng		
2:30 PM	2:50 PM	**Multiscale modeling of polymer nanocomposite interphase**
		Boran Ma, University of Southern Mississippi; L. Catherine Brinson, Duke University
2:50 PM	3:10 PM	**Exploring the Thermomechanical and Interfacial Behaviors of Nano-Clay Using Molecular Modeling**
		Sarah Ghazanfari, North Dakota State University; Wenjie Xia, North Dakota State University
3:10 PM	3:30 PM	**Thermomechanical and Dynamics Properties of Polymer–Clay Nanocomposites**
		Wenjian Nie, North Dakota State University; Yangchao Liao, North Dakota State University; Sarah Ghazanfari, North Dakota State University; Zhaofan Li, North Dakota State University; Wenjie Xia, Iowa State University
3:30 PM	3:50 PM	**Optimizing the Steady Shear Response of Polymer-Grafted Nanoparticles**
		Arman Moussavi, Northwestern University; Zhenghao Wu, Northwestern University; Sinan Keten, Northwestern University

3:50 PM	4:10 PM	**Designing Superior Polymer Grafted Nanoparticle Thin Films for Ballistic Applications**
		Subhadeep Pal, Northwestern University; Sinan Keten, Northwestern University
Session: T4 Room: Greenway G		
Session Chair(s): Zhen Li and Zhaoxu Meng		
4:25 PM	5:05 PM	**Keynote: Molecular Computation for Bioengineering**
		Grace Gu, University of California Berkeley; Anna Tarakanova
5:05 PM	5:25 PM	**Engineering Living Materials with Multiscale Models and Machine-Learned Metamodels**
		Jingjie Yeo, Cornell University
5:25 PM	5:45 PM	**Tailoring Microstructures and interfaces to design polymer nanodielectrics for capacitive energy storage**
		Prajakta Prabhune, Duke University; Cate Brinson, Duke University; Anlan Chen, Duke University; Yigitcan Comlek, Northwestern University; Linda Schadler, University of Vermont; Wei Chen, Northwestern University; Ravishankar Sundararaman, RPI
10-4 Elastomeric fracture		
Session: T3 Room: Greenway I		
Session Chair(s): Shi-Qing Wang		
2:30 PM	3:10 PM	**Keynote: Crack-inclusion interaction in soft elastomer**
		Yinan Lu, University of Colorado Boulder; Saleh Alzughaibi, University of Colorado Boulder; Hemant Sethi, University of Colorado Boulder; Xingwei Yang, University of Colorado Boulder; Rong Long, University of Colorado Boulder
3:10 PM	3:30 PM	**Nonlocal intrinsic fracture energy of polymer-like networks**
		Chase Hartquist, Massachusetts Institute of Technology; Bolei Deng, Massachusetts Institute of Technology; Shu Wang, Massachusetts Institute of Technology; Xuanhe Zhao, Massachusetts Institute of Technology
3:30 PM	3:50 PM	**Characterizing Rate-Dependent Failure Properties in Soft Materials: A Constant Ratio Derived from Dynamic Puncture-Induced Fracture Surfaces**
		Bingyang Zhang, University of Illinois Urbana-Champaign; Philip S. L. Anderson, University of Illinois Urbana-Champaign
Session: T4 Room: Greenway I		
Session Chair(s): Ruobing Bai		
4:25 PM	5:05 PM	**Keynote: How fracture occurs in rubber?**
		Shi-Qing Wang, University of Akron; Zehao Fan, University of Akron
5:05 PM	5:25 PM	**Unprecedented stress-director coupling at the crack tip of a liquid crystal elastomer**
		Chen Wei, University of California, Los Angeles; Benny Hsu, University of California, Los Angeles; Yu Zhou, University of California, Los Angeles; Lihua Jin, University of California, Los Angeles
5:25 PM	5:45 PM	**Fracture of liquid crystal elastomers**
		Yu Zhou, UCLA; Chen Wei, UCLA; Lihua Jin, UCLA
10-6 Thermodynamics Kinetics Structure and Mechanical Behaviors of Metallic Glasses and High Entropy Alloys		
Session: T4 Room: Greenway F		
Session Chair(s): Qi An		
4:25 PM	4:45 PM	**Mechanics of high-entropy alloys**
		Ting Zhu, Georgia Institute of Technology

4:45 PM	5:05 PM	**Dislocation Plasticity and Microstructural Evolution in Refractory Multi-Principal Element Alloys**
		Daniel Gianola, University of California Santa Barbara
5:05 PM	5:25 PM	**Atomistic exploration of light-weight refractory high entropy alloys by promoting short-range chemical order using a machine learning potential**
		Yi Yao, Arizona State University; Xiaoxiang Yu, Novelis Global Research Center; Qiang Zhu, University of Nevada, Las Vegas; Lin Li, Arizona State University
5:25 PM	5:45 PM	**Simulations and modelling of the high temperature yield behavior of compositionally complex concentrated BCC alloys**
		Satish Rao, MRL, Materials Resources LLC; Brahim Akdim, UES Inc.; Oleg Senkov, MRL Materials Resources LLC; Daniel Miracle, AFRL; Todd Butler, AFRL
5:45 PM	6:05 PM	**Fracture Toughness quantification of Molybdenum and ceramics using a Predictive Model and Micropillar-Splitting at room temperature**
		Kimberly Lopez-Zepeda, University of Minnesota Twin Cities
10-8 Mechanics of Materials and Structures: Honoring Prof. Zhigang Suo on the Occasion of his 60th Birthday		
Session: T1 Room: Bemidji		
Session Chair(s): Xuanhe Zhao		
9:30 AM	10:00 AM	**Keynote: Coupled electro-chemo-elasticity: application to modeling the actuation response of ionic polymer-metal composites**
		Lallit Anand, MIT; Sooraj Narayan, MIT; Eric Stewart, MIT
10:00 AM	10:20 AM	**Multistable self-folding knit architectures for soft switches**
		Katia Bertoldi, Harvard University; Kausalya Mahadaven, Harvard University; Vanessa Sanchez, Harvard University; Helen Read, Harvard University
10:20 AM	10:40 AM	**Intersecting category theory and deep learning: Domain agnostic transformer model captures emergent multiscale physical fields including fracture**
		Markus Buehler, MIT
10:40 AM	11:10 AM	**Keynote: Analysis of the Deep Indentation and Puncture Test for Establishing the Mechanical Properties of Soft Solids**
		Robert McMeeking, University of California, Santa Barbara
Session: T2 Room: Bemidji		
Session Chair(s): Teng Li, Nanshu Lu		
11:25 AM	11:55 PM	**Keynote: Kinetics of water uptake in a porous medium: an actuating foam**
		Norman Fleck, Cambridge University; Ratul Das, Cambridge University; Lizi Cheng, Cambridge University; Vikram Deshpande, Cambridge University
11:55 PM	12:15 PM	**Fracture of cathode particles: is there anything beyond Suo seminal work?**
		Vikram Deshpande, Cambridge University; Siamak Shishvan, Cambridge University; Norman Fleck, Cambridge University; Robert McMeeking, University of California, Santa Barbara
12:15 PM	12:35 PM	**Bio-like Hydrogels with Life-like Intelligence**
		Ximin He, University of California, Los Angeles

12:35 PM	12:55 PM	**Micromechanical modeling of rubber networks**
		Laurence Brassart, University of Oxford
12:55 PM	1:15 PM	**Formation of Surface Wrinkles and Creases in Constrained Dielectric Elastomers Subject to Electromechanical Loading**
		Chad Landis, University of Texas at Austin; Rui Huang, University of Texas at Austin; John Hutchinson, Harvard University
Session: T3 Room: Bemidji		
Session Chair(s): Teng Li		
2:30 PM	3:00 PM	**Keynote: Gradient-mediated self-assembly of nanocapsules**
		Huajian Gao, Nanyang Technological University; Haopeng Li, Nanyang Technological University; Xuliang Qian, Nanyang Technological University; Harini Mohanram, Nanyang Technological University; Xiao Han, Nanyang Technological University; Huitang Qi, Dalian University of Technology; Ali Miserez, Nanyang Technological University; Tian Liu, Dalian University of Technology; Jing Yu, Nanyang Technological University
3:00 PM	3:30 PM	**Keynote: Orientation-order transition in self-assembled nanocrystal superlattices**
		Kyung-Suk Kim, Brown University; Siyuan Song, School of Engineering, Brown University; Ou Chen, Department of Chemistry, Brown University
3:30 PM	3:50 PM	**A micromachined picocalorimeter sensor for liquid samples with application to chemical reactions and biochemistry**
		Joost Vlassak, Harvard University; Jinhye Bae, UCSD; Peter Foster, USC; Juanjuan Zheng, Harvard University; Daniel Needleman, Harvard University
3:50 PM	4:10 PM	**Multiphysics modeling of grayscale digital light processing printing for pixel-level property manipulations**
		H. Jerry Qi, Georgia Institute of Technology; S. Macrae Montgomery, Georgia Institute of Technology
Session: T4 Room: Bemidji		
Session Chair(s): Xuanhe Zhao		
4:25 PM	4:55 PM	**Keynote: New Frontiers in the Development of DEA-based Artificial Muscles: Beyond the Simple Capacitor**
		David Clarke, Harvard University
4:55 PM	5:25 PM	**Keynote: Overcoming the adhesion paradox and switchability conflict with shape memory polymers**
		K Jimmy Hsia, Nanyang Technological University; Changhong Linghu, Nanyang Technological University; Huajian Gao, Nanyang Technological University
5:25 PM	5:55 PM	**Keynote: Time-dependent fracture in polymer systems**
		Michael Thouless, University of Michigan
10-11 Recent Advances in Modeling Materials Across Nano- and Micro-scales		
Session: T1 Room: Greenway A		
Session Chair(s): Nikhil Admal		
9:30 AM	10:10 AM	**Keynote: Phase Field Simulations of Microstructure Evolution in Additively Manufactured Structural Alloys**
		Bala Radhakrishnan, Oak Ridge National Laboratory; Tahany El-Wardany, Raytheon Technologies Research Center; Ranadip Acharya, Collins Aerospace

10:10 AM	10:30 AM	**Phase field modeling of slip transfer across thick biphase interfaces in HCP/BCC and FCC/BCC nanolaminates**
		Nicolas Fuchs-Lynch, University of California, Santa Barbara; Mauricio De Leo, University of Minnesota; Shuozhi Xu, University of Oklahoma; Justin Cheng, University of Minnesota; Nathan Mara, University of Minnesota; Irene Beyerlein, University of California, Santa Barbara
10:30 AM	10:50 AM	**Two-dimensional problem of an elastic matrix containing multiple Gurtin-Murdoch material surfaces along straight segments**
		Rohit S.Patil, University of Minnesota Twin Cities; Sofia G Mogilevskaya, University of Minnesota Twin Cities
10:50 AM	11:10 AM	**Modeling of experimentally observed topological defects inside bulk polycrystals**
		Siddharth Singh, Carnegie Mellon University; He Liu, Department of Physics, Carnegie Mellon University; Rajat Arora, Advanced Micro Devices, Inc. (AMD); Robert Suter, Department of Physics, Carnegie Mellon University; Amit Acharya, Department of CEE, Carnegie Mellon University
Session: T2 Room: Greenway A		
Session Chair(s): Bala Radhakrishnan		
11:25 AM	11:45 AM	**Investigating precipitate hardening through discrete dislocation analysis**
		Xing Liu, Georgia Institute of Technology; Ting Zhu, Georgia Institute of Technology
11:45 AM	12:05 PM	**Curvature-induced Effects in Composites Reinforced with Prestressed Flexible Membranes**
		Sofia Mogilevskaya, University of Minnesota; Zhilin Han, Donghua University; Anna Zemlyanova, Kansas State University
12:05 PM	12:25 PM	**Characterization Of Asymmetric Tilt Grain Boundaries Coupling Factors**
		Himanshu Joshi, University of Illinois at Urbana Champaign; Ian Chesser, Los Alamos National Laboratory; Brandon Runnels, University of Colorado, Colorado Springs; Nikhil Admal, University of Illinois, Urbana Champaign
12:25 PM	12:45 PM	**A physically motivated mesoscale approach for the mechanical exploration of dynamic elastomers and gels**
		Robert Wagner, Cornell University; Meredith Silberstein, Cornell University
12:45 PM	1:05 PM	**Developing the Micro-Mechanics Informed Neural Operator Framework for Multiscale Polycrystalline Material Behaviour**
		Rui Wu, University of Cambridge; Burigede Liu, University of Cambridge
Session: T3 Room: Lake of the Isles		
Session Chair(s): Juan Pedro Mendez		
2:30 PM	2:50 PM	**Concurrent atomistic-continuum studies of dislocations interacting with defects in crystalline materials**
		Shuozhi Xu, University of Oklahoma; Liming Xiong, North Carolina State University
2:50 PM	3:10 PM	**Spatial coarse-graining schemes for amorphous materials based on the quasicontinuum method**
		Amuthan Arunkumar Ramabathiran, Indian Institute of Technology Bombay, India
3:10 PM	3:30 PM	**Efficient Parallelization of the 3D Multilattice QC Method**
		Stephen Whalen, University of Minnesota-Twin Cities; Woo Kyun Kim, University of Cincinnati; Ellad Tadmor, University of Minnesota-Twin Cities
3:30 PM	3:50 PM	**Leveraging Thermodynamics to Model Materials Across Length Scales**
		Alex Arzoumanidis, Psylotech, Inc.

10-14 Symposium honoring the many contributions of Prof. Roger Fosdick		
Session: T3 Room: Greenway A		
Session Chair(s): Ryan Elliott		
2:30 PM	2:50 PM	**Motion by light**
		Kaushik Bhattacharya, California Institute of Technology
2:50 PM	3:10 PM	**Bounds for the homogenized stored-energy function of elastomeric composites**
		Pedro Ponte Castañeda, University of Pennsylvania
3:10 PM	3:30 PM	**An energy-minimization-based perspective on twinning with variable volume fraction, for two martensite variants**
		Sergio Conti, Bonn University; Robert V Kohn, New York University; Oleksandr Misiats, Virginia Commonwealth University
3:30 PM	3:50 PM	**Inertial Dynamics of Interfaces in Peridynamics and Phase-Field Modeling: The Role of Viscous Stresses**
		Kaushik Dayal, Carnegie Mellon University
Session: T4 Room: Greenway A		
Session Chair(s): Amit Acharya		
4:25 PM	4:45 PM	**Hyperelastic aspects of active collagen remodeling in soft tissue**
		Thomas Pence, Michigan State University; Heiko Topol, RWTH Aachen University
4:45 PM	5:05 PM	**Error-in-constitutive-relation framework for the**
		Bojan Guzina, University of Minnesota; Marc Bonnet, POEMS, Dept. of Applied Mathematics, ENSTA Paris; Prasannakumar Salasiya, University of Minnesota
5:05 PM	5:25 PM	**A new spectral representation of the strain energy function for linear anisotropic elasticity with a generalization for damage**
		MB Rubin, Technion-Israel Institute of Technology
5:25 PM	5:45 PM	**A Computational Scheme for the Solution of Differential Equations using Duality**
		Uditnarayan Kouskiya, Carnegie Mellon University; Amit Acharya, Carnegie Mellon University
10-15 Multiphysics mechanics of soft solids		
Session: T1 Room: Lake of the Isles		
Session Chair(s): Mrityunjay Kothari, Vikas Srivastava		
9:30 AM	9:50 AM	**Growing microbial colonies are unstable 'active' fluids**
		Sujit Datta, Princeton University
9:50 AM	10:10 AM	**Nonlinear Anisotropic Viscoelasticity**
		Souhayl Sadik, Aarhus University; Arash Yavari, Georgia Institute of Technology
10:10 AM	10:30 AM	**Investigating the Dynamic Shearing Resistance and Thermo-Viscoelastic Behavior of Hydroxyl-terminated polybutadiene (HTPB) in Polymer Bonded**
		Srijan Neogi, Brown University; Tom Pilvelait, Brown University; Pinkesh Malhotra, Apple Inc.; David Henann, Brown University; Pradeep Guduru, Brown University

10:30 AM	10:50 AM	**Nonlinear shell model for soft-magnetic soft-solids**
		Abhishek Ghosh, JWSE, University of Glasgow; Andrew McBride, JWSE, University of Glasgow; Zhaowei Liu, Hohai University, China; Luca Heltai, SISSA, Italy; Paul Steinmann, Institute of Applied Mechanics, Erlangen Germany; Prashant Saxena, JWSE, University of Glasgow
Session: T2 Room: Lake of the Isles		
Session Chair(s): Mrityunjay Kothari, Vikas Srivastava		
11:25 AM	11:45 AM	**Solid–liquid composites for soft multifunctional materials**
		Michael Bartlett, Virginia Tech
11:45 AM	12:05 PM	**Splitting Coacervated Solid and Get Shocked**
		Baohong Chen, University of Pennsylvania; Shu Yang, University of Pennsylvania
12:05 PM	12:25 PM	**Photo-degradation of Renewable Polymers**
		Keven Alkhoury, New Jersey Institute of Technology; Shawn Chester, New Jersey Institute of Technology
10-16 Computational Mechanics of Materials and Structures		
Session: T1 Room: Greenway J		
Session Chair(s): Curt Bronkhorst		
9:30 AM	9:50 AM	**Thermo-Mechanics of Single and Polycrystal Metal Deformation**
		Curt Bronkhorst, University of Wisconsin – Madison; Sudip Kunda, Univesity of Wisconsin – Madison; Charles Lieou, University of Tennessee - Knoxville
9:50 AM	10:10 AM	**Size-dependence of AM Ti-6Al-4V: experimental characterization and applications in thin-walled structures simulations**
		Shashank Kushwaha, University of Illinois Urbana – Champaign; Junyan He, University of Illinois Urbana Champaign; Mahmoud Mahrous, University of Illinois Urbana Champaign; Diab Abueidda, University of Illinois Urbana Champaign; Eric Faierson, Iowa State University; Iwona Jasiuk, University of Illinois Urbana Champaign
10:10 AM	10:30 AM	**Plasticity in the vicinity of grain interfaces using micromorphic continuum field theories**
		Sudip Kunda, University of Wisconsin – Madison; Curt Bronkhorst, University of Wisconsin-Madison
10:30 AM	10:50 AM	**Computational modeling of the size-dependency of the martensitic phase transformation in shape memory alloys using a mesoscale framework**
		Manish Vasoya, Texas A&M University; Dimitris C Lagoudas, Texas A&M University
10:50 AM	11:10 AM	**Microstructure-Informed Modeling of the Linear and Nonlinear Ultrasonic Response for the Characterization of Metals**
		Colin Williams, Pennsylvania State University; Matthew Lear, Pennsylvania State University; Parisa Shokouhi, Pennsylvania State University
Session: T2 Room: Greenway J		
Session Chair(s): Shawn A. Chester		
11:25 AM	11:45 AM	**Combined Experimental-Computational Glass-Ceramic Model Development**
		Brian Lester, Sandia National Laboratories; Kevin Strong, Sandia National Laboratories; Thomas Diebold, Sandia National Laboratories; Steve Dai, Sandia National Laboratories; Kevin Long, Sandia National Laboratories

11:45 AM	12:05 PM	**Thermal-elastic model of regression of solid composite propellants using phase-field methods**
		Maycon Meier, University of Colorado Colorado Springs; Brandon Runnels, University of Colorado Colorado Springs; John Matt, Quinlan University of Colorado Colorado Springs; Emma Schimidt, University of Colorado Colorado Springs
12:05 PM	12:25 PM	**Finite element implementation of a dislocation thermo-mechanics model and its applications**
		Gabriel D. Lima-Chaves, École Polytechnique; Manas V. Upadhyay, École Polytechnique
12:25 PM	12:45 PM	**Modelling of Strain and Damage Sensing in Polymer Bonded Mock Energetic Material Systems using Peridynamics**
		Pranay Anekal, Virginia Tech; Viswajit Talluru, Virginia Tech; Gary Seidel, Virginia Tech
Session: T3 Room: Greenway J		
Session Chair(s): Nikolaos Bouklas		
2:30 PM	2:50 PM	**Enhancing aircraft performance through machine learning based optimization of airfoil shape for flutter mitigation**
		Jiyoung Jung, UC Berkeley; Grace Gu, UC Berkeley
2:50 PM	3:10 PM	**A deep learning energy-based method for classical elastoplasticity**
		Iwona Jasiuk, University of Illinois at Urbana-Champaign; Junyan He, University of Illinois at Urbana-Champaign; Diab Abueidda, University of Illinois at Urbana-Champaign; Rashid Abu Al-Rub Khalifa, University of Science and Technology; Seid Koric, University of Illinois at Urbana-Champaign
3:10 PM	3:30 PM	**Thermodynamically Consistent Void-Based Damage Model**
		Noah Schmelzer, University of Wisconsin – Madison; Evan Lieberman, Los Alamos National Laboratory; Curt Bronkhorst, University of Wisconsin – Madison; Nan Chen, University of Wisconsin – Madison; George Gray, Los Alamos National Laboratory; Saryu Fensin, Los Alamos National Laboratory; Carl Cady, Los Alamos National Laboratory; James Valdez, Los Alamos National Laboratory; Veronica Anghel, Los Alamos National Laboratory
3:30 PM	3:50 PM	**Crumpling behavior of defective nanosheets**
		Long Chen, Iowa State University; Yangchao Liao, North Dakota State University; Wenjie Xia, Iowa State University
3:50 PM	4:10 PM	**Analytical and finite element analysis of the formability prediction of AA7075-O aluminum sheets**
		Mohammadmehdi Shahzamanian Sichani, Texas A&M University; Raj Banerjee, University of North Texas; Narendra Dahotre, University of North Texas; Arun Srinivasa, Texas A&M University; Peidong Wu, Texas A&M University; JN Reddy, Texas A&M University
Session: T4 Room: Greenway J		
Session Chair(s): Wei Gao		
4:25 PM	4:45 PM	**Microscale Modeling of Carbon Fiber Reinforced Composites with a Cohesive Interface Model**
		Neslihan Genckal, Virginia Tech; Gary Seidel, Virginia Tech
4:45 PM	5:05 PM	**Effect of water on unidirectional fiber-reinforced composite: a computational study**
		Vaishakh Kottila Veedu, Brown University; Nithin Kaliyath Parambil, University of Delaware; Pradeep Guduru, Brown University; Vikas Srivastava, Brown University
5:05 PM	5:25 PM	**Modeling of Progressive Cracking in Composite Laminates**
		Xiangfa Wu, North Dakota State University; Shariful Islam, North Dakota State University; Oksana Zholobko, North Dakota State University

5:25 PM	5:45 PM	**In-Vivo vs Ex-Vivo Evaluation of Mouse Aorta Biomechanics: The Need for Constraints on the Inverse FE Methods**
		Hadi Wiputra, University of Minnesota; Sydney Clark, Weldon School of Biomedical Engineering, Purdue Un; Craig Goergen, Weldon School of Biomedical Engineering, Purdue Un; Matthew Bersi, Department of Mechanical Engineering & Materials; Victor Barocas, University of Minnesota
5:45 PM	6:05 PM	**Analytical solution for Mode I stress intensity factor in aviation pavement reflection cracking model**
		Kairat Tuleubekov, Applied Research Associates

Thematic Area 2. Fluid Mechanics & Granular Physics

2-1 Mechanics of Granular Media: Experiments Theory and Modeling		
Session: W1 Room: Lake Superior B		
Session Chair(s): Ken Kamrin		
9:30 AM	10:10 AM	**Keynote: Frictional Weakening of Vibrated Granular Flows**
		Abe Clark, Naval Postgraduate School; Emily Brodsky, UC Santa Cruz; John Nasrin, NSWC Carderock; Stephanie Taylor, UC Santa Cruz; Mitchell Irmer, Naval Postgraduate School
10:10 AM	10:30 AM	**Flow of Photoelastic Particles in a 2D Silo**
		Lori McCabe, Mount Holyoke College; Shanen Arellano, Mount Holyoke College; Kerstin Nordstrom, Mount Holyoke College
10:30 AM	10:50 AM	**Modelling silo clogging with nonlocal granular rheology**
		Sachith Dunatunga, MIT; Ken Kamrin, MIT
10:50 AM	11:10 AM	**Modeling coupled size-segregation and flow in multi-dimensional, dense, bidisperse granular flows**
		David Henann, Brown University; Harkirat Singh, Brown University; Shihong Li, Brown University; Daren Liu, Brown University
Session: W2 Room: Lake Superior B		
Session Chair(s): David Henann		
11:25 AM	11:45 AM	**Examining Micromechanics and Continuum Plasticity Postulates in Triaxially-Compressed Sand**
		Ryan Hurley, Johns Hopkins University; Ghassan Shahin, EPFL; Kwangmin Lee, Johns Hopkins University; Brett Kuwik, Johns Hopkins University
11:45 AM	12:05 PM	**Multi-Parameter Persistent Homology of Granular packings**
		Monica Ripp, Haverford College; Eric Whyman, Haverford College; Ted Brzinski, Haverford College
12:05 PM	12:25 PM	**A nonlocalized contact model for adhesive elastic-plastic particles: bridging elastic, fully plastic, and high confinement contact**
		William Zunker, Massachusetts Institute of Technology; Ken Kamrin, Massachusetts Institute of Technology
12:25 PM	12:45 PM	**Local and global measures of shear moduli of jammed disk packings**
		Weiwei Jin, Yale University; Shiyun Zhang, University of Science and Technology of China; Dong Wang, Yale University; Ding Xu University of Science and Technology of China; Jerry Zhang, Yale University; Mark Shattuck, The City College of New York; Corey O'Hern, Yale University
12:45 PM	1:05 PM	**Microscale Measurements in Granular Metamaterials with Prescribed Grain-pair Interactions**
		Anil Misra, University of Kansas
Session: W3 Room: Lake Superior B		
Session Chair(s): Ryan Hurley		
2:05 PM	2:25 PM	**Mechanistic framework for reduced-order models in soft materials: Application to three-dimensional granular intrusion**
		Shashank Agarwal, MIT; Daniel I Goldman, Georgia Institute of Technology; Ken Kamrin, MIT

2:25 PM	2:45 PM	**A scallop-like swimmer with reciprocal motion in granular materials**
		Hongyi Xiao, Friedrich-Alexander-Universität Erlangen-Nürnberg; Harol Torres, Friedrich-Alexander-Universität Erlangen-Nürnberg; Achim Sack, Friedrich-Alexander-Universität Erlangen-Nürnberg; Thorsten Pöschel, Friedrich-Alexander-Universität Erlangen-Nürnberg
2:45 PM	3:05 PM	**Extending Resistive Force Theory of Granular Media to Deforming Intruders**
		Lale Yilmaz, MIT; Shashank Agarwal, MIT; Kenneth Kamrin, MIT
3:05 PM	3:25 PM	**Ultraslow settling kinetics and compaction dynamics of frictional cohesive powders**
		Robert Hoy, University of South Florida; Kai Nan, University of South Florida;
3:25 PM	3:45 PM	**Understanding the collapse of a granular raft**
		Ranit Mukherjee, University of Minnesota Twin Cities; Benjamin Druecke, Mechanical Engineering, UMN Twin Cities; Zih-Yin Chen, Mechanical Engineering, UMN Twin Cities; Xiang Cheng, Chemical Engg. & Material Sci., UMN Twin Cities; Sungyon Lee, Mechanical Engineering, UMN Twin Cities
Session: W4 Room: Lake Superior B		
Session Chair(s): David Henann		
4:00 PM	4:20 PM	**Modeling cohesive and compressible granular flows with critical state μ(I)-rheology**
		Lars Blatny, Ecole Polytechnique Fédérale de Lausanne (EPFL); Nico Gray, University of Manchester; Johan Gaume, ETH Zurich
4:20 PM	4:40 PM	**A non-codirectional flow rule for dense granular flow**
		Harkirat Singh, Brown University; David Henann, Brown University;
4:40 PM	5:00 PM	**An elastic-viscoplastic constitutive model for granular materia**
		Miles B Rubin, Technion-Israel Institute of Technology; J. Ciambella, Sapenza University of Rome; B. Nadler, University of Victoria
5:00 PM	5:20 PM	**A Force-Chain Based Plasticity Model for Prediction of Stress Drops in Granular Media**
		Adyota Gupta, Johns Hopkins University; Kaliat Ramesh, Johns Hopkins University; Ryan Hurley, Johns Hopkins University
2-2 Novel properties and applications of granular metamaterials		
Session: W3 Room: Greenway D		
Session Chair(s): Dong Wang		
2:05 PM	2:25 PM	**Keynote: Design of Disordered Auxetic Materials**
		Mengjie ZU, Institute of Science and Technology (IST) Austria; Carl Goodrich, Institute of Science and Technology (IST) Austria;
2:25 PM	2:45 PM	**On the mechanism of pattern transformations in diatomic soft granular crystals**
		Nidhish Jain, University at Buffalo; Jongmin Shim, University at Buffalo
Session: W4 Room: Greenway D		
Session Chair(s): Dong Wang		
4:00 PM	4:20 PM	**Engineering fully dense and cohesive granular crystals**
		Ashta Navdeep Karuriya, University of Colorado Boulder; Jeremy Simoes, University of Colorado Boulder; Francois Barthelat, University of Colorado Boulder

4:20 PM	4:40 PM	**Jamming Enabled Tunable Multistability in Granular Metamaterials**
		Weining Mao, Nanyang Technological University; Mingchao Liu, University of Birmingham; Yifan Wang, Nanyang Technological University; K. Jimmy Hsia, Nanyang Technological University
4:40 PM	5:00 PM	**Designing mechanical response using tessellated granular metamaterials**
		Dong Wang, Yale University; Jerry Zhang, Yale University; Weiwei Jin, Yale University; Annie Xia, Yale University; Nidhi Pashine, Yale University; Rebecca Kramer-Bottiglio, Yale University; Mark Shattuck, The City College of New York; Corey O'Hern, Yale University

Thematic Area 3. Damage & Failure of Materials

3-2 Ductile Failure: Experiments and Modeling		
Session: W1 Room: Greenway I		
Session Chair(s): Christian Roth		
9:30 AM	10:10 AM	**Keynote: In-Plane torsion experiments - identifying anisotropic plasticity and fracture under simple shear**
		Christian Roth, ETH Zurich; Simon Knecht, ETH Zurich; Vincent Grolleau, ETH Zurich; Dirk Mohr, ETH Zurich
10:10 AM	10:30 AM	**Experimental Fracture Characterization of Sheet Metals in Uniaxial Tension using the In-Plane Bend Test**
		Advaith Narayanan, University of Waterloo; Cliff Butcher, University of Waterloo
10:30 AM	10:50 AM	**Whip Bezier: A Hardening Law Tailored for Gradient Based Optimization and Inverse Identification**
		Emmanouil Sakaridis, ETH Zurich; Paul Meyer, ETH Zurich; Christian Roth, ETH Zurich; Dirk Mohr, ETH Zurich
10:50 AM	11:10 AM	**Yield and fracture loci of anisotropic sheet metals**
		Wei Tong, Southern Methodist University; Jie Sheng, Southern Methodist University; Seungyong Yang, Korea University of Technology and Education
Session: W2 Room: Greenway I		
Session Chair(s): Xueyang Li		
11:25 AM	11:45 AM	**Challenges of Practical Ductile Failure Modeling in Dynamic, Shear-Dominated Problems**
		Edmundo Corona, Sandia National Laboratories
11:45 AM	12:05 PM	**Neural Network-Based Rate-and Temperature-Dependent Hosford Coulomb Fracture Model: Application to AA7075**
		Xueyang Li, ETH Zurich; Christian Roth, ETH Zurich; Dirk Mohr, ETH Zurich
12:05 PM	12:25 PM	**THREE-DIMENSIONAL SIMULATIONS OF DUCTILE FRACTURE UNDER ARBITRARY LOADINGS**
		Vigneshwaran Radhakrishnan, Texas A&M University; Amine Benzerga, Texas A&M University
12:25 PM	12:45 PM	**Cyclic softening of Ti-6Al-4V subjected to low cycle fatigue: Experiment and Modelling**
		Anish Ranjan, Indian Institute of Technology Bombay, India; Satyaprakash Mishra, Indian Institute of Technology Bombay, India; Amit Singh, Indian Institute of Technology Bombay, India; Jyoti S. Jha, Indian Institute of Technology Bombay, India; Sushil K. Mishra, Indian Institute of Technology Bombay, India
12:45 PM	1:05 PM	**Ratcheting behaviour of SS316L at room and low temperatures**
		Hitarth Maharaja, Indian Institute of Technology Bombay, India; Bimal Das, Ahmedabad University, Gujarat; Amit Singh, Indian Institute of Technology, Bombay; Sushil Mishra, Indian Institute of Technology, Bombay

3-4 Phase-Field Models of Fracture for Solids Hard and Soft		
Session: W2 Room: Greenway E		
Session Chair(s): Aditya Kumar		
11:25 AM	12:05 PM	**Keynote: A general variational principle for fracture**
		Christopher Larsen, WPI
12:05 PM	12:25 PM	**Dynamic Brittle Fracture**
		Alan Sze, Duke University; Sanghyun Lee, Florida State University; David Katz, Duke University
12:25 PM	12:45 PM	**Phase-Field Fracture Modeling of 3D Printed Polymers and Composites**
		Revanth Mattey, Michigan Technological University; Trisha Sain, Michigan Technological University; Susanta Ghosh, Michigan Technological University; Ben Jewell, Michigan Technological University
Session: W3 Room: Greenway E		
Session Chair(s): Trisha Sain		
2:05 PM	2:25 PM	**Keynote: On Phase-Field Models for Dynamic Fracture and the Importance of Strength**
		Yangyuanchen Liu, Duke University; Aditya Kumar, Georgia Institute of Technology; Oscar Lopez-Pamies, University of Illinois; John Dolbow, Duke University
2:25 PM	2:45 PM	**A regularized variational theory for modeling fracture in materials with embedded weak interfaces**
		Kaushik Vijaykumar, Brown University; Benjamin E. Grossman-Ponemon, Brown University; Pooya Yousefi, Worcester Polytechnic Institute; Christopher J. Larsen, Worcester Polytechnic Institute; Haneesh Kesari, Brown University
2:45 PM	3:05 PM	**The Brazilian Fracture Test Explained**
		Aditya Kumar, Georgia Institute of Technology; Yangyuanchen Liu, Duke University; John Dolbow, Duke University; Oscar Lopez-Pamies, University of Illinois Urbana-Champaign
Session: W4 Room: Greenway E		
Session Chair(s): Oscar Lopez-Pamies		
4:00 PM	4:20 PM	**3D implementation of phase field regularized interface fracture modeling in fiber reinforced polymer composites**
		Akash Kumar, Michigan Technological University; Trisha Sain, Michigan Technological University
4:20 PM	4:40 PM	**A thermodynamically consistent phase field fracture model for concrete**
		Sina Abrari Vajari, Stanford University; Matthias Neuner, Stanford University; Christian Linder, Stanford University
4:40 PM	5:00 PM	**Multiscale Fracture Model coupled with Phase Field approach for predicting Anisotropic Network Response in Rubber-like materials**
		Prajwal Kammardi Arunachala, Stanford University; Matthias Neuner, University of Innsbruck; Christian Linder, Stanford University
5:00 PM	5:20 PM	**A phase-field formulation for cohesive fracture based on the Park-Paulino-Roesler (PPR) cohesive fracture model**
		Rogelio Muneton-Lopez, University of Missouri; Oliver Giraldo-Londono, University of Missouri

Thematic Area 5. Advances in Nanomechanics

5-2 Advances in multiscale modeling and machine learning in nanomechanics		
Session: W1 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
9:30 AM	10:10 AM	**Keynote: Machine learning traction force maps of cell monolayers: toward a digital traction force microcopy**
		Sulin Zhang, Pennsylvania State University; Changhao Li, Penn State University; Luyi Feng, Penn State University; Yang Jeong Park, Massachusetts Institute of Technology; Jian Yang, Penn State University; Ju Li, Massachusetts Institute of Technology; Sulin Zhang, Penn State University
10:10 AM	10:30 AM	**Revealing Interfacial Line Defect Structures and Dynamics with Interfacial Line Defect Analysis**
		Ryan Sills, Rutgers University; Nipal Deka, Rutgers University; David Gordon, Rutgers University; Alexander Stukowski, OVITO GmbH
10:30 AM	10:50 AM	**Convolutional and Physics-Informed Neural Networks for Structural Mechanics Problems**
		Vikas Srivastava, Brown University
10:50 AM	11:10 AM	**On-the-fly machine learning for accelerating ab initio molecular dynamics simulations**
		Phanish Suryanarayana, Georgia Institute of Technology; Shashikant Kumar, Georgia Institute of Technology
Session: W2 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
11:25 AM	11:45 AM	**Designing and optimizing vitrimer polymers with molecular dynamics and machine learning**
		Aniruddh Vashisth, University of Washington; Yiwen Zheng, University of Washington
11:45 AM	12:05 PM	**Learning the constitutive equations of chemo-mechanics from atomistic simulations**
		Haoran Wang, Utah State University
12:05 PM	12:25 PM	**Machine learning full elastic tensors with equivariant neural networks**
		Mingjian Wen, University of Houston
12:25 PM	12:45 PM	**Multiscale Modeling of Complex Behavior of Crumpled Nanosheets**
		Wenjie Xia, Iowa State University
Session: W3 Room: Boundary Waters D		
Session Chair(s): Dibakar Datta, Steven W. Cranford		
2:05 PM	2:25 PM	**Insights into Mechanical Properties of Crosslinked Polymer Network Assisted by Machine Learning**
		Lan Xu, Iowa State University; Wenjian Nie, North Dakota State University; Wenjie Xia, Iowa State University
2:25 PM	2:45 PM	**Colloidal monolayer formation at fluid interfaces: Brownian dynamics simulation and electrospray experiments**
		Xin Yong, Binghamton University
2:45 PM	3:05 PM	**Mixed Enthalpy-Entropy Descriptor-Enabled Rational Computational Design of High-Entropy Materials**
		Liping Yu, University of Maine
3:05 PM	3:25 PM	**A quantum-informed 0ght-binding total energy parameteriza0on for twisted bilayer graphene**
		Harley T. Johnson, Dan Palmer, Tawfiqur Rakib, Naheed Ferdous, Gabriel Brown, Kilthat Krongchon, Lucas K. Wagner

5-3 Fracture and Fatigue at the Nanoscale : Modeling and Testing		
Session: W1 Room: Lake of the Isles		
Session Chair(s): Samit Roy		
9:30 AM	9:50 AM	**Friction Behavior of High Entropy MXene at Nanoscale**
		Jiaoli Li, Missouri University of Science and Technology; Yuwei Zhang, Missouri University of Science and Technology; Yanxiao Li, Missouri University of Science and Technology; Risheng Wang, Missouri University of Science and Technology; Chenglin Wu, Missouri University of Science and Technology
9:50 AM	10:10 AM	**Plastic deformation and fracture behavior in molecular crystals and correlation with their tableting properties**
		Sushmita Majumder, University of Minnesota-Twin Cities; Tianyi Xiang, University of Minnesota Twin Cities; Chenguang Wang, Evelo Biosciences; Gerrit Vreeman, University of Minnesota Twin Cities; Javier Garcia-Barriocanal, University of Minnesota Twin Cities; Greg Haugstad, University of Minnesota Twin Cities; Calvin Sun, University of Minnesota Twin Cities; Nathan Mara, University of Minnesota-Twin Cities
10:10 AM	10:30 AM	**Characterization of silver nanowires under low cycle fatigue**
		Brizeida Ojeda, The University of Texas at Dallas; Rodrigo Bernal, The University of Texas at Dallas
Session: W2 Room: Lake of the Isles		
Session Chair(s): Samit Roy		
11:25 AM	11:45 AM	**Transitional flaw size sensitivity of amorphous silica nanostructures analyzed by ReaxFF/SiO based molecular dynamics**
		John Park, Stony Brook University; Kedar Kirane, Stony Brook University
11:45 AM	12:05 PM	**Micro three-point bend fracture toughness testing of multilayered metal-ceramic Cu/TiN and Al/TiN nanocomposite thin films**
		Sid Pathak, Iowa State University; Marko Knezevic, University of New Hampshire
12:05 PM	12:25 PM	**Mechanical and thermal characteriztion of VO2 nanowires**
		Juan Carlos Rincon Montenegro, University of Texas at Dallas; Rodrigo Bernal Montoya, University of Texas at Dallas

Thematic Area 6. Soft Materials & Soft Robotics

6-1 Functional Soft Composites - Design Mechanics and Manufacturing		
Session: W1 Room: Greenway C		
Session Chair(s): Liang Yue		
9:30 AM	9:50 AM	**Harnessing magneto-mechanical coupling to tailor structural transformations in soft composites**
		Nitesh Arora, University of Wisconsin-Madison; Vincent Chen, Air Force Research Laboratory; Abigail Juhl, Air Force Research Laboratory; Philip Buskohl, Air Force Research Laboratory; Stephan Rudykh, University of Wisconsin-Madison
9:50 AM	10:10 AM	**Additive manufacturing of glass microstructures at mild conditions**
		Mingzhe Li, Georgia Insititute of Technology; Liang Yue, Georgia Institute of Technology; H. Jerry Qi, Georgia Institute of Technology

10:10 AM	10:30 AM	**Stretchable Thermoelectric Generators with Printed PDMS-Based Soft Functional Matter**
		Mohammad Malakooti, University of Washington; Youngshang Han, University of Washington; Halil Tetik, University of Washington
10:30 AM	10:50 AM	**Modeling Multilayer Laminated Beam with Extreme Modulus Mismatch**
		Zheliang Wang, University of Texas at Austin; Xinyi Lin, Harvard University; Hao Sheng, Harvard University; Jia Liu, Harvard University; Nanshu Lu, University of Texas at Austin
10:50 AM	11:10 AM	**Recyclable 3D printing Enabled By Depolymerizable Resin Design**
		H. Jerry Qi, Georgia Institute of Technology; Liang Yue, Georgia Institute of Technology
6-2 Origami and Kirigami-inspired Robotics		
Session: W1 Room: Greenway D		
Session Chair(s): Evgueni Filipov, Renee Zhao		
9:30 AM	10:10 AM	**Keynote: Origami-based Mechanical Metamaterials for Robotics**
		Hanqing Jiang, Westlake University
10:10 AM	10:30 AM	**Optimisation of square dome-shaped kirigami folded structure for blast mitigation using HDMR**
		Vishal Birari, Indian Institute of Technology Madras, India; B. N. Rao, Indian Institutes of Technology Madras, India
10:30 AM	10:50 AM	**How The Origami Magic Ball Produces Jet Propulsion in a Soft Squid-Inspired Swimmer**
		Dongsheng Chen, University of Pennsylvania; Guanyu Chen, University of Pennsylvania; Cynthia Sung, University of Pennsylvania
10:50 AM	11:10 AM	**Single-vertex origami for multimodal locomotion**
		Davood Farhadi, Harvard University; Laura Pernigoni, Politecnico di Milano; David Melancon, Ecole Polytechnique de Montreal; Antonio Grande, Politecnico di Milano; Katia Bertoldi, Harvard University
Session: W2 Room: Greenway D		
Session Chair(s): Evgueni Filipov, Renee Zhao		
11:25 AM	11:45 AM	**Using Multiple Transducers in Micro-Origami Systems to Enhance Functionality**
		Evgueni Filipov, University of Michigan; Yi Zhu; University of Michigan; Anan Ghrayeb, University of Michigan; Joonyoung Yu, University of Michigan; Kenn Oldham, University of Michigan
11:45 AM	12:05 PM	**Design of Functional Multiscale Microfabricated Origami Systems**
		Anan Ghrayeb, University of Michigan; Yi Zhu, University of Michigan; Kenn Oldham; University of Michigan; Evgueni Filipov, University of Michigan
12:05 PM	12:25 PM	**Angle-programmed tendril-like trajectories enable an ultragentle yet ultrastrong and delicate gripper**
		Yaoye Hong, North Carolina State University; Jie Yin, North Carolina State University
12:25 PM	12:45 PM	**Exploring Kinematic Bifurcations for Dexterous In-Hand Manipulation: A Robotic Gripper Inspired by Thick-Panel Waterbomb Origami**
		Chenying Liu, University of Oxford; Liang He, University of Oxford; Sihan Wang, University of Oxford; Albert Williams, University of Oxford; Zhong You, University of Oxford; Perla Maiolino, University of Oxford
12:45 PM	1:05 PM	**Curved origami and its application to the design of brain stents**
		Huan Liu, University of Minnesota; Richard James, University of Minnesota

6-3 Soft Robotics: Matter Structure and Intelligence		
Session: W1 Room: Boundary Waters B		
Session Chair(s): Kaitlyn Becker		
9:30 AM	9:50 AM	**Autonomous Soft Robots based on Photo-active Soft Materials**
		Ximin He, University of California, Los Angeles
9:50 AM	10:10 AM	**Modular embodiment of control in soft robots via stimuli-responsive mechanical constraints and pneumatic logic**
		Qiguang He, University of Pennsylvania; Rui Yin, University of Pennsylvania; Weijian Jiao, University of Pennsylvania; Chengyang Mo, University of Pennsylvania; Yucong Hua, University of Pennsylvania; Hang Shu, University of Pennsylvania; Jordan Raney, University of Pennsylvania
10:10 AM	10:30 AM	**Stimuli Driven Morphing of Printed Liquid Crystal Elastomers**
		Caitlyn Krikorian, Lawrence Livermore National Laboratory; Michael Ford, Lawrence Livermore National Laboratory; Dominique Porcincula, Lawrence Livermore National Laboratory; Rodrigo Telles-Arriaga, Lawrence Livermore National Laboratory; Yuchen Wang, Lawrence Livermore National Laboratory; Bryan Moran, Lawrence Livermore National Laboratory; Julie Mancini, Lawrence Livermore National Laboratory; Elaine Lee, Lawrence Livermore National Laboratory; Jennifer Lewis, Harvard University; ShuYang, University of Pennsylvania
10:30 AM	10:50 AM	**A monolithic fabrication method for proprioceptive soft-foldable robots**
		Hun Chan Lee, Boston University; Nash Elder, Boston University; Matthew Leal, Boston University; Sarah Stantial, Boston University; Sheila Russo, Boston University
10:50 AM	11:10 AM	**Ultrasensitive and robust mechanoluminescent living composites for soft robotics**
		Chenghai Li, University of California San Diego; Shengqiang Cai, University of California San Diego
Session: W2 Room: Boundary Waters B		
Session Chair(s): Kaitlyn Becker		
11:25 AM	11:45 AM	**Hierarchical contact tuning in soft robotic grippers**
		Kaitlyn Becker, MIT
11:45 AM	12:05 PM	**Multifunctional Hybrid Actuators for Soft Robotic Hands and Walking Robots**
		Changyong (Chase) Cao, Case Western Reserve University; Yunwei Zhao, Beihua University; Haoran Huang, Beihua University; Fanru Gao, Case Western Reserve University; Xiaomin Liu, Beihua University
12:05 PM	12:25 PM	**An Expandable Soft Manipulator Enables High Dexterity and Force Generation in Complex Environments**
		Jacob Rogatinsky, Boston University; Tommaso Ranzani, Boston University
12:25 PM	12:45 PM	**Hysteresis Modeling for Woven Textile Soft Actuators**
		Connor M. McCann, Harvard University; James Arnold, Harvard University; Carolin Lehmacher, Harvard University; Katia Bertoldi, Harvard University; Conor J. Walsh, Harvard University
12:45 PM	1:05 PM	**Fuel-Powered Redox-Driven Polymer Artificial Muscles**
		Sevketcan Sarikaya, Texas A&M University; Frank Gardea, Army Research Laboratory; Jeffrey T. Auletta, Army Research Laboratory; Alex Langrock, Army Research Laboratory; Hyun Kim, Korea Research Institute of Chemical Technology; David M. Mackie, Army Research Laboratory; Mohammad Naraghi, Texas A&M University

Session: W3 Room: Boundary Waters B		
Session Chair(s): Dan Preston		
2:05 PM	2:25 PM	**Photo-induced Spatiotemporal Behavior of Shape Memory Polymers**
		Boliang Wu, Department of Mechanical and Aerospace Engineering, University of California, Los Angeles; Lihua Jin, University of California, Los Angeles
2:25 PM	2:45 PM	**Leveraging the Temperature-Dependent Curing of Elastomers**
		Te Faye Yap, Rice University; Anoop Rajappan, Rice University; Marquise Bell, Rice University; Rawand Rasheed, Rice University; Colter Decker, Rice University; Daniel Preston; Rice University
2:45 PM	3:05 PM	**Worm-Inspired Untethered Soft Crawling Robots for Pipe Inspections**
		Yunwei Zhao, Beihua University; Haoran Huang, Beihua University; Fanru Gao, Case Western Reserve University; Xiaomin Liu, Beihua University; Changyong (Chase) Cao, Case Western Reserve University
3:05 PM	3:25 PM	**Large Low-Energy Shape-Transformations in Soft Electromechanical Elastomers**
		Daniel Katusele, Carnegie Mellon University; Carmel Majidi, Carnegie Mellon University; Pradeep Sharma, University of Houston; Kaushik Dayal, Carnegie Mellon University
Session: W4 Room: Boundary Waters B		
Session Chair(s): Dan Preston		
4:00 PM	4:20 PM	**Sheet-Based Fluidic Diodes for Integrated Circuitry in Soft Robotics**
		Vi Vo, Rice University; Anoop Rajappan, Rice University; Barclay Jumet, Rice University; Marquise Bell, Rice University; Daniel Preston, Rice University
4:20 PM	4:40 PM	**Ionic Diodes: Improving Rectification by Understanding Internal Mechanisms**
		Max Tepermeister, Cornell University; Meredith Silberstein, Cornell University
4:40 PM	5:00 PM	**Materials selection for designing soft machines**
		Charlotte Folinus, Massachusetts Institute of Technology; Kaitlyn Becker, Massachusetts Institute of Technology
6-5 Mechanics and Physics of Soft Materials		
Session: W1 Room: Boundary Waters C		
Session Chair(s): Yuhang Hu, Stephan Rudykh, Xuanhe Zhao, Oscar Lopez-Pamies		
9:30 AM	9:50 AM	**A constitutive model for elastomers tailored by ionic bonds and entanglements**
		Zhongtong Wang, Cornell University; Hongyi Cai, Cornell University; Meredith Silberstein, Cornell University
9:50 AM	10:10 AM	**Osmotic instability in soft materials under well-controlled triaxial stress**
		Zhengjin Wang, Xi'an Jiaotong University
10:10 AM	10:30 AM	**A Highly Sensitive, Stretchable and Robust Strain Sensor based on Crack Advancing and Opening**
		Shuang Wu, North Carolina State University at Raleigh; Katherine Moody, North Carolina State University at Raleigh; Abhiroop Kollipara, North Carolina State University at Raleigh; Yong Zhu, North Carolina State University at Raleigh
10:30 AM	10:50 AM	**Surface Effects on the Mechanical, Electromechanical, and Elastocapillary Responses of Compliant Nanofibers**
		Xiangfa Wu, North Dakota State University; Mojtaba Ahmadi, North Dakota State University; Oksana Zholobko, North Dakota State University
10:50 AM	11:10 AM	**Hygroscopic and Mechanical Behaviors of Electrospun Polybenzimidazole Nanofiber Membranes**
		Xiangfa Wu, North Dakota State University; Oksana Zholobko, North Dakota State University

Session: W2 Room: Boundary Waters C		
Session Chair(s): Yuhang Hu, Stephan Rudykh, Xuanhe Zhao, Oscar Lopez-Pamies		
11:25 AM	11:45 AM	**Expedited calibration of a compressible hyperelastic constitutive model for elastomeric foams via a genetic algorithm**
		Zicheng Yan, Brown University; Jialiang Tao, University of Wisconsin–Madison; Christian Franck, University of Wisconsin–Madison; David Henann, Brown University
11:45 AM	12:05 PM	**A theory for quantitative prediction of maximum height change of polymer brushes between dry and wet states**
		Jiawei Yang, MIT
12:05 PM	12:25 PM	**Nonequilibrium chemical thermodynamic modeling of case II diffusion in glassy polymers**
		Zhaoqiang Song, University of California San Diego; Shengqiang Cai, University of California San Diego
12:25 PM	12:45 PM	**Characterization of PDMS viscoelasticity with power-law relaxation model**
		Zhiren Zhu, Brown University; Neda Karami Mohammadi, University of Wisconsin Madison; Joseph Andrews, University of Wisconsin Madison; Haneesh Kesari, Brown University

Thematic Area 7. Biomechanics & Biomaterials

7-2 Plant and Fungal Biomechanics		
Session: W2 Room: Greenway C		
Session Chair(s): Douglas Cook		
11:25 AM	12:05 PM	**Keynote: Conserved mechanisms for cotton fiber diameter and length control**
		Daniel Szymanski, Purdue University
12:05 PM	12:25 PM	**Hierarchical structure and properties of filamentous sporocarp structures**
		Debora Lyn Porter, UC Merced
12:25 PM	12:45 PM	**Developing a Monte Carlo Model for Quantitative Characterization of the Growing Mycelium Structure**
		Xiaoyue Hu, Syracuse University; Zhao Qin, Syracuse University
12:45 AM	1:05 PM	**Exploring the Relationship between Agar Concentration and Mycelium Growth Rates in Fungi**
		Libin Yang, Syracuse University
Session: W3 Room: Greenway C		
Session Chair(s): Daniel Robertson		
2:05 PM	2:25 PM	**Uncovering plant mechanics using a micro-mechanical tensile stage coupled with confocal microscopy**
		Si Chen, Cornell University; Isabella Burda, Cornell University; Adrienne Roeder, Cornell University; Meredith Silberstein, Cornell University
2:25 PM	2:45 PM	**Adhesive properties of plant cell interfaces**
		Faezeh Afshar-Hatam, University of Nebraska-Lincoln; Bara Altartouri, University of Nebraska-Lincoln; You Zhou, University of Nebraska-Lincoln; Emma Bergmeyer, University of Nebraska-Lincoln; Daniel Schachtman, University of Nebraska-Lincoln; Joseph Turner, University of Nebraska-Lincoln

2:45 PM	3:05 PM	**Impact of cell wall anisotropy on plant guard cell mechanics**
		Joseph Turner, University of Nebraska-Lincoln; Sedighe Keynia, University of Nebraska-Lincoln; Leila Jaafar, Pennsylvania State University; You Zhou, University of Nebraska-Lincoln; Yintong Chen, Pennsylvania State University; Dolzodmaa Davaasuren, Pennsylvania State University; James Wang, Pennsylvania State University; Charles Anderson, Pennsylvania State University
3:05 PM	3:25 PM	**The Semi-Automated Development of Plant Cell Wall Finite Element Models**
		Andrew Sayad, Stevens Institute of Technology; Stephen Clarke, Fairleigh Dickinson University; Yusuf Oduntan, University of Idaho; Norbert Bokros, University of Kentucky; Seth DeBolt, University of Kentucky; Alice Benzecry, Fairleigh Dickinson University; Daniel Robertson, University of Idaho; Christopher Stubbs, Fairleigh Dickinson University
3:25 PM	3:45 PM	**Micromechanics of Growth in the Vascular Tissue of Fast-Growing Plant using Nanoindetation**
		Anamika Prasad, Florida International University
Session: W4 Room: Greenway C		
Session Chair(s): Anastasia Muliana		
4:00 PM	4:20 PM	**Biomechanical variation in maize stalks: buckling vs material failure**
		Daniel Robertson, University of Idaho; Yusuf Oduntan, University of Idaho; Bharath Kunduru, Clemson University; Christopher J Stubbs, Farleigh Dickinson University; Kaitlin Tabaracci, University of Idaho; Rajandeep Sekhon, Clemson University; Armando McDonald, University of Idaho
4:20 PM	4:40 PM	**Sensitivity Analysis of Maize Stalk Flexure and Strength**
		Douglas Cook, Brigham Young University; Joseph Carter, Brigham Young University; Ryan Hall, Brigham Young University; Michael Ottesen, Brigham Young University
4:40 PM	5:00 PM	**Quantitative and Qualitative Analysis of the Structural Failure Process of Maize Stalk Lodging**
		Addison McClure, Brigham Young University; Luke Howell, Brigham Young University; Andrew Tagg, Brigham Young University; Cole Dunn, Brigham Young University; Kirsten Steele, Brigham Young University; Douglas Cook, Brigham Young University
5:00 PM	5:20 PM	**On Understanding the Mechanical Behaviors of Different Tissues of Sorghum Stems**
		Omid Zargar, Texas A&M University; Zhi Yuan, Texas A&M University; Qing Li, Texas A&M University; Matt Pharr, Texas A&M University; Scott Finlayson, Texas A&M University; Anastasia Muliana, Texas A&M University
5:20 PM	5:40 PM	**SMURF: A new tool to non-destructively measure root torsional stiffness for understanding root lodging-resistance**
		Jon Reneau, University of Delaware; Erin Sparks, University of Delaware
7-3 Tissue Mechanics Across Time and Length Scales		
Session: W1 Room: Boundary Waters A		
Session Chair(s): Claire Acevedo		
9:30 AM	9:50 AM	**Bone Hydration – Strength and Microdamage**
		Mary Arnhart, Purdue University; Thomas Siegmund, Purdue University
9:50 AM	10:10 AM	**Quasi-brittle fracture mechanics allows for size independent tissue toughness of bone**
		Glynn Gallaway, Purdue University; Thomas Siegmund, Purdue University

10:10 AM	10:30 AM	**Impact of Collagen Damage on Microscale Toughening Mechanisms in Cortical Bone: Advancements in Synchrotron micro-CT in situ Toughness Testing**
		Yoshihiro Obata, University of Utah; Michael Sieverts, University of Utah; William Woolley, University of Utah; Claire Acevedo, University of Utah
10:30 AM	10:50 AM	**Spatially Dependent Dynamic Properties of Bone Microstructure in Osteoarthritis**
		Riti Sharma, University of Pennsylvania; Ottman Tertuliano, University of Pennsylvania
10:50 AM	11:10 AM	**Micromechanical Investigations of the Remarkable Damage Tolerance in Tooth-Enamel of Hadrosaurid Dinosaurs**
		Soumya Varma, KLA Instruments; Sid Pathak, Iowa State University
Session: W2 Room: Boundary Waters A		
Session Chair(s): David Kammer		
11:25 AM	11:45 AM	**Traumatic brain injury on-a-chip for the real-time detection of TBI-relevant biomarkers in cortical spheroids**
		Mauricio Araiza, University of Wisconsin – Madison; Alexander McGhee, University of Wisconsin – Madison; Rafael González-Cruz, Brown University; Diane Hoffman-Kim, Brown University; Christian Franck, University of Wisconsin - Madison
11:45 AM	12:05 PM	**Characterizing the Material Response of Porcine Brain Tissue Under Ultra-High Strain Rate Loading**
		Elizabeth Bremer, University of Wisconsin – Madison; Anastasia Tzoumaka, Brown University; Surya Kolluri, Brown University; David Henann, Brown University; Christian Franck, University of Wisconsin - Madison
12:05 PM	12:25 PM	**Development of an experimental-numerical approach for identifying cavitation nucleation pressure thresholds in a surrogate human TBI model**
		Grace Kreissler, University of Wisconsin – Madison; Elizabeth Bremer, University of Wisconsin – Madison; Jialiang Tao, University of Wisconsin – Madison; Jing Zhang, University of Wisconsin – Madison; Baudouin Fonkwa, University of Michigan; Anu Tripathi, Robert Morris University; Eric Johnsen, University of Michigan; Rika Carlsen, Robert Morris University; Christian Franck, University of Wisconsin - Madison
12:25 PM	12:45 PM	**Effect of Variable Fiber Diameter on Heterogeneity of a Fiber Network**
		Samir Patel, University of Wisconsin-Madison; Mainak Sarkar, University of Wisconsin-Madison; Jacob Notbohm, University of Wisconsin-Madison
Session: W3 Room: Boundary Waters A		
Session Chair(s): Manuel Rausch		
2:05 PM	2:25 PM	**Fluidity and rheological response in confluent epithelial tissues**
		Dapeng Bi, Northeastern University
2:25 PM	2:45 PM	**Wearable elastography via on-body mechano-acoustic sensing for ambulatory monitoring of tissue stiffness**
		Xiaoyue Ni, Duke University; Chenhang Li, Duke University; Changsheng Wu, National University of Singapore; Heling Wang, Tsinghua University; Yonggang Huang, Northwestern University; John A. Rogers, Northwestern University
2:45 PM	3:05 PM	**Finite element simulations of skin expansion for plastic and reconstructive surgery**
		Jayendiran Raja, Texas A&M University at Qatar; Haseeb Bajwa, Texas A&M University at Qatar; Annie Ruimi, Texas A&M University at Qatar

3:05 PM	3:25 PM	**Interstitial Fluid In Vascular And Lacunar-Canalicular Porosities Considering Blood Pressure**
		Kasra Soleimani, University of Calgary; Ahmad Ghasemloonia, University of Calgary; Les Jozef Sudak, University of Calgary
Session: W4 Room: Boundary Waters A		
Session Chair(s): Ottman Tertuliano		
4:00 PM	4:20 PM	**Multiscale, dynamic model of aortic contraction – bridging cellular contractile kinetics and tissue-scale vasoactivity**
		Shannon Flanary, University of Minnesota; Seokwon Jo, University of Minnesota; Emilyn Alejandro, University of Minnesota; Victor Barocas, University of Minnesota
4:20 PM	4:40 PM	**A Novel 2D in vitro Model of the Human Myotendinous Junction**
		Mitchell Josvai, University of Wisconsin-Madison; Erzsebet Polyak, University of Wisconsin-Madison; Meghana Kalluri, University of Wisconsin-Madison; Wendy Crone, University of Wisconsin-Madison; Masatoshi Suzuki, University of Wisconsin-Madison
4:40 PM	5:00 PM	**Contracting Inclusions Alter the Local Mechanics of Fiber Networks**
		Mainak Sarkar, University of Wisconsin-Madison; Jacob Notbohm, University of Wisconsin-Madison
5:00 PM	5:20 PM	**A Multiscale Theory of Cellular and Tissue Plasticity**
		Fuqiang Sun, The University of Hong Kong; Yuan Lin, The University of Hong Kong
5:20 PM	5:40 PM	**Investigating the mechanical implications of cellular adhesions in epithelial tissues using a contact mechanics-based approach**
		Maahi Talukder, Virginia Tech; Sohan Kale, Virginia Tech
7-4 Multiscale Cellular and Tissue Biomechanics for Human Health		
Session: W1 Room: Lake Minnetonka		
Session Chair(s): Horacio Espinosa& George Voyiadjis		
9:30 AM	10:10 AM	**Keynote: Nuclear Shapes are Geometrically Determined by Lamina Excess Area**
		Richard Dickinson, University of Florida; Tanmay Lele, Texas A&M University
10:10 AM	10:30 AM	**Evaluation of Anterior Cruciate Ligament (ACL) Iliotibial Band Surgery Using Finite Element Analysis**
		Pooyan Vahidi Pashaki, Department of Civil Construction and Environmental Engineering, North Dakota State University; Sharad Jaswandkar, North Dakota State University; Kalpana Katti, North Dakota State University; Benjamin Noonan, Orthopedics & Sports Medicine, Sanford Health; Dinesh Katti, North Dakota State University
10:30 AM	10:50 AM	**Cross-linker properties and defect size regulated fracture of bio-polymer networks**
		Bingxian Tang, The University of Hong Kong; Xi Wei, The University of Hong Kong; Yuan Lin, The University of Hong Kong
Session: W2 Room: Lake Minnetonka		
Session Chair(s): Dinesh Katti, Kalpana Katti		
11:25 AM	11:45 AM	**Mechano-Structural Characterization of Human Esophageal Layers**
		Nicolas A. Alderete, Northwestern University; Sourav Halder, Northwestern University; Neelesh A. Patankar, Northwestern University; John E. Pandolfino, Northwestern University; Horacio D. Espinosa, Northwestern University

11:45 AM	12:05 PM	**Molecular and nanomechanical properties of patient-derived bone metastatic prostate cancer cells on 3D nanoclay bone-mimetic scaffolds**
		Quyen Hoang, North Dakota State University; Preetham Ravi, North Dakota State University; Sharad Jaswandkar, North Dakota State University; Hanmant Gaikwad, North Dakota State University; Shrinwanti Ghosh, North Dakota State University; Jiha Kim, North Dakota State University; Parth Vyas, Sanford Health; Dinesh R Katti, North Dakota State University; Kalpana Katti, North Dakota State University
12:05 PM	12:25 PM	**Human iPSC-Derived Cardiomyocyte Mechanical Function Enhanced in Coculture and Conditioned Media Conditions on a 2D Micropatterned Substrate**
		Mitchell Josvai, University of Wisconsin-Madison; Alana Stempien, University of Wisconsin-Madison; Jacob Notbohm, University of Wisconsin-Madison; Jianhua Zhang, University of Wisconsin-Madison; Timothy Kamp, University of Wisconsin-Madison; Wendy Crone, University of Wisconsin-Madison
Session: W3 Room: Lake Minnetonka		
Session Chair(s): Dinesh Katti, Kalpana Katti		
2:05 PM	2:25 PM	**Orientations of cell body and first principal stress within a cell collective**
		Molly McCord, University of Wisconsin – Madison; Liam J. Ruske, University of Oxford; Mehrana R. Nejad, University of Oxford; Jun Zhang, University of Wisconsin-Madison; Guanming Zhang, University of Oxford; Julia M. Yeomans, University of Oxford; Jacob Notbohm, University of Wisconsin-Madison
2:25 PM	2:45 PM	**Going with the Flow: A Novel Microfluidic Approach to Studying Traumatic Brain Injury Strain Effects In-Vitro**
		Alexander McGhee, University of Wisconsin – Madison; Mauricio Araiza, University of Wisconsin – Madison; Shiva Rudraraju, University of Wisconsin – Madison; Christian Franck, University of Wisconsin – Madison; Griffin Radkte, University of Wisconsin – Madison
2:45 PM	3:05 PM	**Controlling 2D Neuronal Network Density for Electrophysiological Analysis via Single-Cell Micro-Contact Printing onto Polydimethylsiloxane Dogbones**
		Griffin Radtke, University of Wisconsin – Madison; Jessica Park, University of Wisconsin – Madison; Jamie Sergay, University of Wisconsin – Madison; Alexander McGhee, University of Wisconsin – Madison; Christian Franck, University of Wisconsin - Madison
3:05 PM	3:25 PM	**Modeling tracheal stenosis due to tumor compression**
		Alok Sutradhar, The Ohio State University; Tareq Zobaer, The Ohio State University
7-5 Emergent Behavior in Biological and Bio-Inspired Systems		
Session: W1 Room: Greenway E		
Session Chair(s): Brian Cox		
9:30 AM	9:50 AM	**Statistical mechanics of cell aggregates: phase transformation and emergent mechanical and electro-mechanical behavior**
		Pratik Khandagale, University of Houston; Liping Liu, Rutgers University; Pradeep Sharma, University of Houston
9:50 AM	10:10 AM	**Vibration-induced perturbation modulates the mechanics of blood clots**
		Aram Bahmani, McGill University; Shiyu Liu, McGill University; Jianyu Li, McGill University
10:10 AM	10:30 AM	**Nanotopography Impedes Biofilm Development in Gram-positive Bacteria**
		Naimat Bari, Virginia Tech; Alvin Aung, Virginia Tech; Danny Yessayan, Virginia Tech; Amrinder Nain, Virginia Tech; Sohan Kale, Virginia Tech; Bahareh Behkam, Virginia Tech

10:30 AM	10:50 AM	**Cellular Uptake of Liquid Droplets**
		Yujun Teng, Nanyang Technological University; Guijin Zou, Agency for Science, Technology and Research; Huajian Gao, Nanyang Technological University
10:50 AM	11:10 AM	**Bacterial activity hinders particle sedimentation**
		Jaspreet Singh, University of Pennsylvania; Allison Patteson, Syracuse University; Bryan Torres Maldonado, University of Pennsylvania; Prashant Purohit, University of Pennsylvania; Paulo Arratia, University of Pennsylvania

Thematic Area 8. Machine Learning & AI in Engineering Science

8-1 Data-driven Computational Solid Mechanics		
Session: W1 Room: Greenway J		
Session Chair(s): Prof. Nikolaos Bouklas		
9:30 AM	9:50 AM	**Neural network models of the mechanical response of inelastic materials with microstructure**
		Reese Jones, Sandia National Laboratories; Cosmin Safta, Sandia National Laboratories; Ravi Patel, Sandia National Laboratories; Kyle Johnson, Sandia National Laboratories; Jan Fuhg, Cornell University; Nikolaos Bouklas, Cornell University
9:50 AM	10:10 AM	**Transfer Learning of Recurrent Neural Network Based Plasticity Models**
		Julian Heidenreich, ETH Zurich; Colin Bonatti, ETH Zurich; Dirk Mohr, ETH Zurich
10:10 AM	10:30 AM	**Integrated deep learning networks to predict nonlinear stress distribution in composites**
		Maryam Shakiba, Ann and H.J. Smead Aerospace Engineering Sciences, the University of Colorado – Boulder; Marwa Yacouti, Ann and H.J. Smead Aerospace Engineering Sciences, the University of Colorado - Boulder, USA
10:30 AM	10:50 AM	**Deep Learning Model to Predict Dendrite Structures Growth**
		Bor-Yann Tseng, Department of Engineering Science, National Cheng Kung University; Chen-Wei Guo, National Cheng Kung University; Chi-Hua Yu, National Cheng Kung University
Session: W2 Room: Greenway J		
Session Chair(s): Prof. N. Sukumar		
11:25 AM	11:45 AM	**Use of generalized barycentric maps to exactly impose Dirichlet boundary conditions on convex geometries in physics-informed deep neural networks**
		N. Sukumar, University of California Davis
11:45 AM	12:05 PM	**FemTorch -- An autograd Finite Element framework for parameter estimation and machine learning applications**
		Nikolaos Bouklas, Cornell University; Jan Fuhg, Cornell University
12:05 PM	12:25 PM	**Machine Learning Enhanced Modeling of Path-dependent Materials**
		Yangzi He, UCSD; Shabnam Semnani, UCSD
12:25 PM	12:45 PM	**Deep learning based accelerated high strain rate simulations for design of materials in extreme environments**
		Indrashish Saha, Johns Hopkins University; Lori Graham Brady, Johns Hopkins University

12:45 PM	1:05 PM	**Minimal State-Space Neural Network to Model History Dependent Material Behavior**
		Paul Philipp Meyer, ETH Zurich; Julian Heidenreich, ETH Zurich; Colin Bonatti, ETH Zurich; Dirk Mohr, ETH Zurich
Session: W3 Room: Greenway J		
Session Chair(s): Prof. Yue Yu		
2:05 PM	2:25 PM	**MetaNO: A Meta-Learnt Neural Operator Approach**
		Yue Yu, Lehigh University; Lu Zhang, Lehigh University
2:25 PM	2:45 PM	**Assessing deep learning model accuracy and calibration via multiple open access benchmark datasets**
		Emma Lejeune, Boston University; Saeed Mohammadzadeh, Boston University; Peerasait Prachaseree, Boston University
2:45 PM	3:05 PM	**Recurrent Nueral Operator: learning macroscopic internal variables and history dependence from microscopic models**
		Burigede Liu, University of Cambridge
3:05 PM	3:25 PM	**Predicting and designing the thermo-elasto-plastic response of composites using deep material network**
		Remi Dingreville, Sandia National Laboratories; ~~Dongil Shin~~, Sandia National Laboratories; Ricardo Lebensohn, Los Alamos National Laboratory
Session: W4 Room: Greenway J		
Session Chair(s): Prof. Yue Yu		
4:00 PM	4:20 PM	**Inverse-design of nonlinear mechanical metamaterials via video denoising diffusion models**
		Jan-Hendrik Bastek, ETH Zürich; Dennis M. Kochmann, ETH Zürich
4:20 PM	4:40 PM	**Deep Generative Approach for Bioinspired Structural Materials**
		Chi-Hua Yu, National Cheng Kung University
4:40 PM	5:00 PM	**Data Inversion for Viscoplastic Material Properties**
		Aakila Rajan, California Institute of Technology; Andrew Akerson, California Institute of Technology; Kaushik Bhattacharya, California Institute of Technology
5:00 PM	5:20 PM	**Learning Neural Constitutive Laws from Motion Observations for Generalizable PDE Dynamics**
		Bolei Deng, Massachusetts Institute of Technology; Pingchuan Ma, Massachusetts Institute of Technology; Yichen Chen, Massachusetts Institute of Technology; Joshua Tenenbaum, Massachusetts Institute of Technology; Wojciech Matusik, Massachusetts Institute of Technology

Thematic Area 9. Architected Solids & Metamaterials

9-3 Morphing Matter: Bioinspiration Computational Design Fabrication Mechanics and Sustainability		
Session: W1 Room: Greenway B		
Session Chair(s): Lining Yao, Andrew Spielberg		
9:30 AM	10:10 AM	**Keynote: Gyrophilia: Waltzing with Instabilities to Morph Rotating Structures**
		Pedro Reis, Ecole Polytechnique Fédérale de Lausanne (EPFL); Eduardo Gutierrez Prieto, École Polytechnique Fédérale de Lausanne (EPFL); Gilad Yakir, École Polytechnique Fédérale de Lausanne (EPFL); Michael Gomez, École Polytechnique Fédérale de Lausanne (EPFL)
10:10 AM	10:30 AM	**Mechanics of Erodium Inspired Seed Carrier - A Demonstration of Sustainable Morphing Matter**
		Teng Zhang, Syracuse University; Lining Yao, Carnegie Mellon University; Shu Yang, University of Pennsylvania
10:30 AM	10:50 AM	**Mechanics of stiff morphing in natural fish fins and bioinspired structures**
		Saurabh Das, University of Colorado, Boulder; Florent Hannard, UC Louvain, Louvain-la-Neuve; Baptiste Moling, Ecole Polytechnique, Palaiseau; Prashant Kunjam, University of Colorado, Boulder; Francois Barthelat, University of Colorado, Boulder
10:50 AM	11:10 AM	**Design and fabrication for passively and actively morphing soft grippers**
		Kaitlyn Becker, Massachusetts Institute of Technology (MIT); Charlotte Folinus, MIT; Annie Doris, MIT
Session: W2 Room: Greenway B		
Session Chair(s): Lining Yao, Mingchao Liu		
11:25 AM	11:45 AM	**A Photo-Responsive Hydrogel with Enhanced Photo-efficiency and Decoupled Light Activation and Shape Changing for Precise Geometric Control**
		Yuhang Hu, Georgia Institute of Technology; Jiehao Chen, Georgia Institute of Technology
11:45 AM	12:05 PM	**From bubbles, balloons, and beads to morphomechanical rods**
		Trevor Jones, Carnegie Mellon University; Lauren Dreier, Princeton University; Thomas Dupuis, Princeton University; Etienne Jambon-Puillet, Ecole Polytechnique; Joel Marthelot, Aix-Marseille University; Pierre-Thomas Brun, Princeton University
12:05 PM	12:25 PM	**Exploring the Potential of Chaotic Dynamics in Shape-Shifting of Mechanical Metamaterials**
		Md Nahid Hasan, University of Utah; Taylor E. Greenwood, University of Utah; Robert G. Parker, University of Utah; Yong Lin Kong, University of Utah; Pai Wang, University of Utah
12:25 PM	12:45 PM	**Electron Beam Patterned Shape-Morphing Micro-hydrogels**
		Xinpei Wu, Stevens Institute of Technology; Guangchao Wan, Syracuse University; Teng Zhang, Syracuse University; Matthew Libera, Stevens Institute of Technology
Session: W3 Room: Greenway B		
Session Chair(s): Lining Yao, Trevor Jones		
2:05 PM	2:25 PM	**Electrochemical Soft Actuators with Liquid Metal**
		Carmel Majidi, Carnegie Mellon University
2:25 PM	2:45 PM	**Embedded Fluidic Control in Compliant 2D Architectures**
		Daniel Preston, Rice University

2:45 PM	3:05 PM	**Harnessing Mechanical Intelligence for High-Performance Soft Robotics**
		Yinding Chi, University of Pennsylvania; Shu Yang, University of Pennsylvania; Jie Yin, North Carolina State University
3:05 PM	3:25 PM	**Toward Computational Soft Robotics For The Real World**
		Andrew Spielberg, Harvard University
Session: W4 Room: Greenway B		
Session Chair(s): Teng Zhang, Dinesh K Patel		
4:00 PM	4:20 PM	**Dehydration-Induced Shape-Morphing in Leaves: From Natural to Artificial Systems**
		Mingchao Liu, University of Birmingham; Kexin Guo, Nanyang Technological University; Dominic Vella, University of Oxford; K. Jimmy Hsia, Nanyang Technological University
4:20 PM	4:40 PM	**Nonlinear Mechanics of Remodeling**
		Arash Yavari, Georgia Institute of Technology; Aditya Kumar, Georgia Institute of Technology
4:40 PM	5:00 PM	**Analytical modeling to investigate/embody physical intelligence in biological and engineering systems**
		Edoardo Sinibaldi, Italian Institute of Technology
5:00 PM	5:20 PM	**Sustainflatable: Harvesting, Storing and Utilizing Ambient Energy for Pneumatic Shape-changing Interfaces**
		Qiuyu Lu, Carnegie Mellon University; Tianyu Yu, Tsinghua University; Semina Yi, Carnegie Mellon University; Yuran Ding, Carnegie Mellon University; Haipeng Mi, Tsinghua University; Lining Yao, Carnegie Mellon University
9-4 Advances in the Mechanics of Architected Materials		
Session: W1 Room: Lake Superior A		
Session Chair(s): Carlos Portela		
9:30 AM	10:10 AM	**Keynote: Advances in Additive Manufacturing of Architected and Functional Materials**
		Christopher Spadaccini, Lawrence Livermore National Laboratory
10:10 AM	10:30 AM	**An Automated Adaptive Design Approach and Adaptive Mechanical Metamaterials towards Infinity-D Printing**
		Yaning Li, Northeastern University, Boston; Yanzhang Xu, Northeastern University; Richard Nash, Northeastern University; Siyao Liu, Northeastern University; Yunzheng Yang, Northeastern University
10:30 AM	10:50 AM	**Design Evolution of Deformable Electromagnetic Metasurfaces: The Power of Multiscale Multiphysics Analysis**
		Rayehe Karimi Mahabadi, Duke University; L. Catherine Brinson, Duke University; Taha Goudarzi, Amirkabir University of Technology; Romain Fleury, École Polytechnique Fédérale de Lausanne (EPFL); Reza Naghdabadi, Sharif University of Technology
10:50 AM	11:10 AM	**Additively Manufactured Lattice Structures for Sound Absorption**
		Wei Zhai, National University of Singapore; Xinwei Li, National University of Singapore
Session: W2 Room: Lake Superior A		
Session Chair(s): Damiano Pasini		
11:25 AM	11:45 AM	**Mechanical Behavior of Scutoid Assemblies**
		Tanner Balance, Purdue University; Thomas Siegmund, Purdue University
11:45 AM	12:05 PM	**Single-test evaluation of directional elastic properties of anisotropic structured materials**
		Jagannadh Boddapati, California Institute of Technology; Moritz Flaschel, Weirstrass Institut for App Analysis & Stochastics; Siddhant Kumar, Delft University of Technology; Laura De Lorenzis, ETH Zurich; Chiara Daraio, California Institute of Technology

12:05 PM	12:25 PM	**Ultrastrong Scalable Nanoarchitected Materials Engineered by DNA**
		Hanxun Jin, California Institute of Technology; Yuanwei Li, Northwestern University; Wenjie Zhou, Northwestern University; Chad Mirkin, Northwestern University; Horacio D. Espinosa, Northwestern University
12:25 PM	12:45 PM	**Cellular solids under geometric frustration: Animal architecture and bio-inspired designs**
		Francisco Lopez Jimenez, University of Colorado Boulder; Golnar Gharooni Fard, University of Colorado Boulder; Orit Peleg, University of Colorado Boulder
12:45 PM	1:05 PM	**High-Throughput Dynamic Mechanical Characterization of Architected Materials**
		Carlos Portela, MIT; Yun Kai, MIT; Somayajulu Dhulipala, MIT; Rachel Sun, MIT; Jet Lem, MIT; Washington DeLima, Kansas City National Security Campus; Thomas Pezeril, Universite Rennes
Session: W3 Room: Lake Superior A		
Session Chair(s): Glaucio Paulino		
2:05 PM	2:25 PM	**A data-driven framework for structure-property correlation in ordered and disordered cellular metamaterials**
		Stavros Gaitanaros, Johns Hopkins University; Shengzhi Luan, Johns Hopkins University; Enze Chen, Johns Hopkins University
2:25 PM	2:45 PM	**Bioinspired Hierarchical Tape-Springs As Building Blocks**
		Pablo Zavattieri, Purdue University; Kristiaan Hector, Purdue University; Saketh Phani Dasika, Purdue University; Adwait Trikanad, Purdue University
2:45 PM	3:05 PM	**Searching for Transition State and Minimum Energy Path of Bistable Elastic Continua through Energy Landscape Explorations**
		Guangchao Wan, Syracuse University; Sam Avis, Durham University; Zizheng Wang, University of Connecticut; Xueju Wang, University of Connecticut; Halim Kusumaatmaja, Durham University; Teng Zhang, Syracuse University
3:05 PM	3:25 PM	**In-situ Activation of Snap-through Instability in Topology-transformable Architected Materials**
		Lei Wu, McGill University; Damiano Pasini, McGill University
3:25 PM	3:45 PM	**Phase Transforming Cellular Materials under Concentrated Loading Conditions**
		Yunlan Zhang, University of Texas at Austin; Pablo Zavattieri, Purdue University; Nilesh Mankame, General Motors; Saketh Dasika, Purdue University; Kristiaan Hector, Purdue University
Session: W4 Room: Lake Superior A		
Session Chair(s): Tian Chen		
4:00 PM	4:20 PM	**Topological mechanisms for two-stage deformation of architected lattices**
		Shivam Agarwal, University of California, Los Angeles; Lihua Jin, University of California Los Angeles
4:20 PM	4:40 PM	**Graph-based modelling of lattice metamaterials**
		Ivan Grega, University of Cambridge; Angkur Shaikeea, University of Cambridge; Sri Karlapati, Amazon Research, Cambridge; Vikram Deshpande, University of Cambridge
4:40 PM	5:00 PM	**Generative design of metamaterial arrays for dynamic response modulation**
		Weidi Wang, University of Massachusetts, Lowell; Alireza Amirkhizi, University of Massachusetts, Lowell
5:00 PM	5:20 PM	**Gaussian Process Regression as a Surrogate Model for Dispersion Computations**
		Alexander Ogren, California Institute of Technology; Berthy T Feng, California Institute of Technology; Katherine L Bouman, California Institute of Technology; Chiara Daraio, California Institute of Technology

5:20 PM	5:40 PM	**Revisiting Strain Gradient Elasticity for Architected Solids: Uncovering Another Meta Behaviour**
		Angkur Jyoti Dipanka Shaikeea, University of Cambridge; David Hahn, University of California Berkeley; Xiaoyu (Rayne) Zheng, University of California Berkeley; Vikram Deshpande, University of Cambridge
Session: W4 Room: Boundary Waters C		
Session Chair(s): Tian Chen		
4:00 PM	4:20 PM	**Geometric Nonlinearity and Mechanical Programmability of Knitted Fabrics**
		Xiaoxiao Ding, Harvard University; University of Wisconsin Madison; Katia Bertoldi, Harvard University; Christopher Rycroft, University of Wisconsin Madison
4:20 PM	4:40 PM	**Double-Network-Inspired Woven Micro-Architected Materials**
		James Surjadi, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
4:40 PM	5:00 PM	**Digital composite with independently programmable mechanical properties**
		Xiaoyue Ni, Duke University; Yun Bai, Duke University; Heling Wang, Tsinghua University; Xuebo Yuan, Southwest Jiaotong University; Yuxin Pan, Duke University
5:00 PM	5:20 PM	**Hierarchical Intertwined Architected Materials**
		Widianto Moestopo, Lawrence Livermore National Laboratory; Sammy Shaker, California Institute of Technology; Weiting Deng, California Institute of Technology; Julia Greer, California Institute of Technology
5:20 PM	5:40 PM	Damage mechanics in architected woven composites.
		Hridyesh Tewani, University of Wisconsin – Madison; Jackson Cyvas, University of Wisconsin – Madison; Pavana Prabhakar, University of Wisconsin - Madison

Thematic Area 10. Mechanics of Solids & Structures

10-2 Multiscale Modeling and Mechanics of Soft Matter and Hierarchical Materials		
Session: W1 Room: Greenway G		
Session Chair(s): Zhen Li and Zhaoxu Meng		
9:30 AM	9:50 AM	**Informing (bio)matter through physics- and knowledge-based methods**
		Anna Tarakanova, University of Connecticut
9:50 AM	10:10 AM	**Biomolecular and biophysical abnormalities of erythrocytes alter the dynamics of erythrophagocytosis**
		He Li, University of Georgia; Yuhao Qiang, Massachusetts Institute of Technology; XuejinLi, Zhejiang University; Pierre Buffet, Université Paris Cité and Université des Antilles; Ming Dao, Massachusetts Institute of Technology; George Karniadakis, Brown University; Subra Suresh, Massachusetts Institute of Technology
10:10 AM	10:30 AM	**Deep neural operator for learning transient response of composites**
		Zhen Li, Clemson University; Minglei Lu, Clemson University; Ali Mohammadi, Clemson University; Zhaoxu Meng, Clemson University; Gang Li, Clemson University
10:30 AM	10:50 AM	**A new micro–macro transition for soft materials**
		Rui Xiao, Zhejiang University; Lin Zhan, Zhejiang University

10:50 AM	11:10 AM	**Coarse-Grained Modeling of Polymer–Clay Nanocomposites**
		Wenjian Nie, North Dakota State University; Yangchao Liao, North Dakota State University; Sarah Ghazanfari, North Dakota State University; Zhaofan Li, North Dakota State University; Wenjie Xia, Iowa State University
10-3 Adhesion friction and fracture at soft interfaces: Theory simulation and experiment		
Session: W2 Room: Greenway G		
Session Chair(s): Ruobing Bai		
11:25 AM	12:05 PM	**Keynote: Electroadhesion of PVC gel**
		Shengqiang Cai, UCSD; Zijun Wang, UCSD
12:05 PM	12:25 PM	**Hydrogel adhesion with large-scale bridging**
		Canhui Yang, Southern University of Science and Technology
12:25 PM	12:45 PM	**Contact Mechanics of a Prestreched Soft Substrate**
		Yue Zheng, Drexel University
12:45 AM	1:05 PM	**Adhesive crack speed in polydimethylsiloxane films**
		Leo-Stanley Ndunagum, North Dakota State University; Andrew Croll, North Dakota State University
Session: W3 Room: Greenway G		
Session Chair(s): Berkin Dortdivanlioglu		
2:05 PM	2:25 PM	**Temperature-Switchable Adhesives Enabled by Thermo-Responsive Soft Active Materials**
		Ruobing Bai, Northeastern University; Qianfeng Yin, Northeastern University; Yichen Wan, Northeastern University
2:25 PM	2:45 PM	**Bioinspired fabrication of reconfigurable elastomeric cementitious structures using self-healing mechanical adhesives interfaces**
		Vanessa Restrepo, Texas A&M University; Ramses Martinez, Purdue University
2:45 PM	3:05 PM	**Adhesion-separation response of pressurized membranes**
		Sohan Kale, Virginia Tech; Evelyn Washburn, Virginia Tech; Umang Selokar, Virginia Tech
3:05 PM	3:25 PM	**Effect of sub-critical crack growth on adhesive failure of elastic/viscoelastic interfaces**
		Brandon Clarke, Sandia National Laboratories; Earl Reedy, Sandia National Laboratories; Scott Grutzik, Sandia National Laboratories
Session: W4 Room: Greenway G		
Session Chair(s): Berkin Dortdivanlioglu		
4:00 PM	4:20 PM	**Elasto-Adhesive vs. Elasto-Capillary: Modeling the Energetic Competition Between Adhesion and Surface Effects in Soft-Soft Interfaces**
		A. Derya Bakiler, University of Texas at Austin; Berkin Dortdivanlioglu, University of Texas at Austin
4:20 PM	4:40 PM	**Molecular Dynamics Study of Interfacial Adhesion between Barnacle Cement Protein and Polymer Materials**
		Amara Arshad, Iowa State University, North Dakota State University; Wenjie Xia, Iowa State University
4:40 PM	5:00 PM	**Cohesive Zone Modeling of Peeling Forces in Thin Tape-Silicone Release Liner Systems**
		Yuhai Xiang, University of Minnesota Twin Cities; Sruthi Lalitha, University of Minnesota; Jeffrey Self, University of Minnesota; Deepti Kannan, University of Minnesota; Christopher Ellison, University of Minnesota; Lorraine Francis, University of Minnesota; Michelle Calabrese, University of Minnesota; Ben Niu, Dow Chemical Company; Liz McQuiston, Dow Chemical Company; Grace Wan, Dow Chemical Company

5:00 PM	5:20 PM	**Elastic Contact Solutions for the Flat and Rounded Punch**
		Beth Eames, University of Oxford; David Hills, University of Oxford; Madeleine Moore, University of Hull
5:20 PM	5:40 PM	**On the bonded problem between thermoelectric films and orthotropic substrates**
		Peijian Chen, China University of Mining and Technology; Dengke Li, China University of Mining and Technology; Juan Peng, China University of Mining and Technology; Shaohua Chen, Beijing Institute of Technology
10-5 Multiscale Modeling of Phase Transformation in Materials		
Session: W1 Room: Lake Harriet		
Session Chair(s): Kasra Momeni		
9:30 AM	10:10 AM	**Keynote: Plastic Strain-Induced Phase Transformations, and Microstructure Evolution under High Pressure: Four-scale Theory and In-situ Experiments**
		Valery Levitas, Iowa State University of Science and Technology
10:10 AM	10:30 AM	**Tensorial stress-plastic strain fields in α - ω Zr mixture, transformation kinetics, and friction in diamond anvil cell**
		Achyut Dhar, Iowa State University; V. I. Levitas, Iowa State University; K. K. Pandey, Bhabha Atomic Research Center
10:30 AM	10:50 AM	**Diffusion-Reaction Stabilization with Emphasis on Phase Transition in Multiscale Modeling with Embedded Incompatible Internal Interfaces**
		John Hickman, University of Illinois Urbana-Champaign; Scott Roberts, Sandia National Laboratories; Arif Masud, University of Illinois Urbana-Champaign
10:50 AM	11:10 AM	**Laws of high-pressure phase and nanostructure evolution and severe plastic flow**
		Feng Lin, Iowa State University; Valery Levitas, Iowa State University; Krishan K. Pandey, Bhabha Atomic Research Centre; Sorb Yesudhas, Iowa State University; Changyong Parks, Argonne National Laboratory
Session: W2 Room: Lake Harriet		
Session Chair(s): Kasra Momeni		
11:25 AM	11:45 AM	**Grain Boundary Effects on Diamane Formation in Multilayer Graphene: A Molecular Dynamics Study**
		Nuruzzaman Sakib, Department of Mechanical Engineering, The University of Alabama; Kasra Momeni, The University of Alabama
11:45 AM	12:05 PM	**Phase transition in 2D MoTe2 by machine learning potential**
		Wei Gao, Texas A&M University
12:05 PM	12:25 PM	**Atomistic-to-Microscale Analysis of Plastic Flow in Polycrystalline Alloys**
		Thanh Phan, North Carolina State University; Yipeng Peng, North Carolina State University; Liming Xiong, North Carolina State University
Session: W3 Room: Lake Harriet		
Session Chair(s): Nuruzzaman Sakib		
2:05 PM	2:25 PM	**Rate Induced Thermal Effects on the Evolution of Phase Transformation Fronts in NiTi Strips Under Tension**
		Solon Tsimpoukis, University of Texas at Austin; Stelios Kyriakides, University of Texas at Austin

2:25 PM	2:45 PM	**Strain Gradient-induced Size Effect on the Cantilever Bending Experiments of nickel-titanium shape memory alloys**
		Jae-Hoon Choi, Korea Advanced Institute of Science and Technology; Hyemin Ryu, Korea Advanced Institute of Science and Technology; Kwang-Hyeok Lim, Korea Advanced Institute of Science and Technology; Ji-Young Kim, Korea Advanced Institute of Science and Technology; Gi-Dong Sim, Korea Advanced Institute of Science and Technology
2:45 PM	3:05 PM	**Hyper-Elastic Deformation via Martensitic Phase Transformation in CdTe**
		Kun Luo, Iowa State University; Xiao Han, The University of Alabama; Jonathan Cappola, The University of Alabama; Dian Li, University of Nevada-Reno; Yufeng Zheng, University of Nevada-Reno; Lin Li, The University of Alabama; Feng Yan, The University of Alabama; Qi An, Iowa State University
3:05 PM	3:25 PM	**Design of Compatible Shape Memory Ceramic Materials**
		Ashutosh Pandey, University of Minnesota Twin Cities; Richard James, University of Minnesota
Session: W4 Room: Lake Harriet		
Session Chair(s): Nuruzzaman Sakib		
4:00 PM	4:20 PM	**From topological structure to mobility in twin boundaries**
		Doron Shilo, Technion - Israel Institute of Technology; Eilon Faran, Technion - Israel Institute of Technology; Bibek Karki, Boise State University; Peter Müllner, Boise State University
4:20 PM	4:40 PM	**Martensitic Transformation in Silicon and Zirconium: A Scale-Free Phase-Field Study**
		Raghunandan Pratoori, Iowa State University; Hamed Babei, Iowa State University; Valery Levitas, Iowa State University
4:40 PM	5:00 PM	**Phase Transformations in Photomechanical Materials**
		Devesh Tiwari, University of California, Santa Barbara; Ananya Renuka Balakrishna, University of California, Santa Barbara
5:00 PM	5:20 PM	**Texturing VO2 Thin Films to Tune Mechanical, Structural, and Electronic Properties during Metal-Insulator Phase Transformations**
		Matt Pharr, Texas A&M University; Yuwei Zhang, Texas A&M University
10-6 Thermodynamics Kinetics Structure and Mechanical Behaviors of Metallic Glasses and High Entropy Alloys		
Session: W1 Room: Greenway F		
Session Chair(s): Lin Li, Yue Fan		
9:30 AM	10:10 AM	**Keynote: The nature of atomic mobility in glasses and its impact on stability and properties**
		Izabela Szlufarska, University of Wisconsin – Madison; Dane Morgan, University of Wisconsin – Madison; Vrishank Jambur, University of Wisconsin – Madison; Ajay Annamareddy; University of Wisconsin - Madison
10:10 AM	10:30 AM	**Predicting the glass forming ability of binary alloys**
		Corey Ohern, Yale University
10:30 AM	10:50 AM	**The Physics of Elemental Ag and Binary Cu-Ag Glasses: First Order Glass Transition**
		Qi An, Iowa State University; Yidi Shen; Iowa State University; William Johnson, Caltech; Konrad Samwer, Universitaet Goettingen; Sydney Corona, Federal Institute for Materials Research and Testi; William Goddard, Caltech

10:50 AM	11:10 AM	**Identifying the defects in amorphous solids that generate non-affine displacement fields in response to globally applied shear**
		Evan Willmarth, Yale University; Weiwei Jin, Yale University; Dong Wang, Yale University; Mark Shattuck, The City College of New York; Corey O'Hern, Yale University
Session: W2 Room: Greenway F		
Session Chair(s): Penghui Cao, Qi An		
11:25 AM	11:45 AM	**Synthesis and Properties of Metallic Glass Nanoparticles**
		Wendy Gu, Stanford University; Abhinav Parakh, Lawrence Livermore National Laboratory; Mehrdad Kiani, Cornell University; Melody Wang, Stanford University
11:45 AM	12:05 PM	**Additive Manufacturing of Emerging Complex Alloys with Engineered Structures**
		Wen Chen, University of Massachusetts Amherst
12:05 PM	12:25 PM	**Electrified Ultrahigh-Temperature Manufacturing of High Entropy Alloys**
		Xizheng Wang, University of California, Irvine
12:25 PM	12:45 PM	**In situ explorations of grain boundary sliding in a CoCrFeNiW-C alloy**
		Shaolou Wei, Massachusetts Institute of Technology; Cem Tasan, Massachusetts Institute of Technology
12:45 PM	1:05 PM	**In-Situ Observations of Rate Dependent Plasticity in Additively Manufactured Eutectic High-Entropy Alloys**
		Leora Dresselhaus-Marais, Stanford University; Kento Katagiri, Stanford University; Sara Irvine, Stanford University; Laura Madril, Stanford University; Kohei Miyanishi, SACLA; Yogesh Vohra, UAB; Jie Ren, UMass Amherst; Wen Chen, UMass Amherst; Norimasa Ozaki, University of Osaka
Session: W3 Room: Greenway F		
Session Chair(s): Lin Li, Penghui Cao		
2:05 PM	2:25 PM	**Interplay between thermal vacancy and chemical ordering in complex concentrated alloys**
		Yongfeng Zhang, University of Wisconsin Madison; Anus Manzoor, University of Wisconsin Madison
2:25 PM	2:45 PM	**ICME-based modeling and design of HEA for friction stir welding applications**
		Qiaofu Zhang, The University of Alabama
2:45 PM	3:05 PM	**Mining lattice distortion, strength, and intrinsic ductility of refractory high-entropy alloys using physics-informed statistical learning**
		Yong-Jie Hu, Drexel University; Chris Tandoc, Drexel University
3:05 PM	3:25 PM	**An Atomic-level Deformation and Structure Analysis of the Interface Between Amorphous/Crystalline Metallic Composites**
		Amir Abdelmawla, Iowa State University; Thanh Phan, Iowa State University; Liming Xiong, Iowa State University; Ashraf Bastawros, Iowa State University
3:25 PM	3:45 PM	**Theoretical and Computational Studies of Grain Boundary Solute Drag in Multicomponent Alloys**
		Fadi Abdeljawad, Lehigh University
Session: W4 Room: Greenway F		
Session Chair(s): Qi An		
4:00 PM	4:20 PM	**Deformation and Degradation of Al-Mn and Al-Mn-Mo Amorphous Thin Films during Tribocorrosion**
		Wenjun Cai, Virginia Tech

4:20 PM	4:40 PM	**Local Order Average-Atom Approach for Simulating Refractory High Entropy Alloys**
		Chloe Zeller, University of Minnesota Twin Cities; Ellad Tadmor, University of Minnesota Twin Cities
4:40 PM	5:00 PM	**Vacancy migration barrier spectrum governing diffusion behaviors in alloys**
		Bin Xing, University of California, Irvine; Wanjuan Zou, University of California, Irvine; Penghui Cao, University of California, Irvine
5:00 PM	5:20 PM	**Strength and Strain Rate Sensitivity of Nanocrystalline High Entropy Alloys**
		Mostafa Hassani, Sibley School of Mechanical and Aerospace Engineering, Cornell University; Yuan Yao, Cornell University
10-8 Mechanics of Materials and Structures: Honoring Prof. Zhigang Suo on the Occasion of his 60th Birthday		
Session: W1 Room: Bemidji		
Session Chair(s): Teng Li		
9:30 AM	10:00 AM	**Keynote: Thermodynamics of Hydrogels for Applications to Atmospheric Water Harvesting, Evaporation, and Desa**
		Gang Chen, Massachusetts Institute of Technology
10:00 AM	10:30 AM	**Keynote: Soft, Wireless Wearables for Physiological Monitoring and Rehabilitation**
		John Rogers, Northwestern University
10:30 AM	10:50 AM	**Fast, strong, and reversible hydrogel adhesives**
		Shu Yang, University of Pennsylvania
10:50 AM	11:10 AM	**Chemo-electro-mechanical modeling of DNA polymerization hydrogels**
		Vicky Nguyen
11:10 AM	11:30 AM	**How to describe polymer fracture?**
		Shi-Qing Wang, University of Akron
10-9 Instabilities in Solids and Structures		
Session: W1 Room: Greenway H		
Session Chair(s): Rainer Groh, Alberto Pirrera		
9:30 AM	10:10 AM	**Keynote: Predicting Catastrophic Failure in Defect Sensitive Shells**
		Shmuel Rubinstein, Hebrew University of Jerusalem; Nicholas L. Cuccia, SEAS, Harvard University; Marec Serlin, Hebrew University of Jerusalem; Kshitij K. Yadav, Indian Institute of Technology (BHU); Sagy Lachmann, Hebrew University of Jerusalem; Simos Gerasimidis, University of Massachusetts
10:10 AM	10:30 AM	**Crumple-mediated snap-through**
		Robert Hutton, University of Nevada, Reno; Eduardo Vitral, University of Nevada, Reno; Eugenio Hamm, Universidad de Santiago de Chile; James Hanna, University of Nevada, Reno
10:30 AM	10:50 AM	**Probing the buckling of thin-shell structures under pure bending**
		Fabien Royer, Cornell University; Sergio Pellegrino, California Institute of Technology
10:50 AM	11:10 AM	**Fibre Steering for Mass-Efficient Thin Plate Structures**
		Calum McInnes, University of Bristol; Alberto Pirrera, University of Bristol; Byung Chul Kim, University of Bristol; Rainer Groh, University of Bristol

Session: W2 Room: Greenway H		
Session Chair(s): Rainer Groh, Alberto Pirrera		
11:25 AM	11:45 AM	**Propagating Instabilities in Coilable Booms**
		Wen Luo, California Institute of Technology; Sergio Pellegrino, California Institute of Technology
11:45 AM	12:05 PM	**Finite Element Modeling of Snap-through Buckling in Composite Meta-material Shallow Shells**
		Gabriel Tardy, Tennessee Tech University; Y. Jane Liu, Tennessee Tech University
12:05 PM	12:25 PM	**Re-Programming The Shape And Stiffness Of Multi-Stable Meta-Structures**
		Giada Risso, ETH Zurich; Max Kudisch, California Institute of Technology; Paolo Ermanni, ETH Zurich; Chiara Daraio, California Institute of Technology
Session: W3 Room: Greenway H		
Session Chair(s): Rainer Groh, Alberto Pirrera		
2:05 PM	2:25 PM	**Weakening-induced snap instability as a energy dissipation mechanism**
		Seoyoung Heo, University at Buffalo; Jongmin Shim, University at Buffalo
2:25 PM	2:45 PM	**A Quasi-static Analysis of Snap-through Buckling of Viscoelastic Shallow Arches with Geometric Imperfections**
		Y. Jane Liu, Tennessee Tech University; John Peddieson, Tennessee Tech University
2:45 PM	3:05 PM	**Nonlinear Dynamics of a Buckled Beam Under Impact Excitation: Influence of Frequency, Amplitude and Location of Shaker Excitation**
		Michael Rouleau, Georgia Insititute of Technology; James Keller, Georgia Institute of Technology; Jason Lee, Georgia Institute of Technology; Steven Craig, Georgia Institute of Technology; Chengzhi Shi, Georgia Institute of Technology; Julien Meaud, Georgia Institute of Technology
Session: W4 Room: Greenway H		
Session Chair(s): Rainer Groh, Alberto Pirrera		
4:00 PM	4:20 PM	**Revisiting the phase space of constrained, differentially growing bilayers**
		Jiajia Shen, University of Bristol; University of Exeter; Yibin Fu, Keele University; Alberto Pirrera, University of Bristol; Rainer Groh, University of Bristol
4:20 PM	4:40 PM	**Lattice instabilities and amorphous shear band formation in inter metallic alloys.**
		Prakarsh Pandey, University of Wisconsin-Madison; Nuohao Liu, University of Wisconsin-Madison; Shiva Rudraraju, University of Wisconsin-Madison; Izabela Szlufarska, University of Wisconsin-Madison
4:40 PM	5:00 PM	**Pressure-Induced Stability of Methane Hydrate from Machine Learning Force Field Simulations**
		Kun Luo, Iowa State University; Yidi Shen, Iowa State University; Jun Li, Iowa State University; Qi An, Iowa State University
10-14 Symposium honoring the many contributions of Prof. Roger Fosdick		
Session: W1 Room: Greenway A		
Session Chair(s): Timothy Healey		
9:30 AM	9:50 AM	**Perspectives on scaling laws for terrestrial and non-terrestrial application**
		Richard James, University of Minnesota
9:50 AM	10:10 AM	**Universal Program of Nonlinear Hyperelasticity**
		Arash Yavari, Georgia Institute of Technology; Alain Goriely, University of Oxford

10:10 AM	10:30 AM	**On the emergence of non-smooth deformation in the interior of a compressed nonlinear elastic disk**
		Adair Aguiar, Universidade De Sao Paulo USP; Lucas Rocha, Universidade de Sao Paulo USP
10:30 AM	10:50 AM	**Mechanical Response Of Metal Solenoids Subjected To Electric Currents**
		Nicolas Triantafyllidis, Ecole Polytechnique, IP Paris - Solid Mechanics lab; Ryan Elliott, University of Minnesota
10:50 AM	11:10 AM	**Forces in ferromagnetic conductors subjected to electrical currents and magnetic fields**
		Geoffrey Magda, École Polytechnique; Éric Charkaluk, École Polytechnique; Nicolas Triantafyllidis, École Polytechnique and University of Michigan
Session: W2 Room: Greenway A		
Session Chair(s): Thomas Pence		
11:25 AM	11:45 AM	**The effective shear modulus of a random isotropic suspension of monodisperse liquid n-spheres: from the dilute limit to the percolation threshold**
		Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign; Kamalendu Ghosh, University of Illinois at Urbana-Champaign
11:45 AM	12:05 PM	**Mesoscopic approach to crystal plasticity**
		Lev Truskinovsky, ESPCI
12:05 PM	12:25 PM	**An action functional for nonlinear dislocation dynamics**
		Amit Acharya, Carnegie Mellon University
12:25 PM	12:45 PM	**Micromechanics of step-bunching in graphene-metal interfaces**
		Nikhil Chandra Admal, University of Illinois at Urbana-Champaign; Tusher Ahmed, University of Illinois at Urbana-Champaign; Ganesh Ananthakrishnan, University of Illinois at Urbana-Champaign; Harley Johnson, University of Illinois at Urbana-Champaign
12:45 PM	1:05 PM	The Role of the Relative Fluid Velocity in an Objective Continuum Theory of Finite Strain Poroelasticity: Application to the Chemo-Mechanics of Subcutaneous Injections
		L. Gil, BD Medical - Pharmaceutical Systems; M. Jabbour, École Polytechnique; N. Triantafyllidis, The University of Michigan
Session: W3 Room: Greenway A		
Session Chair(s): Adair Aguiar		
2:05 PM	2:25 PM	**A Group-Theoretic Approach to the Bifurcation Analysis of Spatial Cosserat-Rod Frameworks with Symmetry**
		Christelle Combescure, Military Academy of Saint-Cyr Coëtquidan; Timothy Healey, Cornell University; Jay Treacy, Cornell University
2:25 PM	2:45 PM	**Nucleation of creases and folds in hyperelastic solids is not a local bifurcation**
		Shrinidhi Pandurangi, Cambridge University; Andrew Akerson, California Institute of Technology; Ryan S. Elliott, University of Minnesota; Timothy J. Healey, Cornell University; Nicolas Triantafyllidis, Ecole Polytechnique
2:45 PM	3:05 PM	**Existence Theorems for Highly Deformable Nonlinearly Elastic Plates & Shells**
		Timothy J. Healey, Cornell University
3:05 PM	3:25 PM	**Isometric deformations: closed ribbons and beyond**
		Brian Seguin, Loyola University Chicago; Yi-chao Chen, University of Houston; Eliot Fried, Okinawa Institute of Science and Technology

3:25 PM	3:45 PM	**Bending measures for plates and shells**
		James Hanna, University of Nevada, Reno; Eduardo Vitral, Rose-Hulman Institute of Technology

Student Poster Competition

6:15 – 8:15 pm, Monday, October 9

Northstar Ballroom

Modeling Strain Solitons in 2D Heterostructures
Md Tusher Ahmed, Chenhaoyue Wang, Amartya Banerjee, Nikhil Chandra Admal

The Effect of Long-Range Order on the Mechanical Response of Metamaterials
Kate M. Ainger, Alexander Groetsch, Lorenzo Valdevit

Surface Morphology of Hydrogels and Silicones Correlates with Conditions of Controlled Fracture
Nabila Ali, Sri Sridhar, Shaobo Zhan, Alison C. Dunn, Shelby Hutchens

Particle-Based Modeling and Simulation of Elasto-magnetic Metamaterials
Gabriel Alkuino, Teng Zhang

Bone Hydration – Strength and Microdamage
Mary Arnhart, Thomas Siegmund

A Mesoscale Field Dislocation Mechanics Study: Micropillar Confined Thin Film Plasticity and Kink Banding in Metallic Nanolaminates
Abhishek Arora, Rajat Arora, Amit Acharya

A Continuum Framework for Modeling Mechano-Chemical Interactions Underlying Neuronal Deformation and Injury
Debabrata Auddya, Shiva Rudraraju

Digital Composite with Independently Programmable Mechanical Properties
Yun Bai, Heling Wang, Xuebo Yuan, Yuxin Pan, Xiaoyue Ni

Mechanical Behavior of Scutoid Assemblies
Tanner Ballance, Thomas Siegmund

High-Resolution Deep Convolutional Neural Network of Deep-Sea Sponges in Extreme Flow Conditions
Adib Bazgir, Yuwen Zhang

Propagating Compaction Bands in Porous Media
Lars Blatny, Paul Berclaz, François Guillard, Itai Einav, Johan Gaume

Single-Test Evaluation of Directional Elastic Properties of Anisotropic Structured Materials
Jagannadh Boddapati, Mortiz Flaschel, Siddhant Kumar, Laura De Lorenzis, Chiara Daraio

Multiscale Viscoelastic Characterization of Equine Hoof Wall
Christian Bonney, Siyuan Pang, Marc Meyers, Iwona Jasiuk

Microscale Fatigue Deformation of Additively Manufactured Nanolamellar Alloys
Luc N. Capaldi, Jie Ren, Wen Chen, Ottman A. Tertuliano

Improved Ballistic Impact Resistance of Nanofibrous Cellulose Films with Discontinuous Fibrous Bouligand Architecture
Colby Caviness, Yitong Chen, Zhangke Yang, Haoyu Wang, Zhaoxu Meng

Flaw Sensitivity of Cellulose Paper
Qiongyu Chen, Bo Chen, Shuangshuang Jing, Yu Liu, Teng Li

An Optoionic Hydrogel for Reprogrammable Metamaterial and Reconfigurable Iontronics
Jiehao Chen, Jiahe Huang, Herit Patel, Haohui Zhang, Alper Erturk, Yuhang Hu

Harnessing Instabilities with Bio-Inspired Hierarchical Tape-Springs Emulating Mantis Shrimp Telson, Chiton Radula, and Leaf Venations
Phani Saketh Dasika, Adwait Trikanad, Kris Hector, John Connolly, Pablo Zavattieri

Representation Theory for Wave Propagation through Buckled Phononic Crystals
Tejas Dethe, Alison Root, Andrej Košmrlj

Curvature-Guided Design of Shell-Based Spinodal Metamaterials
Somayajulu Dhulipala, Carlos Portela

Unravelling the Mechanics of Knitted Fabrics Through Hierarchical Geometric Representation
Xiaoxiao (Catherine) Ding, Vanessa Sanchez, Katia Bertoldi, Chris Rycroft

Neural Integrated Meshfree (NIM) Method: A hybrid solver for computational mechanics

Honghui Du, Qizhi He

Transmission Revival by Symmetry Violation in Non-Hermitian Systems
Yanghao Fang, William Tuxbury, Tsampikos Kottos, Ramathasan Thevamaran

Modelling the Mechanics and Dynamics of Blood Clot Retraction in Wound Closure and Haemostasis
Matteo Ferraresso, Christian Kastrup, Mattia Bacca

Enhancing Toughness Through Geometry and Architected Plasticity
Sage Fulco, Michal K. Budzik, Kevin T. Turner

Instability Analysis of Slender Tube-Confined UHPC-Steel Composite Column Reinforced by Glass Fiber Polymers
Benhao Gao, Lihua Xu, Yanqin Zeng, Yin Chi, Le Huang

In Silico and in Vitro Investigation to Evaluate the Biomineralization and Cell Adhesion Mechanics of Mesenchymal Stem Cells on Nanoclay-Based Scaffolds
Hanmant K. Gaikwad, Preetham Ravi, H. M. Nasrullah Faisal, Kalpana S. Katti, Dinesh Katti

Quasi-Brittle Fracture Mechanics Allows for Size Independent Tissue Toughness of Bone
Glynn Gallaway, Thomas Siegmund

Design of Functional Multiscale Microfabricated Origami Systems
Anan Ghrayeb, Yi Zhu, Kenn Oldham, Evgueni Filipov

A Unified Computational Framework for Predictive Multiscale Modeling in Targeted Drug Delivery and Tissue Growth
Shoaib A. Goraya, Shengzhe Ding, Ryan C. Miller, Hyunjoon Kong, Arif Masud

Graph-Based Modelling of Lattice Metamaterials
Ivan Grega, Angkur Shaikeea, Sri Karlapati, Vikram Deshpande

On Mechano-Electro-Diffusive Modeling of Neurons and Its Relevance to Action Potential Propagation and Some Disease Conditions
Rahul Gulati, Shiva Rudraraju

Origins of the Payne Effect in Soft Fibrous Materials
Abhishek Gupta, Bhanugoban Maheswaran, Komal Chawla, Ramathasan Thevamaran

Phase-Field Finite Deformation Fracture with An Effective Energy for Regularized Crack Face Contact
Maryam Hakimzadeh, Vaibhav Agrawal, Kaushik Dayal, Carlos Mora-Corral

Diffusion-Reaction Stabilization with Embedded Incompatible Internal Interfaces
John Hickman, Arif Masud, Scott Roberts

Laws of Static Friction and Precursor Slip in Macroscopic Systems
Wataru Iwashita, Hiroshi Matsukawa, Michio Otsuki

Understanding the Structural Characteristics of Cadherin·β-Catenin·α-Catenin Complex Using Steered Molecular Dynamic Simulation
Sharad V. Jaswandkar, Kalpana S. Katti, Dinesh R. Katti

Characterization of Asymmetric Tilt Grain Boundary Coupling Factors
Himanshu Joshi, Ian Chesser, Brandon Runnels, Nikhil Chandra Admal

Altered Contractile Kinetics in a hiPSC-derived Cardiomyocyte Model of Hypertrophic Cardiomyopathy
Mitchell Josvai, Alana Stempien, Willem J. De Lange, J. Carter Ralphe, Wendy C. Crone

Indicator Configurations: An Information-Matching Method of Data Reduction for Training Interatomic Potential
Yonatan Kurniawan, Mark Transtrum, Vincenzo Lordi

Molecular Control via Dynamic Bonding Enables Material Responsiveness in Additively Manufactured Metallo-Polyelectrolytes
Seola Lee, Seneca J. Velling, Pierre J. Walker, Amylynn Chen, Zane W. Taylor, Cyrus J.B.M. Fiori, Vatsa Gandhi, Zhen-Gang Wang, Julia R. Greer

Bioluminescence for Living Materials and Devices
Chenghai Li

Stress-Mediated Orientational Order in 3D Biofilms
Changhao Li, Luyi Feng, Japinder Nijjer, Qiuting Zhang, Jing Yan, Sulin Zhang

Exploring Kinematic Bifurcations for Dexterous In-Hand Manipulation: A Robotic Gripper Inspired by Thick-Panel Waterbomb Origami
Chenying Liu, Liang He, Sihan Wang, Albert Williams, Zhong You, Perla Maiolino

3D Metallic Phase Transforming Metamaterials

Wenfeng Liu, Corentin Coulais

Curved Origami and Its Applications
Huan Liu, Richard D. James

Deep Neural Operator for Learning Transient Response of Interpenetrating Phase Composites Subject to Dynamic Loading
Minglei Lu, Ali Mohammadi, Zhaoxu Meng, Xuhui Meng and Zhen Li

Managing Impact-Induced Rotational Kinetic Energy Through Unravelling of Collectively Buckled VACNT Foams
Bhanugoban Maheswaran

An Elastic Neuromorphic Metasurface
Mohamed Mousa, Mohammadreza Moghaddaszadeh, Amjad Aref, Mostafa Nouh

Exploring the Interdependence of Friction and Fracture of Highly Deformable Hydrogels
Zion Odoh, Grace Federici, Nabila Ali, Sri Sridhar, Alison Dunn, Shelby Hutchens

Exploiting Elastic Instabilities for Dynamic Shape Reconfigurable Multi Modal Soft Robots
Dinesh K. Patel, Xiaonan Huang, Yichi Luo, Carmel Majidi, Lining Yao

Modelling Elastoplastic Interface in Agglomerated Polymer Nanocomposite Systems
Prajakta Prabhune, Anlan Chen, Cate Brinson

3D Printed Miniature Fluid-Driven Soft Actuators
Haitao Qing, Yinding Chi, Yao Zhao, Yanbin Li, Yaoye Hong, Fangjie Qi, Jie Yin

Impact-protective Bio-inspired Flexible Armor
Jinglun Qu, Hridyesh Raj Tewani, Yuhai Xiang, Stephan Rudykh, Pavana Prabhakar

Elasto-Centrifugal Blistering for Creating Soft Hairy Surfaces
Yifan Rao, Krishnaswamy Ravi-Chandar, Nanshu Lu

Sensitivity Analysis of Continuation-Based Post-buckling Analyses
David Y. Risk-Mora, Juan C. Velasquez-Gonzales, Mauricio Aristizabal, David Restrepo, Harry Millwater

A Diffuse Interface Method for Solid-Fluid Interactions in Viscous Compressible Flow

Emma Schmidt, Maycon Meier, J. Matt Quinlan, Brandon Runnels
Computational Modeling of Electrochemomechanics of High-Capacity Composite Electrodes in Li-ion Batteries
Sameep Rajubhai Shah, Kejie Zhao

Charging Protocol for Composite Electrodes in Lithium-ion Batteries
Nikhil Sharma, Kejie Zhao

Carbon Kagome Nanotubes –Quasi 1D Material with Flat Band
Shivam Sharma, Amartya Banerjee, Richard D. James

Spatially Dependent Dynamic Properties of Bone Microstructure in Osteoarthritis
Riti Sharma, Ottman Tertuliano

Molecular Engineering and Additive Manufacturing of Functional Elastomers and Composites
Naifu Shen, Jinyu Bu, Weinan Xu

A study of the Mechanical Properties of Ca Metal at Various Length Scales and Its Potential Use in Rechargeable Batteries
Jungho Shin, Cole D. Fincher, Matt Pharr

Magneto-Mechanical Bilayer Metamaterial with Global Area-Preserving Density Tunability for Acoustic Wave Regulation
Jay Sim, Shuai Wu, Jize Dai, Renee Ruike Zhao

Cutting of Highly Deformable and Tough Hydrogels
Srividhya Sridhar, Shaobo Zhan, Nabila Ali, Alison Dunn, Shelby Hutchens

Acoustic Metamaterials at the Microscale
Rachel Sun, Yun Kai, Carlos Portela

Data-driven Anisotropic Finite Viscoelasticity with Neural ODEs
Vahidullah Tac, Manuel K. Rausch, Francisco Sahli Costabal, Adrian Buganza Tepole

Finite Element Modeling of Snap-through Buckling in Composite Metamaterial Shallow Shells
Gabriel Tardy, Y. Jane Liu

Evaluation of Anterior Cruciate Ligament (ACL) Iliotibial Band Surgery Using Finite Element Analysis
Pooyan Vahidi Pashaki, Sharad Jaswandkar, Kalpana S. Katti, Benjamin Noonan, Dinesh R. Katti

Study of Effect of Dislocations in High Entropy Alloys Outstanding Properties
Mobin Vandadi, Nima Rahbar, Winston Soboyejo

Enhanced DeepONet for Operator Learning by Parameter-shared and Convolutional Models
Yuxiang Wan, Qizhi He

The Chirality-Induced Actuation Mechanism of Twisted and Coiled Polymer Actuators
Qiong Wang, Samuel Tsai, Liuyang Cheng, Anan Ghrayeb, SeongHyeon Kim, Sameh Tawfick

Numerical Modeling for Manufacturing Processes
Ignasius P.A. Wijaya, Eric Kreiger, Arif Masud

In-situ Activation of Snap-Through Instability in Topology-Transformable Architected Materials
Lei Wu, Damiano Pasini

Tensile, Fracture and Damage Resistance Characterization of 3D Printed PLA with Morse Code Architectures
Deepesh Yadav, BN Jaya

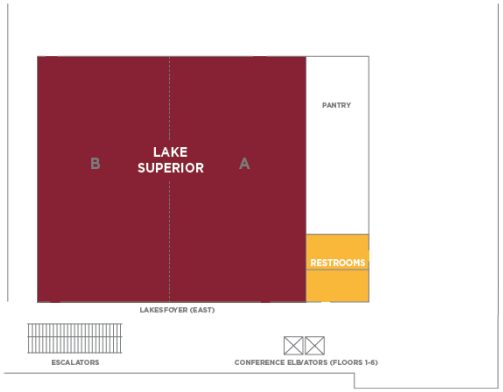
Molecular Modeling of Organic Mixed Ionic-Electronic Conductors
Xixian Yang, Kejie Zhao

Investigation of Dynamic Impact Response of Layered PMMA-Graphene Nanocomposite Films
Zhangke Yang, Cho-Chun Chiang, Zhaoxu Meng

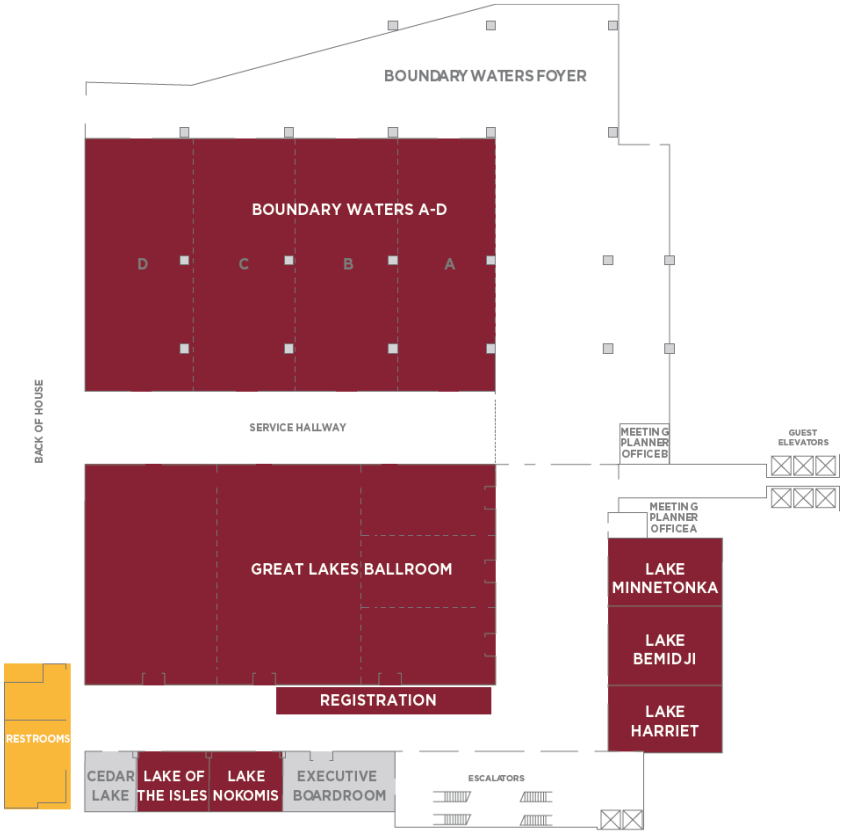
Y-Shaped Cutting of Soft Solids: Challenges, Solutions, and Beyond
Shaobo Zhan, Chenxiang Li, Yuzhou Tang, Amy J. Wagoner Johnson, Shelby B. Hutchens

MEETING SPACE MAP

FIFTH FLOOR



FOURTH FLOOR



SECOND FLOOR