2022 SOCIETY OF ENGINEERING SCIENCE
ANNUAL TECHNICAL MEETING

Oct. 16-19, 2022

Hosted by Texas A&M University, College Station, Texas

TEES | Texas A&M Engineering Experiment Station

SOCIETY OF ENGINEERING SCIENCE

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- Technical Sessions - Wednesday, October 19, 2022

Poster Session

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PROGRAM OVERVIEW

SUNDAY | Oct. 16, 2022

1-4 p.m.	**Registration***
5:30-7 p.m.	WELCOME RECEPTION

MONDAY | Oct. 17, 2022

7:30-9 a.m.	BREAKFAST
8:30-9:30 a.m.	**Medalist Plenary Lectures**
9:30-9:45 a.m.	*Transition to Sessions*
9:45-11:25 a.m.	**Technical Sessions**
11:25-11:40 a.m.	COFFEE BREAK
11:40 a.m. - 12:40 p.m.	**Technical Sessions**
12:40-2 p.m.	LUNCH **Meet the Program Directors**
2-2:15 p.m.	*Transition to Sessions*
2:15-3:55 p.m.	**Technical Sessions**
3:55-4:10 p.m.	COFFEE BREAK
4:10-5:10 p.m.	**Technical Sessions**
5:30-6:30 p.m.	**Medalist Plenary Lectures**
7-9 p.m.	**Poster Presentation and Reception**

TUESDAY | Oct. 18, 2022

7:30-9 a.m.	BREAKFAST
8:30-9:30 a.m.	**Medalist Plenary Lectures**
9:30-9:45 a.m.	*Transition to Sessions*
9:45-11:25 a.m.	**Technical Sessions**
11:25-11:40 a.m.	COFFEE BREAK
11:40 a.m. - 12:40 p.m.	**Technical Sessions**
12:40-2 p.m.	LUNCH **Meet the Journal Editors**
2-2:15 p.m.	*Transition to Sessions*
2:15-3:55 p.m.	**Technical Sessions**
3:55-4:10 p.m.	COFFEE BREAK
4:10-5:10 p.m.	**Technical Sessions**
5:30-6:30 p.m.	**Medalist Plenary Lectures**
7-9 p.m.	**SES Banquet and Awards Ceremony**

WEDNESDAY | Oct. 19, 2022

7:30-9 a.m.	BREAKFAST
8-9 a.m.	**SES Member Meeting**
8-9:30 a.m.	**Mentoring Breakfast**
9:30-9:45 a.m.	*Transition to Sessions*
9:45-11:25 a.m.	**Technical Sessions**
11:25-11:40 a.m.	COFFEE BREAK
11:40 a.m. - 12:40 p.m.	**Technical Sessions**
12:40-2 p.m.	LUNCH | **Poster Presentation Awards Ceremony**
2-2:15 p.m.	*Transition to Sessions*
2:15-3:55 p.m.	**Technical Sessions**
3:55-4:10 p.m.	COFFEE BREAK
4:10-5:10 p.m.	**Technical Sessions**

* *Registration booth will also be open on Monday and Tuesday from 7:30 a.m. to 5 p.m., and on Wednesday from 7:30 a.m. to 4 p.m.*

** *Access to all receptions, breakfasts, coffee breaks, lunches and banquet are covered by the registration fees. The banquet meal ticket given at check-in is required to enter the banquet.*

*** *The registration fees also includes one-time access pass to the George H.W. Bush Presidential Library and Museum (bush41.org) that can be used any time during the conference by wearing your conference nametag. Your SES wristband is required to enter the museum on Sunday, Oct. 16.*

MEDALISTS PLENARY AND SPECIAL LECTURES

Wei Chen, *Northwestern University*
2022 Engineering Science medalist
Computational Methods for Design under Uncertainty in Accelerating the Innovation of Engineered Material Systems
Monday, Oct. 17, 2022, 8:30-9:30 AM, Memorial Student Center (MSC), 2400 Gates Ballroom
Session Chair: Shelly Zhang, zhangxs@illinois.edu

Gerhard A. Holzapfel, *Graz University of Technology*
2021 William Prager medalist
Modeling of Fibrous Soft Tissues in Health and Disease: State of the Art and Challenges of the Next Decade
Monday, Oct. 17, 2022, 8:30-9:30 AM, Memorial Student Center (MSC), Room 2406
Session Chair: David Nordsletten, nordslet@umich.edu

Gareth McKinley, *Massachusetts Institute of Technology*
2022 G.I. Taylor medalist
Inertio-elastic Instabilities in Planar and Axisymmetric Jets
Monday, Oct. 17, 2022, 5:30-6:30 PM, Innovative Learning Classroom Building (ILCB), Room 205
Session Chair: Vivek Sharma, viveks@uic.edu

Ellen Arruda, *University of Michigan*
2021 A.C. Eringen medalist
Full-field Methods to Characterize the Finite Strain Response of Ligaments and Tendons
Monday, Oct. 17, 2022, 5:30-6:30 PM, Innovative Learning Classroom Building (ILCB), Room 226
Session Chair: Jerry H Qi, qih@me.gatech.edu

L. Catherine Brinson, *Duke University*
2022 A.C. Eringen medalist
Nano and Polymers and Mechanics and Data
Tuesday, Oct. 18, 2022, 8:30-9:30 AM, Memorial Student Center (MSC), 2400 Gates Ballroom
Session Chair: Nancy R Sottos, n-sottos@illinois.edu

Michael Sutton, *University of South Carolina*
2021 Engineering Science medalist
Planes, Trains and Hurricanes: Insight Through Mechanics and Measurements
Tuesday, Oct. 18, 2022, 8:30-9:30 AM, Memorial Student Center (MSC), Room 2406
Session Chair: Pradeep Sharma, psharma@central.uh.edu

Vikram S. Deshpande, *University of Cambridge*
2022 William Prager medalist
Micro-architected Solids: Does Toughness Characterize Fracture?
Tuesday, Oct. 18, 2022, 5:30-6:30 PM, Innovative Learning Classroom Building (ILCB), Room 113
Session Chairs: Carlos M Portela, cportela@mit.edu; Angkur Shaikeea, ajds3@cam.ac.uk

James Rice and Young Investigator Medal Lectures

Tuesday, 10/18/2022, Memorial Student Center (MSC), 2400 Gates Ballroom

Session Chairs: Huajian Gao, huajian.gao@ntu.edu.sg; M Taher A Saif, saif@illinois.edu

9:45- 10:25 AM **Markus Buehler**, *Massachusetts Institute of Technology*
2022 J.R. Rice Medalist
The Mechanics of Bioinspired Material Intelligence

10:35-11:15 AM **Arend van der Zande**, *University of Illinois Urbana-Champaign*
2022 Young Investigator Medalist
Two-Dimensional Atomic Membranes as Building Blocks for Electromechanical Systems

SPECIAL EVENTS

SUNDAY | OCT. 16, 2022

WELCOME RECEPTION | 5:30-7 PM
George H.W. Bush Presidential Library and Museum Rotunda
This event kicks off the SES Annual Technical Meeting by welcoming attendees to Aggieland and Texas A&M University. Held at the George H.W. Bush Presidential Library and Museum Rotunda, attendees will be required to wear their SES wristband to enter the museum on Sunday for the welcome reception.

MONDAY | OCT. 17, 2022

CONFERENCE BREAKFAST | 7:30-9 a.m.
Memorial Student Center (MSC), Bethancourt Ballroom

WELCOME REMARKS & KEY ANNOUNCEMENTS | BREAKFAST | 8 a.m.
Memorial Student Center (MSC), Bethancourt Ballroom

CONFERENCE LUNCH | 12:40-2 p.m.
Memorial Student Center (MSC), Bethancourt Ballroom

MEET THE PROGRAM DIRECTORS | LUNCH | 12:40-2 PM
Memorial Student Center (MSC), 2400 Gates Ballroom
This event will provide attendees an opportunity to interact with the program directors and learn more about their programs. There may also be opportunities for the attendees to sign up for 1-on-1 meetings with National Science Foundation (NSF) directors.

Siddiq M. Qidwai, ***National Science Foundation***
- Designing Materials to Revolutionize and Engineer our Future (DMREF)
- Foundational Research in Robotics (FRR)
- Mechanics of Materials and Structures (MOMS)
- NSF Boosting Research Ideas for Transformative and Equitable Advances in Engineering (BRITE)

Wendy C. Crone, ***National Science Foundation***
- Biomechanics and Mechanobiology (BMMB)
- Mechanics of Materials and Structures (MOMS)
- NSF Boosting Research Ideas for Transformative and Equitable Advances in Engineering (BRITE)

John A. Schlueter, ***National Science Foundation***
- Connections in Quantum Information Science (CQIS)
- Designing Materials to Revolutionize and Engineer our Future (DMREF)

Holm-Hansen Brian, ***Office of Naval Research***
- Flight Dynamics & Control Program Officer

POSTER PRESENTATION AND RECEPTION | 7-9 PM
Texas A&M Hotel and Conference Center Ballroom
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 | OCT. 18, 2022

CONFERENCE BREAKFAST | 7:30-9 AM
Memorial Student Center (MSC), Bethancourt Ballroom

CONFERENCE LUNCH | 12:40-2 PM
Memorial Student Center (MSC), Bethancourt Ballroom

MEET THE JOURNAL EDITORS | LUNCH | 12:40-2 PM
Memorial Student Center (MSC), 2400 Gates Ballroom
This event will provide attendees, especially young researchers, an opportunity to interact with editors and learn more about their journals, the editorial process, and other opportunities.

Ghatu Subhash, *Mechanics of Materials*
Ravi-Chandar Krishnaswamy, *International Journal of Fracture*
Katia Bertoldi, *Extreme Mechanics Letters*
Huajian Gao, *Journal of the Mechanics and Physics of Solids*
Pradeep Sharma, *Journal of Applied Mechanics*
Michael Sutton, *Engineering Fracture Mechanics*
Stelios Kyriakides, *International Journal of Solids and Structures*
Vicky Nguyen, *Journal of Biomechanical Engineering*

SES BANQUET | 7-9 PM
Memorial Student Center (MSC), 2300C Bethancourt Ballroom
This event brings conference attendees together in fellowship to celebrate awardees and medalists in engineering science.

WEDNESDAY | OCT. 19, 2022

CONFERENCE BREAKFAST | 7:30-9 a.m.
Memorial Student Center (MSC), Bethancourt Ballroom

CONFERENCE LUNCH | 12:40-2 p.m.
Memorial Student Center (MSC), Bethancourt Ballroom

MENTORING BREAKFAST | BREAKFAST | 7:30-9 AM
Memorial Student Center (MSC), 2400 Gates Ballroom
At this informal meet-and-greet event, senior faculty and researchers have committed to volunteer their time to provide mentoring advice to junior and future faculty in areas such as research and publishing, tenure and promotion, grant writing, teaching and work-life balance.

SES MEMBER MEETING | 8-9 AM
Memorial Student Center (MSC), 2406

POSTER PRESENTATION AWARD CEREMONY | LUNCH| 12:40-2 PM
Memorial Student Center (MSC), 2300C Bethancourt Ballroom

TECHNICAL SYMPOSIA & ORGANIZERS

Thematic Area 1 Medalist Symposia	
1.1 Prager Medal Symposium	Huajian Gao, Nanyang Technological University Singapore
	Angkur Shaikeea, University of Cambridge
	Carlos Portela, Massachusetts Institute of Technology
	David Nordsletten, University of Michigan Ann Arbor
1.2 Eringen Medal Symposium	Nancy R Sottos, University of Illinois Urbana-Champaign
	Linda S Schadler, The University of Vermont
	Pradeep Sharma, University of Houston
	Jerry Qi, Georgia Institute of Technology
1.3 Engineering Science Medal Symposium	Pradeep Sharma, University of Houston
	Raymundo Arroyave, Texas A&M University
	X Shelly Zhang, University of Illinois Urbana-Champaign
1.4 Taylor Medal Symposium	Vivek Sharma, University of Illinois Chicago
Thematic Area 2 Biomechanics & Mechanobiology	
2.1 Brain Physics and Mechanics	Mir Jalil Razavi, State University of New York at Binghamton
	Xianqiao Wang, University of Georgia
	Johannes Weickenmeier, Stevens Institute of Technology
	Curtis Johnson, University of Delaware
2.2 Cell and Tissue Mechanics in Health and Disease	Farid Alisafaei, New Jersey Institute of Technology
	Guy M Genin, Washington University in St. Louis
	Markus J Buehler, Massachusetts Institute of Technology
	Vikram S Deshpande, Cambridge University
	Horacio D Espinosa, Northwestern University
	Roland R Kaunas, Texas A&M University
2.3 Cell Mechanics, Biomechanics and Mechanobiology	Shiva Rudraraju, University of Wisconsin Madison
	Hector Gomez, Purdue University
	Padmini Rangamani, University of California San Diego
	Krishna Garikipati, University of Michigan Ann Arbor
	Alireza Sarvestani, Mercer University
2.4 Mechanobiology of Disease	Tanmay P. Lele, Texas A&M University
	Ashutosh Agrawal, University of Houston
2.5 Mechanics of Engineered Living Materials	Qiming Wang, University of Southern California
	Congrui Jin, University of Nebraska-Lincoln
	Ying Li, University of Connecticut
2.6 Injury Biomechanics Symposium	Kshitiz Upadhyay, Johns Hopkins University
	Reuben Kraft, The Pennsylvania State University
	Amy Dagro, United States Army Research Laboratory
Thematic Area 3 Data Science & Machine Learning	
3.1 Advancing Multi-scale Modeling Capabilities in Metal Additive MFG through Machine Learning	Robert Saunders, U.S. Naval Research Laboratory
	Alaa Elwany, Texas A&M University
	John Michopoulos, U.S. Naval Research Laboratory
	Dimitris Lagoudas, Texas A&M University
3.2 Approaches for Materials Data Validation and Dataset Standardization	Alexander Landauer, National Institute of Standards and Technology
	Orion Kafka, National Institute of Standards and Technology
	Newell Moser, National Institute of Standards and Technology

	Jonathan Estrada, University of Michigan
	Aaron Forster, National Institute of Standards and Technology
3.3 Data-Driven Approaches for Complex Multiphysics Systems, Structures, and Materials	Juner Zhu, Massachusetts Institute of Technology
	Emma Lejeune, Boston University
	M. Khalid Jawed, University of California Los Angeles
	Hongyi Xu, University of Connecticut
3.4 Data-driven and Machine-learning based Mechanics of Materials	Christos E. Athanasiou, Brown University
	Nikolaos Bouklas, Cornell University
	Steve Sun, Columbia University
	Grace Gu, University of California Berkeley
	Miguel Bessa, TU Delft
	Ghatu Subhash, University of Florida
	Shailendra Joshi, University of Houston
	Vikram Deshpande, University of Cambridge
3.5 Machine Learning in Cardiovascular Modeling and Simulations	Michael Sacks, Oden Institute/BME at UT Austin
	Reza Avaz, Texas A&M University
3.6 Multiscale Mechanics at the Intersection of Theoretical, Computational and Data Driven Approach	Amartya Banerjee, University of California Los Angeles
	Vikram Gavini, University of Michigan
3.7 Uncertainty Quantification: An Interactive Symposium on Applications, Theory, and Education	Douglas Cook, Brigham Young University
	JianXun Wang, University of Notre Dame
	Ryan McClaren, University of Notre Dame
	Greg Sawyer, University of Florida
	Michael Sheilds, Johns Hopkins University
	Paris Perdikaris, University of Pennsylvania
Thematic Area 4 Fluid & Granular	
4.1 Computational Fluid Dynamics for Engineering Applications	Paul Cizmas, Texas A&M University
	Forrest Carpenter, NASA Armstrong
	David Lazzara, Boeing
	George Dulikravich, Florida International University
	Douglas Hunsaker, Utah State University
	Jonathan Weaver-Rosen, Texas A&M University
4.2 Hydrodynamic Stability: Theory, Experiments and Numerics	Prabir Daripa, Texas A&M University
	Helen Reed, Texas A&M University
	Jacob McFarland, Texas A&M University
4.3 Laser-based Methods for High-speed and Reacting Flows Diagnostics	Sergey B Leonov, University of Notre Dame
	Richard Miles, Texas A&M University
	Waruna Kutatilaka, Texas A&M University
	Christopher Limbach, Texas A&M University
	Arthur Dogariu, Texas A&M University
	Stanislav Gordeyev, University of Notre Dame
4.4 Mechanics of Granular Media: Experiments, Theory, and Modeling	David Henann, Brown University
	Ken Kamrin, Massachusetts Institute of Technology
4.5 Micro/Nano-Fluidics and Lab-on-Chip	Debjyoti Banerjee, Texas A&M University
	Arum Ham, Texas A&M University
	Cynthia Hipwell, Texas A&M University
	Shoufeng Lan, Texas A&M University

	Shahin Shafiee, Prairie View A&M University
	Aditya Kuchibhotla, Texas A&M University
Thematic Area 5 Manufacturing & Infrastructure	
5.1 3D Printing of Multifunctional Structures	Jeeeun Kim, Texas A&M University
	Taylor H. Ware, Texas A&M University
	Lining Yao, Carnegie Mellon University
	Huaishu Peng, University of Maryland
	Robert MacCurdy, University of Colorado
	Clement Zheng, National University of Singapore
5.2 Advanced Manufacturing: Materials, Mechanics, Processing and Data	Nikolaos Michailidis, Texas A&M University
	Arun Srinivasa, Texas A&M University
	Satish Bukkapatnam, Texas A&M University
	Mohamed El Mansori, Texas A&M University
	Marwan Khraisheh, Texas A&M University at Qatar
	Dimitris Lagoudas, Texas A&M University
	Eyad Masad, Texas A&M University at Qatar
	Glaucio Paulino, Georgia Institute of Technology
	J.N. Reddy, Texas A&M University
5.3 Mechanics and Materials for Infrastructure and Construction	Eyad Masad, Texas A&M University at Qatar
	Yong-Rak Kim, Texas A&M University
	Jeff Bullard, Texas A&M University
	Zachary Grasley, Texas A&M University
	Anand Puppala, Texas A&M University
	Dallas Little, Texas A&M University
5.4 The Mechanics and Manufacturing of Programmable Soft Matter	Jordan R. Raney, University of Pennsylvania
	Jochen Mueller, Johns Hopkins University
5.5 Multiscale Models and Experiments for In-Space Manufacturing	Kasra Momeni, The University of Alabama
5.6 Mechanics and Physics of Additive Manufacturing	Jinhui Yan, University of Illinois at Urbana-Champaign
	Lin Cheng, Worcester Polytechnic Institute
	Yao Fu, Virginia Tech University
Thematic Area 6 Multifunctional & Multifield	
6.1 Adaptive Structures	Jonathan Weaver-Rosen, Texas A&M University
	Jim Mabe, Texas A&M University
	David Lazzara, Boeing Research and Technology
6.2 Chemo-thermo-mechanics of Energetics and Reacting Flows	Scott Jackson, Texas A&M University
	Marcia Cooper, Texas A&M University
	Elaine Oran, Texas A&M University
	Eric Petersen, Texas A&M University
	Chris Thomas, Texas A&M University
	Justin Wilkerson, Texas A&M University
6.3 Damage and Thermo-Chemo-Mechanical Coupling in Soft Materials	Maryam Shakiba, Virginia Tech
	Nikolaos Bouklas, Cornell University
	Roozbeh Dargazany, Michigan State University
6.4 Effective Properties of Multifunctional Composite Materials	Gary Seidel, Virginia Tech University
	Fodil Meraghni, Arts et Métiers (ENSAM) Institute of Technology
	Kiefer Björn, TU Bergakademie Freiberg

	George Chatzigeorgiou, Chargé de Recherche CNRS
6.5 Frontiers of Tribology for a Green and Sustainable Future, including Hydrogen	Ali Erdemir, Texas A&M University
	Andreas Polycarpou, Texas A&M University
6.6 Symposium on Advanced Experimental Techniques	Piyush R. Thakre, Dow Inc.
6.7 Mechanically-Coupled and Surface-Enabled Functionality in 2D Materials	Qing Tu, Texas A&M University
	SungWoo Nam, University of California - Irvine
	Baoxing Xu, University of Virginia
6.8 Mechanics of Electrochemical Systems	Siva Nadimpalli, Michigan State University
	Claudio Di Leo, Georgia Institute of Technology
	Shuman Xia, Georgia Institute of Technology
	Kejie Zhao, Purdue University
6.9 Mesoscale Mechanics of Multifunctional Materials	Manish Vasoya, Texas A&M University
	Theocharis Baxevanis, University of Houston
	Giulia Scalet, University of Pavia
	Dimitris Lagoudas, Texas A&M University
	Fodil Meraghni, Arts et Métiers (ENSAM) Institute of Technology
	George Chatzigeorgiou, Chargé de Recherche CNRS
	Gary Seidel, Virginia Tech University
	Kiefer Björn, TU Bergakademie Freiberg
6.10 Modeling of Complex Fluids and Applications	Victor Calo, Curtin University
	Hector Gomez, Purdue University
	Luis da Rosa Espath, University of Nottingham
6.11 Recent Advances on the Actuation and Failure Response of Active Materials	Theocharis Baxevanis, University of Houston
	Marcus Young, University of North Texas
	Bjoern Kiefer, TU Freiberg
	Stephan Rudykh, University of Wisconsin-Madison
6.12 Multiscale Extreme Behavior of Materials: Structure, Mechanisms, and Kinetic Process	William Schill, Lawrence Livermore National Laboratory
	Carlos M Portela, Massachusetts Institute of Technology
	Robert Carson, Lawrence Livermore National Laboratory
	Thomas Ghislain Guillaume Voisin, Lawrence Livermore National Laboratory
	Aitor Cruzado Garcia, Texas A&M University
	Ramathasan Thevamaran, University of Wisconsin-Madison
Thematic Area 7 Robotics & Control	
7.1 Tensegrity Systems: Mechanics, Control and Manufacturing Principles	Manoranjan Majji, Texas A&M University
	Puneet Singla, Penn State University
	Sami El-Borgi, TAMU-Qatar
	Raman Goyal, Palo Alto Research Center
7.2 Mechanics and Control to Advance Space Domain Awareness	Manoranjan Majji, Texas A&M University
	Puneet Singla, Penn State University
	Roshan Thomas Eapen, Penn State University
	Carolin Frueh, Purdue University
	Maruthi Akella, The University of Texas at Austin
	John L. Junkins, Texas A&M University
7.3 Natural and Engineered Approaches to Dynamic Friction Tuning	Cynthia Hipwell, Texas A&M University
	Carmel Majidi, Carnegie Mellon University
	Kevin Turner, University of Pennsylvania

	Ed Colgate, Northwestern University
	James Batteas, Texas A&M University
	Jonathan Felts, Texas A&M University
7.4 Soft Robotics: Matter, Structure, and Intelligence	Jie Yin, North Carolina State University
Thematic Area 8 Soft & Flexible	
8.1 3D Printing of Polymers and Composites	Yue (Jessica) Wang, University of California Merced
8.2 Sustainability in Soft and Polymeric Materials	Svetlana Sukhishvili, Texas A&M University
	Emily Pentzer, Texas A&M University
	Piyush R. Thakre, Dow Inc.
8.3 Extreme Soft Materials by Polymer-Network Design	Shaoting Lin, Department of Mechanical Engineering at Michigan State University
	Jie Zheng, The University of Akron
	Zhao Qin, Syracuse University
	Aniruddh Vashisth, University of Washington
	Xiaoguang Dong, Vanderbilt University
	Walter Voit, UT Dallas
8.4 Functional Soft Composites - Design, Mechanics, and Manufacturing	Renee Zhao, Stanford University
	Jerry Qi, Georgia Institute of Technology
8.5 Functional Soft Materials in Additive Manufacturing: from Design to Application	Peiran Wei, Texas A&M University
	Emily Pentzer, Texas A&M University
8.6 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
8.7 Mechanics of Complex Networks in Materials and Biology	Catalin Picu, Rensselaer Polytechnic Institute
	Franck Vernerey, University of Colorado Boulder
8.8 Mechanics of Soft Materials with Dynamic Non-Covalent Bonds	Pavan V. Kolluru, Texas A&M University
	Meredith Silberstein, Cornell University
	Sinan Keten, Northwestern University
8.9 Mechanics, Materials, Manufacture and Device Innovations of Soft Electronics	Cunjiang Yu, Penn State University
	Limei Tian, Texas A&M University
	Yihui Zhang, Tsinghua University
Thematic Area 9 Solids & Structure	
9.1 Vibrations, Adaptive Structures and Testing	Pablo A. Tarazaga, Texas A&M University
	Vijaya V. N. Sriram Malladi, Michigan Tech
	Rodrigo Sarlo, Virginia Tech
9.2 Classical and Nonclassical Continuum Theories and their Applications	Karan Surana, The University of Kansas
	J.N. Reddy, Texas A&M University
	Debasish Roy, Indian Institute of Science
	Aaron Joy, Loras College
9.3 Computational and Experimental Analysis of Damage at Interfaces	Brandon Runnels, University of Colorado Colorado Springs
	Vinamra Agrawal, Auburn University
	Lucas Meza, University of Washington
9.4 Continuum Based Modeling of Heterogeneous Materials	David H Allen, Texas A&M University
	Yong-Rak Kim, Texas A&M University
	Theofanis Strouboulis, Texas A&M University

9.5 Controlling Mechanical Waves with Metamaterials	Kathryn Matlack, University of Illinois at Urbana-Champaign
	Ramathasan Thevamaran, University of Wisconsin-Madison
	Dennis Kochmann, ETH Zurich
9.6 High-Strain-Rate Behavior of Heterogeneous Materials	Marcia Cooper, Texas A&M University
	Tom Lacy, Texas A&M University
	Justin Wilkerson, Texas A&M University
	Waruna Kulatilaka, Texas A&M University
9.7 Micro-to-Macro Mechanics of Heterogeneous Solids and Granular Media	Aaron Baumgarten, Johns Hopkins University
	Liuchi Li, Johns Hopkins University
	Konstantinos Karapiperis, ETH Zurich
	Ghassan Shahin, Johns Hopkins University
	Maytee Chantharayukhonthorn, Massachusetts Institute of Technology
9.8 Multiscale Mechanics of Materials	Haoran Wang, Utah State University
	Huck Beng Chew, University of Illinois Urbana-Champaign
	Xiang Zhang, University of Wyoming
	Yanqing Su, Utah State University
	Xin Wang, University of California Irvine
9.9 Multiscale Modeling and Mechanics of Soft Matter and Hierarchical Materials	Anna Tarakanova, University of Connecticut
	Zhen Li, Clemson University
	Zhaoxu Meng, Clemson University
	Luis Ruiz Pestana, University of Miami
	Robert Sinko, Northern Illinois University
	Wenjie Xia, North Dakota State University
9.10 Multiscale Modeling of Phase Transitions, Dislocations, and Twining in Materials	Wei Gao, University of Texas at San Antonio
	Liming Xiong, Iowa State University
9.11 Phase-Field Models of Fracture for Solids, Hard and Soft	Oscar Lopez-Pamies, University of Illinois Urbana-Champaign
	John Dolbow, Duke University
	Trisha Sain, Michigan Tech
9.12 Pushing Materials Mechanics for Extreme Thermo-Mechanical-Environmental Conditions	Yanfei Gao, University of Tennessee Knoxville
	Sam Sham, Idaho National Laboratory
	Ankit Srivastava, Texas A&M University
	Alan Needleman, Texas A&M University
9.13 Recent Advances in Modeling and Simulation of Nano and Micromechanics of Materials	Mauricio Ponga, University of British Columbia
	Swarnava Ghosh, Oak Ridge National Laboratory
	Dennis Kochmann, ETH Zürich
	Jaime Marian, UCLA
9.14 Thermodynamics, Kinetics and Mechanical Behaviors of Metallic Glasses and High Entropy Alloys	Penghui Cao, University of California Irvine
	Yue Fan, University of Michigan Ann Arbor
	Michael J Demkowicz, Texas A&M University
	Raymundo Arroyave, Texas A&M University
Thematic Area 10 Special Symposia	
10.1 Experimental and Theoretical Micro- & Nano-Mechanics: Honoring the Contributions of Prof. Kyung-Suk Kim	Ashraf Bastawros, Iowa State University
	Wendy Crone, University of Wisconsin-Madison
	Yanfei Gao, The University of Tennessee
	Ruike Zhao, Stanford University
10.2 A Celebration of Peridynamics: Honoring the	Florin Bobaru, University of Nebraska-Lincoln
	John Foster, University of Texas at Austin

contributions of Dr. Stewart Silling	Pablo Seleson, Oak Ridge National Laboratory
	Marta D'Elia, Sandia National Laboratories
	Robert Lipton, Louisiana State University
	Erdogan Madenci, The University of Arizona
10.3 Materials and Structures for Defense Applications	Francis Phillips, Army Research Laboratory
	Frank Gardea, Army Research Laboratory
	Brady Butler, Army Research Laboratory
	James Paramore, Army Research Laboratory
	Matthew Johnson, Army Research Laboratory
	Heidi Maupin, Army Research Laboratory
10.4 Celebrating Mechanics of Materials: Honoring the legacy of Prof. Sia Nemat-Nasser	Ghatu Subhash, University of Florida
	Mohammed A. Zikry, North Carolina State University

DAY-BY-DAY SCHEDULE OF TECHNICAL SYMPOSIA

Thematic Area 1. Medalist Symposia (Invited Only)

1.1 Prager Medal Symposium		
Session: 1A, Room: MSC-2406A		
Session Chair(s): Carlos Portela, cportela@mit.edu		
9:45 AM	10:15 AM	**The Effect of an Implanted Filter on Valsalva-Compression and Respiratory-Compression of the Inferior Vena Cava**
		Robert McMeeking, University of California, Santa Barbara; Attila Kossa, Budapest University of Technology and Economics
		Speaker: Robert McMeeking (Keynote Talk)
10:15 AM	10:45 AM	**Diffusion-controlled delamination of sandwich layers**
		Norman Fleck, University of Cambridge
		Speaker: Norman Fleck (Keynote Talk)
10:45 AM	11:05 AM	**Viscoelastic Modelling: From Bench to Bedside**
		David Nordsletten, University of Michigan, King's College London
		Speaker: David Nordsletten (Invited Talk)
11:05 AM	11:25 AM	**Biomechanics and Mechanobiology of Pulmonary Arterial Hypertension**
		Daniela Valdez-Jasso, University of California San Diego
		Speaker: Daniela Valdez-Jasso (Invited Talk)
Session: 2A, Room: MSC-2406A		
Session Chair(s): Carlos Portela, cportela@mit.edu		
2:15 PM	2:45 PM	**Mechanics of viscoelastic epicardial patch for treating myocardial infarction (for the Holzapfel Symposium)**
		Huajian Gao, Nanyang Technological University, Institute of High Performance Computing
		Speaker: Huajian Gao (Keynote Talk)
2:45 PM	3:05 PM	**Inferring Genotype-Dependent Mechanical Properties of Biological Tissues with Deep Learning**
		Enrui Zhang, Brown University; Bart Spronck, Maastricht University; Jay Humphrey, Yale University; George Karniadakis, Brown University
		Speaker: Enrui Zhang (Invited Talk)
3:05 PM	3:25 PM	**Simulating stress fibre remodelling under static and dynamic loading conditions**
		Patrick McGarry, National University of Ireland Galway
		Speaker: Patrick McGarry (Invited Talk)
3:25 PM	3:55 PM	**Active models for cochlear mechanics**
		Karl Grosh, Department of Mechanical Engineering, University of Michigan; Wen Cai, Department of Mechanical Engineering, University of Michigan; Vipin Agarwal, Department of Mechanical Engineering, University of Michigan
		Speaker: Karl Grosh (Keynote Talk)
Session: 2B, Room: MSC-2406A		
Session Chair(s): Daniela Valdez-Jasso, dvaldezjasso@ucsd.edu		
4:10 PM	4:30 PM	**Architected Materials Beyond the Laboratory: Scalable Aperiodicity and Dynamic Responses**

		Carlos Portela, MIT; Somayajulu Dhulipala, MIT; Thomas Butruille, MIT; Yun Kai, MIT
		Speaker: Carlos Portela (Invited Talk)
4:30 PM	4:50 PM	**Non-Equilibrium Microstructures and Mechanical Properties of Hydrogel Enabled Additively Manufactured Micro-architected Metallic Systems**
		Julia Greer, Engineering and Applied Science, California Institute of Technology, The Kavli Nanoscience Institute at Caltech; Rebecca Gallivan, Engineering and Applied Science, California Institute of Technology (Caltech); Max Saccone, Chemistry and Chemical Engineering, California Institute of Technology (Caltech); Wenxin Zhang, Engineering and Applied Sciences, California Institute of Technology (Caltech); Thomas Tran, Engineering and Applied Sciences, California Institute of Technology (Caltech)
		Speaker: Julia Greer (Invited Talk)
4:50 PM	5:10 PM	**Evaluating Smooth Muscle Contractility in the Murine Vagina**
		Shelby White, Tulane University; Niyousha Karbasion, Washington University, St. Louis; Matthew Bersi, Washington University, St. Louis; Kristin Miller, Tulane University, Department of Biomedical Engineering
		Speaker: Kristin Miller (Invited Talk)

1.3 Engineering Science Medal Symposium		
Session: 1A, Room: MSC-2405		
Session Chair(s): Pradeep Sharma, psharma@uh.edu		
9:45 AM	10:15 AM	**Gap tests revealing the effects of crack parallel stresses on the fracture energy of aluminum, shale, fiber composites and concrete: A review**
		A. Abdullah Donmez, Associate Professor, Department of Civil Engineering, Istanbul Technical University; formerly Postdoctoral Associate, Northwestern University; Hoang Thai Nguyen, Civil and Environmental Engineering, Northwestern University; Zdenek Bazant, McCormick Institute Professor and W.P. Murphy Professor of Civil and Mechanical Engineering and Materials Science, Northwestern University
		Speaker: Zdenek Bazant (Keynote Talk)
10:15 AM	10:35 AM	**A Highly Sensitive, Stretchable, and Resilient Strain Sensor featuring Crack Advancing and Opening**
		Shuang Wu, North Carolina State University; Yong Zhu, North Carolina State University
		Speaker: Yong Zhu (Invited Talk)
10:35 AM	10:55 AM	**Perforated Auxetic Planar Structures: Multiscale Mechanics and Applications in Soft Robotic Actuators**
		Behrad Koohbor, Department of Mechanical Engineering, Rowan University, Advanced Materials and Manufacturing Institute, Rowan University; Nicholas Pagliocca, Department of Mechanical Engineering, Rowan University; Mitja Trkov, Department of Mechanical Engineering, Rowan University; George Youssef, Experimental Mechanics Laboratory, Department of Mechanical Engineering, San Diego State University
		Speaker: Behrad Koohbor (Invited Talk)
Session: 1B, Room: MSC-2405		
Session Chair(s): Shelly Zhang, zhangxs@illinois.edu		
11:40 AM	12:10 PM	**Automated Single Cell Electroporation Platform for Effective Genetic Manipulation of Hard-to-Transfect Cells**

		Horacio Espinosa, Northwestern University; Prithvijit Mukherjee, Northwestern University; Cesar A. Patino Patino, Northwestern University; Nibir Pathak, Northwestern University
		Speaker: Horacio Espinosa (Keynote Talk)
12:10 PM	12:40 PM	**Fracture Behavior of Morphogenic Patterned Thermosetting Polymers**
		Luis Rodriguez Koett, University of Illinois Urbana Champaign; Justine Paul, University of Illinois Urbana Champaign; Tolga Topkaya, University of Illinois Urbana Champaign; Philippe Geubelle, University of Illinois Urbana Champaign; Nancy Sottos, University of Illinois Urbana-Champaign
		Speaker: Nancy Sottos (Keynote Talk)
Session: 2A, Room: MSC-2405		
Session Chair(s): Shelly Zhang, zhangxs@illinois.edu		
2:15 PM	2:35 PM	**THREE-DIMENSIONAL FULL-FIELD VELOCITY MEASUREMENTS IN SHOCK COMPRESSION EXPERIMENTS USING DIGITAL IMAGE CORRELATION**
		Suraj Ravindran, University of Minnesota
		Speaker: Suraj Ravindran (Invited Talk)
2:35 PM	2:55 PM	**Rapid Acquisition of Full-field Large Deformations by in-situ Atomic Force Microscopy and Digital Image Correlation**
		Ioannis Chasiotis, Aerospace Engineering, University of Illinois at Urbana-Champaign; Debashish Das, Aerospace Engineering, University of Illinois at Urbana-Champaign; Dara Moronkeji, Aerospace Engineering, University of Illinois at Urbana-Champaign; Sean Lee, Aerospace Engineering, University of Illinois at Urbana-Champaign
		Speaker: Ioannis Chasiotis (Invited Talk)
2:55 PM	3:15 PM	**Direct Method for Material Property Identification in Heterogenous Materials Utilizing Full-Field Strain Measurements**
		Sreehari Rajan, University of South Carolina; Michael Sutton, University of South Carolina; Subramani Sockalingam, University of South Carolina; Tusit Weerasooriya, US Army Research Laboratory; Stephen Alexander, SURVICE Engineering Company
		Speaker: Sreehari Rajan (Invited Talk)
3:15 PM	3:35 PM	**Applications of digital image correlation for characterizing composite material systems – Collaborative research experiences with Prof. Michael Sutton**
		Karen Kodagali, Department of Mechanical Engineering, University of South Carolina; Frank Thomas, Department of Mechanical Engineering, University of South Carolina; Vijendra Gupta, Department of Mechanical Engineering, University of South Carolina; Sreehari Rajan, Department of Mechanical Engineering, University of South Carolina; Subramani Sockalingam, University of South Carolina
		Speaker: Subramani Sockalingam (Invited Talk)

1.4 Taylor Medal Symposium		
Session: 1A, Room: MSC-2502		
Session Chair(s): Vivek Sharma, viveks@uic.edu		
9:45 AM	10:05 AM	**Frost Pattern on Macrotextured Surfaces**
		Kyoo-Chul Park, Northwestern University
		Speaker: Kyoo-Chul Park (Invited Talk)

10:05 AM	10:25 AM	**Lagrangian stretching reveals polymeric stress field**
		Manish Kumar, Purdue University; Jeffrey Guasto, Tufts University; Arezoo Ardekani, Purdue University
		Speaker: Arezoo Ardekani (Invited Talk)
10:25 AM	10:45 AM	**Scaling: Taylor meets Ohnesorge**
		Marc-Antoine Fardin, Institut Jacques Monod; Mathieu Hautefeuille, Institut de Biologie Paris Seine; Vivek Sharma, University of Illinois at Chicago
		Speaker: Marc-Antoine Fardin (Invited Talk)
10:45 AM	11:05 AM	**Effects of Surface Viscosity in Breakup of Surfactant-Covered Liquid Threads**
		Osman Basaran, Purdue University; Hansol Wee, Purdue University; Brayden Wagoner, Purdue University
		Speaker: Osman Basaran (Invited Talk)
Session: 1B, Room: MSC-2502		
Session Chair(s): Vivek Sharma, viveks@uic.edu		
11:40 AM	12:00 PM	**Rheology, Stickiness, Gloopiness, Spinnability, and Printability**
		Vivek Sharma, University of Illinois at Chicago
		Speaker: Vivek Sharma (Invited Talk)
12:00 PM	12:20 PM	**Apparent temperature dependence of dense granular rheology**
		Ken Kamrin, MIT
		Speaker: Ken Kamrin (Invited Talk)

Thematic Area 2. Biomechanics & Mechanobiology

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

2.2 Cell and Tissue Mechanics in Health and Disease		
Session: 1A, Room: MSC-2404		
Session Chair(s): Guy Genin, genin@wustl.edu; Farid Alisafaei, farid.alisafaei@njit.edu		
9:45 AM	10:15 AM	**Towards Synthetic Catch Bonds**
		Sinan Keten, Northwestern University
		Speaker: Sinan Keten (Keynote Talk)
10:15 AM	10:45 AM	**Mechanobiology of Collective Cell Migration in Health and Cancer**
		Chwee Lim, National University of Singapore
		Speaker: Chwee Teck Lim (Keynote Talk)
10:45 AM	11:05 AM	**Curvotaxis: how cells sense and navigate curvatures**
		Sulin Zhang, Penn State University
		Speaker: Sulin Zhang (Invited Talk)
11:05 AM	11:25 AM	**Cell-cell collisions: geometry and wetting**
		Brian Camley, Johns Hopkins University
		Speaker: Brian Camley (Invited Talk)
Session: 1B, Room: MSC-2404		
Session Chair(s): Guy Genin, genin@wustl.edu; Farid Alisafaei, farid.alisafaei@njit.edu		
11:40 AM	12:00 PM	**Vimentin intermediate filaments orchestrate stable persistent cell migration**
		Minh Thanh, Syracuse University; Renita Saldanha, Syracuse University; Alison Patteson, Syracuse University
		Speaker: Alison Patteson (Invited Talk)
12:00 PM	12:20 PM	**Crowd control: engineering cellular flocks and bioelectric 'sheepdogs'**
		Daniel Cohen, Princeton University
		Speaker: Daniel Cohen (Invited Talk)
Session: 2A, Room: MSC-2404		
Session Chair(s): Guy Genin, genin@wustl.edu; Farid Alisafaei, farid.alisafaei@njit.edu		
2:15 PM	2:35 PM	**Nuclear Mechanotransduction in Confined Microenvironments**
		Panagiotis Mistriotis, Chemical Engineering, Auburn University
		Speaker: Panagiotis Mistriotis (Invited Talk)
2:35 PM	2:55 PM	**Actin Splits and Bends Flat Clathrin Lattices by Pushing at their Edges**
		Tatyana Svitkina, University of Pennsylvania; Changsong Yang, University of Pennsylvania; Patricia Colosi, University of Pennsylvania; Melike Lakadamyali, University Of Pennsylvania
		Speaker: Tatyana Svitkina (Invited Talk)
2:55 PM	3:15 PM	**Pentagalloyl Glucose (PGG) Prevents and Restores Mechanical Changes Caused by Elastic Fiber Degradation in the Mouse Ascending Aorta**
		Christie Crandall, Washington University it St. Louis; Bryant Caballero, Washington University in St. Louis; Jessica Wagenseil, Washington University in St. Louis

		Speaker: Jessica Wagenseil (Invited Talk)
3:15 PM	3:35 PM	**Using the nuclear piston to power 3D cell migration.**
		Ryan Petrie, Drexel University
		Speaker: Ryan Petrie (Invited Talk)
3:35 PM	3:55 PM	**Glioblastoma spheroid growth and chemotherapeutic responses in single and dual-stiffness hydrogels**
		Silviya Zustiak, Saint Louis University
		Speaker: Silviya Zustiak (Invited Talk)

2.6 Injury Biomechanics Symposium		
Session: 2A, Room: Hotel-Laurel		
Session Chair(s): Kshitiz Upadhyay, kshitizu@lsu.edu; Reuben Kraft, rhk12@psu.edu		
2:15 PM	2:45 PM	**Traumatic Brain Injury Risk Prediction at the Cellular Level**
		Ashfaq Adnan, University of Texas at Arlington; Nahian Hossain, University of Texas at Arlington; Fuad Hasan, University of Texas at Arlington
		Speaker: Ashfaq Adnan (Keynote Talk)
2:45 PM	3:05 PM	**Effect of head membranes on brain simulant strains under blunt impact**
		Abhilash Singh, Indian Institute of Technology, Roorkee; Atul Kumar Harmukh, Indian Institute of Technology, Roorkee; Shailesh Govind Ganpule, Indian Institute of Technology, Roorkee
		Speaker: Abhilash Singh (Contributed Talk)
3:05 PM	3:25 PM	**Dynamic Thermomechanical Investigations of Helmet Liner Open Cell Foams**
		Leslie Lamberson, Colorado School of Mines; K.B. Bhagavathula, Colorado School of Mines; M Foster, Colorado School of Mines; D Morrison, Colorado School of Mines; S Koumlis, Colorado School of Mines
		Speaker: Daniel Morrison (Invited Talk)
3:25 PM	3:45 PM	**Towards Mild Traumatic Brain Injuries Prevention Using G-sensor-based Motion Reproduction Algorithm**
		Yang Wan, Brown University; Haneesh Kesari, Brown University
		Speaker: Yang Wan (Contributed Talk)
Session: 2B, Room: Hotel-Laurel		
Session Chair(s): Reuben Kraft, rhk12@psu.edu; Amy Dagro, amy.m.dagro.civ@army.mil		
4:10 PM	4:30 PM	**Cavitation of soft tissue surrogates under complex stress states**
		Yuan Ji, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Christopher Karber, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Travis Byrd, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Justin Wilkerson, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University
		Speaker: Yuan Ji (Contributed Talk)
4:30 PM	4:50 PM	**The Diversity and Energetics of Biological Puncture Systems**
		Philip Anderson, University of Illinois, Urbana-Champaign
		Speaker: Philip Anderson (Contributed Talk)

4:50 PM	5:10 PM	**Mechanical Stimulation of Cerebral Organoids Toward Understanding Human Neural Response after Traumatic Brain Injury (TBI)**
		Susana Beltrán, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; Justin Bobo, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; Lincoln Edwards, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA; Ahmed Habib, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA; Chowdari Kodavali, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA; Rebecca Taylor, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; Philip LeDuc, Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Biomedical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Computational Biology, Carnegie Mellon University, Pittsburgh, PA, USA, Department of Electrical and Computer Engineering, Carnegie Mellon University, Pittsburgh, PA, USA; Pascal Zinn, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA, USA
		Speaker: Susana Beltrán (Contributed Talk)

Thematic Area 3. Data Science & Machine Learning

3.2 Approaches for Materials Data Validation and Dataset Standardization		
Session: 2A, Room: MSC-1403		
Session Chair(s): Jon Estrada, jbestrad@umich.edu		
2:15 PM	2:35 PM	**Open Access Benchmark Datasets for Predicting the Mechanical Behavior of Heterogeneous Materials**
		Emma Lejeune, Boston University
		Speaker: Emma Lejeune (Invited Talk)
2:35 PM	2:55 PM	**A Materials Data Framework for Elastomeric Foams: Updates and Additions**
		Alexander Landauer, National Institute of Standards and Technology; Orion Kafka, National Institute of Standards and Technology; Newell Moser, National Institute of Standards and Technology; Ian Foster, Argonne National Laboratory; Ben Blaiszik, Argonne National Laboratory, University of Chicago; Aaron Forster, National Institute of Standards and Technology
		Speaker: Alexander Landauer (Contributed Talk)
2:55 PM	3:15 PM	**A new public database for in-situ x-ray computed tomography of pore deformations in directed energy deposition IN718**
		Orion Kafka, National Institute of Standards and Technology
		Speaker: Orion Kafka (Contributed Talk)
3:15 PM	3:35 PM	**Data Stewardship and Validation Methods for Mechanics of Materials at Sandia**
		Thomas Ivanoff, Sandia National Laboratories; Sharlotte L.B. Kramer, Sandia National Laboratories; Andrew Polonsky,, Sandia National Laboratories; John Emery, Sandia National Laboratories; Craig Hamel, Sandia National Laboratories; Elizabeth Jones, Sandia National Laboratories; Edmundo Corona, Sandia National Laboratories; Amanda Jones, Sandia National Laboratories
		Speaker: Thomas Ivanoff (Invited Talk)
3:35 PM	3:55 PM	**Challenges in producing, curating, and sharing large multimodal, multi-institutional data sets for additive manufacturing**
		Lyle Levine, National Institute of Standards and Technology; Brandon Lane, National Institute of Standards and Technology; Gerard Lemson, Johns Hopkins University; Jai Won Kim, Johns Hopkins University; Gretchen Greene, National Institute of Standards and Technology
		Speaker: Lyle Levine (Invited Talk)
Session: 2B, Room: MSC-1403		
Session Chair(s): Alex Landauer, landauer@nist.gov		
4:10 PM	4:30 PM	**SpatioTemporally Adaptive Quadtree mesh (STAQ) Digital Image Correlation for resolving large deformations around complex geometries and discontinuities**
		Jin Yang, University of Wisconsin-Madison, University of Texas at Austin; Vito Rubino, California Institute of Technology; Zhan Ma, University of Wisconsin-Madison; Jialiang Tao, University of Wisconsin-Madison; Yue Yin, Carnegie Mellon University; Alexander McGhee, University of Wisconsin-Madison; Wenxiao Pan, University of Wisconsin-Madison; Christian Franck, University of Wisconsin-Madison
		Speaker: Jin Yang (Invited Talk)
4:30 PM	4:50 PM	**Benchmarking Magnetic Resonance Cartography for Material Characterization**
		Denislav Nikolov, University of Michigan; Ulrich Scheven, University of Michigan; Jonathan Estrada, University of Michigan

		Speaker: Denislav Nikolov (Contributed Talk)
4:50 PM	5:10 PM	**Data-Driven Approach to Discovery of Physical Mechanisms in Biological Systems**
		Siddhartha Srivastava, University of Michigan, Ann Arbor; Denislav Nikolov, University of Michigan; Kenneth Ho, University of Michigan; Patrick Kinnunen, University of Michigan; Kathy Luker, University of Michigan; Gary Luker, University of Michigan; Jon Estrada, University of Michigan; Krishna Garikipati, University of Michigan
		Speaker: Siddhartha Srivastava (Invited Talk)

3.3 Data-Driven Approaches for Complex Multiphysics Systems, Structures, and Materials		
Session: 1B, Room: MSC-2505		
Session Chair(s): Emma Lejeune, elejeune@bu.edu		
11:40 AM	12:10 PM	**Data-driven topology optimization of spinodoid metamaterials**
		Siddhant Kumar, Delft University of Technology; Li Zheng, ETH Zurich; Dennis Kochmann, ETH Zurich
		Speaker: Siddhant Kumar (Keynote Talk)
12:10 PM	12:40 PM	**Data-Driven Analysis of Dynamics and Heterogeneity in Composite Electrodes of Batteries**
		Kejie Zhao, Purdue University
		Speaker: Kejie Zhao (Keynote Talk)
Session: 2A, Room: MSC-2505		
Session Chair(s): Juner Zhu, ZHUJUNER@mit.edu		
2:15 PM	2:45 PM	**Multi-fidelity Gaussian process model of pediatric tissue expansion**
		Adrian Buganza Tepole, Purdue University; Tianhong Han, Purdue University; Kaleem Ahmed, Northwestern University; Taeksang Lee, Myongji University
		Speaker: Adrian Buganza Tepole (Keynote Talk)
2:45 PM	3:05 PM	**Tailoring structural stochasticity in the computational design of microstructural materials**
		Leidong Xu, University of Connecticut; Hongyi Xu, University of Connecticut
		Speaker: Leidong Xu (Invited Talk)
3:05 PM	3:25 PM	**Harnessing interpretable machine learning for origami inverse design**
		Yi Zhu, University of Michigan; Evgueni Filipov, University of Michigan
		Speaker: Yi Zhu (Invited Talk)
3:25 PM	3:45 PM	**Learning Objective Functions from Data to Improve Running Performance**
		Sarah Fay, Massachusetts Institute of Technology
		Speaker: Sarah Fay (Invited Talk)
Session: 2B, Room: MSC-2505		
Session Chair(s): Khalid Jawed, khalidjm@seas.ucla.edu		
4:10 PM	4:30 PM	**Predicting full field quantities of interest in heterogeneous materials**
		Emma Lejeune, Boston University
		Speaker: Emma Lejeune (Invited Talk)

4:30 PM	4:50 PM	**Variational Method-Based Operator Neural Network for Dynamic Systems Governed by Gradient Flows**
		Wei Li, Massachusetts Institute of Technology; Avtar Singh, Massachusetts Institute of Technology; Juner Zhu, Massachusetts Institute of Technology
		Speaker: Juner Zhu (Invited Talk)
4:50 PM	5:10 PM	**End-to-end ProteinPerceiver to predict secondary protein structures and application to structural proteins**
		Bo Ni, Massachusetts Institute of Technology, Brown University; Markus Buehler, Massachusetts Institute of Technology
		Speaker: Bo Ni (Invited Talk)

3.4 Data-driven and Machine-learning based Mechanics of Materials		
Session: 1A, Room: MSC-1400		
Session Chair(s): Ghatu Subhash, subhash@ufl.edu		
9:45 AM	10:15 AM	**Data-driven and Topological Design of Structural Metamaterials for Fracture Resistance**
		Wei Chen, Northwestern University; Daicong Da, Northwestern University
		Speaker: Wei Chen (Keynote Talk)
10:15 AM	10:45 AM	**Data Driven Exploration of Bonding-Ductility Relationships in Ceramics**
		Krishna Rajan, Dept. of Materials Design and Innovation- University at Buffalo
		Speaker: Krishna Rajan (Keynote Talk)
10:45 AM	11:05 AM	**A New AI/ML Framework for Materials Development**
		Surya Kalidindi, Georgia Institute of Technology
		Speaker: Surya Kalidindi (Invited Talk)
11:05 AM	11:25 AM	**Cooperative data-driven modeling**
		Miguel Bessa, Brown University
		Speaker: Miguel Bessa (Invited Talk)
Session: 1B, Room: MSC-1400		
Session Chair(s): Ghatu Subhash, subhash@ufl.edu		
11:40 AM	12:00 PM	**Distance-preserving Manifold Denoising for Data-driven Mechanics**
		WaiChing Sun, Columbia University; Bahador Bahmani, Columbia University
		Speaker: WaiChing Sun (Invited Talk)
12:00 PM	12:20 PM	**Modeling Composites at Multiple Scale by Predicting the Stress in the Microstructure Using a Fast Deep Learning Model**
		Ashwini Gupta, Johns Hopkins University; Anindya Bhaduri, Johns Hopkins University; Lori Graham-Brady, Johns Hopkins University
		Speaker: Lori Graham-Brady (Invited Talk)
12:20 PM	12:40 PM	**Decoding Microstructure Statistics From Diffractograms Via Atomistic Simulations And Machine Learning**
		Remi Dingreville, Sandia National Laboratories
		Speaker: Remi Dingreville (Invited Talk)
Session: 2A, Room: MSC-1400		
Session Chair(s): Shailendra Joshi, spjoshi3@Central.uh.edu		

2:15 PM	2:45 PM	**Multi-scale modeling and neural operators**
		Kaushik Bhattacharya, California Institute of Technology
		Speaker: Kaushik Bhattacharya (Keynote Talk)
2:45 PM	3:15 PM	**Integrated Simulation, Machine learning, and Experimental Approaches in Small-Scale Mechanical Characterization of Materials**
		Xing Liu, Brown University
		Speaker: Xing Liu (Keynote Talk)
3:15 PM	3:35 PM	**High-throughput impact experiments for modeling spall failure in metals**
		KT Ramesh, Johns Hopkins University; Christopher DiMarco, Johns Hopkins University
		Speaker: K.T. Ramesh (Invited Talk)
3:35 PM	3:55 PM	**Smart Constitutive Laws for Microstructural Damage**
		Julian Rimoli, Georgia Institute of Technology; Hernan Logarzo, Georgia Institute of Technology
		Speaker: Julian Rimoli (Invited Talk)

Thematic Area 4. Fluid & Granular

4.4 Mechanics of Granular Media: Experiments, Theory, and Modeling		
Session: 1A, Room: Hotel-Shield		
Session Chair(s): Ken Kamrin, kkamrin@mit.edu		
9:45 AM	10:15 AM	**Linking Granular Micromechanics to Macroscopic Plasticity in Triaxial Tests and Other Geometries**
		Ryan Hurley, Johns Hopkins University; Ghassan Shahin, Johns Hopkins University; Surya Kolluri, Johns Hopkins University
		Speaker: Ryan Hurley (Keynote Talk)
10:15 AM	10:35 AM	**High-strength engineered granular crystals**
		Francois Barthelat, University of Colorado Boulder; Ashta Navdeep Karuriya, Ashta Navdeep Karuriya
		Speaker: Ashta Navdeep Karuriya (Contributed Talk)
10:35 AM	10:55 AM	**Validation of Borehole Shear Test Simulations for Cohesive Soils under Monotonic Loading Using Mohr-Coulomb and Hypoplasticity Models**
		Shen Wang, Lehigh University; Mu'ath Abu Qamar, Lehigh University; Muhannad Suleiman, Lehigh University; Natasha Vermaak, Lehigh University
		Speaker: Shen Wang (Contributed Talk)
Session: 1B, Room: Hotel-Shield		
Session Chair(s): David Henann, david_henann@brown.edu		
11:40 AM	12:00 PM	**A predictive continuum model for coupled size segregation and flow in dense granular materials**
		Harkirat Singh, Brown University
		Speaker: Harkirat Singh (Contributed Talk)
12:00 PM	12:20 PM	**Linking Microscopic Force-Chains to Macroscale Mechanical Response in Granular Media**
		Adyota Gupta, Johns Hopkins University
		Speaker: Adyota Gupta (Contributed Talk)
12:20 PM	12:40 PM	**Mechanical Properties of Granular Metamaterials**
		Zhang Liheng, Yale University; Dong Wang, Yale University; Mark Shattuck, Yale University; Corey O'Hern, Yale University
		Speaker: Liheng Zhang (Contributed Talk)
Session: 2A, Room: Hotel-Shield		
Session Chair(s): David Henann, david_henann@brown.edu		
2:15 PM	2:35 PM	**Systematic Variation of Friction of Rods**
		Bashir Khoda, University of Maine; Md Khalil, University of Maine; Dezhong Tong, University of California, Los Angeles; Guanjin Wang, University of California, Los Angeles; Mohammad Jawed, University of California, Los Angeles
		Speaker: Dezhong Tong (Contributed Talk)
2:35 PM	2:55 PM	**An Experimental Study of Rock Cutting Process with Scratch Tests**
		Jia-Liang Le, University of Minnesota; He Zhang, University of Minnesota; Emmanuel Detournay, University of Minnesota
		Speaker: Jia-Liang Le (Contributed Talk)

2:55 PM	3:15 PM	**Thin Power-Law Fluid Bridges Squeezed By Two Rigid Surfaces**
		Gregory Rodin, University of Texas at Austin
		Speaker: Gregory Rodin (Contributed Talk)
3:15 PM	3:35 PM	**Effect of vibration intensity on the self-assembly of granular spheres**
		Sara AlMahri, Department of Engineering, Cambridge University, Cambridge CB2 1PZ, UK, Advanced Materials Research Centre, Technology Innovation Institute, Masdar City, P.O. Box 9639, Abu Dhabi, UAE; Ivan Grega, Department of Engineering, Cambridge University, Cambridge CB2 1PZ, UK; Angkur Shaikeea, Department of Engineering, Cambridge University, Cambridge CB2 1PZ, UK; Vikram Deshpande, Department of Engineering, Cambridge University, Cambridge CB2 1PZ, UK
		Speaker: Sara AlMahri (Contributed Talk)
3:35 PM	3:55 PM	**Avalanches in 2D granular media**
		Florent Pollet, Harvard University; Adel Djellouli, Harvard University; Gabriele Albertini, Harvard University; Ilya Svetlizky, Harvard University; Arthur Young, Harvard University; Chris Rycroft, Harvard University; Shmuel Rubistein, The Hebrew University of Jerusalem; Katia Bertoldi, Harvard University
		Speaker: Florent Pollet (Contributed Talk)

Thematic Area 5. Manufacturing & Infrastructure

5.1 3D Printing of Multifunctional Structures		
Session: 1A, Room: MSC-2503		
Session Chair(s): Taylor Ware, taylor.ware@tamu.edu		
9:45 AM	10:15 AM	**Soft medical robots: 3D printing, mechanics, and clinical applications**
		Xuanhe Zhao, MIT
		Speaker: Xuanhe Zhao (Keynote Talk)
10:15 AM	10:35 AM	**Multimaterial 3D/4D Printing for Functional Composites**
		H. Jerry Qi, Georgia Institute of Technology
		Speaker: H. Jerry Qi (Invited Talk)
10:35 AM	10:55 AM	**Automated Design and Fabrication of Multimaterial Soft Robots**
		Robert MacCurdy, University of Colorado Boulder; Lawrence Smith, Univeristy of Colorado Boulder
		Speaker: Robert MacCurdy (Invited Talk)
10:55 AM	11:15 AM	**Responsive Feedstocks for Next Generation AM**
		Caitlyn Krikorian (Cook), Lawrence Livermore National Laboratory
		Speaker: Caitlyn Krikorian (Cook) (Contributed Talk)
Session: 1B, Room: MSC-2503		
Session Chair(s): Jeeeun Kim, jeeeun.kim@tamu.edu		
11:40 AM	12:00 PM	**Towards Optimisation of Fatigue Performance of 3D-printed Titanium Structures for Biomedical Applications**
		Jieming Zhang, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Yuanbo Tang, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Huifang Liu, Dept of Engineering Science, University of Oxford, Parks Road, Oxford, OX1 3PJ, UK; Satoshi Utada, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Nicole Kuek, Alloyed (OxMet Technologies), Unit 15, Yarnton, Kidlington, OX5 1QU, UK; Andrew Lui, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Patrick Grant, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK; Alan Cocks, Dept of Engineering Science, University of Oxford, Parks Road, Oxford, OX1 3PJ, UK; Enrique Alabort, Alloyed (OxMet Technologies), Unit 15, Yarnton, Kidlington, OX5 1QU, UK; Roger Reed, Dept of Materials, University of Oxford, Parks Road, Oxford, OX1 3PH, UK, Dept of Engineering Science, University of Oxford, Parks Road, Oxford, OX1 3PJ, UK
		Speaker: Jieming Zhang (Contributed Talk)
12:00 PM	12:20 PM	**Liquid Crystal Elastomer Based Dynamic Device for Urethral Support: Potential Treatment for Stress Urinary Incontinence**
		Seelay Tasmim, Department of Biomedical Engineering, Texas A&M University, College Station, TX, 77843, USA; Zuha Yousuf, Departments of Bioengineering and Biomedical Science, University of Houston, Houston, TX, 77004, USA; Farial Rahman, Departments of Bioengineering and Biomedical Science, University of Houston, Houston, TX, 77004, USA; Emily Seelig, Department of Biomedical Engineering, Texas A&M University, College Station, TX, 77843, USA; Mario Romero-Ortega, Departments of Bioengineering and Biomedical Science, University of Houston, Houston, TX, 77004, USA; Philippe Zimmern, Department of Urology, The University of Texas Southwestern, Dallas, TX, 75390, USA; Taylor Ware, Department of Biomedical Engineering, Texas A&M University, College Station, TX, 77843, USA

		Speaker: Seelay Tasmim (Contributed Talk)
Session: 2A, Room: MSC-2503		
Session Chair(s): Lining Yao, liningy@andrew.cmu.edu		
2:15 PM	2:35 PM	**Effective properties of metal struts and thin walls fabricated via additive manufacturing**
		Matthew Begley, University of California, Santa Barbara; Sara Messina, University of California, Santa Barbara
		Speaker: Matthew Begley (Contributed Talk)
2:35 PM	2:55 PM	**Self-assembly and phase transformation of 3D printed colloidal polyhedra**
		Wendy Gu, Stanford University; David Doan, Stanford University; John Kulikowski, Stanford University
		Speaker: Wendy Gu (Contributed Talk)
2:55 PM	3:15 PM	**Field-Assisted Assembly of Patterned Storage Materials**
		Keith Johnson, University of California Santa Barbara; Emilee Armstrong, University of Washington; Daniel Gianola, University of California Santa Barbara; Corie Cobb, University of Washington; Matthew Begley, University of California Santa Barbara
		Speaker: Keith Johnson (Contributed Talk)

5.2 Advanced Manufacturing: Materials, Mechanics, Processing and Data		
Session: 2A, Room: MSC-2502		
Session Chair(s): Marwan Khraisheh, marwan.khraisheh@qatar.tamu.edu		
2:15 PM	2:45 PM	**Advanced Materials, Systems and Data Analytics in the Manufacturing Research at Oak Ridge National Laboratory**
		Ryan Dehoff, Oak Ridge National Laboratory; Lonnie Love, Oak Ridge National Laboratory; Craig Blue, Oak Ridge National Laboratory; Moe Khaleel, Oak Ridge National Lab
		Speaker: Moe Khaleel (Keynote Talk)
2:45 PM	3:05 PM	**Strength and Toughness of Lattice Metamaterials**
		Enze Chen, Johns Hopkins University; Shengzhi Luan, Johns Hopkins University; Stavros Gaitanaros, Johns Hopkins University
		Speaker: Stavros Gaitanaros (Invited Talk)
3:05 PM	3:25 PM	**Deterministic Material Control of the Shape Memory Performance of Polymers via Fused Filament Fabrication**
		ANDREAS LIANOS, Texas A&M University; Dimitris Lagoudas, Texas A&M University; Satish Bukkapatnam, Texas A&M
		Speaker: Andreas Lianos (Contributed Talk)
3:25 PM	3:45 PM	**A unified failure criterion for topology optimization with local stress constraints**
		Oliver Giraldo-Londoño, University of Missouri
		Speaker: Oliver Giraldo-Londoño (Invited Talk)

5.3 Mechanics and Materials for Infrastructure and Construction		
Session: 2A, Room: MSC-2504		
Session Chair(s): Cesario Tavares, cesariotavares@tamu.edu; Eyad Masad, eyad.masad@qatar.tamu.edu		
2:15 PM	2:35 PM	**Semicircular Bending Fracture Test for Cementitious Materials**
		Xijun Shi, Texas State University

		Speaker: Xijun Shi (Invited Talk)
2:35 PM	2:55 PM	**Mechanistic Modeling of Conventional and Asphaltic Rail Tracks to Enhance Safety, Operational Speed, and Performance of Indonesian Railway Systems**
		Dian Setiawan, Texas A&M University; Yong-Rak Kim, Texas A&M University; Mohammad Rahmani, Texas A&M University
		Speaker: Dian Setiawan (Invited Talk)
2:55 PM	3:15 PM	**Statistical Evaluation of IDEAL-CT Test for Asphalt Concrete Using Discrete Element Method**
		Maria El Asmar, California State University Long Beach; Shadi Saadeh, California State University Long Baech; Enad Mahmoud, Division Deputy Director at Texas Department of Transportation
		Speaker: Shadi Saadeh (Invited Talk)
3:15 PM	3:35 PM	**Combining Machine Learning and Computational Analysis for Predicting Nanostructure Responses of Asphalt Binders**
		Mohammad Aljarrah, Texas A&M University; Ayman Karaki, Texas A&M University at Qatar; Eyad Masad, Texas A&M University at Qatar
		Speaker: Eyad Masad (Invited Talk)
Session: 2B, Room: MSC-2504		
Session Chair(s): Cesario Tavares, cesariotavares@tamu.edu; Eyad Masad, eyad.masad@qatar.tamu.edu		
4:10 PM	4:30 PM	**Prediction of Permanent Deformation of Granular Layers in Asphalt Pavements using PANDA-AP (Pavement Analysis using Nonlinear Damage Approach-Airfield Pavements)**
		Ghaith Khresat, The University of Kansas; Masoud Darabi, The University of Kansas
		Speaker: Ghaith Khresat (Invited Talk)
4:30 PM	4:50 PM	**Damage and Healing Model of Asphaltic Materials and Its Corroboration Using X-ray Computed Tomography Imaging**
		Joelle Katbeh, Texas A&M University
		Speaker: Joelle Katbeh (Invited Talk)
4:50 PM	5:10 PM	**A unified top-down/bottom-up fatigue cracking structural model based on continuum damage mechanics**
		Seyed Farhad Abdollahi, Michigan State University; M. Emin Kutay, Michigan State University
		Speaker: Seyed Farhad Abdollahi (Invited Talk)

5.5 Multiscale Models and Experiments for In-Space Manufacturing		
Session: 1B, Room: MSC-2504		
Session Chair(s): Kasra Momeni, kmomeni@ua.edu		
11:40 AM	12:00 PM	**Laser Shaping: An Approach to Tune the Microstructure of Laser Powder Bed Additive Manufacturing Technique**
		Hamed Attariani, Department of Mechanical and Materials Engineering, Wright State University, Dayton, OH
		Speaker: Hamed Attariani (Invited Talk)
12:00 PM	12:20 PM	**Mechanical performance of aluminum aerospace alloys modified for application to in-space manufacturing processes**
		Jonathan Raush, University of Louisiana at Lafayette; Kasra Momeni, The University of Alabama; Gabriela Petculescu, University of Louisiana at Lafayette; Shengmin Guo, Louisiana State University
		Speaker: Jonathan Raush (Invited Talk)
12:20 PM	12:40 PM	**Simulation of solid-state sintering for Aluminum alloy AL7075: a phase-field analysis**

		Nurruzaman Sakib, The University of Alabama; Jonathan Raush, University of Louisiana; Shengmin Guo, Louisiana State University; Kasra Momeni, The University of Alabama
		Speaker: Kasra Momeni (Invited Talk)

Thematic Area 6. Multifunctional & Multifield

6.1 Adaptive Structures		
Session: 1A, Room: MSC-2500		
Session Chair(s): Jonathan Weaver-Rosen, jwrosen@tamu.edu		
9:45 AM	10:15 AM	**Design, Build, and Test of Adaptive Structure for Low Boom Supersonic**
		James Mabe, Texas A&M University; Ryan Ward, Texas A&M; David Nguyen, Texas A&M; Matt Kehn, Texas A&M; Benjamin McAdams, Texas A&M; Darragh Padraig, Texas A&M; Ryan Lotz, Texas A&M; Steven Qiang, Texas A&M
		Speaker: James Mabe (Keynote Talk)
10:15 AM	10:35 AM	**Design and Optimization of the Conformal Surface for a Supersonic Morphing Aircraft**
		Alejandro Martinez, Texas A&M College Station Department of Aerospace Engineering; Darren Hartl, Texas A&M College Station Department of Aerospace Engineering; Dimitris Lagoudas, Texas A&M College Station Department of Aerospace Engineering
		Speaker: Alejandro Martinez (Contributed Talk)
10:35 AM	10:55 AM	**A Systems Integration Framework for Sonic Boom Prediction and Minimization Using Adaptive Structures**
		Troy Abraham, Utah State University; Nolan Dixon, Utah State University; Douglas Hunsaker, Utah State University; James Mabe, Texas A&M University
		Speaker: Troy Abraham (Contributed Talk)
10:55 AM	11:15 AM	**Phase and Strain Analysis using Synchrotron Radiation X-Ray Diffraction on Ni-rich High Temperature Shape Memory Alloys after Partial Thermal Cycled Fatigue Testing**
		Faith Gantz, University of North Texas; Alexander Demblon, Texas A&M University; Ibrahim Karaman, Texas A&M University; Marcus Young, University of North Texas
		Speaker: Faith Gantz (Contributed Talk)
Session: 2A, Room: MSC-2500		
Session Chair(s): Jonathan Weaver-Rosen, jwrosen@tamu.edu		
2:15 PM	2:35 PM	**A Set-Based Design Approach for Advanced Aircraft Utilizing Adaptive Structures**
		Darren Hartl, Texas A&M University; Richard Malak, Texas A&M University; James Mabe, Texas A&M University
		Speaker: James Mabe (Contributed Talk)
2:35 PM	2:55 PM	**Mission-Driven Adaptive Aerostructural Rotorcraft Design and Optimization**
		Allen Davis, Texas A&M University; Darren Hartl, Texas A&M University
		Speaker: Allen Davis (Contributed Talk)
2:55 PM	3:15 PM	**Parametric Optimization for Control Design of Adaptive Aeroelastic Structures**
		Ying-Kuan Tsai, Texas A&M University; Richard Malak Jr., Texas A&M University
		Speaker: Ying-Kuan Tsai (Contributed Talk)
3:15 PM	3:35 PM	**The MO-EPO Algorithm for Adaptive Structure Design**
		Jonathan Weaver-Rosen, Texas A&M University
		Speaker: Jonathan Weaver-Rosen (Contributed Talk)

Session: 2B, Room: MSC-2500		
Session Chair(s): Jonathan Weaver-Rosen, jwrosen@tamu.edu		
4:10 PM	4:30 PM	**Continuous Equilibrium Structures that Counteract Gravity in any Orientation**
		Maria Redoutey, University of Michigan; Evgueni Filipov, University of Michigan
		Speaker: Maria Redoutey (Contributed Talk)
4:30 PM	4:50 PM	**Connecting the Branches of Positively Curved Multistable Non-Euclidian Origami Using Crease Stretching**
		Clark Addis, Programmable Structures Lab, School of Mechanical Engineering, Purdue University; Andres Arrieta, Programmable Structures Lab, School of Mechanical Engineering, Purdue University; Salvador Rojas, Programmable Structures Lab, School of Mechanical Engineering, Purdue University
		Speaker: Clark Addis (Contributed Talk)
4:50 PM	5:10 PM	**Adaptive hierarchical origami-based structures**
		Yanbin Li, Mr.; Jie Yin, Dr.
		Speaker: Yanbin Li (Contributed Talk)

6.4 Effective Properties of Multifunctional Composite Materials		
Session: 2B, Room: Hotel-Ross II		
Session Chair(s): George Chatzigeorgiou, georges.chatzigeorgiou@ensam.eu; Gary Seidel, gary.seidel@vt.edu		
4:10 PM	4:30 PM	**Effective Property Prediction of Multifunctional CNT-Polymer Nanocomposites via Reduced-order Two-point Cluster and Blocking Functions**
		Kavan Shah, Virginia Polytechnic Institute and State University; Gary Seidel, Virginia Polytechnic Institute and State University
		Speaker: Kavan Shah (Contributed Talk)
4:30 PM	4:50 PM	**Strength and Damage Sensing in Lunar Regolith-Polymer-CNT Composites**
		Joseph Cunningham, Virginia Polytechnic Institute and State University; Gary Seidel, Virginia Polytechnic Institute and State University
		Speaker: Joseph Cunningham (Contributed Talk)
4:50 PM	5:10 PM	**Effective Impedance Condition for Thin Metasurfaces**
		Zachary Jermain, Lousiana State University; Robert Lipton, Mathematics Department Lousiana State University
		Speaker: Zachary Jermain (Contributed Talk)

6.8 Mechanics of Electrochemical Systems		
Session: 1A, Room: Hotel-Reveille I		
Session Chair(s): Claudio di Leo, cvdileo@gatech.edu		
9:45 AM	10:15 AM	**The impact of Interface layer on Li Plating and Stripping morphology**
		Yue Qi, Brown University
		Speaker: Yue Qi (Keynote Talk)
10:15 AM	10:35 AM	**Investigating Next Generation Electrode Material for Ca ion Battery**
		JOY DATTA, GRADUATE STUDENT; Dibakar Datta, Assistant Professor

		Speaker: Joy Datta (Contributed Talk)
10:35 AM	11:05 AM	**Coupling of Electrochemistry and Mechanics across Length Scales: Some Lessons Learned from V2O5, a Canonical Intercalation Cathode**
		Sarbajit Banerjee, Texas A&M University
		Speaker: Sarbajit Banerjee (Keynote Talk)
11:05 AM	11:25 AM	**Large deformation response of lithium-ion pouch cells during indentation: experiments and modeling**
		Thomas Tancogne-Dejean, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH); Dirk Mohr, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH); Paul Meyer, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH) Zurich
		Speaker: Paul Meyer (Contributed Talk)
Session: 1B, Room: Hotel-Reveille I		
Session Chair(s): Shuman Xia, sxia30@mail.gatech.edu		
11:40 AM	12:00 PM	**A Continuum Theory for Mixed Ionic Electronic Conductors**
		Xiaokang Wang, Purdue University; Kejie Zhao, Purdue University
		Speaker: Xiaokang Wang (Contributed Talk)
12:00 PM	12:20 PM	**A Thermodynamically Consistent, Phase-Field Electro-Chemo-Mechanical Theory with Account for Damage in Solids: Application to Metal Filament Growth in Solid-State Batteries**
		Donald Bistri, Georgia Institute of Technology; Claudio Di Leo, Georgia Institute of Technology
		Speaker: Donald Bistri (Contributed Talk)
12:20 PM	12:40 PM	**Deflection and Arrest of Metal Dendrites In Solid State electrolytes**
		Cole Fincher, Massachusetts Institute of Technology; Christos Athanasiou, Brown University; Brian Sheldon, Brown University; Craig Carter, Massachusetts Institute of Technology; Yet-Ming Chiang, Massachusetts Institute of Technology
		Speaker: Cole Fincher (Contributed Talk)
Session: 2A, Room: Hotel-Reveille I		
Session Chair(s): Kejie Zhao, kjzhao@purdue.edu		
2:15 PM	2:35 PM	**A computational framework of electrochemistry and mechanical degradation in NMC cathodes**
		Jiaxiu han, Purdue University; Kejie Zhao, Purdue University
		Speaker: Jiaxiu Han (Contributed Talk)
2:35 PM	2:55 PM	**Crystallographic engineering of intercalation electrodes**
		Ananya Renuka Balakrishna, University of Southern California
		Speaker: Ananya Renuka Balakrishna (Contributed Talk)
2:55 PM	3:15 PM	**Micromechanics Modeling of Electrochemo-mechanical Coupling in Reduced Graphene Oxide Supercapacitor Electrodes**
		Tianyang Zhou, Texas A&M University; Dimitrios Loufakis, Texas A&M University; James Boyd, Texas A&M University; Jodie Lutkenhaus, Texas A&M University; Dimitris Lagoudas, Texas A&M University
		Speaker: Tianyang Zhou (Contributed Talk)
3:15 PM	3:35 PM	**Stretchable Batteries, Science and Applications**
		Haleh Ardebili, University of Houston

		Speaker: Haleh Ardebili (Contributed Talk)
3:35 PM	3:55 PM	**In Situ Experiments and a Coupled Electrochemical-Large Deformation Model for Characterizing Cyclic Behavior of Battery Electrodes**
		Akshay Pakhare, Michigan State University; Shawn Chester, New Jersey Institute of Technology; Siva Nadimpalli, Michigan State University
		Speaker: Akshay Pakhare (Contributed Talk)
Session: 2B, Room: Hotel-Reveille I		
Session Chair(s): Claudio di Leo, cvdileo@gatech.edu		
4:10 PM	4:30 PM	**Inelastic deformation mechanisms in ceramic and glass electrolytes**
		Christos Athanasiou, Brown University; Xing Liu, Brown University; John Lewis, Georgia Tech; Matthew McDowell, Georgia Tech; Huajian Gao, Nanyang Technological University; Brian Sheldon, Brown University
		Speaker: Christos Athanasiou (Contributed Talk)
4:30 PM	4:50 PM	**In-situ Electrochemo-mechanical Coupling of Reduced Graphene Oxide Supercapacitor Electrodes**
		Dimitrios Loufakis, Texas A&M University; Tianyang Zhou, Texas A&M University; James Boyd, Texas A&M University; Jodie Lutkenhaus, Texas A&M University; Dimitris Lagoudas, Texas A&M University
		Speaker: Tianyang Zhou (Contributed Talk)
4:50 PM	5:10 PM	**Anisotropic elasticity properties of single-crystal NMC cathode materials for lithium-ion batteries**
		Nikhil Sharma, Purdue University; Kejie Zhao, Purdue University
		Speaker: Nikhil Sharma (Contributed Talk)

6.9 Mesoscale Mechanics of Multifunctional Materials		
Session: 1A, Room: Hotel-Leadership		
Session Chair(s): Manish Vasoya, mlvasoya@tamu.edu; Theocharis Baxevanis, tbaxevan@Central.UH.EDU		
9:45 AM	10:05 AM	**Phase-Field Nano- and Scale-Free Approaches to Interaction between Phase Transformations and Plasticity**
		Valery Levitas, Iowa State University, Departments of Aerospace Engineering and Mechanical Engineering, Ames, IA, USA
		Speaker: Valery Levitas (Invited Talk)
10:05 AM	10:25 AM	**Multiscale Modeling of Carbon Fiber Reinforced Composites with a Local Interface Model**
		Neslihan Genckal, Ph.D. Candidate, Kevin T. Crofton Department of Aerospace and Ocean Engineering, Virginia Tech; Gary Seidel, Kevin T. Crofton Department of Aerospace and Ocean Engineering, Virginia Tech, Associate Professor
		Speaker: Neslihan Genckal (Contributed Talk)
10:25 AM	10:45 AM	**Analysis of Defect Formation in Multi-Layer Graphene using an Atomistic Multi-Lattice Kinetic Monte Carlo (KMC) Model**
		Sharon Edward, University of Illinois at Urbana Champaign; Harley Johnson, University of Illinois at Urbana Champaign
		Speaker: Sharon Edward (Contributed Talk)
10:45 AM	11:15 AM	**Unexepcted mechanical and functional behavior in shape memory alloys beyond shape memory and superelsticity**
		Ibrahim Karaman, Texas A&M University, Department Head, Materials Science & Engineering, Chevron Professor
		Speaker: Ibrahim Karaman (Keynote Talk)

Session: 1B, Room: Hotel-Leadership		
Session Chair(s): Georgios Chatzigeorgiou, georges.chatzigeorgiou@ensam.eu		
11:40 AM	12:00 PM	**Design of soft magnetic materials**
		Ananya Renuka Balakrishna, University of Southern California
		Speaker: Ananya Renuka Balakrishna (Contributed Talk)
12:00 PM	12:20 PM	**Thermomechanical Behavior of Shape Memory Alloy Tension Springs**
		John Shaw, University of Michigan; Ryan Foster, University of Michigan
		Speaker: John Shaw (Invited Talk)
12:20 PM	12:40 PM	**To Enable Promising 4D Printing of Time-temperature Sensitive Intelligent Polymeric Materials**
		Ijaz Akbar, Arts et Metiers Institute of Technology, MSMP, HESAM Université; Mourad EL HADROUZ, Arts et Metiers Institute of Technology, MSMP, HESAM Université; Mohamed El Mansori, Arts et Metiers Institute of Technology, MSMP, HESAM Université, Texas A&M Engineering Experiment Station; Dimitris Lagoudas, Department of Aerospace Engineering, Texas A&M University
		Speaker: Mohamed El Mansori (Contributed Talk)
Session: 2A, Room: MSC-1401		
Session Chair(s): Kiefer Björn, Bjoern.Kiefer@imfd.tu-freiberg.de; Gary Seidel, gdseidel@vt.edu		
2:15 PM	2:35 PM	**Towards Understanding the Evolution of the Martensitic Transformation in Shape Memory Alloys: a Novel High-Energy Synchrotron Study**
		Asaf Dana, Technion - Israel Institute of Technology, Israel; Emil Bronstein, Technion - Israel Institute of Technology, Israel; Eilon Faran, Technion - Israel Institute of Technology, Israel; Veijo Honkimaki, European Synchrotron Radiation Facility (ESRF), Grenoble, France; Klaus-Dieter Liss, Guangdong-Technion Israel Institute of Technology, China, Technion - Israel Institute of Technology, Israel; Doron Shilo, Technion - Israel Institute of Technology, Israel
		Speaker: Asaf Dana (Contributed Talk)
2:35 PM	2:55 PM	**Viscoelastic-viscoplastic homogenization of randomly-oriented short glass-fiber reinforced polyamide composites with evolving interphase and matrix damage: theoretical framework and experimental validation**
		Fodil Meraghni, Arts et Métiers Institute of Technology; Qiang Chen, Arts et Métiers Institute of Technology; George Chatzigeorgiou, CNRS, Arts et Metiers Institute of Technology, LEM3, Université de Lorraine,; Gilles Robert, Polytechnyl Sas, Domochemicals
		Speaker: George Chatzigeorgiou (Contributed Talk)
2:55 PM	3:15 PM	**Multifunctional Zirconia-Reinforced Metal-Matrix Composite for Energy Dissipation and High Temperature Applications**
		Marwa Yacouti, Virginia Tech; Maryam Shakiba, Virginia Tech
		Speaker: Marwa Yacouti (Contributed Talk)
3:15 PM	3:35 PM	**Stochastic Aspects and Homogenization in Polycrystalline Ferroelectrics**
		Stephan Lange, University of Kassel; Andreas Ricoeur, University of Kassel
		Speaker: Stephan Lange (Contributed Talk)

6.12 Multiscale Extreme Behavior of Materials: Structure, Mechanisms, and Kinetic Process		
Session: 1A, Room: Hotel-Traditions		
Session Chair(s): Aitor Cruzado; Robert Carson		
9:45 AM	10:15 AM	**Metallurgical Metamaterials: A strategy for manipulating shock waves using metallurgy**
		Jeffrey Lloyd, DEVCOM Army Research Laboratory
		Speaker: Jeffrey Lloyd (Keynote Talk)
10:15 AM	10:45 AM	**Hypervelocity Deformation of Polymers**
		Ned Thomas, Dept. Materials Science and Engineering Texas A&M University
		Speaker: Ned Thomas (Keynote Talk)
10:45 AM	11:05 AM	**Vortical flow and the modulation of jetting processes**
		William Schill, Lawrence Livermore National Laboratory
		Speaker: William Schill (Invited Talk)
11:05 AM	11:25 AM	**In Situ TEM Observations of Dislocation and Twinning Activities of Mg via Nanoindentation**
		Kelvin Xie, Texas A&M University
		Speaker: Kelvin Xie (Invited Talk)
Session: 1B, Room: Hotel-Traditions		
Session Chair(s): Aitor Cruzado; Robert Carson		
11:40 AM	12:00 PM	**Expansion of Heterogeneous Metal Alloys at Dynamic Strain Rates**
		Dingyi Sun, Lawrence Livermore National Laboratory; Michael Callahan, Lawrence Livermore National Laboratory; Marissa Linne, Lawrence Livermore National Laboratory; Amanda Wu, Lawrence Livermore National Laboratory; Hye-Sook Park, Lawrence Livermore National Laboratory
		Speaker: Dingyi Sun (Invited Talk)
12:00 PM	12:20 PM	**Synergistic improvement of mechanical properties through impact-induced nanostructural evolution in silver single crystals**
		Claire Griesbach, University of Wisconsin-Madison; Jizhe Cai, University of Wisconsin-Madison; Ramathasan Thevamaran, University of Wisconsin-Madison
		Speaker: Ramathasan Thevamaran (Invited Talk)
12:20 PM	12:40 PM	**Understanding the Role of Architecture on the Impact Response of Metamaterials**
		Thomas Butruille, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
		Speaker: Thomas Butruille (Invited Talk)
Session: 2A, Room: Hotel-Traditions		
Session Chair(s): Carlos Portela, cportela@mit.edu; William Schill, schill1@llnl.gov		
2:15 PM	2:45 PM	**Real-time imaging and spectroscopy of materials under laser-generated shock loading and microparticle impact**
		Keith Nelson, MIT
		Speaker: Keith Nelson (Keynote Talk)
2:45 PM	3:05 PM	**Tailoring Lightweight Alloys for Extreme Environments**
		Swarnava Ghosh, Oak Ridge National Laboratory

		Speaker: Swarnava Ghosh (Invited Talk)
3:05 PM	3:25 PM	**Spall of Tin and its Sensitivity to Microscale Behaviors – A Computational Study**
		Kazem Alidoost, Lawrence Livermore National Laboratory; Nathan Barton, Lawrence Livermore National Laboratory; Garry Maskaly, Lawrence Livermore National Laboratory; Fady Najjar, Lawrence Livermore National Laboratory
		Speaker: Kazem Alidoost (Invited Talk)
3:25 PM	3:45 PM	**On the competition between plugging and spallation failure under impact**
		Sayyad Qamar, Texas A&M University, Lawrence Livermore National Laboratory; Nathan Barton, Lawrence Livermore National Laboratory; Amine Benzerga, Texas A&M University
		Speaker: Sayyad Qamar (Invited Talk)
Session: 2B, Room: Hotel-Traditions		
Session Chair(s): Carlos Portela, cportela@mit.edu; William Schill, schill1@llnl.gov		
4:10 PM	4:30 PM	**Dynamic recrystallization of FCC metallic particles during high-velocity impacts**
		Mauricio Ponga, The University of British Columbia
		Speaker: Mauricio Ponga (Invited Talk)
4:30 PM	4:50 PM	**FFT based numerical study of elastic wave propagation in polycrystals**
		Javier Segurado, Universidad Politécnica de Madrid, IMDEA-Materials Institute; Ricardo Lebensohn, Los Alamos NL; Rafael Sancho, Universidad Poitécnica de Madrid; Paul Lafourcade, CEA, France; Victor Rey de Pedraza, Universidad Politécnica de Madrid
		Speaker: Javier Segurado (Invited Talk)
4:50 PM	5:10 PM	**Modelling single crystal tantalum across a dynamic range of strain rates with a new crystal plasticity model**
		Robert Carson, Lawrence Livermore National Laboratory; Matthew Nelms, Lawrence Livermore National Labortatory; Nicolas Bertin, Lawrence Livermore National Laboratory; Jonathan Lind, Lawrence Livermore National Laboratory
		Speaker: Robert Carson (Invited Talk)

Thematic Area 7. Robotics & Controls

7.1 Tensegrity Systems: Mechanics, Control and Manufacturing Principles		
Session: 1A, Room: MSC-2504		
Session Chair(s): Puneet Singla, psingla@psu.edu; Manoranjan Majji, mmajji@tamu.edu		
9:45 AM	10:05 AM	**Minimal Mass Tensegrity Prisms**
		David Capps, Texas A&M University; Benjamin Ingalls, Texas A&M University; Manoranjan Majji, Texas A&M University
		Speaker: David Capps (Invited Talk)
10:05 AM	10:25 AM	**Minimal mass plate design: A tensegrity prism approach**
		David Capps, Texas A&M University; Manoranjan Majji, Texas A&M University
		Speaker: David Capps (Contributed Talk)
10:25 AM	10:45 AM	**Mass Efficient Double-Helix Tensegrity**
		Muhao Chen, Department of Aerospace Engineering, Texas A & M University, College Station, Texas 77840; Manoranjan Majji, Department of Aerospace Engineering, Texas A & M University, College Station, Texas 77840; Robert Skelton, Department of Aerospace Engineering, Texas A & M University, College Station, Texas 77840
		Speaker: Muhao Chen (Contributed Talk)
10:45 AM	11:05 AM	**Experimental Design and Control of Tensegrity Systems**
		Nate Osikowicz, Penn State University; Puneet Singla, Penn State University
		Speaker: Nate Osikowicz (Contributed Talk)
11:05 AM	11:25 AM	**Shape Control of Gyroscopic Tensegrity Robots**
		Raman Goyal, Palo Alto Research Center; Manoranjan Majji, Texas A&M University, College Station; Robert Skelton, Texas A&M University, College Station
		Speaker: Manoranjan Majji (Contributed Talk)

7.4 Soft Robotics: Matter, Structure, and Intelligence		
Session: 1A, Room: MSC-2401		
Session Chair(s): Jie Yin, jyin8@ncsu.edu		
9:45 AM	10:05 AM	**Shape Morphing Mechanical Metamaterials for Soft Machines**
		Michael Bartlett, Virginia Tech
		Speaker: Michael Bartlett (Invited Talk)
10:05 AM	10:25 AM	**Enabling complex multi-DoF soft robots with onboard control**
		Tommaso Ranzani, Boston University
		Speaker: Tommaso Ranzani (Invited Talk)
10:25 AM	10:45 AM	**Programming Mechano-Intelligence for Soft Robotics**
		Shu Yang, University of Pennsylvania
		Speaker: Shu Yang (Invited Talk)

10:45 AM	11:05 AM	**Mechano-Intelligence with Origami and its Application to Soft Robotics**
		Suyi Li, Virginia Tech, Clemson University
		Speaker: Suyi Li (Invited Talk)
11:05 AM	11:25 AM	**Twisting for soft intelligent autonomous robot in unstructured environments**
		Jie Yin, North Carolina State University; Yao Zhao, North Carolina State University; Yinding Chi, North Carolina State University; Yaoye Hong, North Carolina State University; Yanbin Li, North Carolina State University; Shu Yang, University of Pennsylvania
		Speaker: Jie Yin (Contributed Talk)
Session: 1B, Room: MSC-2401		
Session Chair(s): Jie Yin, jyin8@ncsu.edu		
11:40 AM	12:00 PM	**Reconfigurable metamaterials for soft robotics**
		Damiano Pasini, McGill University
		Speaker: Damiano Pasini (Invited Talk)
12:00 PM	12:20 PM	**Soft Robots in the Wild – Achieving Untethered Function-ality for Autonomous Operation in Natural Environments**
		Carmel Majidi, Carnegie Mellon University
		Speaker: Carmel Majidi (Invited Talk)
12:20 PM	12:40 PM	**Soft Material Robotics and Next-Generation Surgical Robots**
		Sheila Russo, Boston University
		Speaker: Sheila Russo (Invited Talk)
Session: 2A, Room: MSC-2401		
Session Chair(s): Jie Yin, jyin8@ncsu.edu		
2:15 PM	2:35 PM	**Compliant Manipulation through Dynamically Tunable Dry Adhesion**
		Wanliang Shan, Syracuse University
		Speaker: Wanliang Shan (Invited Talk)
2:35 PM	2:55 PM	**3D Printing Soft, Sensorized Robots as Robotic Materials**
		Ryan Truby, Northwestern University
		Speaker: Ryan Truby (Invited Talk)
2:55 PM	3:15 PM	**Soft and Stochastically Distributed Contact**
		Kaitlyn Becker, MIT
		Speaker: Kaitlyn Becker (Invited Talk)
3:15 PM	3:35 PM	**Robot Adaptation Under Operator Cognitive Fatigue States Using Reinforcement Learning**
		Jay Shah, Texas A&M University; Sarah Hopko, Texas A&M University; Prabhakar Pagilla, Texas A&M University; Ranjana Mehta, Texas A&M University
		Speaker: Jay Shah (Contributed Talk)
3:35 PM	3:55 PM	**Inflatable Fabric Actuators for Soft Wearable and Aerial Robotics**
		Wenlong Zhang, Arizona State University
		Speaker: Wenlong Zhang (Invited Talk)

Session: 2B, Room: MSC-2401		
Session Chair(s): Jie Yin, jyin8@ncsu.edu		
4:10 PM	4:30 PM	**Inflatable origami: multimodal deformation via multistability**
		katia bertoldi, Harvard University; David Melancon, Harvard University; Antonio Forte, Harvard University; Leon Kamp, Harvard University; Benjamin Gorissen, Harvard University
		Speaker: Katia Bertoldi (Invited Talk)
4:30 PM	4:50 PM	**Smart Soft Grippers and Manipulators Capable for Hard Challenges**
		Changyong Cao, Case Western Reserve University
		Speaker: Changyong (Chase) Cao (Invited Talk)

Thematic Area 8. Soft & Flexible

8.1 3D Printing of Polymers and Composites		
Session: 2A, Room: Hotel-Oak		
Session Chair(s): Jessica Wang, yuewang@ucmerced.edu		
2:15 PM	2:45 PM	**Hydrogel bioelectronics: 3D printing, mechanics, and clinical applications**
		Xuanhe Zhao, MIT
		Speaker: Xuanhe Zhao (Keynote Talk)
2:45 PM	3:05 PM	**Dynamic Covalent Chemical Polymer Design for Improved 3D Printing**
		Ronald Smaldone, University of Texas, Dallas
		Speaker: Ronald Smaldone (Invited Talk)
3:05 PM	3:25 PM	**Stimuli-Responsive Multifunctional Molecular Ferroelectrics**
		Shenqiang Ren, University at Buffalo, The State University of New York
		Speaker: Shenqiang Ren (Invited Talk)
3:25 PM	3:45 PM	**Volumetric Additive Manufacturing of Glass and Ceramic Composites and Precursors**
		Johanna Schwartz, Lawrence Livermore National Laboratory; Dominique Porcincula, Lawrence Livermore National Laboratory; Rebecca Walton, Lawrence Livermore National Laboratory; Martin De Beer, Lawrence Livermore National Laboratory
		Speaker: Johanna Schwartz (Invited Talk)
Session: 2B, Room: Hotel-Oak		
Session Chair(s): Jessica Wang, yuewang@ucmerced.edu		
4:10 PM	4:30 PM	**The Journey from UV to Visible to NIR 3D Printing**
		Zachariah Page, The University of Texas at Austin; Lynn Stevens, The University of Texas at Austin; Clotilde Tagnon, The University of Texas at Austin; Kevin Zhou, The University of Texas at Austin
		Speaker: Zachariah Page (Invited Talk)
4:30 PM	4:50 PM	**Additive Manufacturing of Thermosetting Resins via Direct Ink Writing and Radio Frequency Heating and Curing**
		Anubhav Sarmah, Texas A&M University; Suchi Desai, Texas A&M University; Ava Crowley, Texas A&M University; Gabriel Zolton, Texas A&M University; Ethan Harkin, Texas A&M University; Micah Green, Texas A&M University
		Speaker: Anubhav Sarmah (Contributed Talk)
4:50 PM	5:10 PM	**Additive Manufacturing Highly Conductive Dynamic Polymer Nanocomposites with Permanent Shape Reconfiguration**
		Zhen Sang, Texas A&M University; Qing Zhou, Texas A&M University; Kartik Rajagopalan, Texas A&M University; Edwin Thomas, Texas A&M University; Frank Gardea, DEVCOM Army Research Laboratory South; Svetlana Sukhishvili, Texas A&M University
		Speaker: Zhen Sang (Contributed Talk)

8.2 Sustainability in Soft and Polymeric Materials		
Session: 1A, Room: Hotel-Oak		
Session Chair(s): Svetlana Sukhishvili, svetlana@tamu.edu		
9:45 AM	10:05 AM	**Sustainability Development in Polyurethane Materials**
		Weijun Zhou, Dow; Paul Gillis, Dow; Hans Kramer, Dow
		Speaker: Weijun Zhou (Invited Talk)
10:05 AM	10:25 AM	**Structural Diversity for Sustainable, Degradable Polymers Derived from Carbohydrates & an Introduction to RESURGE**
		Karen Wooley, Texas A&M University
		Speaker: Karen Wooley (Invited Talk)
10:25 AM	10:45 AM	**Deconstruction and Upcycling Approaches to Valorize Polymer Plastics Waste**
		Michael Berg, Center for Plastics Innovation, University of Delaware
		Speaker: Michael Berg (Invited Talk)
10:45 AM	11:05 AM	**Harnessing the power of natural products towards the synthesis of high performance materials**
		Samantha Kristufek, Texas Tech University
		Speaker: Samantha Kristufek (Invited Talk)
Session: 1B, Room: Hotel-Oak		
Session Chair(s): Emily Pentzer, emilypentzer@tamu.edu		
11:40 AM	12:00 PM	**3D printed CO2-based triblock copolymers and post-printing modification**
		Peiran Wei, Texas A&M University; Gulzar Bhat, University of Kashmir; Ciera Cipriani, Texas A&M University; Hamza Mohammad, Texas A&M University; Krista Schoonover, Texas A&M University; Emily Pentzer, Texas A&M University; Donald Darensbourg, Texas A&M University
		Speaker: Peiran Wei (Contributed Talk)
12:00 PM	12:20 PM	**Processes of Environmental Plastic Weathering and Biodegradation in Natural Systems**
		Melissa Duhaime, University of Michigan
		Speaker: Melissa Duhaime (Invited Talk)
12:20 PM	12:40 PM	**Technical enablers for polyethylene mono-material packaging designs**
		Nicolas Mazzola, The Dow Chemical Company; Jill Martin, The Dow Chemical Company; Jackie deGroot, The Dow Chemical Company
		Speaker: Nicolas Mazzola (Invited Talk)
Session: 2A, Room: MSC-2402		
Session Chair(s): Piyush R. Thakre, pthakre@dow.com		
2:15 PM	2:45 PM	**Sustainable and Degradable Epoxy Resins Containing Multifunctional Lignin-Based Components**
		Megan Robertson, University of Houston; Minjie Shen, University of Houston; Rosalie Berg, University of Houston; Venkatesh Balan, University of Houston
		Speaker: Megan Robertson (Keynote Talk)
2:45 PM	3:05 PM	**A fast and scalable approach to fabricating sustainable cellulose–graphite foam**
		Teng Li, University of Maryland, College Park

		Speaker: Teng Li (Contributed Talk)
3:05 PM	3:25 PM	**Self-healable, Recyclable and Lego-like Reconfigurable Thermoelectric Generator for Wearable Energy Harvesting**
		Jianliang Xiao, University of Colorado Boulder
		Speaker: Jianliang Xiao (Contributed Talk)

8.5 Functional Soft Materials in Additive Manufacturing: from Design to Application		
Session: 2A, Room: Hotel-Leadership		
Session Chair(s): Peiran Wei, peiran@tamu.edu		
2:15 PM	2:45 PM	**Support Bath-Assisted 3D Printing of Functional Soft Materials**
		Yifei Jin, University of Nevada Reno
		Speaker: Yifei Jin (Keynote Talk)
2:45 PM	3:15 PM	**Additive Manufacturing of Soft Hybrids for Environmentally-responsive Cooling and Warming**
		Yuchen Liu, Texas A&M University; Ruochen Liu, Texas A&M University; SHIREN WANG, Texas A&M University
		Speaker: Ruochen Liu (Keynote Talk)
3:15 PM	3:35 PM	**Multi-objective Shape Optimization and Additive Manufacturing of Porous Polymeric Bone Scaffolds**
		Ali Foroughi, State University of New York at Binghamton; Mir Jalil Razavi, State University of New York at Binghamton
		Speaker: Ali H. Foroughi (Contributed Talk)
3:35 PM	3:55 PM	**Modular Platform for 3D Printing Fluid-containing Monoliths**
		Ciera Cipriani, Department of Materials Science and Engineering, Texas A&M University, 3003 TAMU; College Station, TX 77843 (USA); Nicholas Starvaggi, Department of Chemistry, Texas A&M University, 3255 TAMU; College Station, TX 77843 (USA); Katelynn Edgehouse, Department of Chemistry, Texas A&M University, 3255 TAMU; College Station, TX 77843 (USA); Jordan Price, Department of Materials Science and Engineering, Texas A&M University, 3003 TAMU; College Station, TX 77843 (USA); Stephanie Vivod, NASA Glenn Research Center, 21000 Brookpark Road; Cleveland, OH 44135 (USA); Emily Pentzer, Department of Materials Science and Engineering, Texas A&M University, 3003 TAMU; College Station, TX 77843 (USA), Department of Chemistry, Texas A&M University, 3255 TAMU; College Station, TX 77843 (USA)
		Speaker: Ciera Cipriani (Contributed Talk)
Session: 2B, Room: Hotel-Leadership		
Session Chair(s): Peiran Wei, peiran@tamu.edu		
4:10 PM	4:30 PM	**4D Printing of Functional Polymer Materials Derived from Natural Products**
		Yunchong Yang, Department of Materials Science & Engineering; Department of Chemistry; Yidan Shen, Department of Materials Science & Engineering; Department of Chemistry; Ashlee Jahnke, Department of Chemistry; David Tran, Department of Chemistry; Hongming Guo, Department of Materials Science & Engineering & Department of Chemistry; Karen Wooley, Department of Chemistry; Department of Chemical Engineering; Department of Materials Science & Engineering
		Speaker: Yunchong Yang (Contributed Talk)
4:30 PM	4:50 PM	**Additive manufacturing of functional emulsions**
		Eric Markvicka, University of Nebraska-Lincoln; Aaron Haake, University of Nebraska-Lincoln; Ravi Tutika, Virginia Tech; Gwyn Schloer, Virginia Tech; Michael Bartlett, Virginia Tech

		Speaker: Eric Markvicka (Contributed Talk)

8.6 Mechanics and Physics of Soft Materials		
Session: 1A, Room: Hotel-Hullabaloo		
Session Chair(s): Yuhang Hu, yuhang.hu@me.gatech.edu; Xuanhe Zhao, zhaox@mit.edu		
9:45 AM	10:15 AM	**Peculiar behavior of polydomain liquid crystal elastomers**
		Kaushik Bhattacharya, California Institute of Technology
		Speaker: Kaushik Bhattacharya (Keynote Talk)
10:15 AM	10:45 AM	**Metamaterials with Reprogrammable Frustration**
		Glaucio Paulino, Princeton University, Princeton, New Jersey, 08544, USA; Ke Liu, Peking University, Beijing 100871, China; Phanisri Pratapa, Indian Institute of Technology Madras, Chennai 600036, TN, India; Diego Misseroni, University of Trento, Trento 38123, Italy; Tomohiro Tachi, University of Tokyo, Tokyo 153-8902, Japan
		Speaker: Glaucio Paulino (Keynote Talk)
10:45 AM	11:05 AM	**Harnessing instabilities of shells to program the response of fluids**
		Adel Djellouli, Harvard University; Bert Van Raemdonck, University of Leuven; Yi Yang, Harvard University; Benjamin Gorissen, University of Leuven; Shmuel Rubistein, The Hebrew University of Jerusalem; Katia Bertoldi, Harvard University
		Speaker: Adel Djellouli (Contributed Talk)
11:05 AM	11:25 AM	**Mechanically-grown morphogenesis of Voronoi-type materials: computer design, 3D-printing and experiments**
		Zahra Hooshmand-Ahoor, CNRS, Ecole Polytechnique; Gabriella Tarantino, ICMMO, University of Paris-Saclay; Kostas Danas, CNRS, Ecole Polytechnique
		Speaker: Kostas Danas (Contributed Talk)
Session: 1B, Room: Hotel-Hullabaloo		
Session Chair(s): Yuhang Hu, yuhang.hu@me.gatech.edu; Xuanhe Zhao, zhaox@mit.edu		
11:40 AM	12:00 PM	**Regulating the growth of a gel network by its microscopic mechanics toward a homeostatic state**
		Qiyang Fan, Zhejiang University; Bin Chen, Zhejiang University
		Speaker: Bin Chen (Contributed Talk)
12:00 PM	12:20 PM	**The osmocapillary phase separation on rough gel surfaces**
		Qihan Liu, University of Pittsburgh
		Speaker: Qihan Liu (Contributed Talk)
Session: 2A, Room: Hotel-Hullabaloo		
Session Chair(s): Yuhang Hu, yuhang.hu@me.gatech.edu; Xuanhe Zhao, zhaox@mit.edu		
2:15 PM	2:35 PM	**Changes in Mechanical Properties in Polymers due to Gamma, Electron Beam, and X-ray Sterilization**
		Md Kamrul Hasan, Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843, United States; Min Huang, Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843, United States; Suresh Pillai, National Center for Electron Beam Research, Texas A&M University, College Station, TX, 77843, United States; David Staack, Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843, United States; Matt Pharr, Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843, United States

		Speaker: Md Kamrul Hasan (Contributed Talk)
2:35 PM	2:55 PM	**An Eulerian Description of Surface Growth During Solidification in Deformable Solids**
		S. Kiana Naghibzadeh, CARNEGIE MELLON UNIVERSITY; Noel Walkington, CARNEGIE MELLON UNIVERSITY; Kaushik Dayal, CARNEGIE MELLON UNIVERSITY
		Speaker: S. Kiana Naghibzadeh (Contributed Talk)
2:55 PM	3:15 PM	**Statistical Mechanics of a Dielectric Polymer Chain in the Force Ensemble**
		Prashant Purohit, University of Pennsylvania
		Speaker: Prashant Purohit (Contributed Talk)
3:15 PM	3:35 PM	**Self-rupture of Swelling Hydrogels under Confinement**
		Abigail Plummer, Princeton University; Caroline Adkins, Princeton University; Sujit Datta, Princeton University; Andrej Košmrlj, Princeton University
		Speaker: Abigail Plummer (Contributed Talk)
3:35 PM	3:55 PM	**Characterizing the Mechanical Response of Soft Solids through Deep Indentation and Puncture**
		Christopher Barney, Department of Mechanical Engineering, University of California Santa Barbara, Department of Chemical Engineering, University of California Santa Barbara; Szabolcs Berezvai, Department of Applied Mechanics, Budapest University of Technology and Economics; Robert McMeeking, Department of Mechanical Engineering, University of California Santa Barbara, Materials Department, University of California; Matthew Helgeson, Department of Chemical Engineering, University of California Santa Barbara; Megan Valentine, Department of Mechanical Engineering, University of California Santa Barbara
		Speaker: Christopher Barney (Contributed Talk)
Session: 2B, Room: Hotel-Hullabaloo		
Session Chair(s): Yuhang Hu, yuhang.hu@me.gatech.edu; Xuanhe Zhao, zhaox@mit.edu		
4:10 PM	4:30 PM	**Homogenization of elastomers filled with liquid inclusions: The small-deformation limit**
		Oscar Lopez-Pamies, Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign; Kamalendu Ghosh, Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign
		Speaker: Oscar Lopez-Pamies (Contributed Talk)
4:30 PM	4:50 PM	**A reduced-order, rotation-based model for thin hard-magnetic plates**
		Dong Yan, EPFL; Bastien Aymon, EPFL; Pedro Reis, EPFL
		Speaker: Bastien Aymon (Contributed Talk)
4:50 PM	5:10 PM	**Modeling Nematic Liquid Crystal Elastomers in Compression**
		Leila Rezaei, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA; Abby Haddox, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA; Nissrine Aziz, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA; Adrien Fau, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA; Giulia Scalet, Department of Civil Engineering and Architecture, University of Pavia, via Ferrata 3, 27100 Pavia, Italy; Michael Peigney, Laboratoire Navier (UMR 8205), CNRS, Université Paris-Est, Ecole des Ponts ParisTech, IFSTTAR, 77455, Marne-la-Vallée, France; Aurelie Azoug, Mechanics of Smart and Soft Materials Lab, School of Mechanical and Aerospace Engineering, Oklahoma State University, Stillwater, OK, USA

		Speaker: Leila Rezaei (Contributed Talk)

8.7 Mechanics of Complex Networks in Materials and Biology		
Session: 1A, Room: Hotel-Ross I		
Session Chair(s): Catalin Picu, picuc@rpi.edu		
9:45 AM	10:05 AM	**A Microfabricated Sensor for Mechanical Testing of Active Biomaterials with Microscale Specimens Self-Assembled in Situ**
		Bashar Emon, Mechanical Science and Engineering, University of Illinois at Urbana-Champaign; M Taher A Saif, Mechanical Science and Engineering, University of Illinois at Urbana-Champaign
		Speaker: Bashar Emon (Contributed Talk)
10:05 AM	10:25 AM	**Composite networks: how to control mechanical behavior by minimal reinforcement**
		Catalin Picu, Rensselaer Polytechnic Institute
		Speaker: Catalin Picu (Contributed Talk)
10:25 AM	10:45 AM	**Viscoelastic Constitutive Model of the Equine Hoof Wall**
		Christian Bonney, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, USA; Shashank Kushwaha, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, USA; Siyuan Pang, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, USA; Benjamin Lazarus, Materials Science and Engineering Program, University of California San Diego, USA; Marc Meyers, Materials Science and Engineering Program, University of California San Diego, USA, Department of Mechanical and Aerospace Engineering, University of California San Diego, USA, Department of Nanoengineering, University of California San Diego, USA; Iwona Jasiuk, Department. of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, USA
		Speaker: Iwona Jasiuk (Contributed Talk)
10:45 AM	11:05 AM	**Interactive Biological Networks: Phase-field Modeling of Fungi and Slime Molds**
		Farshad Ghanbari, Engineering Science and Mechanics, Penn State; Joe Sgarrella, Engineering Science and Mechanics, Penn State; Christian Peco, Engineering Science and Mechanics, Penn State
		Speaker: Christian Peco (Contributed Talk)
Session: 1B, Room: Hotel-Ross I		
Session Chair(s): Catalin Picu, picuc@rpi.edu		
11:40 AM	12:00 PM	**Extremely Deformable Fibrous Materials Inspired by Entangled Epithelial Intermediate Filament Networks**
		Marco Pensalfini, LaCàN, Universitat Politècnica de Catalunya · BarcelonaTech (UPC), 08034 Barcelona, Spain; Tom Golde, Institute for Bioengineering of Catalonia (IBEC), BIST, 08028 Barcelona, Spain; Xavier Trepat, Institute for Bioengineering of Catalonia (IBEC), BIST, 08028 Barcelona, Spain, Facultat de Medicina, University of Barcelona, 08036 Barcelona, Spain, Institució Catalana de Recerca i Estudis Avançats (ICREA), 08028 Barcelona, Spain, Centro de Investigación Biomédica en Red en Bioingeniería, Biomateriales y Nanomedicina (CIBER-BBN), 08028 Barcelona, Spain; Marino Arroyo, LaCàN, Universitat Politècnica de Catalunya · BarcelonaTech (UPC), 08034 Barcelona, Spain, Institute for Bioengineering of Catalonia (IBEC), BIST, 08028 Barcelona, Spain, Centre Internacional de Mètodes Numèrics en Enginyeria (CIMNE), 08034 Barcelona, Spain
		Speaker: Marco Pensalfini (Contributed Talk)
12:00 PM	12:20 PM	**Investigation of the Poynting Effect of Anisotropic Soft Materials using Embedded, Discrete Fiber Networks.**

		Sotirios Kakaletsis, The University of Texas at Austin; Emma Lejeune, Boston University; Manuel Rausch, The University of Texas at Austin
		Speaker: Sotirios Kakaletsis (Contributed Talk)

8.8 Mechanics of Soft Materials with Dynamic Non-Covalent Bonds		
Session: 1A, Room: Hotel-Corps I		
Session Chair(s): Pavan Kolluru, pavan.kolluru@tamu.edu		
9:45 AM	10:05 AM	**Tunable Viscoelasticity and Nonlinear Mechanical Response in 3D-Architected Metallo-Polyelectrolyte Complexes (MPEC)**
		Seola Lee, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA); Zane Taylor, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA); Amylynn Chen, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA); Sophie Howell, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA); Julia Greer, Engineering and Applied Science, California Institute of Technology, Pasadena, CA (USA)
		Speaker: Seola Lee (Contributed Talk)
10:05 AM	10:25 AM	**A large deformation continuum theory for rate-dependent and material phase transition response of shear stiffening gels**
		Aditya Konale, Brown University; Zahra Ahmed, Brown University; Vikas Srivastava, Brown University
		Speaker: Aditya Konale (Contributed Talk)
10:25 AM	10:45 AM	**Mechanical Behavior of Hydrogen-Bonded Polymer Nanofibers**
		Adwait Gaikwad, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843, USA; Pavan Kolluru, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843, USA
		Speaker: Adwait Gaikwad (Contributed Talk)
10:45 AM	11:05 AM	**Modeling of Mechanical Response of Hydrogen Bonded Polymer Systems**
		Andrew Palughi, Texas A&M University; Tahir Cagin, Texas A&M University; Adwait Gaikwad, Texas A&M University; Pavan Kolluru, Texas A&M University
		Speaker: Andrew Palughi (Contributed Talk)

Thematic Area 9. Solids & Structures

9.3 Computational and Experimental Analysis of Damage at Interfaces		
Session: 1A, Room: Hotel-Eagle		
Session Chair(s): Brandon Runnels, brunnels@uccs.edu		
9:45 AM	10:15 AM	**Grain Boundary Sliding and Slip Transmission in High Purity Aluminum**
		Marissa Linne, Lawrence Livermore National Laboratory; Tom Bieler, Michigan State University; Samantha Daly, University of California at Santa Barbara
		Speaker: Samantha Daly (Keynote Talk)
10:15 AM	10:45 AM	**Understanding Damage Nucleation and Evolution in Tantalum Microstructures during Spall Failure at the Atomic Scales**
		Avinash Dongare, University of Connecticut; Avanish Mishra, University of Connecticut; Marco Echeverria, University of Connecticut
		Speaker: Avinash Dongare (Keynote Talk)
10:45 AM	11:05 AM	**Failure Analysis of Architected-Material Structures using Moment-Curvature Relationships**
		ARUN SRINIVASA, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; JUNUTHULA REDDY, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; ALEKHYA BANKI, J. Mike Walker '66 Department of Mechanical Engineering Texas A&M University
		Speaker: Alekhya Banki (Contributed Talk)
11:05 AM	11:25 AM	**Adhesion Durability of Coatings on Aluminum Alloys Using the Blister Test**
		Drishya Dahal, University of Texas at San Antonio; DAVID RESTREPO, UNIVERSITY OF TEXAS AT SAN ANTONIO; BRENDY RINCON TROCONIS, UNIVERSITY OF TEXAS AT SAN ANTONIO
		Speaker: Drishya Dahal (Contributed Talk)
Session: 1B, Room: Hotel-Eagle		
Session Chair(s): Vinamra Agrawal, vinagr@auburn.edu		
11:40 AM	12:00 PM	**Time Dependent Energy Release Rate for Fracture in Viscoelastic Materials and Interfaces**
		Zhanrui Zhang, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin; Kenneth Liecthi, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin; Rui Huang, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin
		Speaker: Zhanrui Zhang (Contributed Talk)
12:00 PM	12:20 PM	**Creating Tougher Interfaces in Additively Manufactured Multimaterial Polymer Composites**
		Denizhan Yavas, Lamar University; Umut Altuntas, Middle East Technical University; Demirkan Coker, Middle East Technical University
		Speaker: Denizhan Yavas (Contributed Talk)
12:20PM	12:40PM	**Examining Damage Evolution near Crystalline Amorphous Interface**
		Ashraf Bastawros, Iowa State University; Amir Abdelmawla, Iowa State University; Liming Xiong, Iowa State University; Thanh Phan, Iowa State University
		Speaker: Ashraf Bastawros (Contributed Talk)
Session: 2A, Room: Hotel-Eagle		

Session Chair(s): Lucas Meza, lmeza@uw.edu		
2:15 PM	2:35 PM	**Application of the J-integral and Linear Beam Theories to Single and Double Cantilever Beam Tests to Determine Mode I Interlaminar Fracture Toughness**
		Anthony Paris, University of Alaska Anchorage
		Speaker: Anthony Paris (Contributed Talk)
2:35 PM	2:55 PM	**Topological Metamaterials with Stress-Focusing Interfaces and Their Potential for Fracture Protection**
		Caleb Widstrand, University of Minnesota; Chen Hu, University of Minnesota; Xiaoming Mao, University of Michigan; Joseph Labuz, University of Minnesota; Stefano Gonella, University of Minnesota
		Speaker: Stefano Gonella (Contributed Talk)
2:55 PM	3:15 PM	**An experimental study on the delamination behaviour in interleaved composites manufactured using automated tape laying (ATL) method**
		Huifang Liu, University of Oxford; Yanhong Chen, Oxford of University; Drew Sommer, University of Oxford; Kai Liu, University of Oxford; Nik Petrinic, University of Oxford
		Speaker: Huifang Liu (Contributed Talk)
3:15 PM	3:35 PM	**Atomistic simulation of plastic deformation in nickel bi-crystals containing helium bubbles**
		Tung Yan Liu, Texas A&M University; Michael Demkowicz, Texas A&M University
		Speaker: Tung Yan Liu (Contributed Talk)
3:35 PM	3:55 PM	**Data Driven Modeling of Interfacial Traction Separation Relations using a Thermodynamically Consistent Neural Network**
		Congjie Wei, Dr.; Jiaxin Zhang, Oak Ridge National Laboratory; Kenneth Liechti, University of Texas at Austin; Chenglin Wu, Missouri University of Science and Technology
		Speaker: Chenglin Wu (Contributed Talk)

9.5 Controlling Mechanical Waves with Metamaterials		
Session: 2A, Room: Hotel-Ross I		
Session Chair(s): Dennis Kochmann, dmk@ethz.ch; Thevamaran Ramathasan, thevamaran@wisc.edu		
2:15 PM	2:45 PM	**Enhanced Signal-to-Noise Performance of EP-based Electromechanical Accelerometers**
		Tsampikos Kottos, Wave Transport in Complex Systems Lab, Wesleyan University; Rodion Kononchuk, Wave Transport in Complex Systems Lab, Wesleyan University; Fred Ellis, Wesleyan University; Jizhe Cai, Department of Engineering Physics, University of Wisconsin-Madison; Ramathasan Thevamaran, Department of Engineering Physics, University of Wisconsin-Madison
		Speaker: Tsampikos Kottos (Keynote Talk)
2:45 PM	3:05 PM	**Nucleation of phase transitions via collisions of elastic vector solitons**
		Hiromi Yasuda, University of Pennsylvania; Hang Shu, University of Pennsylvania; Vincent Tournat, Laboratoire d'Acoustique de l'Université du Mans (LAUM); Weijian Jiao, University of Pennsylvania; Jordan Raney, University of Pennsylvania
		Speaker: Hang Shu (Contributed Talk)
3:05 PM	3:25 PM	**Phase space analysis of nonlinear wave propagation in a bistable mechanical metamaterial with a defect**
		Mohammed Mohammed, University of Nebraska-Lincoln; Piyush Grover, University of Nebraska-Lincoln
		Speaker: Mohammed Mohammed (Contributed Talk)

3:25 PM	3:45 PM	**Sensitivity and Uncertainty Quantification Analysis in Metamaterials Using the Hypercomplex-Variable Finite Element Method**
		David Restrepo, The University of Texas at San Antonio; Juan David Navarro, The University of Texas at San Antonio; Juan Camilo Velasquez, The University of Texas at San Antonio; Arturo Montoya, The University of Texas at San Antonio; Harry Millwater, The University of Texas at San Antonio
		Speaker: David Restrepo (Contributed Talk)
Session: 2B, Room: Hotel-Ross I		
Session Chair(s): Dennis Kochmann, dmk@ethz.ch; Thevamaran Ramathasan, thevamaran@wisc.edu		
4:10 PM	4:30 PM	**Wave Propagation in Topologically Interlocked Material Systems**
		Tanner Ballance, Purdue University; Thomas Siegmund, Purdue University
		Speaker: Tanner Ballance (Contributed Talk)
4:30 PM	4:50 PM	**Control of Wave Propagation through Phononic Crystals via Buckling-induced Symmetry Breaking**
		Tejas Dethe, Princeton University; Alison Root, Princeton University; Siddhartha Sarkar, University of Michigan, Ann Arbor; Andrej Kosmrlj, Princeton University
		Speaker: Tejas Dethe (Contributed Talk)
4:50 PM	5:10 PM	**A Complete Symmetry Guide to Design Cubic Elastic Metamaterials**
		Pai Wang, Department of Mechanical Engineering, University of Utah; Kern Christian, Department of Mathematics, University of Utah; Yunya Liu, Department of Mechanical Engineering, University of Utah
		Speaker: Yunya Liu (Contributed Talk)

9.6 High-Strain-Rate Behavior of Heterogeneous Materials		
Session: 1A, Room: Hotel-Ross II		
Session Chair(s): Justin Wilkerson, wilkerson@tamu.edu		
9:45 AM	10:05 AM	**Multi-Angle Imaging Studies of High-Strain-Rate Material Failure During Hypervelocity Impacts**
		Matthew Intardonato, Texas A&M University; Gavin Lukasik, Texas A&M University; Jacob Rogers, Texas A&M University; Thomas Lacy Jr., Texas A&M University; Waruna Kulatilaka, Texas A&M University
		Speaker: Matthew Intardonato (Contributed Talk)
10:05 AM	10:25 AM	**Investigation of Hypersonic Projectile-Particle Interactions Using Ultra-High-Speed Schlieren Imaging and Particle Tracking**
		Gavin Lukasik, Texas A&M University; Jacob Rogers, Texas A&M University; Thomas Lacy Jr., Texas A&M University; Waruna Kulatilaka, Texas A&M University
		Speaker: Gavin Lukasik (Contributed Talk)
10:25 AM	10:45 AM	**A Multiresolution Adaptive Wavelet Method for Nonlinear Partial Differential Equations**
		Karel Matous, University of Notre Dame; Cale Harnish, University of Notre Dame; Luke Dalessandro, Indiana University
		Speaker: Karel Matous (Contributed Talk)
10:45 AM	11:05 AM	**An integrated experimental and numerical study of the rate dependent behaviour of through-thickness reinforcement in Z-pinned CFRP laminates**
		Huifang Liu, Oxford of University; Kai Liu, University of Oxford; Drew Sommer, University of Oxford; Yanhong Chen, University of Oxford; Nik Petrinic, University of Oxford

		Speaker: Huifang Liu (Contributed Talk)
11:05 AM	11:25 AM	**Determining Mechanical Properties of Metals under Extreme Strains and Strain Rates using Cutting**
		Harshit Chawla, Texas A&M University; Hrayer Aprahamian, Texas A&M University; Dinakar Sagapuram, Texas A&M University
		Speaker: Harshit Chawla (Contributed Talk)
Session: 1B, Room: Hotel-Ross II		
Session Chair(s): Kelvin Xie, kelvin_xie@tamu.edu		
11:40 AM	12:00 PM	**Grain-subdivision-dominated microstructure evolution in shear bands at high rates**
		Kelvin Xie, Texas A&M University
		Speaker: Kelvin Xie (Contributed Talk)
12:00 PM	12:20 PM	**Limitations of dynamic indentation to characterize strain-rate sensitivity of materials**
		Zahra Ghasemi, Texas A&M University, College Station, TX, USA; Jose Rodríguez-Martínez, University Carlos III of Madrid, Leganés, Madrid, Spain; Tiago dos Santos, Universidade Federal de Santa Maria, Santa Maria, Brazil; Ankit Srivastava, Texas A&M University, College Station, TX, USA
		Speaker: Zahra Ghasemi (Contributed Talk)
12:20 PM	12:40 PM	**Effect of free surfaces on dislocation mobility in the transonic regime**
		Ta Duong, Texas A&M University; Michael Demkowicz, Texas A&M University
		Speaker: Ta Duong (Contributed Talk)
Session: 2A, Room: Hotel-Ross II		
Session Chair(s): Justin Wilkerson, wilkerson@tamu.edu		
2:15 PM	2:35 PM	**Penalty-Based Coupling for Immersed Air-Blast Fluid--Structure Interaction: A Simple and Effective Solution for Modeling Fracture and Fragmentation**
		Yuri Bazilevs, Brown University; Shaunak Shende, Brown University; Masoud Behzadinasab, Brown University
		Speaker: Yuri Bazilevs (Contributed Talk)
2:35 PM	2:55 PM	**Effects of particle size and material on the 3D particle scale dynamics of shock compression in granular materials**
		Sohanjit Ghosh, Johns Hopkins University; Ryan Hurley, Johns Hopkins University
		Speaker: Sohanjit Ghosh (Contributed Talk)
2:55 PM	3:15 PM	**Revealing deformation mechanism of metals under high strain rate at submicron scale**
		Yuwei Zhang, Texas A&M University
		Speaker: Yuwei Zhang (Contributed Talk)
3:15 PM	3:35 PM	**Equine hoof wall: structure, properties, and bioinspired designs**
		Benjamin Lazarus, University of California San Diego; Rachel Luu, University of California San Diego; Samuel Ruiz-Pérez, Universidad Nacional Autónoma de México; Wendell Bezerra, Military Institute of Engineering-IME; Kevin Becerra-Santamaria, Universidad Autónoma de Baja California; Victor Leung, University of California San Diego; Victor Durazo, Universidad de Sonora; Iwona Jasiuk, University of Illinois Urbana-Champaign; Josiane Barbosa, University Center SENAI CIMATEC; Marc Meyers, University of California San Diego
		Speaker: Benjamin Lazarus (Contributed Talk)
3:35 PM	3:55 PM	**Recent advances in a 10-node composite tetrahedral element for solid mechanics**

		James Foulk III, Sandia National Laboratories
		Speaker: James Foulk III (Invited Talk)

9.7 Micro-to-Macro Mechanics of Heterogeneous Solids and Granular Media		
Session: 1A, Room: Hotel-Reveille II		
Session Chair(s): Liuchi Li, lli128@jhu.edu		
9:45 AM	10:05 AM	**Effective Toughness of Heterogeneous Materials with Rate-Dependent Fracture Energy**
		Gabriele Albertini, Harvard University, University of Nottingham; Mathias Lebihain, Ecole des Ponts ParisTech; François Hild, ENS Paris Saclay; Laurent Ponson, Université Pierre et Marie Curie; David Kammer, ETH Zurich
		Speaker: David Kammer (Invited Talk)
10:05 AM	10:25 AM	**Mechanical Response of Self-Assembled Nanoparticle Superlattices**
		Somayajulu Dhulipala, Massachusetts Institute of Technology; Daryl Yee, Massachusetts Institute of Technology; Ziran Zhou, California Institute of Technology; Rachel Sun, Massachusetts Institute of Technology; Jose Andrade, California Institute of Technology; Robert Macfarlane, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
		Speaker: Somayajulu Dhulipala (Invited Talk)
10:25 AM	10:45 AM	**FEM-DEM bridging-zone coupling methods**
		Manon Voisin-Leprince, École polytechnique fédérale de Lausanne; Joaquin Garcia-Suarez, École Polytechnique Fédérale de Lausanne; Guillaume Anciaux, École polytechnique fédérale de Lausanne; Jean-Francois Molinari, École polytechnique fédérale de Lausanne
		Speaker: Joaquin Garcia-Suarez (Invited Talk)
10:45 AM	11:05 AM	**Upscaling Particle-Scale Simulations towards Continuum Modeling of Dense Granular Materials**
		Ishan Srivastava, Lawrence Berkeley National Laboratory
		Speaker: Ishan Srivastava (Invited Talk)
11:05 AM	11:25 AM	**Modeling Failure of Heterogenous Brittle Solids using an Interaction-Informed Anisotropic Damage Model**
		Sakshi Braroo, Johns Hopkins University; Kaliat Ramesh, Johns Hopkins University
		Speaker: Sakshi Braroo (Contributed Talk)
Session: 1B, Room: Hotel-Reveille II		
Session Chair(s): Konstantinos Karapiperis, kkarapiperis@ethz.ch		
11:40 AM	12:00 PM	**Smallest Feasible Statistical Volume Elements for Ductile Fracture of Metals with Non-Periodic Particle Morphology**
		Caleb Foster, Texas A&M University; Angela Olinger, Texas A&M University; Isabella Mihalic, Texas A&M University; Justin Wilkerson, Texas A&M University
		Speaker: Caleb Foster (Contributed Talk)
12:00 PM	12:20 PM	**Crack Band Model Generalized to Propagate without Directional Bias**
		Yupeng Zhang, Northwestern University; Hoang Nguyen, Northwestern University; Zdeněk Bažant, Northwestern University
		Speaker: Yupeng Zhang (Contributed Talk)
12:20 PM	12:40 PM	**Micro-to-Macro Mechanical Modeling of Corrosion-Induced Cracking**
		David Kammer, ETH Zurich; Mohit Pundir, ETH Zurich; Ueli Angst, ETH Zurich

		Speaker: David Kammer (Contributed Talk)
Session: 2A, Room: Hotel-Reveille II		
Session Chair(s): Aaron Baumgarten, abaumg11@jhu.edu		
2:15 PM	2:35 PM	**Experimental and computational investigations of dynamic failure processes in glass-ceramics**
		Liuchi Li, Johns Hopkins University
		Speaker: Liuchi Li (Contributed Talk)
2:35 PM	2:55 PM	**A multisurface theory of porous material plasticity**
		Vigneshwaran Radhakrishnan, Texas A&M university; Amine Benzerga, Texas A&M university
		Speaker: Vigneshwaran Radhakrishnan (Contributed Talk)
2:55 PM	3:15 PM	**A Microvoid Coalescence Criterion Accounting for Strain Hardening**
		Sahil Wajid, PhD student at Texas A&M University (Department of Aerospace Engineering); Amine Benzerga, Professor, Department of Aerospace Engineering, Texas A&M University, Professor, Department of Materials Science & Engineering, Texas A&M University; Jean-Baptiste Leblond, Professor, Institut Jean Le Rond d'Alembert, Sorbonne Universités, Université Pierre-et-Marie-Curie (UPMC)
		Speaker: Sahil Wajid (Contributed Talk)
3:15 PM	3:35 PM	**Granular micromechanics approach inspired (meta)material design**
		Anil Misra, University of Kansas
		Speaker: Anil Misra (Invited Talk)
Session: 2B, Room: Hotel-Reveille II		
Session Chair(s): Aaron Baumgarten, abaumg11@jhu.edu		
4:10 PM	4:30 PM	**Engineered, "architectured" granular materials**
		Francois Barthelat, University of Colorado Boulder
		Speaker: Francois Barthelat (Contributed Talk)
4:30 PM	4:50 PM	**Chiral Behavior of Topologically Interlocked Material Systems**
		Dong-Young Kim, Purdue University; Thomas Siegmund, Purdue University
		Speaker: Dong-Young Kim (Contributed Talk)

9.10 Multiscale Modeling of Phase Transitions, Dislocations, and Twining in Materials		
Session: 1B, Room: Hotel-Corps I		
Session Chair(s): Wei Gao, wei.gao@tamu.edu		
11:40 AM	12:00 PM	**Non-Equilibrium Evolution of Metastable Grain Boundaries in Nanocrystals at Extreme Conditions**
		Yue Fan, University of Michigan, Ann Arbor
		Speaker: Yue Fan (Invited Talk)
12:00 PM	12:20 PM	**Investigation of avalanche phenomena by simultaneous measurements of different variables**
		Noam Zreihan, Technion, Israel Institute of Technology; Eilon Faran, Technion - Israel Institute of Technology; Emil Bronstein, Technion - Isreal Institute of Technology; Eduard Vives, University of Barcelona; Antoni Planes, University of Barcelona; Doron Shilo, Technion - Israel Institute of Technology

		Speaker: Doron Shilo (Contributed Talk)
12:20 PM	12:40 PM	**Light-Induced Microstructure Evolution in Inorganic Semiconductors: Dislocation vs. Deformation Twinning**
		Qi An, Iowa State University
		Speaker: Qi An (Invited Talk)
Session: 2A, Room: Hotel-Corps I		
Session Chair(s): Wei Gao, wei.gao@tamu.edu		
2:15 PM	2:45 PM	**Plasticity and Plastic Strain-Induced Phase Transformations under High Pressure: Four-Scale Theories, In-Situ Experiments, and Phenomena**
		Valery Levitas, Iowa State University, Departments of Aerospace Engineering and Mechanical Engineering, Ames, IA, USA
		Speaker: Valery Levitas (Keynote Talk)
2:45 PM	3:15 PM	**Multiscale Modeling of Al-alloys**
		William Curtin, Ecole Polytechnique Federale de Lausanne
		Speaker: William Curtin (Keynote Talk)
3:15 PM	3:35 PM	**Modeling Plasticity Contributions from Dislocation Slip, Twinning, and Phase Transformation Behavior in metals at the Mesoscales**
		Avinash Dongare, University of Connecticut; Avinash Mishra, University of Connecticut; Ke Ma, University of Connecticut; Marco Marco Echeverria, University of Connecticut
		Speaker: Avinash Dongare (Invited Talk)
3:35 PM	3:55 PM	**Micromechanics of Damage during Ductile Fracture of Structural Metals**
		Qian Qian Zhao, Rutgers University; Yating Fang, Rutgers University; Ahmed Aziz Ezzat, Rutgers University; Ryan Sills, Rutgers University
		Speaker: Ryan Sills (Invited Talk)
Session: 2B, Room: Hotel-Corps I		
Session Chair(s): Wei Gao, wei.gao@tamu.edu		
4:10 PM	4:30 PM	**Transformation-mediated twin nucleation in hexagonal close-packed metals**
		Lei Cao, University of Nevada, Reno
		Speaker: Lei Cao (Invited Talk)
4:30 PM	4:50 PM	**Unraveling mechanistic competition during deformation of CoCrNi Medium Entropy Alloys from nanoscale strain accommodation**
		Ankit Gupta, Department of Mechanical Engineering, Colorado School of Mines; Wurong Jian, Department of Mechanical Engineering, Stanford University; Shuozhi Xu, School of Aerospace and Mechanical Engineering, University of Oklahoma; Irene Beyerlein, Department of Mechanical Engineering, Materials Department, University of California at Santa Barbara; Garritt Tucker, Department of Mechanical Engineering, Colorado School of Mines
		Speaker: Garritt J. Tucker (Invited Talk)
4:50 PM	5:10 PM	**Role of point and line defects in dislocation-starved cavitation failure**
		Justin Wilkerson, Texas A&M; Sara Adibi, Mississippi State University
		Speaker: Justin Wilkerson (Invited Talk)

9.14 Thermodynamics, Kinetics and Mechanical Behaviors of Metallic Glasses and High Entropy Alloys		
Session: 1B, Room: Hotel-Corps II		
Session Chair(s): Penghui Cao, caoph@uci.edu		
11:40 AM	12:00 PM	**Dislocation Motions in Refractory High-entropy alloys and Effects of Chemical Order and Disorder**
		Xinyi Wang, University of California, Irvine; Francesco Maresca, Engineering and Technology Institute Groningen, Faculty of Science and Engineering, University of Groningen, 9747 AG Groningen, The Netherlands; Penghui Cao, Department of Mechanical and Aerospace, University of California, Irvine, Irvine, CA, 92697, USA.
		Speaker: Xinyi Wang (Contributed Talk)
12:00 PM	12:20 PM	**Nanoscale Precipitation Strengthening Mechanisms in CoCrNi-based Medium Entropy Alloys**
		Ning Zhang, University of Alabama; Rajesh Ramesh, The University of Alabama
		Speaker: Ning Zhang (Contributed Talk)
12:20 PM	12:40 PM	**Modeling Non-Schmid effect in High Entropy Alloys: A combined Molecular Dynamics and Phase Field Dislocation Dynamics study**
		Nithin Mathew, Los Alamos National Laboratory; Hyojung Kim, Los Alamos National Laboratory; Darby Luscher, Los Alamos National Laboratory; Abigail Hunter, Los Alamos National Laboratory
		Speaker: Nithin Mathew (Contributed Talk)
Session: 2A, Room: Hotel-Corps II		
Session Chair(s): Raymundo Arroyave, rarroyave@tamu.edu; Penghui Cao, caoph@uci.edu		
2:15 PM	2:35 PM	**Deformation Behavior of Medium and High Entropy Alloys**
		Sezer Picak, Department of Materials Science & Engineering, Texas A&M University, College Station, TX 77843, USA, Department of Mechanical Engineering, Texas A&M University, College Station, TX 77843, USA; Daniel Salas, Department of Materials Science & Engineering, Texas A&M University, College Station, TX 77843, USA; Matheus Tunes, Material Science and Technology Division, Los Alamos National Laboratory, New Mexico 87545, USA; Ibrahim Karaman, Department of Materials Science & Engineering, Texas A&M University, College Station, TX 77843, USA
		Speaker: Ibrahim Karaman (Invited Talk)
2:35 PM	2:55 PM	**Promoting Disorder in Structural Materials to Influence Defect-Property Relationships**
		Daniel Gianola, University of California Santa Barbara
		Speaker: Daniel Gianola (Invited Talk)
2:55 PM	3:15 PM	**Controlling routes to amorphization for optimization of thermomechanical properties of materials**
		Izabela Szlufarska, University of Wisconsin - Madison; Vrishank Jambur, University of Wisconsin - Madison; Paul Voyles, University of Wisconsin - Madison; Chengrong Cao, University of Wisconsin - Madison
		Speaker: Izabela Szlufarska (Invited Talk)
3:15 PM	3:35 PM	**The role of short-range order on diffusion and deformation mechanisms in multi-principal element alloys**
		Penghui Cao, University of California Irvine
		Speaker: Penghui Cao (Invited Talk)
3:35 PM	3:55 PM	**In-situ 4D-STEM imaging of the synergistic deformation mechanisms responsible for the fracture resistance in CrCoNi**

		Yang Yang, The Pennsylvania State University; Sheng Yin, Lawrence Berkeley National Laboratory; Qin Yu, Lawrence Berkeley National Laboratory; Colin Ophus, Lawrence Berkeley National Laboratory; Mark Asta, Lawrence Berkeley National Laboratory; Robert Ritchie, Lawrence Berkeley National Laboratory; Andrew Minor, Lawrence Berkeley National Laboratory
		Speaker: Yang Yang (Invited Talk)
Session: 2B, Room: Hotel-Corps II		
Session Chair(s): Raymundo Arroyave, rarroyave@tamu.edu; Penghui Cao, caoph@uci.edu		
4:10 PM	4:30 PM	**Deformation Mechanisms in Fluctuating Energy Landscapes**
		Matthew Daly, University of Illinois at Chicago
		Speaker: Matthew Daly (Invited Talk)
4:30 PM	4:50 PM	**Quantification and Characterization of Disorder in Compositionally Complex Alloys**
		Michael Falk, Johns Hopkins University
		Speaker: Michael Falk (Invited Talk)

Thematic Area 10. Special Symposia

10.1 Experimental & Theoretical Micro & Nano-Mechanics: Honoring Contributions Prof. Kyung-Suk Kim		
Session: 1A, Room: MSC-2406B		
Session Chair(s): Ashraf Bastawros, bastaw@iastate.edu		
9:45 AM	10:05 AM	**Mechanics of Plasma-Surface Interactions**
		Huck Beng Chew, University of Illinois at Urbana-Champaign
		Speaker: Huck Beng Chew (Invited Talk)
10:05 AM	10:25 AM	**Inertial Cavitation in Soft Matter – Part 1: Ultra-high Strain-rate Material Characterization, Dynamic Instabilities, and Full-field Deformation Measurements**
		Jin Yang, University of Wisconsin-Madison; Alexander McGhee, University of Wisconsin-Madison; David Henann, Brown University; Christian Franck, University of Wisconsin-Madison
		Speaker: Christian Franck (Invited Talk)
10:25 AM	10:45 AM	**Inertial Cavitation in Soft Matter — Part 2: Modeling of bubble dynamics**
		Anastasia Tzoumaka, Brown University; Jin Yang, University of Wisconsin-Madison; Christian Franck, University of Wisconsin-Madison; David Henann, Brown University
		Speaker: David Henann (Invited Talk)
10:45 AM	11:05 AM	**Why do surgeons sleep better with plasticity in their knots?**
		Paul Johanns, École Polytechnique Fédérale de Lausanne (EPFL) Switzerland; Changyeob Baek, Department of Applied Mathematics, Harvard University, USA; Paul Grandgeorge, Materials Science & Engineering Department, University of Washington, USA; Shawn Chester, Mechanical & Industrial Engineering Department, New Jersey Institute of Technology, USA; Samia Guerid, Hirslanden Clinique Cecil, Lausanne, Switzerland; Pedro Reis, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
		Speaker: Pedro Reis (Invited Talk)
11:05 AM	11:25 AM	**From Ruga Mechanics to Ruga Robots**
		Renee Zhao, Stanford University
		Speaker: Renee Zhao (Invited Talk)
Session: 1B, Room: MSC-2406B		
Session Chair(s): Yanfei Gao, ygao7@utk.edu		
11:40 AM	12:00 PM	**Role of Elasticity in Regulating Liquid-Liquid Phase Separation in Cells**
		Mrityunjay Kothari, Department of Mechanical Engineering, University of New Hampshire, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology; Tal Cohen, Department of Civil and Environmental Engineering, Massachusetts Institute of Technology
		Speaker: Mrityunjay Kothari (Invited Talk)
12:00 PM	12:20 PM	**Hydrogen Embrittlement in Steels and High Entropy Alloys**
		William Curtin, Ecole Polytechnique Federale de Lausanne
		Speaker: William Curtin (Invited Talk)

12:20 PM	12:40 PM	**In-situ Experimental Observations on Elastomers: Cavitation, Fracture Nucleation and Propagation**
		Jinlong Guo, University of Texas at Austin; Krishnaswamy Ravi-Chandar, University of Texas at Austin
		Speaker: Krishnaswamy Ravi-Chandar (Invited Talk)
Session: 2A, Room: MSC-2406B		
Session Chair(s): Renee Zhao, rrzhao@stanford.edu		
2:15 PM	2:35 PM	**Are Configurational Forces Real Forces?**
		Roberto Ballarini, University of Houston
		Speaker: Roberto Ballarini (Invited Talk)
2:35 PM	2:55 PM	**Identification of Power-Law Creep Parameters from Conical Indentation**
		Yupeng Zhang, Northwestern University; Alan Needleman, Texas A&M
		Speaker: Alan Needleman (Invited Talk)
2:55 PM	3:15 PM	**Dislocation mechanics is molecular versus monatomic crystals: the role of molecular flexibility**
		Catalin Picu, Rensselaer Polytechnic Institute
		Speaker: Catalin Picu (Invited Talk)
3:15 PM	3:35 PM	**Characterizing Pressure-Dependent Shear Modulus of Phase Transformed Iron**
		Vatsa Gandhi, California Institute of Technology; Guruswami Ravichandran, California Institute of Technology
		Speaker: Vatsa Gandhi (Invited Talk)
3:35 PM	3:55 PM	**Correlation of the Microstructure and Nanomechanical Properties of Additively Manufactured Metals for Aerospace Applications**
		Allen Kim, University of Washington; Lily Vu, University of Washington; Junlan Wang, University of Washington
		Speaker: Junlan Wang (Invited Talk)
Session: 2B, Room: MSC-2406B		
Session Chair(s): Renee Zhao, rrzhao@stanford.edu		
4:10 PM	4:30 PM	**Multi-Objective Parametrization of Interatomic Potentials for Large Deformation Pathways and Fracture of Two-Dimensional Materials**
		Horacio Espinosa, Northwestern University; Xu Zhang, Northwestern University; Hoang Nguyen, Northwestern University; Mohamed Ali, Northwestern University
		Speaker: Horacio Espinosa (Invited Talk)
4:30 PM	4:50 PM	**Theory of controlled fragmentation in cold drawing: towards a mechanics-based technological platform for large-scale manufacturing of structures at the micro- and nanoscale**
		Huajian Gao, Nanyang Technological University, Institute of High Performance Computing
		Speaker: Huajian Gao (Invited Talk)

10.2 A Celebration of Peridynamics: Honoring the contributions of Dr. Stewart Silling		
Session: 1A, Room: MSC-2501		
Session Chair(s): Erdogan Madenci, madenci@email.arizona.edu; Florin Bobaru, fbobaru2@unl.edu		
9:45 AM	10:05 AM	**Crack kinking in isotropic and orthotropic micropolar peridynamic solids**
		Roberto Ballarini, University of Houston
		Speaker: Roberto Ballarini (Invited Talk)
10:05 AM	10:25 AM	**Peridynamics: the Nebraska Perspective**
		Florin Bobaru, University of Nebraska-Lincoln
		Speaker: Florin Bobaru (Invited Talk)
10:25 AM	10:55 AM	**Peridynamics as a Discretization: From Concrete Fracture to Thin Shells**
		Yuri Bazilevs, Brown University; Masoud Behzadinasab, Brown University; John Foster, University of Texas at Austin; Mert Alaydin, Brown University
		Speaker: Yuri Bazilevs (Keynote Talk)
10:55 AM	11:25 AM	**Modeling Powder Compaction with Peridynamics**
		Stewart Silling, Sandia National Laboratories
		Speaker: Stewart Silling (Keynote Talk)
Session: 1B, Room: MSC-2501		
Session Chair(s): Erdogan Madenci, madenci@email.arizona.edu; Florin Bobaru, fbobaru2@unl.edu		
11:40 AM	12:00 PM	**A rigorous numerical approach for studying wave reflection in bi-material system**
		Xingjie Li, University of North Carolina Charlotte; Pablo Seleson, Oak Ridge National Laboratory
		Speaker: xingjie Li (Invited Talk)
12:00 PM	12:20 PM	**Four Mutual Properties of Classical and Nonlocal Wave Equations**
		Burak Aksoylu, Texas A&M University-San Antonio
		Speaker: Burak Aksoylu (Invited Talk)
12:20 PM	12:40 PM	**Direct Coupling of Dual Horizon Peridynamics and Finite Element Method in ANSYS Framework**
		Sundaram Anicode, University of Arizona; Erdogan Madenci, University of Arizona
		Speaker: Erdogan Madenci (Invited Talk)
Session: 2A, Room: MSC-2501		
Session Chair(s): Robert Lipton, lipton@lsu.edu; Hailong Chen, Hailong.Chen@uky.edu		
2:15 PM	2:45 PM	**A method to reduce the surface effect and to impose in a local way the BC in Peridynamics models**
		Ugo Galvanetto, University of Padua; Francesco Scabbia, University of Padua; Mirco Zaccariotto, University of Padua
		Speaker: Ugo Galvanetto (Keynote Talk)
2:45 PM	3:05 PM	**A Comparison Study on Peridynamic Bond-Associated Correspondence Material Models**
		Hailong Chen, University of Kentucky; WaiLam Chan, University of Kentucky
		Speaker: Hailong Chen (Invited Talk)
3:05 PM	3:25 PM	**PERIDYNAMICS FOR QUASISTATIC FRACTURE MODELING**

		Robert Lipton, Louisiana State University; Debdeep Bhattacharya, Louisiana State University; Patrick Diehl, Louisiana State University
		Speaker: Robert Lipton (Invited Talk)
3:25 PM	3:45 PM	**Analysis of a nonlocal equation with variable horizon subject to local boundary condition**
		Tadele Mengesha, University of Tennessee Knoxville
		Speaker: Tadele Mengesha (Invited Talk)

Thematic Area 1. Medalist Symposia (Invited Only)

1.1 Prager Medal Symposium		
Session: 3A, Room: MSC-2406A		
Session Chair(s): Ivan Grega, ig348@cam.ac.uk		
9:45 AM	10:05 AM	**General and exact theory of nonlinear elastodynamics: Unification of nonlinear dispersion and harmonic generation**
		Romik Khajehtourian, ETH Zurich; Mahmoud Hussein, University of Colorado Boulder
		Speaker: Mahmoud Hussein (Invited Talk)
10:05 AM	10:25 AM	**A unified modeling framework for soft and hard magnetorheological elastomers**
		Dipayan Mukherjee, University of Cambridge; Matthias Rambausek, TU Wien, Austria; Kostas Danas, CNRS, Ecole Polytechnique
		Speaker: Kostas Danas (Invited Talk)
10:25 AM	10:45 AM	**Giant Magnetoelectricity in Soft Materials Using Hard Magnetic Soft Materials**
		Pradeep Sharma, University of Houston
		Speaker: Pradeep Sharma (Invited Talk)
10:45 AM	11:05 AM	**Computer Modeling of Cardiac Microstructure and its Effects in Heart Diseases**
		Joy Mojumder, Department of Mechanical Engineering, Michigan State University; Ce Xi, Department of Mechanical Engineering, Michigan State University; Lei Fan, Department of Mechanical Engineering, Michigan State University; Lik Chuan Lee, Department of Mechanical Engineering, Michigan State University
		Speaker: Lik Chuan Lee (Invited Talk)
Session: 3B, Room: MSC-2406A		
Session Chair(s): Angkur Shaikeea, ajds3@cam.ac.uk; Ivan Grega, ig348@cam.ac.uk		
11:40 AM	12:10 PM	**Fracture of 2D Materials – In situ Experiments and ML Parameterized Force Fields**
		Horacio Espinosa, Northwestern University; Xu Zhang, Northwestern University; Hoang Nguyen, Northwestern University; Jianguo Wen, Argonne National Lab; Jeff Paci, University of British Columbia
		Speaker: Horacio Espinosa (Keynote Talk)
12:10 PM	12:40 PM	**Lab-Earthquakes: Using Super-fast Ruptures to Reveal the Nature of Dynamic Friction During Earthquakes**
		Ares Rosakis, California Institute of Technology
		Speaker: Ares Rosakis (Keynote Talk)
Session: 4A, Room: MSC-2406A		
Session Chair(s): Lucas Meza, lmeza@uw.edu		
2:15 PM	2:35 PM	**Void-mediated failure in advanced microstructures**
		Shailendra Joshi, University of Houston; Padmeya Indurkar, University of Cambridge; Kartikey Joshi, Institute of High Performance Computing, Singapore; Amine Benzerga, Texas A & M University
		Speaker: Shailendra Joshi (Invited Talk)
2:35 PM	2:55 PM	**Learning based multsicale modeling**
		Burigede Liu, University of Cambridge

		Speaker: Burigede Liu (Invited Talk)
2:55 PM	3:25 PM	**Towards a Multiscale Model of the Brain ECM**
		Saber Shakibi, Zernike Institute for Advanced Materials, University of Groningen; Patrick Onck, Zernike Institute for Advanced Materials, University of Groningen; Erik Van der Giessen, Zernike Institute for Advanced Materials, University of Groningen
		Speaker: Erik Van der Giessen (Keynote Talk)
3:25 PM	3:45 PM	**Sensitivity of aortic mechanics to smooth muscle orientation and function**
		Malte Rolf-Pissarczyk, Institute of Biomechanics, Graz University of Technology, Graz, Austria; Maximilian Wollner, Institute of Biomechanics, Graz University of Technology, Graz, Austria; Gian Marco Melito, Institute of Mechanics, Graz University of Technology, Graz, Austria; Gerhard Holzapfel, Institute of Biomechanics, Graz University of Technology, Graz, Austria, Department of Structural Engineering, Norwegian University of Science and Technology, Trondheim, Norway
		Speaker: Malte Rolf-Pissarczyk (Invited Talk)
Session: 4B, Room: MSC-2406A		
Session Chair(s): Kristen Miller, krismiller17@gmail.com		
4:10 PM	4:30 PM	**Structure of Constitutive Relations in Porous Material Plasticity**
		Amine Benzerga, Texas A&M University
		Speaker: Amine Benzerga (Invited Talk)
4:30 PM	4:50 PM	**When truss-based architected materials can be described as continua, and when they cannot**
		Kevin Kraschewski, ETH Zurich; Greg Phlipot, California Institute of Technology; Raphael Glaesener, ETH Zurich; Kaoutar Radi, ETH Zurich; Dennis Kochmann, ETH Zurich
		Speaker: Dennis Kochmann (Invited Talk)
4:50 PM	5:10 PM	**Prestressed Nanoarchitected Materials**
		Lucas Meza, University of Washington; Calean Wisont, Tesla; Robert Verdoes, University of Melbourne; Matt Leahy, University of Washington
		Speaker: Lucas Meza (Invited Talk)

1.2 Eringen Medal Symposium		
Session: 3A, Room: MSC-2406B		
Session Chair(s): Nancy Sottos, n-sottos@illinois.edu		
9:45 AM	10:15 AM	**From Nanotubes to Nanomine: My Collaborations with Cate**
		Linda Schadler, University of Vermont
		Speaker: Linda Schadler (Keynote Talk)
10:15 AM	10:45 AM	**Mapping the material properties of the extracellular matrix during development**
		Sarah Calve, University of Colorado Boulder
		Speaker: Sarah Calve (Keynote Talk)
10:45 AM	11:05 AM	**Machine Learning for the Experimental Mechanics of Structural Materials**
		Samantha Daly, University of California at Santa Barbara
		Speaker: Samantha Daly (Invited Talk)

11:05 AM	11:25 AM	**An Indentation-based Framework to Identify the Microscale Deformation Mechanisms in Collagenous Tissues**
		Amir Ostadi Moghaddam, Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign; Mahmuda Arshee, Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign; Amy Wagoner Johnson, Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, Carle Illinois College of Medicine, University of Illinois at Urbana-Champaign, Carl R. Woese Institute for Genomic Biology, University of Illinois at Urbana-Champaign
		Speaker: Amir Ostadi Moghaddam (Invited Talk)
Session: 3B, Room: MSC-2406B		
Session Chair(s): Nancy Sottos, n-sottos@illinois.edu		
11:40 AM	12:00 PM	**Inference of deformation mechanisms and constitutive response of soft material surrogates of biological tissue by data-driven variational system identification**
		Krishna Garikipati, University of Michigan; Zhenlin Wang, Apple Inc; Ellen Arruda, University of Michigan; Jon Estrada, University of Michigan
		Speaker: Krishna Garikipati (Invited Talk)
12:00 PM	12:20 PM	**Pathways to Commodity Mechanical Metamaterials – Auxeticity in Nonwoven Fiber Networks**
		Prateek Verma, Georgia Institute of Technology; Anselm Griffin, Georgia Institute of Technology; Meisha Shofner, Georgia Institute of Technology
		Speaker: Meisha Shofner (Invited Talk)
12:20 PM	12:40 PM	**Fabricating Strong Bioplastics from Algal Biological Matter: Challenges and Opportunities**
		Paul Grandgeorge, Department of Materials Science and Engineering, University of Washington; Andrew Jimenez, Department of Materials Science and Engineering, University of Washington; Ian Campbell, Department of Materials Science and Engineering, University of Washington; Hareesh Iyer, Department of Materials Science and Engineering, University of Washington; Michael Holden, Department of Materials Science and Engineering, University of Washington; Eleftheria Roumeli, Department of Materials Science and Engineering, University of Washington
		Speaker: Eleftheria Roumeli (Invited Talk)
Session: 4A, Room: MSC-2406B		
Session Chair(s): Linda Schadler, Linda.Schadler@uvm.edu		
2:15 PM	2:35 PM	**Emerging Fractal Potential Energy Landscape as the Origin of Activation Volume in Amorphous Solids**
		Yue Fan, University of Michigan, Ann Arbor
		Speaker: Yue Fan (Invited Talk)
2:35 PM	2:55 PM	**Determination of Critical Cellular Injury Thresholds for Detecting and Predicting Traumatic Brain Injuries**
		Luke Summey, University of Wisconsin-Madison; Annalise Daul, University of Wisconsin-Madison; Jessica Park, University of Wisconsin-Madison; Jamie Sergay, University of Wisconsin-Madison; Jing Zhang, University of Wisconsin-Madison; Christian Franck, University of Wisconsin-Madison
		Speaker: Christian Franck (Invited Talk)
2:55 PM	3:15 PM	**Soft Ionic Materials and Devices: Experiments, Equivalent Circuits, and Continuum Modeling**
		Meredith Silberstein, Cornell University; Nikola Bosnjak, Cornell University; Max Tepermeister, Cornell University; Xinyue Zhang, Cornell University

		Speaker: Meredith Silberstein (Invited Talk)
3:15 PM	3:35 PM	**Understanding time dependence in osmotically active, non-vascular-plant-inspired composites**
		Jeongeun Ryu, University of Illinois Urbana-Champaign; John Chen, University of Illinois Urbana-Champaign; Alexandra Spitzer, University of Illinois Urbana-Champaign; Amrita Kataruka, University of Illinois Urbana-Champaign; Shelby Hutchens, University of Illinois Urbana-Champaign
		Speaker: Shelby Hutchens (Invited Talk)
3:35 PM	3:55 PM	**Fast and Accurate Large-scale Ab Initio Calculations for Materials Modeling**
		Vikram Gavini, University of Michigan; Sambit Das, University of Michigan
		Speaker: Vikram Gavini (Invited Talk)
Session: 4B, Room: MSC-2406B		
Session Chair(s): Linda Schadler, Linda.Schadler@uvm.edu		
4:10 PM	4:30 PM	**In Situ Wear Study Reveals Role of Microstructure on Self-Sharpening Mechanism in Sea Urchin Teeth**
		Horacio Espinosa, Northwestern University; Alireza Zaheri, Northwestern University; Hoang Nguyen, Northwestern University; Nicolas Alderete, Northwestern University
		Speaker: Horacio Espinosa (Invited Talk)
4:30 PM	4:50 PM	**Cohesive Zone Modeling of Interphases**
		Kenneth Liechti, University of Texas; Noel Duckworth, Department of Aerospace Engineering and Engineering Mechanics The University of Texas at Austin Austin, TX 78712 USA; Kirill Rebrov, Oden Institute for Computational Engineering and Sciences The University of Texas at Austin Austin, TX 78712 USA; Gregory Rodin, Oden Institute for Computational Engineering and Sciences The University of Texas at Austin Austin, TX 78712 USA
		Speaker: Kenneth Liechti (Invited Talk)
4:50 PM	5:10 PM	**Engineering of Complexity in Biomimetic Nanocomposites**
		Nicholas Kotov, University of Michigan
		Speaker: Nicholas Kotov (Invited Talk)

1.3 Engineering Science Medal Symposium		
Session: 3A, Room: MSC-2405		
Session Chair(s): Shelly Zhang, zhangxs@illinois.edu		
9:45 AM	10:05 AM	**Learning from Multi-source Data Under Uncertainty**
		Mehdi Shishehbor, UCI; Sanaz Zanjani, UCI; Amin Yousefpour, UCI; Ramin Bostanabad, University of California, Irvine
		Speaker: Ramin Bostanabad (Invited Talk)
10:05 AM	10:25 AM	**A multi-physics design optimization framework for programmable magneto-active materials**
		Zhi Zhao, University of Illinois at Urbana Champaign; Xiaojia Shelly Zhang, University of Illinois at Urbana Champaign
		Speaker: Xiaojia Shelly Zhang (Invited Talk)
10:25 AM	10:45 AM	**Robust Topology Optimization of Electric Machines**

		Jiawei Tian, State University of New York at Stony Brook; Ran Zhuang, State University of New York at Stony Brook; Juan Cilia, GE Renewable Energy; Fang Luo, State University of New York at Stony Brook; Jon Longtin, State University of New York at Stony Brook; Shikui Chen, State University of New York at Stony Brook
		Speaker: Shikui Chen (Invited Talk)
10:45 AM	11:05 AM	**Quantification of Aleatoric Uncertainties in a Topological Spatial Domain**
		Hongyi Xu, University of Connecticut
		Speaker: Hongyi Xu (Invited Talk)
11:05 AM	11:25 AM	**On the importance of microstructure information in Bayesian materials design: PSP vs PP**
		Raymundo Arroyave, Department of Materials Science and Engineering, Texas A&M University; Danial Khatamsaz, Department of Mechanical Engineering, Texas A&M University; Abhilash Molkeri, Department of Materials Science and Engineering, Texas A&M University; Richard Couperthwaite, Department of Materials Science and Engineering, Texas A&M University; Jaylen James, Department of Materials Science and Engineering, Texas A&M University; Ankit Srivastava, Department of Materials Science and Engineering, Texas A&M University; Douglas Allaire, Department of Mechanical Engineering, Texas A&M University
		Speaker: Raymundo Arroyave (Invited Talk)
Session: 3B, Room: MSC-2405		
Session Chair(s): Shelly Zhang, zhangxs@illinois.edu		
11:40 AM	12:00 PM	**Computational and Data-Driven Design of Materials under Uncertainty**
		Pinar Acar, Virginia Tech; Arulmurugan Senthilnathan, Virginia Tech; Sheng Liu, Virginia Tech; Mahmudul Hasan, Virginia Tech; Kiara McMillan, Virginia Tech; Hengduo Zhao, Virginia Tech
		Speaker: Pinar Acar (Invited Talk)
12:00 PM	12:20 PM	**Simulation-based design optimization under uncertainty with computational fluid and solid mechanics applications**
		Anh Tran, Sandia National Laboratories; Yan Wang, Georgia Institute of Technology
		Speaker: Anh Tran (Invited Talk)
12:20 PM	12:40 PM	**Machine Learning-accelerated Molecular Design of High-temperature Polymers**
		Ying Li, University of Connecticut
		Speaker: Ying Li (Invited Talk)
Session: 4A, Room: MSC-2405		
Session Chair(s): Raymundo Arroyave, raymundo.arroyave@tamu.edu		
2:15 PM	2:45 PM	**Probabilistic learning for optimization**
		Roger Ghanem, University of Southern California
		Speaker: Roger Ghanem (Keynote Talk)
2:45 PM	3:05 PM	**Machine Learning and Artificial Intelligence in the Design Engineering Material Systems and Structures**
		Richard Malak, Texas A&M University
		Speaker: Richard Malak (Invited Talk)
3:05 PM	3:25 PM	**Advancing Autonomous Design via Bayesian Optimization over Problem Formulation Space**
		Douglas Allaire, Texas A&M University; Raymundo Arroyave, Texas A&M University; Joseph Wagner, Texas A&M University
		Speaker: Douglas Allaire (Invited Talk)

Session: 4B, Room: MSC-2405		
Session Chair(s): Raymundo Arroyave, raymundo.arroyave@tamu.edu		
4:10 PM	4:30 PM	**Machine Learning for Topology Optimization: Physics-based Learning Through an Independent Training Strategy**
		Fernando Vasconcelos da Senhora, Georgia Institute of Technology; Heng Chi, Siemens Corporation, Technology; Yuyu Zhang, Georgia Institute of Technology; Lucia Mirabella, Siemens Corporation, Technology; Tsz Ling Elaine Tang, Siemens Corporation, Technology; Glaucio Paulino, Princeton University
		Speaker: Fernando Vasconcelos da Senhora (Invited Talk)
4:30 PM	4:50 PM	**Multivariate Uncertainty Quantification**
		Xiaoping Du, Indiana University–Purdue University Indianapolis
		Speaker: Xiaoping Du (Invited Talk)
4:50 PM	5:10 PM	**Systematical Collision Avoidance Reliability Analysis and Characterization of Reliable System Operation for Autonomous Navigation Using the Dynamic Window Approach**
		Elnaz Asghari Torkamani, Rutgers University; Zhimin Xi, Rutgers University
		Speaker: Zhimin Xi (Invited Talk)

Thematic Area 2. Biomechanics & Mechanobiology

2.2 Cell and Tissue Mechanics in Health and Disease		
Session: 3A, Room: MSC-2404		
Session Chair(s): Roland Kaunas, rkaunas@tamu.edu; Farid Alisafaei, farid.alisafaei@njit.edu		
9:45 AM	10:15 AM	**Simulating cardiomyocyte contractility and remodelling in a beating heart**
		Jamie Concannon, National University of Ireland Galway; Ryan Coleman, National University of Ireland Galway; Patrick McGarry, National University of Ireland Galway
		Speaker: Patrick McGarry (Keynote Talk)
10:15 AM	10:45 AM	**Improving cardiovascular "diseases-in-a-dish" with active materials**
		Adam Engler, UC San Diego
		Speaker: Adam Engler (Keynote Talk)
10:45 AM	11:05 AM	**Sarcomere-like structures prevent podocyte detachment and template synaptopodin-positive extensions**
		Hani Y Suleiman, Washington University School of Medicine
		Speaker: Hani Suleiman (Invited Talk)
11:05 AM	11:25 AM	**Wall Shear Stress Characteristics in Angiogenic Microvascular Networks**
		Peter Balogh, New Jersey Institute of Technology
		Speaker: Peter Balogh (Invited Talk)
Session: 4A, Room: MSC-2404		
Session Chair(s): Roland Kaunas, rkaunas@tamu.edu; Farid Alisafaei, farid.alisafaei@njit.edu		
2:15 PM	2:35 PM	**Ablating microtissues: a new approach to link tissue mechanics to soft tissue repair**
		Jeroen Eyckmans, Boston University
		Speaker: Jeroen Eyckmans (Invited Talk)
2:35 PM	2:55 PM	**Matrix Reinforcement to Diminish Cartilage Degeneration**
		Jay Patel, Department of Orthopaedics, Emory University School of Medicine, Atlanta VA Medical Center; Michael Kowalski, Department of Orthopaedics, Emory University School of Medicine, Atlanta VA Medical Center
		Speaker: Jay Patel (Invited Talk)
2:55 PM	3:15 PM	**How does tricuspid valve remodeling affect its function: A computational investigation**
		Mrudang Mathur, University of Texas at Austin; Tomasz Timek, Spectrum Health; Manuel Rausch, University of Texas at Austin
		Speaker: Manuel Rausch (Invited Talk)
3:15 PM	3:35 PM	**Deciphering the Functional Relevance of 3D Genome Organization in Health and Disease**
		Rajan Jain, University of Pennsylvania
		Speaker: Rajan Jain (Invited Talk)
3:35 PM	3:55 PM	**Vascular Ehlers-Danlos Syndrome Patient-Derived Matrix Reveals Roles of Collagen III in ECM Assembly and Mechanics**
		William Polacheck, University of North Carolina at Chapel Hill; Elizabeth Doherty, University of North Carolina at Chapel Hill
		Speaker: Elizabeth Doherty (Invited Talk)

Session: 4B, Room: MSC-2404		
Session Chair(s): Roland Kaunas, rkaunas@tamu.edu; Farid Alisafaei, farid.alisafaei@njit.edu		
4:10 PM	4:30 PM	**Understanding the inelastic response of collagen fibrils: a viscoelastic-plastic constitutive model**
		Fernanda Fontenele, Cornell University; Nikolaos Bouklas, Cornell University
		Speaker: Nikolaos Bouklas (Invited Talk)
4:30 PM	4:50 PM	**Nonlinear strain feedback can create a rich set of spatial patterns among living cells**
		brian cox, gentleman scientist
		Speaker: Brian Cox (Invited Talk)
4:50 PM	5:10 PM	**Cervical Tissue Remodeling in Pregnancy and the Benefit of Rodent and Non-human Primate Models**
		Kristin Myers, Columbia University; Lei Shi, Columbia University; Nicole Lee, Columbia University; Shuyang Fang, Columbia University; Erin Louwagie, Columbia University; Joy Vink, Columbia University; Helen Feltovich, Intermountain Healthcare; Tim Hall, University of Wisconsin, Madison; Ivan Rosado-Mendez, University of Wisconsin, Madison; Mala Mahendroo, University of Texas Southwestern Medical Center
		Speaker: Kristin Myers (Invited Talk)

2.3 Cell Mechanics, Biomechanics and Mechanobiology		
Session: 3A, Room: MSC-2502		
Session Chair(s): Alireza Sarvestani, sarvestani_a@mercer.edu		
9:45 AM	10:05 AM	**Domain Aggregation and Associated Pore Growth in Lipid Membranes**
		Yue Liu, University of Michigan; Huajian Gao, Nanyang Technological University
		Speaker: Yue Liu (Contributed Talk)
10:05 AM	10:25 AM	**Boron Nitride Nanosheets Can Induce Water Channels Across Lipid Bilayers Leading to Lysosomal Permeabilization**
		Xuliang Qian, Nanyang Technological University
		Speaker: Xuliang Qian (Contributed Talk)
10:25 AM	10:45 AM	**Dynamics of I-BAR and actin mediated mechano-adaptation of cells**
		Nikhil Walani, Universitat Politecnica de Catalunya; Xarxa Quiroga, Institute for Bioengineering of Catalunya; Anabel-Lise Roux, Institute for Bioengineering of Catalunya; Pere-Roca Cusachs, Institute for Bioengineering of Catalunya, Universitat de Barcelona; Marino Arroyo, Universitat Politecnica de Catalunya, Centre Internacional de Metodes Numerics en Enginyeria, Institute for Bioengineering of Catalunya
		Speaker: Nikhil Walani (Contributed Talk)
10:45 AM	11:05 AM	**Theoretical and Computational Modelling of Cell-Cell Adhesion**
		Pradeep Bal, Universitat Politècnica de Catalunya; Guillermo Vilanova, Universitat Politècnica de Catalunya; Alejandro Torres-Sánchez, Universitat Politècnica de Catalunya; Marino Arroyo, Universitat Politècnica de Catalunya
		Speaker: Pradeep Kumar Bal (Invited Talk)
11:05 AM	11:25 AM	**Mechanics and microstructure underlying axonal deformation of neurons and neuronal injury**
		Debabrata Auddya, University of Wisconsin-Madison; Rahul Gulati, University of Wisconsin-Madison; Shiva Rudraraju, University of Wisconsin-Madison

		Speaker: Debabrata Auddya (Invited Talk)
Session: 3B, Room: MSC-2502		
Session Chair(s): Alireza Sarvestani, sarvestani_a@mercer.edu		
11:40 AM	12:00 PM	**Dynamics of Caveolar and Caveolin structures**
		Nikhil Walani, Universitat Politecnica de Catalunya; Guillermo Vilanova, Universitat Politecnica de Catalunya; Fidel Lolo, Centro Nacional de Investigaciones Cardiovasculares Madrid; Miguel Pozo, Centro Nacional de Investigaciones Cardiovasculares Madrid; Marino Arroyo, Universitat Politecnica de Catalunya, Institute for Bioengineering of Catalunya, Centre Internacional de Metodes Numerics en Enginyeria
		Speaker: Nikhil Walani (Contributed Talk)
12:00 PM	12:20 PM	**Theoretical and computational framework to investigate the role of cellular adhesion in epithelial mechanics**
		Maahi Talukder, Department of Mechanical Engineering, Virginia Tech; Sohan Kale, Department of Mechanical Engineering, Virginia Tech, Center for Soft Matter and Biological Physics, Virginia Tech
		Speaker: Maahi Talukder (Contributed Talk)
12:20 PM	12:40 PM	**Structural vs. Biological Variability: Analysis of Biaxial Mechano-adaptation of Vascular Smooth Muscle Cells**
		Ryan Mahutga, Department of Biomedical Engineering; University of Minnesota, Minneapolis, MN, USA; Patrick Alford, Department of Biomedical Engineering; University of Minnesota, Minneapolis, MN, USA
		Speaker: Ryan Mahutga (Contributed Talk)
Session: 4A, Room: MSC-2502		
Session Chair(s): Alireza Sarvestani, sarvestani_a@mercer.edu		
2:15 PM	2:45 PM	**Cells in 3D matrix: Order from randomness**
		M Taher Saif, University of Illinois at Urbana-Champaign
		Speaker: M Taher Saif (Keynote Talk)
2:45 PM	3:15 PM	**Mechanics of nuclear deformation in cells**
		Tanmay Lele, Texas A&M university; Richard Dickinson, University of Florida
		Speaker: Tanmay Lele (Keynote Talk)
3:15 PM	3:35 PM	**Thermodynamic Bases of Mechanotransduction at Intercellular Adherens Junctions**
		Alireza Sarvestani, Mercer University; Arsha Moorthy, Mercer University
		Speaker: Alireza Sarvestani (Invited Talk)
3:35 PM	3:55 PM	**Using brewery waste to clean water**
		Christos Athanasiou, Brown University; Patricia Stathatou, MIT Center of Bits and Atoms; Xuliang Qian, Nanyang Technological University; Neil Gershenfeld, MIT Center of Bits and Atoms; Huajian Gao, Nanyang Technological University
		Speaker: Christos Athanasiou (Contributed Talk)
Session: 4B, Room: MSC-2502		
Session Chair(s): Alireza Sarvestani, sarvestani_a@mercer.edu		
4:10 PM	4:40 PM	**Connecting cytoskeletal dynamics and tissue mechanics**
		Adam Ouzeri, Universitat Polite`cnica de Catalunya; Nimesh Chahare, Institute for Bioengineering of Catalonia (IBEC); Marco Pensalfini, Universitat Politecnica de Catalunya; Tom Golde, Institute for Bioengineering of Catalonia (IBEC); Sohan Kale, VirginiaTech;

		Alejandro Torres-Sánchez, Institute for Bioengineering of Catalonia (IBEC); Xavier Trepat, Institute for Bioengineering of Catalonia (IBEC); Marino Arroyo, Institute for Bioengineering of Catalonia (IBEC), Universitat Politècnica de Catalunya, Centre Internacional de Me`todes Nume`rics en Enginyeria (CIMNE)
		Speaker: Marino Arroyo (Keynote Talk)
4:40 PM	5:00 PM	**Chiral rotation of cells upon one-way torsional drive**
		Xi Li, Zhejiang University; Bin Chen, Zhejiang University
		Speaker: Bin Chen (Contributed Talk)

2.4 Mechanobiology of Disease		
Session: 4A, Room: Hotel-Laurel		
Session Chair(s): Tanmay Lele, tanmay.lele@tamu.edu		
2:15 PM	2:45 PM	**Engineering approaches yield new insights into invasive brain tumors**
		Sanjay Kumar, University of California, Berkeley
		Speaker: Sanjay Kumar (Keynote Talk)
2:45 PM	3:15 PM	**Biomechanics of Therapy Induced Senescence and the Evolving Tumor Microenvironment**
		Michelle Dawson, Brown University; Carolina Mejia-Pena, Brown University; Amy Lee, Brown University; Matthew Perricone, Brown University
		Speaker: Michelle Dawson (Keynote Talk)
3:15 PM	3:35 PM	**Biomechanics of Epithelial Tissue Homeostasis, Collapse, and Eversion**
		Richard Dickinson, University of Florida; Purboja Purkayastha, Texas A&M University; Tanmay Lele, Texas A&M University
		Speaker: Richard Dickinson (Invited Talk)
3:35 PM	3:55 PM	**Collective Cell Behavior in 3D Cell Assemblies—3D Printed Structures, Random Aggregates and Perfectly Precise Arrays**
		Thomas Angelini, University of Florida
		Speaker: Thomas Angelini (Invited Talk)
Session: 4B, Room: Hotel-Laurel		
Session Chair(s): Tanmay Lele, tanmay.lele@tamu.edu		
4:10 PM	4:40 PM	**Understanding and Exploiting Cancer Mechanobiology**
		Adam Engler, UC San Diego
		Speaker: Adam Engler (Keynote Talk)
4:40 PM	5:00 PM	**Self-assembled 3D Tumor Models on a Novel Biomechanical Sensor for Investigating Physicochemical Processes in Cancer**
		Bashar Emon, Mechanical Science and Engineering, University of Illinois at Urbana-Champaign; M Taher A Saif, Mechanical Science and Engineering, University of Illinois at Urbana-Champaign
		Speaker: Bashar Emon (Contributed Talk)

2.5 Mechanics of Engineered Living Materials		
Session: 3A, Room: Hotel-Laurel		
Session Chair(s): Jing Yan, jing.yan@yale.edu		
9:45 AM	10:05 AM	**The growth and form of natural honeycomb**
		Padmanabha Saikia, University of Cambridge, Technische Universität Berlin; Angkur Shaikeea, University of Cambridge; Vikram Deshpande, University of Cambridge
		Speaker: Padmanabha Saikia (Contributed Talk)
10:05 AM	10:25 AM	**Digitally programmable manufacturing of living materials grown from biowaste**
		Suitu Wang, Texas A&M University; Laura Rivera-Tarazona, Texas A&M University; Mustafa Abdelrahman, Texas A&M University; Taylor Ware, Texas A&M University
		Speaker: Suitu Wang (Contributed Talk)
10:25 AM	10:45 AM	**Biofilms as active materials**
		Qiuting Zhang, Yale University; Danh Nguyen, University of Connecticut; Alexis Moreau, Yale University; Ying Li, University of Connecticut; Jing Yan, Yale University
		Speaker: Jing Yan (Invited Talk)

2.6 Injury Biomechanics Symposium		
Session: 3B, Room: Hotel-Laurel		
Session Chair(s): Amy Dagro, amy.m.dagro.civ@army.mil; Reuben Kraft, rhk12@psu.edu		
11:40 AM	12:00 PM	**Development of Subject-Specific 3D Human Head Models Based on a Nonlinear Visco-Hyperelastic Constitutive Framework**
		Kshitiz Upadhyay, Johns Hopkins University; Ahmed Alshareef, Johns Hopkins University; Andrew Knutsen, The Henry M. Jackson Foundation for the Advancement of Military Medicine; Curtis Johnson, University of Delaware; Aaron Carass, Johns Hopkins University; Philip Bayly, Washington University in St. Louis; Dzung Pham, The Henry M. Jackson Foundation for the Advancement of Military Medicine; Jerry Prince, Johns Hopkins University; K.T. Ramesh, Johns Hopkins University
		Speaker: Kshitiz Upadhyay (Contributed Talk)
12:00 PM	12:20 PM	**Prediction of facial overpressure using body worn sensors and machine learning algorithms in military blast environments**
		Reuben Kraft, Penn State University; Charles Dye, Penn State University; Jackson Mackay, Penn State University; Anish Roy, Indian Institute of Technology, Delhi
		Speaker: Reuben Kraft (Contributed Talk)

Thematic Area 3. Data Science & Machine Learning

3.1 Advancing Multi-scale Modeling Capabilities in Metal Additive MFG through Machine Learning		
Session: 4B, Room: MSC-2505		
Session Chair(s): Jobin Joy, jobinjoy@tamu.edu		
9:45 AM	10:05 AM	**Physics-informed machine learning for metal additive manufacturing: processing modeling and powder spattering**
		Qiming Zhu, University of Illinois at Urbana-Champaign; Xuxiao Li, Global Engineering and Materials, Inc.; Jim Lua, Global Engineering Materials, Inc; Nam Phan, Naval Air Systems Command; Jinhui Yan, University of Illinois at Urbana-Champaign
		Speaker: Jinhui Yan (Contributed Talk)
10:05 AM	10:25 AM	**Obtaining all Material Sensitivities of a Mechanical Model from a Single Simulation**
		Joseph Carter, Brigham Young University; Christopher Stubbs, Fairleigh Dickinson University; Douglas Cook, Brigham Young University
		Speaker: Joseph Carter (Contributed Talk)
10:25 AM	10:45 AM	**A Robotic Path Planning Tool for the Automated Design of Compositionally Graded Alloys**
		Marshall Allen, Department of Mechanical Engineering, Texas A&M University; Jonathan Frutschy, Department of Mechanical Engineering, Texas A&M University; Raymundo Arroyave, Department of Materials Science & Engineering, Texas A&M University, Department of Mechanical Engineering, Texas A&M University; Richard Malak, Department of Mechanical Engineering, Texas A&M University
		Speaker: Marshall Allen (Contributed Talk)

3.3 Data-Driven Approaches for Complex Multiphysics Systems, Structures, and Materials		
Session: 3A, Room: MSC-2505		
Session Chair(s): Hongyi Xu, hongyi.3.xu@uconn.edu		
9:45 AM	10:05 AM	**Neural Network Models of Phase Field Simulations**
		Haiying Yang, Texas A&M University; Michael Demkowicz, Texas A&M University
		Speaker: Haiying Yang (Contributed Talk)
10:05 AM	10:25 AM	**Solar Swarms for Urban Energy Harvesting: A Modeling Approach**
		Andrés Arias-Rosales, Carnegie Mellon University; Philip LeDuc, Carnegie Mellon University
		Speaker: Andrés Arias-Rosales (Contributed Talk)
10:25 AM	10:45 AM	**Neural Networks for Model Order Reduction in Simulations of Structural Mechanics: Slinky as a Test Case**
		Qiaofeng Li, University of California, Los Angeles; Dezhong Tong, University of California, Los Angeles; Vwani Roychowdhury, University of California, Los Angeles; Mohammad Khalid Jawed, University of California, Los Angeles
		Speaker: Mohammad Khalid Jawed (Invited Talk)
10:45 AM	11:05 AM	**Graph Neural Networks as Structure-Property Model for Architected Materials**
		Paul Meyer, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH) Zurich; Colin Bonatti, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH) Zurich; Thomas Tancogne-Dejean,

		Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH) Zurich; Dirk Mohr, Department of Mechanical and Process Engineering, Swiss Federal Institute of Technology (ETH) Zurich
		Speaker: Paul Meyer (Contributed Talk)
11:05 AM	11:25 AM	**Predicting Mechanically Driven Emergent Behavior from Graph Neural Networks**
		Peerasait Prachaseree, Boston University; Emma Lejeune, Boston University
		Speaker: Peerasait Prachaseree (Contributed Talk)
Session: 3B, Room: MSC-2505		
Session Chair(s): Hongyi Xu, hongyi.3.xu@uconn.edu		
11:40 AM	12:00 PM	**Machine learning-assisted discovery of novel Ni-rich NiTiHfZr multi-component shape memory alloys**
		John Broucek, Department of Materials Science and Engineering, Texas A&M University; William Trehern, Department of Materials Science and Engineering, Texas A&M University; Daniel Salas, Department of Materials Science and Engineering, Texas A&M University; Ibrahim Karaman, Department of Materials Science and Engineering, Texas A&M University
		Speaker: John Broucek (Contributed Talk)
12:00 PM	12:20 PM	**Towards Out of Distribution Generalization for Problems in Mechanics**
		Lingxiao Yuan, Boston University; Emma Lejeune, Boston University; Harold Park, Boston University
		Speaker: Lingxiao Yuan (Contributed Talk)
12:20 PM	12:40 PM	**A nonlinear substructure method for efficient reduced-order structural modeling based on a classical plasticity framework**
		Patrick Walgren, Texas A&M University; Darren Hartl, Texas A&M University
		Speaker: Patrick Walgren (Contributed Talk)
Session: 4A, Room: MSC-2505		
Session Chair(s): Juner Zhu, ZHUJUNER@mit.edu		
2:15 PM	2:35 PM	**Optimization of an Optical Shutter using Machine Learning**
		Benjamin Jasperson, University of Illinois at Urbana-Champaign; Harley Johnson, University of Illinois at Urbana-Champaign
		Speaker: Benjamin Jasperson (Contributed Talk)
2:35 PM	2:55 PM	**NN-EUCLID: Deep Learning Hyperelasticity Without Stress Data**
		Prakash Thakolkaran, Delft University of Technology; Akshay Joshi, Delft University of Technology; Yiwen Zheng, Delft University of Technology; Moritz Flaschel, ETH Zurich; Laura De Lorenzis, ETH Zurich; Siddhant Kumar, Delft University of Technology
		Speaker: Prakash Thakolkaran (Contributed Talk)
2:55 PM	3:15 PM	**Geometric Modeling and System Identification Toward Efficient Reduced-order Nonlinear Static Aeroelasticity Analysis**
		Trent White, Texas A&M University; Darren Hartl, Texas A&M University
		Speaker: Trent White (Contributed Talk)

3.4 Data-driven and Machine-learning based Mechanics of Materials		
Session: 3A, Room: MSC-1400		
Session Chair(s): Miguel Bessa, M.A.Bessa@tudelft.nl		
9:45 AM	10:15 AM	**Machine Learning Accelerated, High Throughput, Multi-Objective Optimization of Multiprincipal Element Alloys**
		Tian Guo, University of Maryland, College Park; Lianping Wu, University of Maryland, College Park; Teng Li, University of Maryland, College Park
		Speaker: Teng Li (Keynote Talk)
10:15 AM	10:45 AM	**EUCLID: Learning material models without stress data**
		Siddhant Kumar, Delft University of Technology; Moritz Flaschel, ETH Zurich; Prakash Thakolkaran, Delft University of Technology; Akshay Joshi, Delft University of Technology; Laura De Lorenzis, ETH Zurich
		Speaker: Siddhant Kumar (Keynote Talk)
10:45 AM	11:05 AM	**Automatedly Discovering Simplified Governing Equations for Applied Mechanics Problems from Simulated Data**
		Hanqing Jiang, Westlake University; Yong Wang, Zhejiang University
		Speaker: Hanqing Jiang (Contributed Talk)
11:05 AM	11:25 AM	**Data-Driven Discovery of Computationally Complex Ceramics For Extreme Environments**
		Ghatu Subhash, University of Florida
		Speaker: Ghatu Subhash (Contributed Talk)
Session: 3B, Room: MSC-1400		
Session Chair(s): Steve Sun, wsun@columbia.edu		
11:40 AM	12:00 PM	**Predicting multiple crack propagation and coalescence using graph neural networks**
		Roberto Perera, Auburn University; Vinamra Agrawal, Auburn University
		Speaker: Vinamra Agrawal (Contributed Talk)
12:00 PM	12:20 PM	**Architected Disordered Truss Metamaterials: Graph Learning meets Statistical Physics**
		Konstantinos Karapiperis, Mechanics and Materials Lab, Department of Mechanical and Process Engineering, ETH Zurich; Dennis Kochmann, Mechanics and Materials Lab, Department of Mechanical and Process Engineering, ETH Zurich
		Speaker: Konstantinos Karapiperis (Contributed Talk)
12:20 PM	12:40 PM	**Accelerating Random Heterogeneous Material Design via deep learning: A physically-aware approach applied to electro-active composites**
		Azadeh Sheidaei, Iowa state university; Mohammad Hashemi, Iowa state university; Khiem Nguyen, University of Glasgow
		Speaker: Azadeh Sheidaei (Contributed Talk)
Session: 4A, Room: MSC-1400		
Session Chair(s): Nikolaos Bouklas, nb589@cornell.edu		
2:15 PM	2:35 PM	**Data-driven Discovery of Equations Governing Ultrasonic Wave Motion**
		Abigail Schmid, University of Colorado Boulder Department of Civil, Environmental and Architectural Engineering; Fatemeh Pourahmadian, University of Colorado Boulder Department of Civil, Environmental and Architectural Engineering; Alireza Doostan, University of Colorado Boulder Ann & H.J. Smead Department of Aerospace Engineering Sciences

		Speaker: Abigail Schmid (Contributed Talk)
2:35 PM	2:55 PM	**Accurate prediction of grain boundary properties using machine learning and strain functional descriptors**
		Avanish Mishra, Theoretical Division (T-1), Los Alamos National Laboratory, Los Alamos, NM, 87545; Sumit Suresh, Materials Science and Technology (MST-8), Los Alamos National Laboratory, Los Alamos, NM, 87545; Khanh Dang, Materials Science and Technology (MST-8), Los Alamos National Laboratory, Los Alamos, NM, 87545; Saryu Fensin, Materials Science and Technology (MST-8), Los Alamos National Laboratory, Los Alamos, NM, 87545; Edward Kober, Theoretical Division (T-1), Los Alamos National Laboratory, Los Alamos, NM, 87545; Nithin Mathew, Theoretical Division (T-1), Los Alamos National Laboratory, Los Alamos, NM, 87545
		Speaker: Avanish Mishra (Contributed Talk)
2:55 PM	3:15 PM	**Role of length-scale in machine learning based image analysis of fracture surfaces**
		Xinzhu Zheng, Texas A&M University, College Station, TX, USA; Bekassyl Battalgazy, Texas A&M University, College Station, TX, USA; Abhilash Molkeri, Texas A&M University, College Station, TX, USA; Shmuel Osovski, Texas A&M University, College Station, TX, USA; Ankit Srivastava, Texas A&M University, College Station, TX, USA
		Speaker: Bekassyl Battalgazy (Contributed Talk)
3:15 PM	3:35 PM	**Machine-Learned Surrogate Models for Threaded Fastener Geometries Subjected to Multiaxial Loadings**
		John Mersch, Sandia National Laboratories; Eric Parish, Sandia National Laboratories; Chi Hoang, Sandia National Laboratories; Tim Shelton, Sandia National Laboratories; Payton Lindsay, Sandia National Laboratories
		Speaker: John Mersch (Contributed Talk)
3:35 PM	3:55 PM	**Probabilistic Calibration of Underdetermined Material Models Using a Variational Autoencoder-Based Neural Pipeline**
		Liam Mackin, ATA Engineering; David Najera, ATA Engineering
		Speaker: Liam Mackin (Contributed Talk)
Session: 4B, Room: MSC-1400		
Session Chair(s): Miguel Bessa, M.A.Bessa@tudelft.nl		
4:10 PM	4:30 PM	**Phase-Field Fracture Modeling using Physics-Informed Deep Learning**
		Manav Manav, ETH Zurich; Roberto Molinaro, ETH Zurich; Siddhartha Mishra, ETH Zurich; Laura De Lorenzis, ETH Zurich
		Speaker: Manav Manav (Contributed Talk)
4:30 PM	4:50 PM	**High-throughput Generation of Three-dimensional Graphene Metamaterials and Property Quantification Using Machine Learning**
		Zhenze Yang, Massachusetts Institute of Technology; Markus Buehler, Massachusetts Institute of Technology
		Speaker: Zhenze Yang (Contributed Talk)
4:50 PM	5:10 PM	**Using Neural Networks to Explore the Effects of Topology and Structural Hierarchy on Energy Absorption in Bio-inspired Honeycombs**
		Shashank Kushwaha, University of Illinois Urbana-Champaign; Junyan He, University of Illinois Urbana-Champaign; Diab Abueidda, University of Illinois Urbana-Champaign; Iwona Jasiuk, University of Illinois Urbana-Champaign
		Speaker: Shashank Kushwaha (Contributed Talk)

3.7 Uncertainty Quantification: An Interactive Symposium on Applications, Theory, and Education		
Session: 3A, Room: MSC-1403		
Session Chair(s): Douglas Cook, ddc971@byu.edu		
9:45 AM	10:05 AM	**Predicting parametric spatiotemporal dynamics by multi-resolution PDE structure-preserved deep learning**
		Xin-yang Liu, University of Notre Dame; Hao Sun, Renming University of China; Jian-xun Wang, University of Notre Dame
		Speaker: Xinyang Liu (Invited Talk)
10:05 AM	10:25 AM	**Bayesian neural networks for weak solution of PDEs with uncertainty quantification**
		Xiaoxuan Zhang, University of Michigan, Ann Arbor; Krishna Garikipati, University of Michigan, Ann Arbor
		Speaker: Krishna Garikipati (Invited Talk)
10:25 AM	10:45 AM	**Bayesian Inference of Plastic Properties of Solids from Indentation**
		Yupeng Zhang, Northwestern University; Alan Needleman, Texas A&M University
		Speaker: Yupeng Zhang (Invited Talk)
10:45 AM	11:05 AM	**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
		Speaker: Daniel Seidl (Invited Talk)
11:05 AM	11:25 AM	**Comparative Analysis of Consolidation Methods for Benchmark Selection in Nuclear Criticality Safety**
		Jeongwon Seo, Purdue University
		Speaker: Jeongwon Seo (Invited Talk)
Session: 3B, Room: MSC-1403		
Session Chair(s): Kathleen Schmidt, schmidt41@llnl.gov		
11:40 AM	12:00 PM	**Calibration and Uncertainty Propagation of Multiaxially Loaded Threaded Fasteners**
		John Mersch, Sandia National Laboratories; Paul Miles, Sandia National Laboratories; George Orient, Sandia National Laboratories
		Speaker: John Mersch (Invited Talk)
12:00 PM	12:20 PM	**Quantifying Uncertainties in Multiscale Modeling of Materials**
		Xingsheng Sun, University of Kentucky
		Speaker: Xingsheng Sun (Invited Talk)
12:20 PM	12:40 PM	**Improving Uncertainty Quantification of Interatomic Potentials using Sloppy Model Analysis**
		Yonatan Kurniawan, Brigham Young University; Mark Transtrum, Brigham Young University; Cody Petrie, Brigham Young University; Dylan Bailey, Brigham Young University
		Speaker: Yonatan Kurniawan (Invited Talk)
Session: 4A, Room: MSC-1403		
Session Chair(s): Daniel (Tom) Seidl, dtseidl@sandia.gov		
2:15 PM	2:35 PM	**A Practical Application of Global Sensitivity Analysis for Stochastic Epidemiology Models in Support of Policy Decisions**
		Erin Acquesta, Sandia National Laboratories; Katherine Klise, Sandia National Laboratories; Walt Beyeler, Sandia National Laboraories; Patrick Finley, Sandia National Laboratories; Monear Makvandi, Sandia National Laboratories

		Speaker: Erin Acquesta (Invited Talk)
2:35 PM	2:55 PM	**Sequential Experimental Design for Materials Strength Model Calibration**
		Kathleen Schmidt, Lawrence Livermore National Laboratory; William Schill, Lawrence Livermore National Laboratory; Matthew Nelms, Lawrence Livermore National Laboratory; Nathan Barton, Lawrence Livermore National Laboratory
		Speaker: Kathleen Schmidt (Invited Talk)
2:55 PM	3:15 PM	**High-Dimensional Uncertainty Quantification in Overparameterized Regimes**
		Katiana Kontolati, Johns Hopkins University; Somdatta Goswami, Brown University; George Karniadakis, Brown University; Michael Shields, Johns Hopkins University
		Speaker: Katiana Kontolati (Invited Talk)
3:15 PM	3:35 PM	**Goal-Oriented Optimal Experimental Design for Nonlinear Physical Systems**
		Shijie Zhong, Shanghai Jiao Tong University; Wanggang Shen, University of Michigan; Thomas Catanach, Sandia National Laboratories; Xun Huan, University of Michigan
		Speaker: Xun Huan (Invited Talk)
3:35 PM	3:55 PM	**A Hierarchical and Mass-Normalized Approach for Assessing the Influence (Sensitivity) of Geometric Parameters in Mechanical Systems**
		Ryan Hall, Brigham Young University; Douglas Cook, Brigham Young University
		Speaker: Douglas Cook (Contributed Talk)
Session: 4B, Room: MSC-1403		
Session Chair(s): Katiana Kontalati, kontolati@jhu.edu		
4:10 PM	4:30 PM	**Bayesian neural networks for weak solution of PDEs with uncertainty quantification**
		Krishna Garikipati, University of Michigan; Xiaoxuan Zhang, University of Michigan
		Speaker: Krishna Garikipati (Contributed Talk)
4:30 PM	4:50 PM	**Deep Convolutional Ritz Method: Parametric PDE surrogates without labeled data**
		Jan Niklas Fuhg, Cornell University; Arnav Karmarkar, Cornell University; Teeratorn Kadeethum, Sandia National Labs; Hongkyu Yoon, Sandia National Labs; Nikolaos Bouklas, Cornell University
		Speaker: Jan Niklas Fuhg (Contributed Talk)
4:50 PM	5:10 PM	**Uncertainty reduction of isotopic prediction using PCM validation method**
		Shiming Yin, Purdue University; Dongli Huang, Purdue University; Hany Abdel-Khalik, Purdue University
		Speaker: Shiming Yin (Contributed Talk)

Thematic Area 4. Fluid & Granular

4.1 Computational Fluid Dynamics for Engineering Applications		
Session: 3A, Room: Hotel-Shield		
Session Chair(s): Paul Cizmas, cizmas@tamu.edu		
9:45 AM	10:05 AM	**Simulations of left ventricular flow by integrating moving boundary technique and magnetic resonance image registration**
		Tanmay Mukherjee, Department of Biomedical Engineering, Texas A&M University, College Station, TX 77840; Reza Avazmohammadi, Department of Biomedical Engineering, Texas A&M University, College Station, TX 77840, Department of Mechanical Engineering, Texas A&M University, College Station, TX 77840
		Speaker: Tanmay Mukherjee (Contributed Talk)
10:05 AM	10:25 AM	**The challenges of simulating the near-field flow for sonic boom prediction**
		Paul Cizmas, Texas A&M University
		Speaker: Justin Schoppe (Contributed Talk)
10:25 AM	10:45 AM	**Gas Transport Networks: Numerical Solution of Steady-State Flow Equations**
		Shriram Srinivasan, Los Alamos National Laboratory
		Speaker: Shriram Srinivasan (Contributed Talk)

4.3 Laser-based Methods for High-speed and Reacting Flows Diagnostics		
Session: 3B, Room: Hotel-Shield		
Session Chair(s): Richard Miles, rmiles@tamu.edu		
11:40 AM	12:00 PM	**Aero-optical effects as non-intrusive diagnostics tool**
		Stanislav Gordeyev, University of Notre Dame
		Speaker: Stanislav Gordeyev (Invited Talk)
12:00 PM	12:20 PM	**Acetone PLIF visualization of plasma-assisted mixing in supersonic flow**
		Sergey Leonov, University of Notre Dame; Skye Elliott, GE Research Center; Philip Lax, University of Notre Dame
		Speaker: Sergey Leonov (Invited Talk)
12:20 PM	12:40 PM	**Characterization of Thermal Non-Equilibrium in a Hypersonic Boundary Layer**
		Ashley Moran, Texas A&M University; Zachary Buen, Texas A&M University; Rodney Bowersox, Texas A&M University; Simon North, Texas A&M University
		Speaker: Ashley Moran (Contributed Talk)
Session: 4A, Room: Hotel-Shield		
Session Chair(s): Sergey B Leonov, sleonov@nd.edu		
2:15 PM	2:45 PM	**Slow Light Imaging Spectroscopy and its Promise for High-speed and Reacting Flow Diagnostics**
		Richard Miles, Texas A&M University; Arthur Dogariu, Texas A&M University; Chistopher Limbach, Texas A&M University; James Creel, Texas A&M University; Junhwi Bak, Texas A&M University; Amirhossein Abbasszadehrad, Texas A&M University; Anuj Rekhy, Texas A&M University; Boris Leonov, Texas A&M University

		Speaker: Richard Miles (Keynote Talk)
2:45 PM	3:05 PM	**Temporal and spatial mapping of neutral atom density in RF-heated plasmas using fs-TALIF**
		Arthur Dogariu, Texas A&M University Aerospace Engineering; Eugene Evans, Princeton Plasma Physics Lab; Sangeeta Vinoth, Princeton Plasma Physics Lab; Samuel Cohen, Princeton Plasma Physics Lab
		Speaker: Arthur Dogariu (Invited Talk)
3:05 PM	3:25 PM	**Laser interferometry and optomechanical inertial sensing technologies**
		Felipe Guzman, Texas A&M University
		Speaker: Felipe Guzman (Invited Talk)
Session: 4B, Room: Hotel-Shield		
Session Chair(s): Stanislav Gordeyev, sgordeye@nd.edu		
4:10 PM	4:30 PM	**Flame Kernel Initiation Studies in Aluminum Dust Clouds Inside a Minimum Ignition Energy Testing Device**
		Christian Schweizer, Texas A&M University; Chad Mashuga, Texas A&M University; Waruna Kulatilaka, Texas A&M University
		Speaker: Christian Schweizer (Contributed Talk)
4:30 PM	4:50 PM	**Velocity and Temperature Measurements of a Hypersonic Boundary Layer Using the VENOM Technique**
		Madeline Smotzer, Texas A&M University; Ashley Moran, Texas A&M University; Casey Broslawski, Texas A&M University; Zachary Buen, Texas A&M Univeristy; Dr. Rodney Bowersox, Texas A&M University; Dr. Simon North, Texas A&M University
		Speaker: Madeline Smotzer (Contributed Talk)

Thematic Area 5. Manufacturing & Infrastructure

5.2 Advanced Manufacturing: Materials, Mechanics, Processing and Data		
Session: 3A, Room: MSC-2503		
Session Chair(s): Satish Bukkapatnam, satish@tamu.edu; Mohamed El Mansori, mohamed.elmansori@ensam.eu		
9:45 AM	10:05 AM	**A Framework for Printability Maps in Laser Powder Bed Fusion of AISI 316L Stainless Steel**
		Muhammad Mahmood, Texas A&M University at Qatar; Asif Ur Rehman, Gazi University; Marwan Khraisheh, Texas A&M University - Qatar
		Speaker: Marwan Khraisheh (Invited Talk)
10:05 AM	10:25 AM	**Optimal and continuous multi-lattice embedding**
		Emily Sanders, Georgia Institute of Technology; Anderson Pereira, Pontifical Catholic University of Rio de Janeiro; Glaucio Paulino, Princeton University
		Speaker: Emily Sanders (Invited Talk)
10:25 AM	10:45 AM	**Optimally-tailored spinodal architected materials for multiscale design and manufacturing**
		Fernando Senhora, Georgia Institute of Technology; Emily Sanders, Georgia Institute of Technology; Glaucio Paulino, Princeton University
		Speaker: Emily Sanders (Invited Talk)
10:45 AM	11:05 AM	**Fatigue and corrosion fatigue of additively manufactured 18Ni-C300 maraging steel enhanced by post-treatments**
		Apostolos Arvanitidis, Physical Metallurgy Laboratory, Dept. of Mechanical Engineering, School of Engineering, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece, Center for Research & Development of Advanced Materials (CERDAM), Aristotle University of Thessaloniki (AUTh) and Texas A&M Engineering Experiment Station (TEES); Fotis Kazelis, Physical Metallurgy Laboratory, Dept. of Mechanical Engineering, School of Engineering, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece; Homero Castaneda, National Corrosion and Materials Reliability Center, Materials Science and Engineering, Texas A&M University, College Station, TX 77843; Nikolaos Michailidis, Physical Metallurgy Laboratory, Dept. of Mechanical Engineering, School of Engineering, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece, Center for Research & Development of Advanced Materials (CERDAM), Aristotle University of Thessaloniki (AUTh) and Texas A&M Engineering Experiment Station (TEES)
		Speaker: Nikolaos Michailidis (Invited Talk)
11:05 AM	11:25 AM	**Milling of Aluminum Surfaces for AI-based Proactive Quality Control Measured by on-machine Chromatic Confocal Technology**
		Ricardo Knoblauch, Arts et Metiers Institute of Technology; Mohamed Elmansori, Arts et Metiers Institute of Technology; Cosimi Corleto, Stil Marposs
		Speaker: Ricardo Knoblauch (Invited Talk)
Session: 3B, Room: MSC-2503		
Session Chair(s): Satish Bukkapatnam, satish@tamu.edu; Mohamed El Mansori, mohamed.elmansori@ensam.eu		
11:40 AM	12:00 PM	**Embedding Information in Additively Manufactured Metals via Magnetic Property Grading for Traceability and Counterfeiting Prevention**
		Daniel Salas, Department of Materials Science and Engineering, Texas A&M University, College Station, TX, USA; Deniz Ebeperi, Department of Materials Science and Engineering, Texas A&M University, College Station, TX, USA; Richard Malak, Department of

		Mechanical Engineering, Texas A&M University, College Station, TX, USA; Raymundo Arróyave, Department of Materials Science and Engineering, Texas A&M University, College Station, TX, USA; Ibrahim Karaman, Department of Materials Science and Engineering, Texas A&M University, College Station, TX, USA
		Speaker: Daniel Salas (Contributed Talk)
12:00 PM	12:20 PM	**Sustainable Manufacturing of Water Treatment Membranes: Transforming End-of-Life Reverse Osmosis (RO) Membranes into high Performing Nanofiltration (NF) Membranes**
		Abedalkader Alkhouzaam, Texas A&M University at Qatar; Marwan Khraisheh, Texas A&M University - Qatar
		Speaker: Marwan Khraisheh (Invited Talk)
12:20 PM	12:40 PM	**Thin Steel Strip Production using Metal Peeling**
		Parth Dave, Texas A&M University; Aditya Yalamanchili, Texas A&M University; Ravi Srivatsa, Texas A&M University; Ashish Devkota, Texas A&M University; Matthew Stahr, Texas A&M University; Prahakar Pagilla, Texas A&M University; Dinakar Sagapuram, Texas A&M University
		Speaker: Parth Dave (Contributed Talk)
Session: 4A, Room: MSC-2503		
Session Chair(s): Nikos Michailidis, nmichail@tamu.edu		
2:15 PM	2:45 PM	**From Formability to Useability: Damage Controlled Forming Processes**
		A. Erman Tekkaya, TU Dortmund University, Institute of Forming Technology and Lightweight Components
		Speaker: A. Erman Tekkaya (Keynote Talk)
2:45 PM	3:05 PM	**Manufacturing of complex 3D surfaces inspired by biological growth mechanics**
		Jiajia Shen, University of Bristol, UK; Rainer Groh, University of Bristol
		Speaker: Rainer Groh (Contributed Talk)
3:05 PM	3:25 PM	**Crashworthiness Performance and Energy Absorption of a Bio-Inspired Prepreg Carbon Fiber Composite Structures**
		Fatima Alabtah, Texas A&M University at Qatar; Elsadig Mahdi, Qatar University; Marwan Khraisheh, Texas A&M University - Qatar
		Speaker: Marwan Khraisheh (Contributed Talk)
3:25 PM	3:55 PM	**An Inelastic Model with Embedded Bounce-Back Control for 3D Printing with Cementitious Materials**
		Arif Masud, University of Illinois at Urbana-Champaign; Ignasius Wijaya, University of Illinois at Urbana-Champaign
		Speaker: Arif Masud (Keynote Talk)
Session: 4B, Room: MSC-2503		
Session Chair(s): Nikos Michailidis, nmichail@tamu.edu		
4:10 PM	4:30 PM	**3D Nanoprinting with Nanocluster-Based Photoresists**
		Wendy Gu, Stanford University; Qi Li, Stanford University; John Kulikowski, Stanford University; David Doan, Stanford University
		Speaker: Wendy Gu (Contributed Talk)
4:30 PM	4:50 PM	**Microstructure and Mechanical Deformation of Chemically-Derived, Additively Manufactured nano-sized Ni**
		Wenxin Zhang, California Institute of Technology; Julia Greer, California Institute of Technology
		Speaker: Wenxin Zhang (Contributed Talk)
4:50 PM	5:10 PM	**Development of Methods to Evaluate Printability of Concrete Materials for Additive Manufacturing.**

		Youssef Mortada, Texas A&M University - Material Science and Engineering Department; Malek Mohammad, Texas A&M University at Qatar; Bilal Mansoor, Texas A&M University at Qatar - Mechanical Engineering Department; Zachary Grasley, Texas A&M University - Civil & Environmental Engineering; Eyad Masad, Texas A&M University at Qatar - Mechanical Engineering Department
		Speaker: Youssef Mortada (Contributed Talk)

5.3 Mechanics and Materials for Infrastructure and Construction		
Session: 3A, Room: MSC-2504		
Session Chair(s): Xijun (Jeff) Shi, xijun.shi@txstate.edu; Shadi Saadeh, shadi.saadeh@csulb.edu		
9:45 AM	10:05 AM	**Use of Simplified Viscoelastic Continuum Damage Approach to Evaluate the Fatigue Performance of Asphalt Binders at the Sand Asphalt Mortar Scale**
		Joao Pioli, Sao Carlos School of Engineering, University of Sao Paulo; Adalberto Faxina, Sao Carlos School of Engineering, University of Sao Paulo; Jamilla Teixeira, University of Nebraska - Lincoln
		Speaker: Jamilla Teixeira (Invited Talk)
10:05 AM	10:25 AM	**Digital Image Correlation of Desiccation Behavior in Basalt Microfiber-reinforced Bentonite as an Engineered Barrier Material for Geological Repository of Nuclear Waste**
		Julia Grasley, Texas A&M University; Abdullah Azzam, Texas A&M University; Mohammad Rahmani, Texas A&M University; Yong-Rak Kim, Texas A&M University; Jongwan Eun, University of Nebraska-Lincoln; Seunghee Kim, University of Nebraska-Lincoln
		Speaker: Julia Grasley (Invited Talk)
10:25 AM	10:45 AM	**Deflection of a Beam under Combined Transverse and Tensile Axial Loads**
		Linda Teka, Department of Civil Engineering and Engineering Mechanics, Columbia University, New York City, NY, 10027; Lucas Grafals, Department of Civil Engineering and Engineering Mechanics, Columbia University, New York City, NY, 10027; Liming Li, Department of Civil Engineering and Engineering Mechanics, Columbia University, New York City, NY, 10027; Huiming Yin, Department of Civil Engineering and Engineering Mechanics, Columbia University, New York City, NY, 10027
		Speaker: Linda Teka (Invited Talk)
10:45 AM	11:05 AM	**Multiphysics Computational Modeling of Desiccation Behavior in Inorganic Microfiber-Reinforced Bentonite for Geological Repository of Nuclear Waste**
		Mohammad Rahmani, Texas A&M University; Julia Grasley, Texas A&M University; Abdullah Azzam, Texas A&M University; Yong-Rak Kim, Texas A&M University; Jongwan Eun, University of Nebraska-Lincoln; Seunghee Kim, University of Nebraska-Lincoln
		Speaker: Mohammad Rahmani (Invited Talk)
11:05 AM	11:25 AM	**Multiscale Modeling and Analysis to Predict Performance of Roadways**
		Santosh Reddy Kommidi, Texas A&M University; Kim Yong-Rak, Texas A&M University
		Speaker: Santosh Reddy Kommidi (Contributed Talk)
Session: 3B, Room: MSC-2504		
Session Chair(s): Xijun (Jeff) Shi, xijun.shi@txstate.edu; Shadi Saadeh, shadi.saadeh@csulb.edu		
11:40 AM	12:00 PM	**Multiphysical Finite Element Modeling of Hybrid Microwave Sintering for ISRU Lunar Construction**

		Shayan Gholami, Texas A&M University; Young-Jae Kim, Korea Institute of Civil Engineering and Building Technology; Yong-Rak Kim, Texas A&M University; Hyu-Soung Shin, Korea Institute of Civil Engineering and Building Technology; Jangguen Lee, Korea Institute of Civil Engineering and Building Technology
		Speaker: Shayan Gholami (Contributed Talk)
12:00 PM	12:20 PM	**Developing landing infrastructure on extraterrestrial surfaces**
		FNU Anita, Chemistry Department, Texas A&M University
		Speaker: FNU Anita (Contributed Talk)
12:20 PM	12:40 PM	**CO2 Capture of Alkali-Activated Materials: Micromechanical Properties Coupled with Nano-Microstructure Characteristics**
		Shayan Gholami, Texas A&M University; Yong-Rak Kim, Texas A&M University; Dallas Little, Texas A&M University; Jong Suk Jung, Republic of Korea Land and Housing Institute; Sukmin Kwon, Republic of Korea Land and Housing Institute
		Speaker: Shayan Gholami (Contributed Talk)
Session: 4A, Room: MSC-2504		
Session Chair(s): Jamilla Emi Sudo Lutif Teixeira, jamilla.teixeira@unl.edu		
2:15 PM	2:35 PM	**Improvement of Hydration Simulation of Cement and Undensified & Densified Silica Fume Mixture**
		Yoonjung Han, 1Zachry Department of Civil and Environmental Engineering, Texas A&M University, College Station, TX 77843-3136, USA; Jonathan Lapeyre, 1Zachry Department of Civil and Environmental Engineering, Texas A&M University, College Station, TX 77843-3136, USA; Umme Zakira, Zachry Department of Civil and Environmental Engineering, Texas A&M University, College Station, TX 77843-3136, USA; Mine Ucak-Astarlioglu, Geotechnical and Structures Laboratory, U.S. Army Engineer Research and Development Center, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, USA; Jedadiah Burroughs, Geotechnical and Structures Laboratory, U.S. Army Engineer Research and Development Center, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, USA; Jeffrey Bullard, Department of Materials Science and Engineering, Texas A&M University, College Station, TX 77843-3003, USA, Zachry Department of Civil and Environmental Engineering, Texas A&M University, College Station, TX 77843-3136, USA
		Speaker: Yoonjung Han (Contributed Talk)
2:35 PM	2:55 PM	**Microstructural and Nanomechanical Characterization of Rejuvenated RAP Binders**
		Amal Abdelaziz, Texas A&M University; Eyad Masad, Texas A&M University at Qatar; Amy Epps Martin, Texas A&M University; Edith Arámbula Mercado, Texas A&M Transportation Institute
		Speaker: Eyad Masad (Contributed Talk)
2:55 PM	3:15 PM	**Biochar as a Carbon-Sequestering Strength-Improving Concrete Additive**
		Lori Tunstall, Colorado School of Mines; Julia Hylton, Colorado School of Mines; M. Pecha, National Renewable Energy Laboratory
		Speaker: Lori Tunstall (Contributed Talk)
3:15 PM	3:35 PM	**Comparative Assessment of Thermal Conductivities for Compacted Bentonite and Carbon Fiber Reinforced Bentonite with Matric Suction-Water Contents**
		YUAN FENG, University of Nebraska-Lincoln; Jongwan Eun, University of Nebraska-Lincoln; Seunghee Kim, University of Nebraska-Lincoln; Yong-Rak Kim, Texas A&M University
		Speaker: Jongwan Eun (Contributed Talk)

Thematic Area 6. Multifunctional & Multifield

6.2 Chemo-thermo-mechanics of Energetics and Reacting Flows		
Session: 4B, Room: Hotel-Reveille II		
Session Chair(s): Scott Jackson, sij@tamu.edu		
4:10 PM	4:30 PM	**Continuum Modeling of Nonlinear Specific Heat in Phase Transition of Energetic Materials**
		Karel Matous, University of Notre Dame; Cedric Williams, University of Notre Dame
		Speaker: Karel Matous (Contributed Talk)
4:30 PM	4:50 PM	**Investigations of the detonation-bow shock interaction**
		Ashwath Sethu Venkataraman, Texas A&M University; Elaine S Oran, Texas A&M University
		Speaker: Ashwath Sethu Venkataraman (Contributed Talk)
4:50 PM	5:10 PM	**The Effect of Activation Energy on the Velocity-Curvature-Acceleration Relationship for Unstable Gaseous Detonations**
		David Lont, Texas A&M University; Carlos Chiquete, Los Alamos National Laboratory; Mark Short, Los Alamos National Laboratory; Scott Jackson, Texas A&M University
		Speaker: David Lont (Contributed Talk)

6.3 Damage and Thermo-Chemo-Mechanical Coupling in Soft Materials		
Session: 4A, Room: Hotel-Reveille I		
Session Chair(s): Maryam Shakiba, mshakiba@vt.edu		
2:15 PM	2:45 PM	**Theory for coupled large deformation and hydrolytic degradation in hydrogels**
		Zhouzhou Pan, University of Oxford; Laurence Brassart, University of Oxford
		Speaker: Laurence Brassart (Keynote Talk)
2:45 PM	3:05 PM	**Probing Function and Degeneration in Elastic Biopolymers**
		Anna Tarakanova, University of Connecticut
		Speaker: Anna Tarakanova (Invited Talk)
3:05 PM	3:25 PM	**On the photo-degradation of poly(lactic acid) PLA**
		Keven Alkhoury, NJIT; Shawn Chester, NJIT
		Speaker: Keven Alkhoury (Contributed Talk)
Session: 4B, Room: Hotel-Reveille I		
Session Chair(s): Maryam Shakiba, mshakiba@vt.edu		
4:10 PM	4:30 PM	**Experimental assessment of fracture toughness and work of fracture of thermo-oxidatively aged elastomers**
		Aimane Najmeddine, Virginia Tech
		Speaker: Aimane Najmeddine (Contributed Talk)
4:30 PM	4:50 PM	**Modeling Spatial and Temporal Changes in the Chemical, Mechanical, and Geometrical Properties of Biodegradable Polymer Structures**

		Nithin Veerendranath Kammara, Texas A&M University; Mitchell Shockley, Texas A&M University; Anastasia Muliana, Texas A&M University
		Speaker: Nithin Veerendranath Kammara (Contributed Talk)

6.4 Effective Properties of Multifunctional Composite Materials		
Session: 3A, Room: Hotel-Ross II		
Session Chair(s): Gary Seidel, gary.seidel@vt.edu; Bjoern Kiefer, Bjoern.Kiefer@imfd.tu-freiberg.de		
9:45 AM	10:15 AM	**Homogenization Methods for Studying the Piezoelectric Behavior of Fuzzy Fiber Composites**
		George Chatzigeorgiou, CNRS, Arts et Metiers Institute of Technology, LEM3, Université de Lorraine,; Qiang Chen, Arts et Métiers Institute of Technology; Fodil Meraghni, Arts et Métiers Institute of Technology
		Speaker: George Chatzigeorgiou (Keynote Talk)
10:15 AM	10:35 AM	**Multiplex On-Mask Flexible MXene-Graphene Field Effect Transistor Sensing Influenza Virus and SARS-CoV-2**
		Chenglin Wu, Missouri University of Science and Technology; Yanxiao Li, Missouri University of Science and Technology; Zhekun Peng, Missouri University of Science and Technology; DongHyun Kim, Missouri University of Science and Technology
		Speaker: Chenglin Wu (Contributed Talk)
10:35 AM	10:55 AM	**Microstructural Effects on Macroscopic and Microscopic Flexoelectric Behavior of a Polymer-Metal Particle Composite**
		Ju Hwan Shin, Georgia Institute of Technology; Mikel Zaitzeff, South Dakota School of Mines and Technology; Lori Groven, South Dakota School of Mines and Technology; Min Zhou, Georgia Institute of Technology
		Speaker: Min Zhou (Contributed Talk)
Session: 3B, Room: Hotel-Ross II		
Session Chair(s): Bjoern Kiefer, Bjoern.Kiefer@imfd.tu-freiberg.de; Gary Seidel, gary.seidel@vt.edu		
11:40 AM	12:00 PM	**Design and Additive Manufacturing of Three-Dimensional Architected Robotic Metamaterials**
		Huachen Cui, University of California, Los Angeles; Desheng Yao, University of California, Los Angeles; Ryan Hensleigh, University of California, Los Angeles; Haotian Lu, University of California, Los Angeles; Zhenpeng Xu, University of California, Los Angeles; Zhen Wang, University of California, Los Angeles; Xiaoyu Zheng, University of California, Los Angeles
		Speaker: Huachen Cui (Contributed Talk)
12:00 PM	12:20 PM	**Effect of heterogeneities on the damage and electrical response of CNT-based polymer bonded energetics**
		Pranay Anekal, Virginia Tech; Gary Seidel, Virginia Tech
		Speaker: Pranay Anekal (Contributed Talk)

6.6 Symposium on Advanced Experimental Techniques		
Session: 4B, Room: Hotel-Eagle		
Session Chair(s): Piyush R. Thakre, pthakre@dow.com		
4:10 PM	4:30 PM	**Experimental Continuation of Nonlinear Structures**
		Jiajia Shen, University of Bristol, UK; Rainer Groh, University of Bristol; Mark Schenk, University of Bristol; Alberto Pirrera, University of Bristol
		Speaker: Jiajia Shen (Contributed Talk)

4:30 PM	4:50 PM	**Analysis of Thin Layers with Interphases**
		Kenneth Liechti, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin; Kirill Rebrov, Oden Institute for Computational Engineering and Sciences, University of Texas at Austin; Gregory Rodin, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin, Oden Institute for Computational Engineering and Sciences, University of Texas at Austin
		Speaker: Kirill Rebrov (Contributed Talk)
4:50 PM	5:10 PM	**Newly Developed Testing Method for In-situ Electrochemo-mechanical Coupling of Battery and Supercapacitor ElectrodesNewly Developed Testing Method for In-situ Electrochemo-mechanical Coupling of Battery and Supercapacitor Electrodes**
		Dimitrios Loufakis, Texas A&M University; James Boyd, Texas A&M University; Tianyang Zhou, Texas A&M University; Tasya Nasoetion, Texas A&M University; Jodie Lutkenhaus, Texas A&M University; Dimitris Lagoudas, Texas A&M University
		Speaker: Tasya Nasoetion (Contributed Talk)

6.7 Mechanically-Coupled and Surface-Enabled Functionality in 2D Materials		
Session: 3A, Room: Hotel-Century III		
Session Chair(s): SungWoo Nam, sungwoo.nam@uci.edu; Qing Tu, qing.tu@tamu.edu		
9:45 AM	10:15 AM	**Water surface tension enabled high-quality 2D material processing**
		Sidong Lei, Georgia State University
		Speaker: Sidong Lei (Keynote Talk)
10:15 AM	10:45 AM	**Fatigue of Graphene and Transition Metal Dichalcogenides**
		Tobin Filleter, University of Toronto
		Speaker: Tobin Filleter (Keynote Talk)
10:45 AM	11:05 AM	**Transition from Griffith to vdW interface governed 2D crystal nanoblisters**
		Yifan Rao, University of Texas at Austin; Eunbin Kim, University of Texas at Austin; Zhaohe Dai, Peking University, University of Texas at Austin; Nanshu Lu, University of Texas at Austin
		Speaker: Yifan Rao (Contributed Talk)
Session: 3B, Room: Hotel-Century III		
Session Chair(s): SungWoo Nam, sungwoo.nam@uci.edu; Qing Tu, qing.tu@tamu.edu		
11:40 AM	12:00 PM	**Robust Highly Stretchable Supercapacitors Enabled by MXene-Reduced Graphene Oxide Composite**
		Changyong Cao, Case Western Reserve University
		Speaker: Changyong (Chase) Cao (Invited Talk)
12:00 PM	12:20 PM	**Mechanics of MXenes**
		Chenglin Wu, Missouri University of Science and Technology; Yanxiao Li, Missouri University of Science and Technology; Congjie Wei, Missouri University of Science and Technology
		Speaker: Chenglin Wu (Invited Talk)
12:20 PM	12:40 PM	**Nanometer-Scale Engineering and Analysis of Transition Metal Dichalcogenides with Atomic Force Microscopy**
		Matthew Rosenberger, University of Notre Dame
		Speaker: Matthew Rosenberger (Invited Talk)

Session: 4A, Room: Hotel-Century III		
Session Chair(s): Baoxing Xu, bx4c@virginia.edu; Qing Tu, qing.tu@tamu.edu		
2:15 PM	2:45 PM	**Kinetics of Phase Nucleation and Propagation in 2D MoTe2**
		Wei Gao, Texas A&M University
		Speaker: Wei Gao (Keynote Talk)
2:45 PM	3:05 PM	**Flexoelectric Instability in Multilayer Graphene and Its Applications in Self Assembly**
		Mrityunjay Kothari, Massachusetts Institute of Technology; Kyung-Suk Kim, Brown University
		Speaker: Mrityunjay Kothari (Invited Talk)
3:05 PM	3:25 PM	**Understanding interfacial chemo-mechanics of two-dimensional materials-based heterostructures**
		Dibakar Datta, New Jersey Institute of Technology (NJIT)
		Speaker: Dibakar Datta (Invited Talk)
3:25 PM	3:45 PM	**Entropic Interactions of 2D Materials with Cellular Membranes: Parallel versus Perpendicular Approaching Modes**
		Fatemeh Ahmadpoor, New Jersey Institute of Technology; Guijin Zou, Institute of High-Performance Computing, A∗STAR, Singapore, 138632, Singapore; Huajian Gao, School of Mechanical and Aerospace Engineering, College of Engineering, Nanyang Technological University, 70 Nanyang Drive, Singapore, 639798, Singapore, Institute of High-Performance Computing, A∗STAR, Singapore, 138632, Singapore
		Speaker: Fatemeh Ahmadpoor (Invited Talk)
Session: 4B, Room: Hotel-Century III		
Session Chair(s): Baoxing Xu, bx4c@virginia.edu; Qing Tu, qing.tu@tamu.edu		
4:10 PM	4:30 PM	**A framework to model zero-thickness curvature-resisting surfaces in solids**
		Berkin Dortdivanlioglu, UT Austin; Animesh Rastogi, UT Austin
		Speaker: Animesh Rastogi (Contributed Talk)
4:30 PM	4:50 PM	**Search of On-demand Thermal Conductivity of Mechanically Stretched Graphene Piles with Machine Learning**
		Qingchang Liu, University of Virginia; Baoxing Xu, University of Virginia
		Speaker: Qingchang Liu (Invited Talk)

6.8 Mechanics of Electrochemical Systems		
Session: 3A, Room: Hotel-Reveille I		
Session Chair(s): Siva Nadimpalli, sivan@msu.edu		
9:45 AM	10:05 AM	**Temperature, Size, and Strain-rate Effects in Li, Na, and K Metal Electrodes**
		Matt Pharr, Texas A&M University; Cole Fincher, Massachusetts Institute of Technology
		Speaker: Matt Pharr (Contributed Talk)
10:05 AM	10:25 AM	**A Fracture Mechanics Approach to Polymer Binder/Active Material Interface Failure Characterization for High Performance Electrodes**
		Akshay Pakhare, Michigan State University; Siva Nadimpalli, Michigan State University
		Speaker: Akshay Pakhare (Contributed Talk)

10:25 AM	10:45 AM	**Asynchronous-to-Synchronous Transition of Li Reactions in Solid-Solution Cathodes**
		Nikhil Sharma, Purdue University; Luize Vasconcelos, University of Texas at Austin; Kejie Zhao, Purdue University
		Speaker: Nikhil Sharma (Contributed Talk)
10:45 AM	11:05 AM	**Fracture Behavior of Metallic Sodium and Implications for Rechargeable Batteries**
		Matt Pharr, Texas A&M university; Jungho Shin, Texas A&M University
		Speaker: Jungho Shin (Contributed Talk)
11:05 AM	11:25 AM	**Role of Anisotropy on the Chemo-Mechanical Performance of Polycrystalline NMC Secondary Particle Embedded in a Sulfide-based Solid Electrolyte**
		Avtar Singh, Massachusetts Institute of Technology; Wei Li, MIT; Trevor Martin, National Renewable Energy Laboratory; Donal Finegan, National Renewable Energy Laboratory; Juner Zhu, Massachusetts Institute of Technology
		Speaker: Juner Zhu (Contributed Talk)

6.10 Modeling of Complex Fluids and Applications		
Session: 4A, Room: Hotel-Leadership		
Session Chair(s): Shiva Rudraraju, shiva.rudraraju@wisc.edu		
2:15 PM	2:45 PM	**Residual-based Turbulence Model for Incompressible Flows with Density Stratification**
		Arif Masud, University of Illinois at Urbana-Champaign; Lixing Zhu, Institute of Mechanics, Chinese Academy of Sciences, Beijing
		Speaker: Arif Masud (Keynote Talk)
2:45 PM	3:05 PM	**Phase Field Modeling of Chemically Reactive Multi-Component/Multi-Phase Systems and its Application to Reactive Filtration of Steel Melt**
		Andreas Seupel, TU Bergakademie Freiberg; Stephan Roth, TU Bergakademie Freiberg; Bjoern Kiefer, TU Bergakademie Freiberg
		Speaker: Andreas Seupel (Contributed Talk)
3:05 PM	3:25 PM	**Numerical Schemes for a New Thermodynamically Consistent Model for Two-Phase Incompressible Flows with Different Densities**
		Giordano Tierra, Department of Mathematics, University of North Texas; Mireille El Haddad, Universite Laval, Canada
		Speaker: Giordano Tierra (Contributed Talk)

6.12 Multiscale Extreme Behavior of Materials: Structure, Mechanisms, and Kinetic Process		
Session: 3A, Room: Hotel-Traditions		
Session Chair(s): Ramathasan Thevamaran, thevamaran@wisc.edu; Thomas Voisin, voisin2@llnl.gov		
9:45 AM	10:05 AM	**Dynamic Mechanical Performances of Polymeric Nanofiber Mat under Supersonic Impact**
		Jizhe Cai, University of Wisconsin-Madison; Mohammad Naraghi, Texas A&M University; Ramathasan Thevamaran, University of Wisconsin-Madison
		Speaker: Jizhe Cai (Contributed Talk)
10:05 AM	10:25 AM	**High Strain Rate Mechanical Testing of Nanoporous Gold Using a Shock-Tube Bulge Test**
		Jasdeep Singh, Department of Materials Science and Engineering, Texas A&M University; Hooman Rahmani, Department of Materials Science and Engineering, Texas A&M University; Umair Bin Asim, Department of Materials Science and Engineering, Texas A&M University; Sean Cooper, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Eric Petersen, J. Mike

		Walker '66 Department of Mechanical Engineering, Texas A&M University; Ankit Srivastava, Department of Materials Science and Engineering, Texas A&M University; Michael Demkowicz, Department of Materials Science and Engineering, Texas A&M University
		Speaker: Jasdeep Singh (Contributed Talk)
10:25 AM	10:45 AM	**On the accuracy of a line free 3D monopole method in discrete dislocation plasticity**
		Aitor Cruzado, Texas A&M; Pilar Ariza, University of Sevilla; Alan Needleman, Texas A&M; Michael Ortiz, Caltech; Amine Benzerga, Texas A&M
		Speaker: Aitor Cruzado (Invited Talk)
10:45 AM	11:05 AM	**Extreme Heat Shielding Coating on Carbon Fiber Composites**
		Tanaya Mandal, Texas A&M University; Sevketcan Sarikaya, Texas A&M University; Danixa Rodriguez-Melendez, Texas A&M University; Jaime Grunlan, Texas A&M University; Mohammad Naraghi, Texas A&M University, Department of Aerospace Engineering
		Speaker: Tanaya Mandal (Contributed Talk)
Session: 3B, Room: Hotel-Traditions		
Session Chair(s): Ramathasan Thevamaran, thevamaran@wisc.edu; Thomas Voisin, voisin2@llnl.gov		
11:40 AM	12:00 PM	**Temperature perturbations causing temporally stable current density localization in VO2**
		Adelaide Bradicich, Texas A&M University; Patrick Shamberger, Texas A&M University
		Speaker: Adelaide Bradicich (Contributed Talk)
12:00 PM	12:20 PM	**Defect engineering in VO2 thin films via He+ irradiation**
		Rebeca Gurrola, Texas A&M University; Adelaide Bradicich, Texas A&M University; Nicole Person, Texas A&M University; Tzu Ming Lu, Center for Integrated Nanotechnologies (CINT); Patrick Shamberger, Texas A&M University
		Speaker: Rebeca Gurrola (Contributed Talk)

Thematic Area 7. Robotics & Controls

7.4 Soft Robotics: Matter, Structure, and Intelligence		
Session: 3A, Room: MSC-2401		
Session Chair(s): Jie Yin, jyin8@ncsu.edu		
9:45 AM	10:05 AM	**Wireless Soft Millirobots for Climbing Three-dimensional Tissue Surfaces**
		Xiaoguang Dong, Vanderbilt University, Vanderbilt Institute for Surgery and Engineering
		Speaker: Xiaoguang Dong (Contributed Talk)
10:05 AM	10:25 AM	**Design induced asymmetry in contact forces of a hydrogel crawler**
		Bibekananda Datta, Graduate Student, Johns Hopkins University; Aishwarya Pantula, Johns Hopkins University; David Gracias, Professor, Johns Hopkins University; Thao Nguyen, Professor, Johns Hopkins University
		Speaker: Bibekananda Datta (Contributed Talk)
10:25 AM	10:45 AM	**Fast Thermal Actuators for Soft Robotics**
		Shuang Wu, North Carolina State University; G Baker, North Carolina State University; Jie Yin, North Carolina State University; Yong Zhu, North Carolina State University
		Speaker: Yong Zhu (Invited Talk)
10:45 AM	11:05 AM	**Paleomimicry: Robotics Informs How the First Mobile Echinoderms Moved**
		Richard Desatnik, Carnegie Mellon University
		Speaker: Richard Desatnik (Contributed Talk)
11:05 AM	11:25 AM	**Structure-Mechanics-Performance of Fish-fins as inspiration for robotic materials**
		Saurabh Das, University of Colorado, Boulder; Florent Hannard, Universite Catholique de Louvain, Belgium; Francois Barthelat, University of Colorado, Boulder
		Speaker: Saurabh Das (Contributed Talk)
Session: 3B, Room: MSC-2401		
Session Chair(s): Jie Yin, jyin8@ncsu.edu		
11:40 AM	12:00 PM	**Wearable Robots with Integrated Fluidic Control and Energy Harvesting**
		Daniel Preston, Rice University
		Speaker: Daniel Preston (Contributed Talk)
12:00 PM	12:20 PM	**Electrospun Liquid Crystal Elastomer Microfiber Actuator**
		Qiguang He, University of Pennsylvania, University of California, San Diego; Shengqiang Cai, University of California, San Diego
		Speaker: Qiguang He (Contributed Talk)
12:20 PM	12:40 PM	**Using Autonomy to Enable Telepresence Robot Control**
		Rob Ambrose, Texas A&M
		Speaker: Rob Ambrose (Contributed Talk)
Session: 4A, Room: MSC-2401		
Session Chair(s): Jie Yin, jyin8@ncsu.edu		

2:15 PM	2:35 PM	**Snapping for high-speed and high-efficient soft swimming robots**
		Jie Yin, North Carolina State University; Yinding Chi, North Carolina State University; Yaoye Hong, North Carolina State University; Yao Zhao, North Carolina State University; Yanbin Li, North Carolina State University
		Speaker: Jie Yin (Contributed Talk)
2:35 PM	2:55 PM	**Phase Diagram and Mechanics of Snap-Folding of Ring Origami by Twisting**
		Xiaohao Sun, Georgia Institute of Technology; Shuai Wu, Stanford University; Jize Dai, The Ohio State University; Sophie Leanza, The Ohio State University; Liang Yue, Georgia Institute of Technology; Luxia Yu, Georgia Institute of Technology; Yi Jin, The Ohio State University; H. Qi, Georgia Institute of Technology; Ruike Zhao, Stanford University
		Speaker: Xiaohao Sun (Contributed Talk)
2:55 PM	3:15 PM	**Harnessing Vacuum-Driven Instability of Thin-Walled Cylinders for Soft Robotics**
		Yi Yang, Harvard University; David Melancon, Princeton University; Ahmad Zareei, Meta; Antonio Forte, King's College London; Katia Bertoldi, Harvard University
		Speaker: Yi Yang (Contributed Talk)
3:15 PM	3:35 PM	**A fast-response soft gripper inspired by the mechanics of the hummingbird beak**
		Jiajia Shen, University of Bristol, UK; Martin Garrad, University of Bristol; Alberto Pirrera, University of Bristol; Rainer Groh, University of Bristol
		Speaker: Jiajia Shen (Contributed Talk)
3:35 PM	3:55 PM	**Spinning-enabled Wireless Amphibious Origami Millirobot**
		Renee Zhao, Stanford University
		Speaker: Renee Zhao (Invited Talk)
Session: 4B, Room: MSC-2401		
Session Chair(s): Jie Yin, jyin8@ncsu.edu		
4:10 PM	4:30 PM	**Liquid crystal elastomer-based soft robotics**
		Shengqiang Cai, University of California, San Diego
		Speaker: Shengqiang Cai (Invited Talk)
4:30 PM	4:50 PM	**Multifunctional fluidic networks**
		Anne Meeussen, Harvard University; Katia Bertoldi, Harvard University; Adel Djellouli, Harvard University; Louis-Justin Tallot, Mines ParisTech; Ahmad Zareei, Harvard University
		Speaker: Anne Meeussen (Contributed Talk)

Thematic Area 8. Soft & Flexible

8.1 3D Printing of Polymers and Composites		
Session: 3A, Room: Hotel-Oak		
Session Chair(s): Jessica Wang, yuewang@ucmerced.edu		
9:45 AM	10:05 AM	**Direct Ink Write Printing of Composites for Thermal Energy Management**
		Emily Pentzer, Texas A&M University, Materials Science and Engineering; Ciera Cipriani, Texas A&M University; Peiran Wei, Texas A&M University
		Speaker: Emily Pentzer (Invited Talk)
10:05 AM	10:25 AM	**Programmable Polymer Filaments for Shape Reconfigurable Kerf Structures**
		Aryabhat Darnal, Texas A&M University; Himani Deshpande, Texas A&M University; Jeeeun Kim, Texas A&M University; Anastasia Muliana, Texas A&M University
		Speaker: Aryabhat Darnal (Contributed Talk)
10:25 AM	10:45 AM	**Frontal Curing-assisted 3D Printing of Continuous Carbon Fiber/Epoxy Thermoset Composites**
		Zimeng Zhang, Baker Huger Inc.; Ruochen Liu, Texas A&M University; Wei Li, Texas A&M; SHIREN WANG, Texas A&M University
		Speaker: Wei Li (Contributed Talk)
10:45 AM	11:05 AM	**Autonomic Self-healing of 3D Printed Polymer Composites**
		Bryan Beckingham, Auburn University, Dept. of Chemical Engineering; Vinita Shinde, Auburn University
		Speaker: Bryan Beckingham (Invited Talk)

8.3 Extreme Soft Materials by Polymer-Network Design		
Session: 3B, Room: Hotel-Century II		
Session Chair(s): Shaoting Lin, linshaot@msu.edu		
11:40 AM	12:00 PM	**Extremely tough bioadhesives by interface-network design**
		Jianyu Li, McGill University
		Speaker: Jianyu Li (Invited Talk)
12:00 PM	12:20 PM	**Aerodynamic fiber deposition for nanofiber-reinforced soft materials of complex alignment**
		Qihan Liu, University of Pittsburgh
		Speaker: Qihan Liu (Invited Talk)
12:20 PM	12:40 PM	**Fast, strong, and reversible hydrogel adhesives with dynamic covalent bonds as wound dressing**
		Shu Yang, University of Pennsylvania
		Speaker: Shu Yang (Invited Talk)
Session: 4A, Room: Hotel-Century II		
Session Chair(s): Zhao Qin, zqin02@syr.edu; Aniruddh Vashisth, vashisth@uw.edu		
2:15 PM	2:45 PM	**Multi-paradigm transformer modeling of hierarchical protein materials under extreme conditions**
		Markus Buehler, MIT

		Speaker: Markus Buehler (Keynote Talk)
2:45 PM	3:05 PM	**Designing bio-inspired structural materials with Gaussian Process Regression based Bayesian optimization**
		Seunghwa Ryu, KAIST (Korea Advanced Institute of Science and Technology)
		Speaker: Seunghwa Ryu (Invited Talk)
3:05 PM	3:25 PM	**Squid-inspired materials with controlled network topology and dynamic properties**
		Abdon Pena-Francesch, University of Michigan
		Speaker: Abdon Pena-Francesch (Invited Talk)
3:25 PM	3:45 PM	**Main-chain engineering of hydrophilic non-conjugated building blocks on polymer photocatalysts for enhanced visible-light-driven hydrogen evolution**
		Chi-Hua Yu, Department of Engineering Science, National Cheng Kung University; Chin-Hsuan Shih, Department of Engineering Science, National Cheng Kung University; Chih-Li Chang, Department of Chemical Engineering, National Tsing Hua University; Ho-Hsiu Chou, Department of Chemical Engineering, National Tsing Hua University; Chin-Wen Chen, Department of Molecular Science and Engineering, National Taipei University of Technology
		Speaker: Chi-Hua Yu (Invited Talk)
Session: 4B, Room: Hotel-Century II		
Session Chair(s): Jie Zheng, zhengj@uakron.edu; Zhao Qin, zqin02@syr.edu		
4:10 PM	4:30 PM	**Sticky Rouse Time Features the Self-Healing of Supramolecular Polymer Networks**
		Ying Li, University of Connecticut; Zhiqiang Shen, University of Connecticut; Qiming Wang, University of Southern California; Martin Kroger, ETH Zurich
		Speaker: Ying Li (Invited Talk)
4:30 PM	4:50 PM	**Experiment and Modeling of Mycelium Based Bio-composites for High Mechanical Strength and Lightweight**
		Zhao Qin, Syracuse University; Libin Yang, Syracuse University
		Speaker: Zhao Qin (Contributed Talk)
4:50 PM	5:10 PM	**Revisiting the Structure-Function Paradigm through Integrated Physics-Based Modeling and Deep Learning**
		Anna Tarakanova, University of Connecticut
		Speaker: Anna Tarakanova (Invited Talk)

8.4 Functional Soft Composites - Design, Mechanics, and Manufacturing		
Session: 4A, Room: Hotel-Traditions		
Session Chair(s): Renee Zhao, rrzhao@stanford.edu		
2:15 PM	2:45 PM	**Tough Nanocomposites Made of 2D Materials with Atomically Thin Polymer Layers**
		Horacio Espinosa, Northwestern University; Xu Zhang, Northwestern University; Hoang Nguyen, Northwestern University
		Speaker: Horacio Espinosa (Keynote Talk)
2:45 PM	3:15 PM	**Origami-based Metamaterials: Mechanics and Devices**
		Hanqing Jiang, Westlake University
		Speaker: Hanqing Jiang (Keynote Talk)

3:15 PM	3:35 PM	**Capillary-driven soft robotic textures**
		Sam Tawfick, University of Illinois at Urbana-Champaign
		Speaker: Sam Tawfick (Invited Talk)
3:35 PM	3:55 PM	**Mechanical Stretch-Induced Reorganization of Silver Flakes in a Soft Matrix**
		Qingchang Liu, University of Virginia; Baoxing Xu, University of Virginia
		Speaker: Qingchang Liu (Contributed Talk)
Session: 4B, Room: Hotel-Traditions		
Session Chair(s): Xiaohao Sun, xiaohao.sun@gatech.edu		
4:10 PM	4:30 PM	**Lightweight Soft Conductive Composites Embedded with Liquid Metal Fiber Networks**
		Pu Zhang, SUNY Binghamton; Jiexian Ma, SUNY Binghamton; Zihan Liu, SUNY Binghamton
		Speaker: Pu Zhang (Contributed Talk)
4:30 PM	4:50 PM	**Soft Magnetic Thin Film Actuator with Bistable Electropermanent Magnet**
		Nolen Keeys, Carnegie Mellon University; Dinesh Patel, Carnegie Mellon University; Carmel Majidi, Carnegie Mellon University; Philip LeDuc, Carnegie Mellon University
		Speaker: Nolen Keeys (Contributed Talk)
4:50 PM	5:10 PM	**The Buckling Waltz: Mechanical instabilities in rotating beams**
		Eduardo Gutierrez-Prieto, EPFL; Pedro Reis, EPFL
		Speaker: Eduardo Gutierrez-Prieto (Contributed Talk)

8.5 Functional Soft Materials in Additive Manufacturing: from Design to Application		
Session: 3A, Room: Hotel-Leadership		
Session Chair(s): Peiran Wei, peiran@tamu.edu		
9:45 AM	10:05 AM	**3D Printing of Conductive Bicontinuous Phase for Wearable EMI Shielding**
		Yifei Wang, Department of Materials Science&Engineering, Texas A&M University; Ciera Cipriani, Department of Materials Science&Engineering, Texas A&M University; Huaixuan Cao, Department of Chemical Engineering, Texas A&M University; Kai-Wei Liu, Texas A&M Transportation Institute; Peiran Wei, Soft Matter Facility, Texas A&M University; Emily Pentzer, Department of Materials Science&Engineering, Department of Chemistry, Texas A&M University
		Speaker: Yifei Wang (Contributed Talk)
10:05 AM	10:25 AM	**Optimal Design of Soft Responsive Structures and Actuators**
		Andrew Akerson, Caltech; Kaushik Bhattacharya, Caltech
		Speaker: Andrew Akerson (Contributed Talk)
10:25 AM	10:45 AM	**Direct Ink Writing and Digital Light Processing 3D-Printing of ABA Triblock Polycarbonates**
		Krista Schoonover, Texas A&M University, Chemistry; Ciera Cipriani, Texas A&M University, Materials Science and Engineering; Chia-Min Hsieh, Texas A&M University, Chemistry; Fnu Sengoden, Texas A&M University, Chemistry; Gulzar Bhat, University of Kashmir, Centre for Interdisciplinary Research and Innovations; Peiran Wei, Texas A&M University, Soft Matter Facility; Donald Darensbourg, Texas A&M University, Chemistry; Emily Pentzer, Texas A&M University, Chemistry
		Speaker: Krista Schoonover (Contributed Talk)

8.6 Mechanics and Physics of Soft Materials		
Session: 3A, Room: Hotel-Hullabaloo		
Session Chair(s): Yuhang Hu, yuhang.hu@me.gatech.edu; Xuanhe Zhao, zhaox@mit.edu		
9:45 AM	10:05 AM	**Modeling and Experiments of the Thermo-Mechanically Coupled behavior of VHB**
		Keven Alkhoury, New Jersey Institute of Technology; Shawn Chester, New Jersey Institute of Technology; Siva Nadimpalli, Michigan State University; Howon Lee, Seoul National University; Yueping Wang, Rutgers University; Nikola Bosnjak, Cornell University
		Speaker: Keven Alkhoury (Contributed Talk)
10:05 AM	10:25 AM	**Some Rational Designs of Deployable Bistable Surfaces**
		Tian Chen, University of Houston
		Speaker: Tian Chen (Contributed Talk)
10:25 AM	10:45 AM	**The Poker-chip Experiments of Gent and Lindley (1959) Explained**
		Aditya Kumar, Georgia Institute of Technology; Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign
		Speaker: Aditya Kumar (Contributed Talk)
10:45 AM	11:05 AM	**The Simulation of Hypervelocity Impacts to High-Density Polyethylene**
		Jacob Rogers, Texas A&M University, Hypervelocity Impact Laboratory; Paul Mead, Texas A&M University; Khari Harrison, Texas A&M University; Aniket Mote, Texas A&M University; Gavin Lukasik, Texas A&M University; Waruna Kulatilaka, Texas A&M University; Justin Wilkerson, Texas A&M University; Thomas Lacy, Jr., Texas A&M University
		Speaker: Jacob Rogers (Contributed Talk)
11:05 AM	11:25 AM	**Why Does a Confined Elastomer Layer Form Numerous Cavities?**
		Sida Hao, University of Texas at Austin; Zhigang Suo, Harvard University; Rui Huang, University of Texas at Austin
		Speaker: Sida Hao (Contributed Talk)
Session: 3B, Room: Hotel-Hullabaloo		
Session Chair(s): Yuhang Hu, yuhang.hu@me.gatech.edu; Xuanhe Zhao, zhaox@mit.edu		
11:40 AM	12:00 PM	**Shell buckling of imperfect shells as an extreme-value statistics problem**
		Fani Derveni, EPFL; Dong Yan, EPFL; William Gueissaz, EPFL; Florian Choquart, EPFL; Pedro Reis, EPFL
		Speaker: Fani Derveni (Contributed Talk)
12:00 PM	12:20 PM	**Laddering Propagation in Weft Knit Fabrics**
		Helen Read, Harvard University; Kausalya Mahadevan, Harvard University; Katia Bertoldi, Harvard University
		Speaker: Helen Read (Contributed Talk)
12:20 PM	12:40 PM	**Photomechanics and thermomechanics of nematic liquid crystal elastomers**
		Ruobing Bai, Northeastern University
		Speaker: Ruobing Bai (Contributed Talk)
Session: 4A, Room: Hotel-Hullabaloo		
Session Chair(s): Stephan Rudykh, rudykh@wisc.edu; Oscar Lopez-Pamies, pamies@illinois.edu		
2:15 PM	2:35 PM	**Elastomers filled with liquid inclusions: Theory, numerical implementation, and some results**

		Kamalendu Ghosh, University of Illinois Urbana-Champaign; Oscar Lopez-Pamies, University of Illinois Urbana-Champaign
		Speaker: Kamalendu Ghosh (Contributed Talk)
2:35 PM	2:55 PM	**Phase separation of hydrogels**
		Yu Zhou, University of California, Los Angeles; Lihua Jin, University of California, Los Angeles
		Speaker: Lihua Jin (Contributed Talk)
2:55 PM	3:15 PM	**Energy-based modeling of the mechanics of biological puncture**
		Bingyang Zhang, University of Illinois Urbana-Champaign; Philip Anderson, University of Illinois Urbana-Champaign
		Speaker: Bingyang Zhang (Contributed Talk)
3:15 PM	3:35 PM	**A Statistical Mechanics Framework for Polymer Chain Scission, Based on the Concepts of Distorted Bond Potential and Asymptotic Matching**
		Jason Mulderrig, Sibley School of Mechanical and Aerospace Engineering, Cornell University; Brandon Talamini, Lawrence Livermore National Laboratory; Nikolaos Bouklas, Sibley School of Mechanical and Aerospace Engineering, Cornell University
		Speaker: Jason Mulderrig (Contributed Talk)
3:35 PM	3:55 PM	**Microscopic Actuation for Macroscopic Aggregation**
		Mustafa Abdelrahman, Department of Materials Science and Engineering, Texas A&M University; Manivannan Sivaperuman Kalairaj, Department of Biomedical Engineering, Texas A&M University; Suitu Wang, Department of Materials Science and Engineering, Texas A&M University; Mahjabeen Javed, Department of Biomedical Engineering, Texas A&M University; Taylor Ware, Texas A&M University
		Speaker: Mustafa Abdelrahman (Contributed Talk)
Session: 4B, Room: Hotel-Hullabaloo		
Session Chair(s): Stephan Rudykh, rudykh@wisc.edu; Oscar Lopez-Pamies, pamies@illinois.edu		
4:10 PM	4:30 PM	**Chemomechanics of hydrogels**
		Yuhang Hu, Georgia Institute of Technology; Haohui Zhang, Georgia Institute of Technology; mohammad dehghanydahaj, Georgia Institute of Technology
		Speaker: Yuhang Hu (Contributed Talk)
4:30 PM	4:50 PM	**Contact Mechanics of Hydrogels**
		Yuhang Hu, Georgia Institute of Technology; Dongjing He, Georgia Institute of Technology; Yang Lai, Georgia Institute of Technology
		Speaker: Yuhang Hu (Contributed Talk)
4:50 PM	5:10 PM	**Modeling the Effect of Residual Stress in Hyperelastic Materials: the example of Spherical Inflation**
		Atacan Yucesoy, Michigan State University; Thomas Pence, Michigan State University
		Speaker: Atacan Yucesoy (Contributed Talk)

8.9 Mechanics, Materials, Manufacture and Device Innovations of Soft Electronics		
Session: 3A, Room: Hotel-Century IV		
Session Chair(s): Cunjiang Yu, cmy5358@psu.edu; Limei Tian, ltian@tamu.edu		
9:45 AM	10:15 AM	**Bioadhesive Ultrasound for Long-term Continuous Imaging of Diverse Organs**
		Xuanhe Zhao, MIT
		Speaker: Xuanhe Zhao (Keynote Talk)
10:15 AM	10:35 AM	**Laser-Scribed Conductive, Photoactive Transition Metal Oxide on Soft Elastomers for Janus Skin-Interfaced Electronics and Light-Driven Soft Actuators**
		Zheng Yan, University of Missouri-Columbia
		Speaker: Zheng Yan (Invited Talk)
10:35 AM	10:55 AM	**Biphasic Soft Conductors for Printed Stretchable Electron-ics**
		Carmel Majidi, Carnegie Mellon University
		Speaker: Carmel Majidi (Invited Talk)
10:55 AM	11:15 AM	**Rubbery Electronics: Active electronics and circuits entirely based on rubbers**
		Cunjiang Yu, Pennsylvania State University
		Speaker: Cunjiang Yu (Contributed Talk)
Session: 3B, Room: Hotel-Century IV		
Session Chair(s): Limei Tian, ltian@tamu.edu; Cunjiang Yu, cmy5358@psu.edu		
11:40 AM	12:00 PM	**Electromechanical understandings of hybrid response pressure sensors**
		Zhengjie Li, University of Texas at Austin
		Speaker: Zhengjie Li (Contributed Talk)
12:00 PM	12:20 PM	**Moldable, Transferrable, High-Performance Conductive Nanocomposites**
		Myeong Namkoong, Biomedical Engineering
		Speaker: Myeong Namkoong (Contributed Talk)
Session: 4A, Room: Hotel-Century IV		
Session Chair(s): Cunjiang Yu, cmy5358@psu.edu; Limei Tian, ltian@tamu.edu		
2:15 PM	2:35 PM	**Print-in-place and Recyclable Electronics from Nanomaterials**
		Aaron Franklin, Duke University
		Speaker: Aaron Franklin (Invited Talk)
2:35 PM	2:55 PM	**Mechanics of Bio-Conformable Devices**
		Nanshu Lu, The University of Texas at Austin
		Speaker: Nanshu Lu (Invited Talk)
2:55 PM	3:15 PM	**Nanowire Percolation Network for Recyclable Soft Electronics**
		Yuxuan Liu, North Carolina State University; Yong Zhu, North Carolina State University
		Speaker: Yong Zhu (Invited Talk)
3:15 PM	3:35 PM	**Drawn-on-Skin Bioelectronics for Motion Artifact-Less Physiological Sensing**

		Faheem Ershad, Department of Biomedical Engineering, Pennsylvania State University; Cunjiang Yu, Department of Engineering Science, Pennsylvania State University, Department of Biomedical Engineering, Pennsylvania State University
		Speaker: Faheem Ershad (Contributed Talk)
3:35 PM	3:55 PM	**An Unobstructive Hand Band with a Stretchable Magnetic Backplane for High-power Wireless Charging**
		Sangjun Kim, The University of Texas at Austin; Jonathan Wells, The University of Texas at Austin; Nathan Lazarus, U.S. Army Research Laboratory; Nanshu Lu, The University of Texas at Austin
		Speaker: Sangjun Kim (Contributed Talk)
Session: 4B, Room: Hotel-Century IV		
Session Chair(s): Limei Tian, ltian@tamu.edu; Cunjiang Yu, cmy5358@psu.edu		
4:10 PM	4:30 PM	**Stretchable, Self-healable, Recyclable, and Reconfigurable Electronics**
		Jianliang Xiao, University of Colorado Boulder
		Speaker: Jianliang Xiao (Invited Talk)
4:30 PM	4:50 PM	**Crab-eye-inspired Cameras with an amphibious and panoramic imaging characteristics**
		Young Min Song, GIST
		Speaker: Young Min Song (Contributed Talk)

Thematic Area 9. Solids & Structures

9.1 Vibrations, Adaptive Structures and Testing		
Session: 4A, Room: Hotel-Corps II		
Session Chair(s): Sriram Malladi, smalladi@mtu.edu; Mohammad Albakri, mohammad.albakri@qatar.tamu.edu		
2:15 PM	2:45 PM	**Using Adaptive Thermal Metamaterials for Passive Thermal Control of Satellites Austin A. Phoenix**
		Austin Phoenix, Booz Allen Hamilton
		Speaker: Austin Phoenix (Keynote Talk)
2:45 PM	3:15 PM	**Data-driven modeling for structred dynamics: A systems-theoretic approach**
		Serkan Gugercin, Virginia Tech
		Speaker: Serkan Gugercin (Keynote Talk)
3:15 PM	3:35 PM	**Multi-mode Model Predictive Control of a Thin Structure Using Piezoelectric Actuators**
		Ipar Ferhat, Middle East Technical University
		Speaker: Ipar Ferhat (Invited Talk)
3:35 PM	3:55 PM	**A Structural Dynamics Perspective to Bio-inspired Underwater Propulsion**
		Patrick Musgrave, University of Florida
		Speaker: Patrick Musgrave (Invited Talk)

9.2 Classical and Nonclassical Continuum Theories and their Application		
Session: 4A, Room: Hotel-Ross II		
Session Chair(s): Arash Yavari, arash.yavari@ce.gatech.edu; Sri Sai Charan Mathi, s600m875@ku.edu		
2:15 PM	2:45 PM	**Ductile Damage in Metals through Local Translation and Scaling Symmetries in Space-time**
		Debasish Roy, Centre of Excellence in Advanced Mechanics of Materials, Indian Institute of Science, Bangalore 560012, India, Computational Mechanics Lab, Department of Civil Engineering, Indian Institute of Science, Bangalore 560012, India
		Speaker: Debasish Roy (Keynote Talk)
2:45 PM	3:15 PM	**A Novel Discrete, Mesoscale Modeling Framework for the Simulation of the Damaging and Fracturing Behavior of Composites**
		Marco Salviato, University of Washington; Antonio Deleo, University of Washington; Sean Phenisee, University of Washington; Daniele Pelessone, ES3 Inc; Mark Flores, Air Force Research Laboratory (AFRL)
		Speaker: Marco Salviato (Keynote Talk)
3:15 PM	3:35 PM	**Deviatoric Stress Waves In Thermoviscoelastic Solids due to Rheology**
		Karan Surana, University of Kansas; Elie Abboud, University of Kansas
		Speaker: Elie Abboud (Contributed Talk)
3:35 PM	3:55 PM	**Analytical and Numerical Modeling of Materials with Flexible Nanoplatelets**
		Sofia Mogilevskaya, University of Minnesota; Anna Zemlyanova, Kansas State University; Zhilin Han, Donghua University; Dominik Schillinger, TU Darmstadt
		Speaker: Sofia Mogilevskaya (Contributed Talk)

Session: 4B, Room: Hotel-Ross II		
Session Chair(s): Arash Yavari, arash.yavari@ce.gatech.edu; Sri Sai Charan Mathi, s600m875@ku.edu		
4:10 PM	4:30 PM	**Ordered Rate Nonlinear Constitutive Theories for Classical Thermoviscoelastic Polymeric Fluids**
		Karan Surana, University of Kansas; Thomas Ezell, University of Kansas
		Speaker: Thomas Ezell (Contributed Talk)
4:30 PM	4:50 PM	**An Elasto-Plastic Model For Architectured Metallic 3D Lattice Structures**
		Arun R Srinivasa, J. Mike Walker '66 Department of Mechanical Engineering; Bensingh Dhas Pancras, J. Mike Walker '66 Department of Mechanical Engineering; Dominic Jarecki, J. Mike Walker '66 Department of Mechanical Engineering; J N Reddy, J. Mike Walker '66 Department of Mechanical Engineering
		Speaker: Dominic Jarecki (Contributed Talk)

9.5 Controlling Mechanical Waves with Metamaterials		
Session: 3A, Room: Hotel-Ross I		
Session Chair(s): Kathryn Matlack, kmatlack@illinois.edu		
9:45 AM	10:15 AM	**Passive wave and vibration control using geometry**
		A. Srikantha Phani, Department of Mechanical Engineering, University of British Columbia
		Speaker: A. Srikantha Phani (Keynote Talk)
10:15 AM	10:35 AM	**Exploiting non-Hermitian degeneracies in PT-symmetric phononic materials: A comprehensive treatment of complex spatiotemporal modulations**
		Mohammadreza Moghaddaszadeh, University at Buffalo (SUNY); Mohammad Attarzadeh, University at Buffalo (SUNY); Amjad Aref, University at Buffalo (SUNY); Mostafa Nouh, University at Buffalo (SUNY)
		Speaker: Mohammadreza Moghaddaszadeh (Contributed Talk)
10:35 AM	10:55 AM	**Effective wave motion in periodic origami-inspired structures**
		Othman Oudghiri-Idrissi, University of Michigan Ann Arbor; Bojan B. Guzina, University of Minnesota Twin Cities
		Speaker: Othman Oudghiri-Idrissi (Contributed Talk)
10:55 AM	11:15 AM	**Acoustic Metamaterials at the Microscale**
		Rachel Sun, Massachusetts Institute of Technology; Katherine Guo, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
		Speaker: Rachel Sun (Contributed Talk)
Session: 3B, Room: Hotel-Ross I		
Session Chair(s): Kathryn Matlack, kmatlack@illinois.edu		
11:40 AM	12:00 PM	**Exceptional Points in Periodic Metastructures with PT-symmetric Defects**
		Yanghao Fang, University of Wisconsin-Madison; Tsampikos Kottos, Wesleyan University; Ramathasan Thevamaran, University of Wisconsin-Madison
		Speaker: Yanghao Fang (Contributed Talk)
12:00 PM	12:20 PM	**Optimal Design of Elastic Cloaks**
		Fabio Sozio, Solid Mechanics Laboratory, École Polytechnique, France

		Speaker: Fabio Sozio (Contributed Talk)
12:20 PM	12:40 PM	**Dynamic Response of a 1D Granular Chain Composed of Lattice Structures Immersed in Smart Fluids**
		Prajwal Bharadwaj, Ph.D. Candidate, Department of Aerospace Engineering, Worcester Polytechnic Institute; Nikhil Karanjgaokar, Assistant Professor, Department of Aerospace Engineering, Worcester Polytechnic Institute
		Speaker: Prajwal Bharadwaj (Contributed Talk)
Session: 4A, Room: Hotel-Ross I		
Session Chair(s): Kathryn Matlack, kmatlack@illinois.edu		
2:15 PM	2:35 PM	**Wave propagation in continuum phononic materials with nonlinearity from asymmetric stiffness**
		Elizabeth Smith, University of Illinois, Urbana-Champaign; Kathryn Matlack, University of Illinois, Urbana-Champaign
		Speaker: Elizabeth Smith (Contributed Talk)
2:35 PM	2:55 PM	**Enhanced actuation near exceptional points by non-Hermitian metamaterials with engineered losses**
		Abhishek Gupta, Department of Mechanical Engineering, University of Wisconsin Madison; Madison, Wisconsin, 53706, USA; Arkady Kurnosov, Wave Transport in Complex Systems Lab, Physics Department, Wesleyan University; Middletown, CT-06459, USA; Tsampikos Kottos, Wave Transport in Complex Systems Lab, Physics Department, Wesleyan University; Middletown, CT-06459, USA; Ramathasan Thevamaran, Department of Engineering Physics, University of Wisconsin Madison; Madison, Wisconsin, 53706, USA, Department of Mechanical Engineering, University of Wisconsin Madison; Madison, Wisconsin, 53706, USA
		Speaker: Ramathasan Thevamaran (Contributed Talk)
2:55 PM	3:15 PM	**How to Achieve Any Dispersion Curve You Want**
		Pai Wang, Department of Mechanical Engineering, University of Utah; Arash Kazemi, University of Utah; Kshiteej Deshmukh, University of Utah; Yunya Liu, University of Utah; Bolei Deng, Massachusetts Institute of Technology; Henry Fu, University of Utah
		Speaker: Pai Wang (Contributed Talk)
3:15 PM	3:35 PM	**Non-periodic Design Discovery for Optimal Dynamic Responses in Flexible Mechanical Metamaterials**
		Giovanni Bordiga, Harvard University; Eder Medina, Harvard University; Vincent Tournat, CNRS, Le Mans Université; Katia Bertoldi, Harvard University
		Speaker: Giovanni Bordiga (Contributed Talk)
3:35 PM	3:55 PM	**Coiled phononic crystal with periodic rotational locking: Bragg scattering in the subwavelength regime**
		Carson Willey, Air Force Research Laboratory; Vincent Chen, Air Force Research Laboratory; David Roca, Universitat Politècnica de Catalunya; Armin Kianfar, University of Colorado Boulder; Mahmoud Hussein, University of Colorado Boulder; Abigail Juhl, Air Force Research Laboratory
		Speaker: Mahmoud Hussein (Contributed Talk)

9.8 Multiscale Mechanics of Materials		
Session: 4A, Room: Hotel-Corps I		
Session Chair(s): Haoran Wang, haoran.wang@usu.edu		
2:15 PM	2:45 PM	**A scalable coarse-grained modeling scheme of cellulose-based materials**
		Upamanyu Ray, University of Maryland, College Park; Zhenqian Pang, University of Maryland, College Park; Teng Li, University of Maryland, College Park

		Speaker: Teng Li (Keynote Talk)
2:45 PM	3:15 PM	**High-throughput mechanical testing of silver nanowires for the statistical analysis of their failure**
		Brizeida Ojeda, The University of Texas at Dallas; Rodrigo Bernal, The University of Texas at Dallas; Al-Mustasin Abir Hossain, The University of Texas at Dallas; Mohammad Waliullah, The University of Texas at Dallas
		Speaker: Rodrigo Bernal (Keynote Talk)
3:15 PM	3:35 PM	**The mode-I fracture mechanics of bilayer graphene**
		Muhammad Usama Arshad, Texas A&M University; Yanxiao Li, Missouri University of Science and Technology; Chenglin Wu, Missouri University of Science and Technology; Mohammad Naraghi, Texas A&M University, Department of Aerospace Engineering
		Speaker: Muhammad Usama Arshad (Contributed Talk)
3:35 PM	3:55 PM	**Elastic Modulus Mapping for Bovine Cortical Bone from Submillimeter- to Submicron-scales using PeakForce Tapping Atomic Force Microscopy**
		Yuxiao Zhou, Department of Mechanical Engineering, Texas A&M University, College Station, TX, Department of Biomedical Engineering, and Translational Tissue Engineering Center, Johns Hopkins University School of Medicine, Baltimore, MD, Department of Mechanical Engineering, Pennsylvania State University, University Park, PA; Markus Kastner, Materials Research Institute, Pennsylvania State University, University Park, PA; Timothy Tighe, Materials Research Institute, Pennsylvania State University, University Park, PA; Jing Du, Department of Mechanical Engineering, Pennsylvania State University, University Park, PA
		Speaker: Yuxiao Zhou (Contributed Talk)
Session: 4B, Room: Hotel-Corps I		
Session Chair(s): Haoran Wang, haoran.wang@usu.edu		
4:10 PM	4:30 PM	**Coarse-Grained Molecular Dynamics Simulation for the Mechanical Behavior of Na-Montmorillonite Clay**
		Sarah Ghazanfari, North Dakota State University; HM Nasrullah Faisal, North Dakota State University; Kalpana Katti, North Dakota State University; Dinesh Katti, North Dakota State University; Wenjie Xia, North Dakota State University
		Speaker: Sarah Ghazanfari (Contributed Talk)
4:30 PM	4:50 PM	**Variational Asymptotic approach to Developing Homogenized Micropolar Models for Architected Materials**
		Vardhil Mehta, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Bensingh Pancras, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Arun Srinivasa, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Junuthula Reddy, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University
		Speaker: Vardhil Mehta (Contributed Talk)
4:50 PM	5:10 PM	**Molecular Dynamics Simulations of the Mechanical Behavior of Liquid Crystal Elastomers**
		Nanang Mahardika, Utah State University; Haoran Wang, Utah State University
		Speaker: Nanang Mahardika (Contributed Talk)

9.9 Multiscale Modeling and Mechanics of Soft Matter and Hierarchical Materials		
Session: 3A, Room: Hotel-Reveille II		
Session Chair(s): Anna Tarakanova, anna.tarakanova@uconn.edu		
9:45 AM	10:05 AM	**Investigation of Dynamic Impact Response of PMMA-Graphene Layered Nanocomposites Using Molecular Dynamics Simulations**
		Zhaoxu Meng, Clemson University; Zhangke Yang, Clemson University

		Speaker: Zhaoxu Meng (Contributed Talk)
10:05 AM	10:25 AM	**Multi-scale Approaches to Modeling the Mechanical Properties of Polymer-Grafted Nanoparticle Assemblies**
		Sinan Keten, Northwestern University
		Speaker: Sinan Keten (Invited Talk)
10:25 AM	10:45 AM	**Responsive Polymers Enabled through Metal-ligand Coordination Bonding**
		Meredith Silberstein, Cornell University; Xinyue Zhang, Cornell University; Yuval Vidavsky, Cornell University
		Speaker: Meredith Silberstein (Invited Talk)
10:45 AM	11:05 AM	**Machine Learning Discovery of Multi-Functional Polyimides**
		Ying Li, University of Connecticut; Lei Tao, University of Connecticut; Jinlong He, University of Connecticut
		Speaker: Ying Li (Invited Talk)
Session: 3B, Room: Hotel-Reveille II		
Session Chair(s): Robert Sinko, rsinko@niu.edu		
11:40 AM	12:00 PM	**Deep learning framework for material design space exploration using active learning and data augmentation**
		Seunghwa Ryu, KAIST (Korea Advanced Institute of Science and Technology)
		Speaker: Seunghwa Ryu (Invited Talk)
12:00 PM	12:30 PM	**Soft Materials by Design: Unconventional Polymer Networks Give Extreme Properties**
		Xuanhe Zhao, MIT
		Speaker: Xuanhe Zhao (Keynote Talk)
Session: 4A, Room: Hotel-Reveille II		
Session Chair(s): Zhaoxu Meng, zmeng@clemson.edu		
2:15 PM	2:35 PM	**Sub-molecular fracture and stability of tropocollagen**
		Zhao Qin, Syracuse University; Milad Masrouri, Syracuse University
		Speaker: Zhao Qin (Invited Talk)
2:35 PM	2:55 PM	**Multiscale Modeling of Bioinspired Structures and its Applications**
		Arun Nair, Associate Professor, University of Arkansas
		Speaker: Arun Nair (Invited Talk)
2:55 PM	3:15 PM	**Finite Elements of Multiscale Mixtures (FE2M) Applied to the Mechanics of Cartilage**
		Ashkan Almasi, University of Connecticut; Phoebe Szarek, University of Connecticut; Tim Ricken, University of Stuttgart; David M. Pierce, University of Connecticut
		Speaker: Ashkan Almasi (Contributed Talk)
3:15 PM	3:35 PM	**Computational Design of Cellulose-Based Nanocomposites and Personal Protective Equipment (PPE)**
		Robert Sinko, Northern Illinois University
		Speaker: Robert Sinko (Contributed Talk)
3:35 PM	3:55 PM	**Multiscale Modeling of biobased and biomass materials**
		Francisco Martin-Martinez, Swansea University
		Speaker: Francisco Martin-Martinez (Invited Talk)

9.10 Multiscale Modeling of Phase Transitions, Dislocations, and Twining in Materials		
Session: 3A, Room: Hotel-Corps I		
Session Chair(s): Wei Gao, wei.gao@tamu.edu		
9:45 AM	10:05 AM	**Moving window concurrent atomistic continuum schemes for modeling shock wave propagation**
		Alexander Davis, Auburn University; Vinamra Agrawal, Auburn University
		Speaker: Vinamra Agrawal (Contributed Talk)
10:05 AM	10:25 AM	**Long-Term Atomistic Characterization of Hydride Phase Transformation in Metallic Nanomaterials**
		Xingsheng Sun, University of Kentucky
		Speaker: Xingsheng Sun (Contributed Talk)
10:25 AM	10:45 AM	**Tracking twin boundary jerky motion at nanometer and microsecond scales**
		Emil Bronstein, Faculty of Mechanical Engineering, Technion - Israel Institute of Technology; László Tóth, Department of Solid State Physics, University of Debrecen; Lajos Daróczi, Department of Solid State Physics, University of Debrecen; Dezső Beke, Department of Solid State Physics, University of Debrecen; Ronen Talmon, Viterbi Faculty of Electrical & Computer Engineering, Technion - Israel Institute of Technology; Doron Shilo, Faculty of Mechanical Engineering, Technion - Israel Institute of Technology
		Speaker: Emil Bronstein (Contributed Talk)
10:45 AM	11:05 AM	**Phase Transformations in Crystalline Solids via Statistically-Averaged Gaussian Phase Packets**
		Shashank Saxena, Mechanics & Materials Lab, ETH Zürich, Zürich, Switzerland; Raphaël Mignot-Bahisson, D-MAVT, ETH Zürich, Zürich, Switzerland; Miguel Spinola, Mechanics & Materials Lab, ETH Zürich, Zürich, Switzerland; Prateek Gupta, Department of Applied Mechanics, Indian Institute of Technology Delhi, New Delhi, India; Dennis Kochmann, Mechanics & Materials Lab, ETH Zürich, Zürich, Switzerland
		Speaker: Shashank Saxena (Contributed Talk)
11:05 AM	11:25 AM	**Dislocation-density-based Crystal Plasticity Modeling of Halite at Different Temperatures and Orientations**
		Timothy Truster, University of Tennessee; Wadi Imseeh, University of Tennessee; Ran Ma, Columbia University; Amirsalar Moslehy, University of Tennessee; Khalid Alshibli, University of Tennessee
		Speaker: Timothy Truster (Contributed Talk)
Session: 3B, Room: Hotel-Corps I		
Session Chair(s): Wei Gao, wei.gao@tamu.edu		
11:40 AM	12:00 PM	**Atomistic Mechanisms of Phase Nucleation and Propagation in a Model Two-Dimensional System**
		Wei Gao, Texas A&M University
		Speaker: Wei Gao (Contributed Talk)
12:00 PM	12:20 PM	**Understanding lap shear tests of bilayer graphene via van der Waals interfacial dislocations**
		Bo Ni, Massachusetts Institute of Technology, Brown University; Huajian Gao, Brown University, Nanyang Technological University
		Speaker: Bo Ni (Contributed Talk)

9.13 Recent Advances in Modeling and Simulation of Nano and Micromechanics of Materials		
Session: 3A, Room: Hotel-Century I		
Session Chair(s): Mauricio Ponga, mponga@mech.ubc.ca		
9:45 AM	10:15 AM	**Plasticity without phenomenology: a first step**
		Sabyasachi Chatterjee, Indian Institute of Technology, Delhi; Giacomo Po, University of Miami; Xiaohan Zhang, Salesforce.com; Amit Acharya, Carnegie Mellon University; Nasr Ghoniem, UCLA
		Speaker: Amit Acharya (Keynote Talk)
10:15 AM	10:45 AM	**Structure-property linkages in HCP materials for damage-tolerant materials design**
		Shailendra Joshi, University of Houston; Shahmeer Baweja, University of Houston; Padmeya Indurkar, University of Cambridge
		Speaker: Shailendra Joshi (Keynote Talk)
10:45 AM	11:05 AM	**Multiscale Shape Memory and Superelasticity Responses of Shape Memory Ceramics**
		Mohsen Asle Zaeem, Colorado School of Mines
		Speaker: Mohsen Asle Zaeem (Invited Talk)
11:05 AM	11:25 AM	**Mechanical Properties of a Thermoplastic Elastomer Modelled as a Liquid-Crystal Elastomer**
		Manav Manav, ETH Zurich; Mauricio Ponga, University of British Columbia, Vancouver, Canada; Michael Ortiz, California Institute of Technology, Pasadena, USA
		Speaker: Manav Manav (Invited Talk)
Session: 3B, Room: Hotel-Century I		
Session Chair(s): Amit Acharya, acharyaamit@cmu.edu		
11:40 AM	12:00 PM	**Network Plasticity: Mesoscale-to-continuum modeling of microstructure-mediated plasticity**
		Brandon Runnels, University of Colorado Colorado Springs
		Speaker: Brandon Runnels (Invited Talk)
12:00 PM	12:20 PM	**Mechanics in Crumpling and Assembly of Graphene by Liquid Drying**
		Qingchang Liu, University of Virginia; Baoxing Xu, University of Virginia
		Speaker: Baoxing Xu (Invited Talk)
Session: 4A, Room: Hotel-Century I		
Session Chair(s): Juan Pedro Mendez, jpmende@sandia.gov		
2:15 PM	2:45 PM	**Adaptive grids for FFT based field dislocation mechanics**
		Javier Segurado, Universidad Politécnica de Madrid, IMDEA-Materials Institute; Rodrigo Santos, Universidad Politécnica de Madrid; Gonzalo Álvarez, Universidad Politécnica de Madrid
		Speaker: Javier Segurado (Keynote Talk)
2:45 PM	3:05 PM	**A free energy-based framework for scale bridging in crystalline solids--with some use of machine learning methods**
		Krishna Garikipati, University of Michigan
		Speaker: Krishna Garikipati (Invited Talk)
3:05 PM	3:25 PM	**Deformation Mechanics in Beryllium: A Molecular Dynamics Study**

		Kellen Andrew, California Polytechnic State University; William Schill, Lawrence Livermore National Laboratory; Dingyi Sun, Lawrence Livermore National Laboratory
		Speaker: Dingyi Sun (Invited Talk)
3:25 PM	3:55 PM	**Statistical Mechanics of Ordering in Materials from First Principles using Machine Learning and Monte Carlo Simulations**
		Markus Eisenbach, Oak Ridge National Laboratory
		Speaker: Markus Eisenbach (Keynote Talk)
Session: 4B, Room: Hotel-Century I		
Session Chair(s): Dingyi Sun, sun33@llnl.gov		
4:10 PM	4:30 PM	**A learning-based multi-scale model for the temperature-dependent behavior of Magnesium**
		Burigede Liu, University of Cambridge
		Speaker: Burigede Liu (Invited Talk)
4:30 PM	4:50 PM	**Quantum Transport Simulations for Si: P δ-layer systems**
		Juan Mendez Granado, Sandia National Laboratories; Denis Mamaluy, sandia national laboratories
		Speaker: Juan Pedro Mendez Granado (Invited Talk)

9.14 Thermodynamics, Kinetics and Mechanical Behaviors of Metallic Glasses and High Entropy Alloys		
Session: 3A, Room: Hotel-Corps II		
Session Chair(s): Yue Fan, fanyue@umich.edu; Penghui Cao, caoph@uci.edu		
9:45 AM	10:15 AM	**Solute-Strengthening in Alloys with Short-Range Order**
		William Curtin, Ecole Polytechnique Federale de Lausanne
		Speaker: William Curtin (Keynote Talk)
10:15 AM	10:35 AM	**Universal Mechanical Response of Metallic Glasses during Strain-rate-dependent Uniaxial Compression**
		Weiwei Jin, Yale University; Amit Datye, Yale University; Udo Schwarz, Yale University; Mark Shattuck, The City College of New York; Corey O'Hern, Yale University
		Speaker: Weiwei Jin (Invited Talk)
10:35 AM	10:55 AM	**The strain rate sensitivity of heterogeneous thin film metallic glasses: interplay between nanoscale heterogeneity and dynamic plasticity**
		Yucong Gu, The University of Alabama; Lin Li, The University of Alabama
		Speaker: Lin Li (Invited Talk)
10:55 AM	11:15 AM	**DFT study of the NiTi-X alloy systems for the Shape Memory High Entropy Alloys (SMHEAs) design**
		Guillermo Vazquez, Texas A&M University Department of Materials Science and Engineering; Raymundo Arróyave, Texas A&M University Department of Materials Science and Engineering; Sina Hossein Zadeh, Texas A&M University Department of Materials Science & Engineering
		Speaker: Guillermo Vazquez (Contributed Talk)

Thematic Area 10. Special Symposia

10.1 Experimental & Theoretical Micro & Nano-Mechanics: Honoring Contributions Prof. Kyung-Suk Kim		
Session: 3A, Room: MSC-2500		
Session Chair(s): Renee Zhao, rrzhao@stanford.edu		
9:45 AM	10:05 AM	**Thermo-hygral-mechanical behavior of porous materials based on NRB (Nguyen-Rahimi-Bazant) Isotherms**
		Hoang Nguyen, Northwestern University; Zdenek Bazant, Northwestern University; Anh Nguyen, Northwestern University
		Speaker: Zdenek Bazant (Invited Talk)
10:05 AM	10:25 AM	**Deep-Green Inversion to Extract Traction-Separation Relations at Material Interfaces**
		Kenneth Liechti, University of Texas; Congjie Wei, Department of Civil, Architectural, and Environmental Engineering Missouri University of Science and Technology, Rolla, MO 68409; Jiaxin Zha, Computer Science and Mathematics Division Oak Ridge National Laboratory, Oak Ridge, TN 37830; Chenglin Wu, Department of Civil, Architectural, and Environmental Engineering Missouri University of Science and Technology, Rolla, MO 68409
		Speaker: Kenneth Liechti (Invited Talk)
10:25 AM	10:45 AM	**Impact on metals at hypersonic velocities**
		KT Ramesh, Johns Hopkins University; Gary Simpson, Johns Hopkins University
		Speaker: K.T. Ramesh (Invited Talk)
10:45 AM	11:05 AM	**Nanoindentation Size Effects in Lithiated and Sodiated Battery Electrode Materials**
		Shuman Xia, Georgia Institute of Technology
		Speaker: Shuman Xia (Invited Talk)
11:05 AM	11:25 AM	**Fracture at the Two-Dimensional Limit**
		Jun Lou, Rice University
		Speaker: Jun Lou (Invited Talk)
Session: 3B, Room: MSC-2500		
Session Chair(s): Wendy Crone, crone@engr.wisc.edu		
11:40 AM	12:00 PM	**Atomic Scale Effects in Contact Mechanics and Friction**
		Robert Carpick, University of Pennsylvania
		Speaker: Robert Carpick (Invited Talk)
12:00 PM	12:20 PM	**Lamellar architectures in stiff biomaterials may not always be templates for enhancing toughness in composites**
		Haneesh Kesari, Brown University
		Speaker: Haneesh Kesari (Invited Talk)
12:20 PM	12:40 PM	**Corrosion: Interaction between Chemistry and Mechanics**
		Ashraf Bastawros, Iowa State University
		Speaker: Ashraf Bastawros (Invited Talk)

10.2 A Celebration of Peridynamics: Honoring the contributions of Dr. Stewart Silling		
Session: 3A, Room: MSC-2501		
Session Chair(s): Yue Yu, yuy214@lehigh.edu; Ibrahim Guven iguven@vcu.edu		
9:45 AM	10:05 AM	**Nonlocal equations: Analysis and fast solvers**
		Florin Bobaru, University of Nebraska-Lincoln; Adam Larios, University of Nebraska; Siavash Jafarzadeh, Pennsylvania State University; Isabel Safarik, University of Nebraska-Lincoln
		Speaker: Adam Larios (Invited Talk)
10:05 AM	10:35 AM	**Phase-Field Modeling and Peridynamics for Defect Dynamics, and an Augmented Phase-Field Model with Viscous Stresses**
		Kaushik Dayal, Carnegie Mellon University
		Speaker: Kaushik Dayal (Keynote Talk)
10:35 AM	11:05 AM	**Learning Peridynamic (Nonlocal) Operators for Material Modeling**
		Yue Yu, Lehigh University; Huaiqian You, Lehigh University; Stewart Silling, Sandia National Laboratories; Marta D'Elia, Sandia National Laboratories
		Speaker: Yue Yu (Keynote Talk)
11:05 AM	11:25 AM	**On Neumann-type Boundary Conditions for Nonlocal Models**
		Michael Parks, Sandia National Laboratories; Petronela Radu, Department of Mathematics, University of Nebraska-Lincoln
		Speaker: Michael Parks (Invited Talk)
Session: 3B, Room: MSC-2501		
Session Chair(s): Yue Yu, yuy214@lehigh.edu; Ibrahim Guven iguven@vcu.edu		
11:40 AM	12:00 PM	**Multiscale Analysis of Failure in CNT Yarns using a Peridynamic Approach**
		Kyle Watson, Virginia Commonwealth University; Riley Hall, Virginia Commonwealth University; Ibrahim Guven, Virginia Commonwealth University
		Speaker: Ibrahim Guven (Invited Talk)
12:00 PM	12:20 PM	**The role of the shape of the coupling interface on the overall out-of-balance error in the coupling of peridynamics and classical continuum mechanics**
		Mirco Zaccariotto, Departement of Industrial Engineering, University of Padova, Italy.; Jacopo Bardiani, Departement of Industrial Engineering, University of Padova, Italy.; Greta Ongaro, Department of Structural and Geotechnical Engineering, Sapienza University of Rome, Italy.; Ugo Galvanetto, Departement of Industrial Engineering, University of Padova, Italy.
		Speaker: Mirco Zaccariotto (Invited Talk)
12:20 PM	12:40 PM	**Coupling Approaches for Classical Linear Elasticity and Bond-Based Peridynamic Models**
		Patrick Diehl, LSU; Serge Prudhomme, Polytechnique Montréal
		Speaker: Patrick Diehl (Invited Talk)
Session: 4A, Room: MSC-2501		
Session Chair(s): Debdeep Bhattacharya, debdeepbh@lsu.edu; John Foster, jfoster@austin.utexas.edu		
2:15 PM	2:35 PM	**Shape and Damage Effect on the Strength of Granular Aggregates and Application to Vehicle Mobility Using a Peridynamics-based Discrete Element Method**
		Debdeep Bhattacharya, Louisiana State University; Robert Lipton, Louisiana State University

		Speaker: Debdeep Bhattacharya (Invited Talk)
2:35 PM	2:55 PM	**A machine-learning framework for peridynamic material models with physical constraints**
		Xiao Xu, The University of Texas at Austin; John Foster, The University of Texas at Austin; Marta D'Elia, Sandia National Laboratories
		Speaker: John Foster (Invited Talk)
2:55 PM	3:15 PM	**Nonlinear nonlocal conservation laws: convergence of operators and solutions**
		anh.vo@huskers.unl.edu , VO
		Speaker: Anh Vo (Contributed Talk)
3:15 PM	3:35 PM	**Nonlocal Curvature with integrable kernel**
		Animesh Biswas, University of Nebraska-Lincoln
		Speaker: Animesh Biswas (Contributed Talk)
3:35 PM	3:55 PM	**Mathematical Analysis for Nonlocal Operators and Systems**
		Petronela Radu, University of Nebraska Lincoln
		Speaker: Petronela Radu (Invited Talk)

10.4 Celebrating Mechanics of Materials: Honoring the legacy of Prof. Sia Nemat-Nasser		
Session: 4A, Room: MSC-2500		
Session Chair(s): Ghatu Subhash, subhash@ufl.edu; Mohammed A. Zikry, zikry@ncsu.edu		
2:15 PM	2:35 PM	**Multi-resolution High-throughput Mechanical Characterization of Heterogeneous Materials**
		Surya Kalidindi, Georgia Institute of Technology
		Speaker: Surya Kalidindi (Invited Talk)
2:35 PM	2:55 PM	**Dislocation-based crystal plasticity finite element simulation for the micropillar compression**
		George Voyiadjis, Louisiana State University; Juyoung Jeong, Louisiana State University
		Speaker: George Z. Voyiadjis (Invited Talk)
2:55 PM	3:15 PM	**The Mechanics of Living Organisms: Some Observations**
		Marc Meyers, UC San Diego
		Speaker: Marc Meyers (Invited Talk)
3:15 PM	3:35 PM	**Reformulation of classical mechanics problems for effiicient numerical computation**
		Muneo Hori, Japan Agency for Marine-Earth Science and Technology
		Speaker: Muneo Hori (Invited Talk)
3:35 PM	3:55 PM	**Poroviscoelasticity and fracture in gelatin-based hydrogels**
		Si Chen, University of Texas at Austin; Krishnaswamy Ravi-Chandar, University of Texas at Austin
		Speaker: Krishnaswamy Ravi-Chandar (Invited Talk)

Thematic Area 1. Medalist Symposia (Invited Only)

1.1 Prager Medal Symposium		
Session: 5A, Room: MSC-2406A		
Session Chair(s): David Nordsletten, nordslet@umich.edu		
9:45 AM	10:05 AM	**Combining Expert-knowledge and Data-driven Methods to Model Soft Tissue Mechanics**
		Vahidullah Tac, Purdue University; Vivek Sree, Purdue University; Manuel Rausch, The University of Texas at Austin; Adrian Buganza Tepole, Purdue University
		Speaker: Adrian Buganza Tepole (Invited Talk)
10:05 AM	10:35 AM	**Size Effects in Confined Layer Plasticity**
		Mitsutoshi Kuroda, Yamagata University; Viggo Tvergaard, Technical University of Denmark; Alan Needleman, Texas A&M
		Speaker: Alan Needleman (Keynote Talk)
10:35 AM	10:55 AM	**Negative mechanotransduction: reduced contractility of fibroblasts in stiffer microenvironments**
		Guy Genin, NSF Science and Technology Center for Engineering Mechanobiology, Washington University in St. Louis; Xiangjun Peng, Washington University in St. Louis; Ghiska Ramahdita, Washington University in St. Louis; Yuan Huang, Washington University in St. Louis; Yuxuan Huang, Washington University in St. Louis; David Ju, Ladue Horton Watkins High School; Elliot Elson, Washington University in St. Louis; Delaram Shakiba, Saint Louis University School of Medicine; Nathaniel Huebsch, Washington University in St. Louis; Farid Alisafaei, New Jersey Institute of Technology
		Speaker: Guy Genin (Invited Talk)
Session: 5B, Room: MSC-2406A		
Session Chair(s): David Nordsletten, nordslet@umich.edu		
11:40 AM	12:00 PM	**Linking region-specific tissue microstructure to the biaxial mechanics of porcine left anterior descending artery**
		Chung-Hao Lee, The University of Oklahoma; Sergio Pineda-Castillo, The University of Oklahoma; Tingting Gu, The University of Oklahoma; Devin Laurence, The University of Oklahoma; Elizabeth Bradshaw, The University of Oklahoma; Gerhard Holzapfel, Graz University of Technology
		Speaker: Sergio Pineda-Castillo (Invited Talk)
12:00 PM	12:20 PM	**Mechanophysiology of Human Femoropopliteal Arteries in the Lower Extremity and Its Changes With Age and Disease**
		Alexey Kamenskiy, University of Nebraska Omaha
		Speaker: Alexey Kamenskiy (Invited Talk)
Session: 6A, Room: MSC-2406A		
Session Chair(s): Angkur Shaikeea, ajds3@cam.ac.uk; Ivan Grega, ig348@cam.ac.uk		
2:15 PM	2:45 PM	**A Numerical Scheme for Anisotropic Reactive Nonlinear Viscoelasticity**
		Gerard Ateshian, Columbia University; Courtney Petersen, Columbia University; Steve Maas, University of Utah; Jeffrey Weiss, University of Utah
		Speaker: Gerard Ateshian (Keynote Talk)
2:45 PM	3:05 PM	**Engineer metals with internal interfaces for enhanced mechanical performance (for Vikram Deshpande Symposium)**

		Huajian Gao, Nanyang Technological University, Institute of High Performance Computing
		Speaker: Huajian Gao (Invited Talk)
3:05 PM	3:25 PM	**Right Ventricular Remodeling in Pulmonary Hypertension: An Experimental Study from the Gene to the Organ Level**
		Sotirios Kakaletsis, University of Texas at Austin; Marcin Malinowski, Spectrum Health; Matthew Bersi, Washington University in St. Louis; Tomasz Jazwiec, Spectrum Health; Tomasz Timek, Spectrum Health; Manuel Rausch, University of Texas at Austin
		Speaker: Manuel Rausch (Invited Talk)
3:25 PM	3:55 PM	**A Structure-Based Constitutive Law for Myocardial Scar**
		Jeffrey Holmes, University of Alabama at Birmingham; Laura Caggiano, University of California Irvine
		Speaker: Jeffrey Holmes (Keynote Talk)
Session: 6B, Room: MSC-2406A		
Session Chair(s): Angkur Shaikeea, ajds3@cam.ac.uk; Ivan Grega, ig348@cam.ac.uk		
4:10 PM	4:30 PM	**Machine learning of the physics governing cell dynamics**
		Siddhartha Srivastava, University of Michigan; Chengyang Huang, University of Michigan; Kenneth Ho, University of Michigan; Wanggang Shen, University of Michigan; Nikola Banovic, University of Michigan; Gary Luker, University of Michigan; Kathryn Luker, University of Michigan; Xun Huan, University of Michigan; Krishna Garikipati, University of Michigan
		Speaker: Krishna Garikipati (Invited Talk)
4:30 PM	4:50 PM	**Fracture toughness of 3D mechanical metamaterials: test and design protocol**
		Angkur Shaikeea, University of Cambridge; Huachen Cui, University of California Los Angeles; Xiaoyu (Rayne) Zheng, University of California Los Angeles; Vikram Deshpande, University of Cambridge
		Speaker: Angkur Shaikeea (Invited Talk)

1.2 Eringen Medal Symposium		
Session: 5A, Room: MSC-2406B		
Session Chair(s): Pradeep Sharma, psharma@uh.edu		
9:45 AM	10:05 AM	**Statistical field theory for the free energy of an electro-mechanical polymer chain: non-local dipole-dipole interactions in the fixed applied field ensemble**
		Kaushik Dayal, Carnegie Mellon University
		Speaker: Kaushik Dayal (Invited Talk)
10:05 AM	10:25 AM	**Multi-scale Modeling of Metallic Glass Failure: Embedding Atomistically Derived Equation-Free Constitutive Behavior in a Continuum Model**
		Michael Falk, Johns Hopkins University
		Speaker: Michael Falk (Invited Talk)
10:25 AM	10:45 AM	**Injury Criteria: Multimodal Deformation Thresholds for Soft Tissue Microdamage**
		Callan Luetkemeyer, University of Colorado Boulder; Corey Neu, University of Colorado Boulder; Sarah Calve, University of Colorado Boulder
		Speaker: Callan Luetkemeyer (Invited Talk)
10:45 AM	11:05 AM	**Exploiting crystallization in semicrystalline polymer nanocomposites**

		Frank Fisher, Stevens Institute of Technology
		Speaker: Frank Fisher (Invited Talk)
Session: 5B, Room: MSC-2406B		
Session Chair(s): Pradeep Sharma, psharma@uh.edu		
11:40 AM	12:10 PM	**Biomechanics and Remodeling of the Optic Nerve Head**
		Thao Nguyen, Johns Hopkins University
		Speaker: Thao Nguyen (Keynote Talk)
12:10 PM	12:30 PM	**The mechanical response of multistable knit architectures**
		katia bertoldi, Harvard University; Kausalya Mahadevan, Harvard University
		Speaker: Katia Bertoldi (Invited Talk)
Session: 6A, Room: MSC-2406B		
Session Chair(s): Jerry Qi, qih@me.gatech.edu		
2:15 PM	2:35 PM	**Structure-property relationships for stochastic and architected foams**
		Matthew Begley, University of California, Santa Barbara
		Speaker: Matthew Begley (Invited Talk)
2:35 PM	2:55 PM	**Slippery Business: Contact Mechanics and Frictional Behavior of Polymeric Hydrogels**
		Robert Carpick, University of Pennsylvania
		Speaker: Robert Carpick (Invited Talk)
2:55 PM	3:15 PM	**Operator Learning for Predicting Fracture Paths in Heterogeneous Materials**
		Ariana Quek, Duke University; Johann Guilleminot, Duke University
		Speaker: Ariana Quek (Invited Talk)
3:15 PM	3:35 PM	**Critiquing motion pictures: evaluating experimental goodness in 3D magnetic resonance cartography**
		Jonathan Estrada, University of Michigan
		Speaker: Jonathan Estrada (Invited Talk)
3:35 PM	3:55 PM	**Phase transforming materials as adaptive metamaterials**
		Ralston Fernandes, Texas A&M University; Sami El-Borgi, Texas A&M University at Qatar; James Boyd, Texas A&M University; Dimitris Lagoudas, Texas A&M University
		Speaker: Dimitris Lagoudas (Invited Talk)
Session: 6B, Room: MSC-2406B		
Session Chair(s): Jerry Qi, qih@me.gatech.edu		
4:10 PM	4:30 PM	**Mechanics of biopolymer networks in cell walls**
		Sulin Zhang, Penn State University
		Speaker: Sulin Zhang (Invited Talk)
4:30 PM	4:50 PM	**Characterizing Interphase Mechanical Property Gradients in Polymer Blends: Implications for Understanding Interfacial Interactions and Fracture Mechanisms**

		Pavan Kolluru, Texas A&M University; Suzanne Peterson, Texas A&M University; Glendimar Molero, Texas A&M University; Hung-Jue Sue, Texas A&M University
		Speaker: Pavan Kolluru (Invited Talk)

Thematic Area 2. Biomechanics & Mechanobiology

2.2 Cell and Tissue Mechanics in Health and Disease		
Session: 5A, Room: MSC-2404		
Session Chair(s): Guy Genin, genin@wustl.edu; Farid Alisafaei, farid.alisafaei@njit.edu		
9:45 AM	10:15 AM	**Computational Study of Biomechanics Drivers of Renal Cystogenesis**
		Gerard Ateshian, Columbia University, New York, NY; Katherine Spack, Columbia University, New York, NY; James Hone, Columbia University, New York, NY; Evren Azeloglu, Mount Sinai School of Medicine, New York, NY; G Gusella, Mount Sinai School of Medicine, New York, NY
		Speaker: Gerard Ateshian (Keynote Talk)
10:15 AM	10:45 AM	**Cell Force at the Core of Health and Disease**
		M Taher Saif, University of Illinois at Urbana-Champaign
		Speaker: M Taher Saif (Keynote Talk)
10:45 AM	11:05 AM	**Molecular Basis of Mechanobiological Investigation of Bone Metastasis of Breast and Prostate Cancer**
		Dinesh Katti, North Dakota State University; Sharad Jaswandkar, North Dakota State University; Hanmant Gaikwad, North Dakota State University; Kalpana Katti, North Dakota State University
		Speaker: Dinesh Katti (Contributed Talk)
11:05 AM	11:25 AM	**Invasion in breast cancer tumoroids as a mechano-biological instability**
		Giancarlo Cicconofri, Centre Internacional de Me`todes Nume`rics en Enginyeria (CIMNE); Guillermo Vilanova, Universitat Polite`cnica de Catalunya; Pau Blanco, Universitat Politecnica de Catalunya; Pablo Saez, Universitat Politecnica de Catalunya; Marino Arroyo, Institute for Bioengineering of Catalonia (IBEC), Universitat Politècnica de Catalunya, Centre Internacional de Me`todes Nume`rics en Enginyeria (CIMNE)
		Speaker: Marino Arroyo (Contributed Talk)
Session: 5B, Room: MSC-2404		
Session Chair(s): Guy Genin, genin@wustl.edu; Farid Alisafaei, farid.alisafaei@njit.edu		
11:40 AM	12:00 PM	**Understanding Human Somitogenesis through Mechanics and In Vitro Model**
		Yue Liu, University of Michigan; Jianping Fu, University of Michigan
		Speaker: Yue Liu (Contributed Talk)
12:00 PM	12:20 PM	**Inverse Formulation of Traction Force Microscopy on Crosshatched Nanonets enabled by Deep Learning**
		Abinash Padhi, Department of Mechanical Engineering, Virginia Tech; Arka Daw, Department of Computer Science, Virginia Tech; Medha Sawhney, Department of Computer Science, Virginia Tech; Maahi Talukder, Department of Mechanical Engineering, Virginia Tech; Atharva Agashe, Department of Mechanical Engineering, Virginia Tech; Anuj Karpatne, Department of Computer Science, Virginia Tech; Amrinder Nain, Department of Mechanical Engineering, Virginia Tech; Sohan Kale, Department of Mechanical Engineering, Virginia Tech, Center for Soft Matter and Biological Physics, Virginia Tech
		Speaker: Sohan Kale (Contributed Talk)

2.3 Cell Mechanics, Biomechanics and Mechanobiology		
Session: 5A, Room: MSC-2502		
Session Chair(s): Krishna Garikipati, krishna@umich.edu		
9:45 AM	10:15 AM	**It takes a network: Cellular integration of microscale contractile forces**
		Sanjay Kumar, University of California, Berkeley
		Speaker: Sanjay Kumar (Keynote Talk)
10:15 AM	10:45 AM	**Helical Fibers are The Origin of Pre-tension in Fibrin Gels**
		Prashant Purohit, University of Pennsylvania
		Speaker: Prashant Purohit (Keynote Talk)
10:45 AM	11:05 AM	**Obtaining all Material Sensitivities of a Biomechanical Model from a Single Simulation**
		Joseph Carter, Brigham Young University; Christopher Stubbs, Fairleigh Dickinson University; Douglas Cook, Brigham Young University
		Speaker: Douglas Cook (Contributed Talk)
11:05 AM	11:25 AM	**Nanomechanical and Fluid Flow Induced Mechanobiological Investigation of Bone Metastasis of Cancer**
		Kalpana Katti, North Dakota State University; Haneesh Jasuja, North Dakota State University; Lahcen Akerkouch, North Dakota State University; Sharad Jaswandkar, North Dakota State University; Trung Le, North Dakota State University; Dinesh Katti, North Dakota State University
		Speaker: Kalpana Katti (Contributed Talk)

2.4 Mechanobiology of Disease		
Session: 5A, Room: Hotel-Laurel		
Session Chair(s): Jian Zhang, jianz@uark.edu		
9:45 AM	10:05 AM	**The Entropy of Cancer Cell Migration: Bioenergetics and Cell Proliferation Support Invasive Migration in 3D**
		Jian Zhang, Vanderbilt University; Jenna Mosier, Vanderbilt University; Yusheng Wu, Vanderbilt University; Paul Taufalele, Vanderbilt University; Wenjun Wang, Vanderbilt University; Heng Sun, Vanderbilt University; Cynthia Reinhart-King, Vanderbilt University
		Speaker: Jian Zhang (Invited Talk)
10:05 AM	10:25 AM	**Lung Cancer: Current Challenges and Opportunities**
		Chad Eckert, Lung Cancer Initiative, Johnson & Johnson
		Speaker: Chad Eckert (Invited Talk)
10:25 AM	10:45 AM	**The diffusion of SK channels is confined by underlying F-actin filaments and related proteins**
		Shiju Gu, University of Connecticut; Anastasios Tzingounis, University of Connecticut; George Lykotrafitis, University of Connecticut
		Speaker: Shiju Gu (Invited Talk)
10:45 AM	11:05 AM	**Microstructure and Mechanical Behaviors of Tibia for Collagen Induced Arthritic Mice Treated with Gingiva-Derived Mesenchymal Stem Cells**
		Yuxiao Zhou, Department of Mechanical Engineering, Texas A&M University, College Station, TX, Department of Biomedical Engineering, and Translational Tissue Engineering Center, Johns Hopkins University School of Medicine, Baltimore, MD, Department of Mechanical Engineering, Pennsylvania State University, University Park, PA; Junlong Dang, Department of Clinical Immunology, Third

		Affiliated Hospital at the Sun Yat-sen University, Guangzhou, China; Ye Chen, Division of Rheumatology and Immunology, Department of Internal Medicine at Ohio State University of Medicine and Wexner Medical Center, Columbus, OH; Song Guo Zheng, Division of Rheumatology and Immunology, Department of Internal Medicine at Ohio State University of Medicine and Wexner Medical Center, Columbus, OH; Jing Du, Department of Mechanical Engineering, Pennsylvania State University, University Park, PA
		Speaker: Yuxiao Zhou (Contributed Talk)
11:05 AM	11:25 AM	**A computational model for the periodic axon plasma membrane skeleton under deformation**
		Zhaojie Chai, University of Connecticut; Anastasios Tzingounis, University of Connecticut; George Lykotrafitis, University of Connecticut
		Speaker: Zhaojie Chai (Invited Talk)
Session: 6A, Room: Hotel-Laurel		
Session Chair(s): Ashutosh Agrawal, aagrawa4@central.uh.edu		
2:15 PM	2:35 PM	**Mechanics of nuclear TCLM**
		Ashutosh Agrawal, University of Houston; Tanmay Lele, Texas A&M
		Speaker: Ashutosh Agrawal (Contributed Talk)
2:35 PM	2:55 PM	**Compressive Stress Drives Adhesion-Dependent Unjamming Transitions in Breast Cancer Cell Migration**
		Allen Liu, University of Michigan; Grace Cai, University of Michigan
		Speaker: Allen Liu (Invited Talk)
2:55 PM	3:15 PM	**Effects of left ventricular assist device on cardiac mechanics and interventricular interactions in heart failure patients**
		Lei Fan, Michigan State University; Jenny Choy, California Medical Innovations Institute; Ghassan Kassab, California Medical Innovations Institute; Daniel Burkhoff, Cardiovascular Research Foundation; Lik Chuan Lee, Michigan State University
		Speaker: Lei Fan (Contributed Talk)
3:15 PM	3:35 PM	**Tumor Evolution through Selection by ECM Stiffness**
		Ting-Ching Wang, Texas A&M University; Charles Baer, University of Florida; Tanmay Lele, Texas A&M University
		Speaker: Ting-Ching Wang (Contributed Talk)
3:35 PM	3:55 PM	**Association between pulmonary hemodynamics and RV remodeling in pulmonary hypertension**
		Sunder Neelakantan, Department of Biomedical Engineering, Texas A&M University, College Station, TX; Alexander Vang, Vascular Research Lab, Providence VA Med Ctr, Providence, RI; Preston Nicely, The Warren Alpert Medical School, Brown university, Providence, RI; Gaurav Choudhary, Department of Medicine, Brown University, Providence, RI, Department of Medicine, Veterans Affairs Medical Center, Providence, RI; Reza Avazmohammadi, Department of Biomedical Engineering, Texas A&M University, COllege Station, TX, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University, College Station, TX, Department of Cardiovascular Sciences, Houston Methodist Academic Institute, Houston, TX
		Speaker: Sunder Neelakantan (Contributed Talk)

Thematic Area 3. Data Science & Machine Learning

3.1 Advancing Multi-scale Modeling Capabilities in Metal Additive MFG through Machine Learning		
Session: 5A, Room: MSC-2505		
Session Chair(s): Jobin Joy, jobinjoy@tamu.edu		
9:45 AM	10:15 AM	**MeltpoolGAN: meltpool prediction from part-scale thermal history**
		Hongrui Chen, Intact Solutions; Xin Liu, Intact Solutions; Xingchen Liu, Intact Solutions; Paul Witherell, NIST; Michael Freytag, Intact Solutions; Vadim Shapiro, Intact Solutions
		Speaker: Xingchen Liu (Keynote Talk)
10:15 AM	10:35 AM	**Melt Pool Depth Prediction using Machine Learning in Laser Beam Additive Manufacturing**
		Mehdi Naderi, Technical Data Analysis, Inc; Jordan Weaver, NIST; David Deisenroth, NIST; Nagaraga Iyyer, Technical Data Analysis, Inc; Raymond Mccauley, NAVY
		Speaker: Mehdi Naderi (Contributed Talk)
10:35 AM	10:55 AM	**A Machine Learning Method to Predict Crystallographic Texture in Laser Powder Bed Fusion**
		Gregory Wong, Carnegie Mellon University; Anthony Rollett, Carnegie Mellon University; Elizabeth Holm, Carnegie Mellon University; Gregory Rohrer, Carnegie Mellon University
		Speaker: Gregory Wong (Contributed Talk)

3.4 Data-driven and Machine-learning based Mechanics of Materials		
Session: 5A, Room: MSC-1400		
Session Chair(s): Christos E. Athanasiou, christos_edouardos_athanasiou@brown.edu		
9:45 AM	10:05 AM	**Systematic approach to improve the accuracy of deep energy method**
		Charul Chadha, University of Illinois at Urbana-Champaign; Diab Abueidda, National Center for Supercomputing Applications, University of Illinois at Urbana Champaign, Urbana, IL 61801, USA; Seid Koric, National Center for Super-computing Applications, University of Illinois at Urbana-Champaign; Erman Guleryuz, National Center for Supercomputing Applications, University of Illinois at Urbana Champaign, Urbana, IL 61801, USA; Iwona Jasiuk, Department of Mechanical Science and Engineering, University of Illinois at Urbana Champaign, Urbana, IL 61801, USA
		Speaker: Charul Chadha (Contributed Talk)
10:05 AM	10:25 AM	**Data-Driven Material Modeling Employing the Theory of Representations for Tensor Functions**
		Dory Peters, Cornell University; Jan Fuhg, Cornell University; Nikolaos Bouklas, Cornell University
		Speaker: Nikolaos Bouklas (Contributed Talk)
10:25 AM	10:45 AM	**Hybrid elastoplasticity with data-driven yielding and model-based hardening**
		Jan Niklas Fuhg, Cornell University; Nikolaos Bouklas, Cornell University
		Speaker: Jan Niklas Fuhg (Contributed Talk)
10:45 AM	11:05 AM	**A Mechanics-Informed Machine Learning Approach for the Constitutive Modeling of Nonlinear Elastic and Viscoelastic Materials**
		Faisal As'ad, Stanford University

		Speaker: Faisal Asad (Contributed Talk)
11:05 AM	11:25 AM	**Neural Network Driven Nanoindentation Analysis**
		Frank Popelar, University of Texas at Austin, Engineering Mechanics; Vahid Morovati, University of Texas at Austin, Engineering Mechanics; Kenneth Liechti, University of Texas at Austin, Engineering Mechanics; Rui Huang, University of Texas at Austin, Engineering Mechanics
		Speaker: Frank Popelar (Contributed Talk)
Session: 5B, Room: MSC-1400		
Session Chair(s): Christos E. Athanasiou, christos_edouardos_athanasiou@brown.edu; Shailendra Joshi, spjoshi3@Central.uh.edu		
11:40 AM	12:00 PM	**Machine Learning-Based Structure-Property Correlation in Lightweight Architected Metamaterials**
		Shengzhi Luan, Johns Hopkins University; Enze Chen, Johns Hopkins University; Stavros Gaitanaros, Johns Hopkins University
		Speaker: Stavros Gaitanaros (Contributed Talk)
12:00 PM	12:20 PM	**Data-Driven Multiscale Mechanics: History-dependence, Nonlocality, Adaptive Sampling**
		Konstantinos Karapiperis, ETH Zurich; Anna Gorgogianni, California Institute of Technology; Laurent Stainier, Ecole Centrale de Nantes; Michael Ortiz, California Institute of Technology; Jose Andrade, California Institute of Technology
		Speaker: Konstantinos Karapiperis (Contributed Talk)
12:20 PM	12:40 PM	**Physics-Informed Data-Driven Constitutive Modeling of Strain Rate Sensitive Soft Materials**
		Kshitiz Upadhyay, Johns Hopkins University; Jan Fuhg, Cornell University; Nikolaos Bouklas, Cornell University; K.T. Ramesh, Johns Hopkins University
		Speaker: Kshitiz Upadhyay (Contributed Talk)
Session: 6A, Room: MSC-1400		
Session Chair(s): Ivan Grega, ig348@cam.ac.uk		
2:15 PM	2:35 PM	**Rapid protein mechanical strength prediction with an end-to-end deep learning model**
		Frank Liu, Massachusetts Institute of Technology; Bo Ni, Massachusetts Institute of Technology; Markus Buehler, Massachusetts Institute of Technology
		Speaker: Bo Ni (Invited Talk)
2:35 PM	2:55 PM	**Optimizing Sequential Experimental Design with Reinforcement Learning in Material Science Research**
		Niladri Das, Sandia National Laboratories
		Speaker: Niladri Das (Contributed Talk)
2:55 PM	3:15 PM	**Identifying void nucleation sites in incipient spall with multi-channel convolutional neural networks**
		Brandon Runnels, University of Colorado Colorado Springs
		Speaker: Brandon Runnels (Contributed Talk)
3:15 PM	3:35 PM	**Analyzing Unknown Geometric Features in Materials Using Physics-Informed Neural Networks**
		Enrui Zhang, Brown University; Ming Dao, MIT; George Karniadakis, Brown University
		Speaker: Enrui Zhang (Contributed Talk)
3:35 PM	3:55 PM	**Graph-based Machine Learning on Architected Materials**
		Ivan Grega, Department of Engineering, University of Cambridge, UK; Padmeya Indurkar, Department of Engineering, University of Cambridge, UK; Angkur Shaikeea, Department of Engineering, University of Cambridge, UK; Sri Karlapati, Amazon Research,

		*Cambridge, UK * work done outside of Amazon through an informal collaboration; Vikram Deshpande, Department of Engineering, University of Cambridge, UK*
		Speaker: Ivan Grega (Invited Talk)

3.5 Machine Learning in Cardiovascular Modeling and Simulations		
Session: 6A, Room: MSC-1403		
Session Chair(s): Michael Sacks, msacks@oden.utexas.edu; Reza Avaz, rezaavaz@tamu.edu		
2:15 PM	2:35 PM	**Geometric deep learning and statistical shape modeling for fast surrogate CFD simulations of patient-specific hemodynamics**
		Pan Du, University of Notre Dame; Xiaozhi Zhu, Meta; Jian-xun Wang, University of Notre Dame
		Speaker: Pan Du (Contributed Talk)
2:35 PM	2:55 PM	**A Deep Learning Method to Estimate Myocardial Stiffness and Collagen Undulation**
		Rana Mehdi, Department of Biomedical Engineering, Texas A&M University, College Station, TX, USA; Emilio Mendiola, Department of Biomedical Engineering, Texas A&M University, College Station, TX, USA; Reza Avazmohammadi, Department of Biomedical Engineering, Texas A&M University, College Station, TX, USA
		Speaker: Rana Raza Mehdi (Contributed Talk)
2:55 PM	3:15 PM	**Machine Learning Model to Identify the Size and Location of Cardiac Scar in Myocardial Infarction Using Cardiac Strains**
		Rana Mehdi, Department of Biomedical Engineering, Texas A&M University, College Station, TX, USA; Emilio Mendiola, Department of Biomedical Engineering, Texas A&M University, College Station, TX, USA; Reza Avazmohammadi, Department of Biomedical Engineering, Texas A&M University, College Station, TX, USA
		Speaker: Rana Raza Mehdi (Contributed Talk)
3:15 PM	3:35 PM	**Learning Reduced-Order Models for cardiovascular simulations with Graph Neural Networks**
		Luca Pegolotti, Stanford University; Martin Pfaller, Stanford University; Natalia Rubio, Stanford University; Eric Darve, Stanford University; Alison Marsden, Stanford University
		Speaker: Luca Pegolotti (Contributed Talk)
3:35 PM	3:55 PM	**Machine Learning Models of Junction Pressure Losses for Reduced-Order Cardiovascular Modeling**
		Natalia Rubio, Stanford University; Luca Pegolotti, Stanford University; Martin Pfaller, Stanford University; Jonathan Pham, Stanford University; Eric Darve, Stanford University; Alison Marsden, Stanford University
		Speaker: Natalia Rubio (Contributed Talk)

3.6 Multiscale Mechanics at the Intersection of Theoretical, Computational and Data Driven Approach		
Session: 5B, Room: MSC-2505		
Session Chair(s): Vikram Gavini, vikramg@umich.edu; Amartya Banerjee, asbanerjee@ucla.edu		
11:40 AM	12:10 PM	**An action principle for nonlinear dislocation dynamics**
		Amit Acharya, Carnegie Mellon University
		Speaker: Amit Acharya (Keynote Talk)
12:10 PM	12:30 PM	**Machine learning-enabled scale bridging between electronic structure, statistical mechanics, and phase-field theories with application in Li-ion batteries**

		Mostafa Faghih Shojaei, University of Michigan; krishna Garikipati, University of Michigan
		Speaker: Mostafa Faghih Shojaei (Contributed Talk)
Session: 6A, Room: MSC-2505		
Session Chair(s): Mostafa Shojaei, mfsh@umich.edu; Amartya Banerjee, asbanerjee@ucla.edu		
2:15 PM	2:35 PM	**GPU accelerated Tucker tensor algorithm for large-scale Kohn-Sham density functional theory calculations**
		Chih-Chuen Lin, University of Michigan; Vikram Gavini, University of Michigan
		Speaker: Chih-Chuen Lin (Contributed Talk)
2:35 PM	2:55 PM	**Deep Learning Based Quasi-Continuum Theory for Predicting the Force and Structure of a Confined Fluid**
		Haiyi Wu, The University of Texas at Austin; Narayana Aluru, The University of Texas at Austin
		Speaker: Haiyi Wu (Contributed Talk)
2:55 PM	3:15 PM	**Symmetry Adapted First Principles Calculations of the Electromechanics of Nanotubes**
		Hsuan Ming Yu, University of California, Los Angeles; Amartya Banerjee, University of California, Los Angeles
		Speaker: Hsuan Ming Yu (Contributed Talk)
3:15 PM	3:35 PM	**Transferable deep learning framework for solving PDEs on unseen domains**
		Hengjie Wang, Lawrence Berkeley National Laboratory; Aparna chandramowlishwaran, UCI; Ramin Bostanabad, University of California, Irvine
		Speaker: Ramin Bostanabad (Contributed Talk)
Session: 6B, Room: MSC-2505		
Session Chair(s): Amartya Banerjee, asbanerjee@ucla.edu; Vikram Gavini, vikramg@umich.edu		
4:10 PM	4:30 PM	**Carbon Kagome Nanotubes – novel quasi-one-dimensional materials with flat bands**
		Shivam Sharma, Graduate Student; Hsuan Yu, Graduate Student; Olivia Liebman, Graduate Student; Shivang Agarwal, Graduate Student; Amartya Banerjee, Assistant Professor
		Speaker: Shivam Sharma (Contributed Talk)
4:30 PM	4:50 PM	**Ab initio study of tungsten-based alloys under fusion power-plant conditions**
		Yichen Qian, Villanova University; Mark Gilbert, Culham Centre for Fusion Energy; Lucile Dezerald, Universite de Lorraine; Duc Nguyen, Culham Centre for Fusion Energy; David Cereceda, Villanova University
		Speaker: Yichen Qian (Contributed Talk)
4:50 PM	5:10 PM	**Learning Dynamics with Adaptive Random Fourier Features**
		Gideon Simpson, Drexel University; Jerome Troy, University of Delaware; Petr Plechac, University of Delaware
		Speaker: Jerome Troy (Contributed Talk)

Thematic Area 4. Fluid & Granular

4.2 Hydrodynamic Stability: Theory, Experiments and Numerics		
Session: 5B, Room: Hotel-Shield		
Session Chair(s): Koen Groot, koengroot@tamu.edu		
11:40 AM	12:10 PM	**Vortex Breakdown … Can we achieve control (?)**
		Elaine Oran, Texas A&M University; Xiao Zhang, Texas A&M University; E. Tarik Balci, Texas A&M University
		Speaker: Elaine Oran (Keynote Talk)
12:10 PM	12:30 PM	**Data Driven Modeling of Multiphase Multicomponent Porous Media Flows of Complex Fluids**
		Prabir Daripa, Texas A&M University
		Speaker: Prabir Daripa (Invited Talk)
Session: 6A, Room: Hotel-Shield		
Session Chair(s): Prabir Daripa, daripa@tamu.edu; Craig Epifanio, epifanio@tamu.edu		
2:15 PM	2:45 PM	**Some Recent Useful Results On Stability of Viscoelastic Hele-Shaw Flows**
		Prabir Daripa, Texas A&M University
		Speaker: Prabir Daripa (Keynote Talk)
2:45 PM	3:05 PM	**Resonant instability in subcritical mountain wave flows**
		Craig Epifanio, Department of Atmospheric Sciences, Texas A&M University; Kevin Viner, Marine Meteorology Division, Naval Research Laboratory,; James Doyle, Marine Meteorology Division, Naval Research Laboratory; Prabir Daripa, Department of Mathematics, Texas A&M University
		Speaker: Craig Epifanio (Invited Talk)
3:05 PM	3:25 PM	**Boundary-Layer Instabilities on a Highly-Swept Fin**
		Madeline Peck, Texas A&M University; Koen Groot, Texas A&M University; Helen Reed, Texas A&M University
		Speaker: Madeline Peck (Invited Talk)
Session: 6B, Room: Hotel-Shield		
Session Chair(s): Madeline Peck, mad_mcmillan@tamu.edu		
4:10 PM	4:30 PM	**Nonlinear Boundary-Layer Stability of a Slotted, Natural-Laminar-Flow Airfoil**
		Koen Groot, Texas A&M University; Jay Patel, Texas A&M University; Ethan Beyak, Texas A&M University; James Coder, University of Tennessee, Knoxville; Helen Reed, Texas A&M University
		Speaker: Koen Groot (Contributed Talk)
4:30 PM	4:50 PM	**Experimental Measurements of Velocity and Droplet Lag Distance in a Shock Accelerated Multiphase System**
		Vasco Duke, Texas A&M University PhD. Student; Manoj Paudel, Texas A&M University PhD. Student; Jacob McFarland, Texas A&M University Associate Professor
		Speaker: Vasco Duke (Contributed Talk)

4.5 Micro/Nano-Fluidics and Lab-on-Chip		
Session: 5A, Room: Hotel-Shield		
Session Chair(s): Shahin Shafiee, shshafiee@pvamu.edu; Aditya Kuchibhotla, adityak@tamu.edu; Debjyoti Banerjee, dbanerjee@tamu.edu		
9:45 AM	10:05 AM	**Wearable plasmonic paper–based microfluidics for continuous sweat analysis**
		Umesha Mogera, Texas A&M University; Heng Guo, Texas A&M Universityt; Limei Tian, Texas A&M University
		Speaker: Heng Guo (Contributed Talk)
10:05 AM	10:25 AM	**Interdigitated Electrode (IDE)-based Droplet Manipulation Technique for Microfluidic High-throughput Assay**
		Han Zhang, Department of Electrical and Computer Engineering
		Speaker: Han Zhang (Contributed Talk)
10:25 AM	10:45 AM	**Carbon storage as a solid hydrate using geochemical microfluidics**
		Wen Song, University of Texas at Austin
		Speaker: Wen Song (Contributed Talk)

Thematic Area 5. Manufacturing & Infrastructure

5.4 The Mechanics and Manufacturing of Programmable Soft Matter		
Session: 5A, Room: MSC-2504		
Session Chair(s): Jochen Mueller, jochen@jhu.edu; Jordan Raney, raney@seas.upenn.edu		
9:45 AM	10:15 AM	**Building with interfacial flows**
		PT Brun, Princeton University
		Speaker: Pierre-Thomas Brun (Keynote Talk)
10:15 AM	10:35 AM	**A modular, embodied control strategy for electronics-free soft robots**
		Qiguang He, University of Pennsylvania; Rui Yin, University of Pennsylvania; Yucong Hua, University of Pennsylvania; Weijian Jiao, University of Pennsylvania; Chengyang Mo, University of Pennsylvania; Hang Shu, University of Pennsylvania; Jordan Raney, University of Pennsylvania
		Speaker: Qiguang He (Contributed Talk)
10:35 AM	10:55 AM	**Mechanical proprioception in autonomously-reconfigurable multistable metamaterials**
		Weijian Jiao, MEAM Department, University of Pennsylvania; Qiguang He, MEAM Department, University of Pennsylvania; Hang Shu, MEAM Department, University of Pennsylvania; Jordan Raney, MEAM Department, University of Pennsylvania
		Speaker: Weijian Jiao (Contributed Talk)
Session: 5B, Room: MSC-2504		
Session Chair(s): Jochen Mueller, jochen@jhu.edu; Jordan Raney, raney@seas.upenn.edu		
11:40 AM	12:00 PM	**Programmable Cardiac Patches in the Infarcted Left Ventricle**
		Emilio Mendiola, Texas A&M University; Reza Avazmohammadi, Texas A&M University
		Speaker: Reza Avazmohammadi (Contributed Talk)
12:00 PM	12:20 PM	**Inverse design of shape-morphing structures based on kirigami**
		Yunlan Zhang, University of Oxford
		Speaker: Yunlan Zhang (Contributed Talk)
Session: 6A, Room: MSC-2504		
Session Chair(s): Jochen Mueller, jochen@jhu.edu; Jordan Raney, raney@seas.upenn.edu		
2:15 PM	2:35 PM	**Topology optimization-based synthesis of temperature controlled, 3D printed multi-material microstructures with programmable response**
		Weichen Li, University of Illinois Urbana-Champaign; Tian Chen, University of Houston; Xiaojia Shelly Zhang, University of Illinois at Urbana-Champaign
		Speaker: Tian Chen (Contributed Talk)
2:35 PM	2:55 PM	**Elastic instability enabled shape-morphing metamaterials**
		Mingchao Liu, Nanyang Technological University
		Speaker: Mingchao Liu (Contributed Talk)
2:55 PM	3:15 PM	**Metamaterials for Reconfiguration and Soft Robotics**

		Juan Osorio, Purdue University - School of Mechanical Engineering; Katherine Riley, Purdue University - School of Mechanical Engineering; Harith Morgan, Purdue University - School of Mechanical Engineering; Andres Arrieta, Purdue University - School of Mechanical Engineering
		Speaker: Andres Arrieta (Contributed Talk)

5.6 Mechanics and Physics of Additive Manufacturing		
Session: 5A, Room: MSC-2503		
Session Chair(s): Lin Cheng, lcheng@wpi.edu		
9:45 AM	10:15 AM	**Providing a Rigorous Benchmark Measurement Foundation for the AM Modeling Community**
		Lyle Levine, National Institute of Standards and Technology
		Speaker: Lyle Levine (Keynote Talk)
10:15 AM	10:45 AM	**Computational Fluid Dynamics Imposed Finite Element Method (CIFEM) for Accelerated High-fidelity Thermal Process Simulation in Laser Powder Bed Fusion Additive Manufacturing**
		Seth Strayer, University of Pittsburgh; William Templeton, Carnegie Mellon University; Florian Dugast, University of Pittsburgh; Sneha Narra, Carnegie Mellon University; Albert To, University of Pittsburgh
		Speaker: Seth Strayer (Keynote Talk)
10:45 AM	11:05 AM	**Uncertainty Quantification with the Hypercomplex-based Stochastic Perturbation Method in Additive Manufacturing Finite Element Analysis**
		Matthew Balcer, The University of Texas at San Antonio; Harry Millwater, The University of Texas at San Antonio; Mauricio Aristizabal, The University of Texas at San Antonio; David Restrepo, The University of Texas at San Antonio; Juan Sebastian Rincon Tabares, The University of Texas at San Antonio
		Speaker: Matthew Balcer (Invited Talk)
11:05 AM	11:25 AM	**A mixed interface-capturing and interface-tracking CFD framework for modeling metal AM processes at different scales**
		Jinhui Yan, University of Illinois at Urbana-Champaign
		Speaker: Jinhui Yan (Contributed Talk)
Session: 5B, Room: MSC-2503		
Session Chair(s): Jinhui Yan, yjh@illinois.edu		
11:40 AM	12:00 PM	**Studying the influence of layer height to develop process-structure-property relations for FFF-processed polycarbonate and thermoplastic polyurethane**
		Charul Chadha, Department of Mechanical Science and Engineering, University of Illinois at Urbana Champaign, Urbana, IL 61801, USA; Junyan He, Department of Mechanical Science and Engineering, University of Illinois at Urbana Champaign, Urbana, IL 61801, USA; Albert Patterson, Faculty of Manufacturing and Mechanical Engineering Technology, Department of Engineering Technology and Industrial Distribution, Texas A&M University, College Station, TX, 77843, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University, College Station, TX, 77843; Iwona Jasiuk, Department of Mechanical Science and Engineering, University of Illinois at Urbana Champaign, Urbana, IL 61801, USA
		Speaker: Charul Chadha (Invited Talk)

12:00 PM	12:20 PM	**A physic-constrained deep learning model-enabled concurrent multiscale simulation framework for accurate temperature prediction for large-scale laser powder bed fusion (L-PBF)**
		Lin Cheng, Worcester Polytechnic Institute
		Speaker: Lin Cheng (Invited Talk)
12:20 PM	12:40 PM	**Transient Thermal ZFEM Model for Arbitrary Order Sensitivity Analysis in Powder Bed Fusion Additive Manufacturing**
		Juan Sebastian Rincon Tabares, Department of Mechanical Engineering, The University of Texas at San Antonio; Mauricio Aristizabal, Department of Mechanical Engineering, University of Texas at San Antonio,; Matthew Balcer, Department of Mechanical Engineering, University of Texas at San Antonio,; Arturo Montoya, Department of Civil and Environmental Engineering, University of Texas at San Antonio, Department of Mechanical Engineering, University of Texas at San Antonio,; Harry Millwater, Department of Mechanical Engineering, University of Texas at San Antonio; David Restrepo, Department of Mechanical Engineering, University of Texas at San Antonio
		Speaker: Juan Sebastian Rincon Tabares (Invited Talk)
Session: 6A, Room: MSC-2503		
Session Chair(s): Jinhui Yan, yjh@illinois.edu		
2:15 PM	2:35 PM	**Densification of Binder Jetted Alumina via Infiltration with Copper in Air**
		Quinton Porter, TEXAS A&M UNIVERSITY; Mohammadamin Moghadasi, TEXAS A&M UNIVERSITY; Zhijian Pei, TEXAS A&M UNIVERSITY; Chao Ma, TEXAS A&M UNIVERSITY
		Speaker: Chao Ma (Invited Talk)
2:35 PM	2:55 PM	**Dimensionless analysis of laser powder bed fusion - Key insights linking thermo-fluidic factors influencing microstructure and melt pool morphology**
		Kunal Bhagat, University of Wisconsin-Madison; Shiva Rudraraju, University of Wisconsin-Madison
		Speaker: Kunal Bhagat (Invited Talk)
2:55 PM	3:15 PM	**An Efficient method to Compute Arbitrary-order Multivariable Derivatives in Non-linear Finite Element Problems using the Order Truncated Imaginary Numbers. Applications to powder bed fusion thermomechanical simulations.**
		Mauricio Aristizabal, The University of Texas at San Antonio; Juan Rincon-Tabares, The University at Texas at San Antonio; Matthew Balcer, The University at Texas at San Antonio; Arturo Montoya, The University at Texas at San Antonio; David Restrepo, The University at Texas at San Antonio; Harry Millwater, The University at Texas at San Antonio
		Speaker: Mauricio Aristizabal Cano (Invited Talk)

Thematic Area 6. Multifunctional & Multifield

6.2 Chemo-thermo-mechanics of Energetics and Reacting Flows		
Session: 5A, Room: Hotel-Reveille II		
Session Chair(s): Scott Jackson, sij@tamu.edu		
9:45 AM	10:05 AM	**Measuring Onset of Hydrodynamic Instability of Spherically Expanding Flames**
		Mattias Turner, Texas A&M University; Eric Petersen, Texas A&M University
		Speaker: Mattias Turner (Contributed Talk)
10:05 AM	10:25 AM	**Evaluation of Velocity-Adjusted Detonation Product Equation of State Methods with a Data-Driven Model**
		Athena Padgiotis, Texas A&M; Scott Jackson, Texas A&M
		Speaker: Athena Padgiotis (Contributed Talk)
10:25 AM	10:45 AM	**Blast Wave Decay Model and Scaling Law for Open-Ended Detonation Tube**
		Ebuzer Balci, Texas A&M University; James Thomas, Texas A&M University; Felix Rodriguez, Texas A&M University; David Teitge, Texas A&M University; Logan Kunka, Texas A&M University; Nathan Gaddis, Texas A&M University; Zachary Browne, Texas A&M University; Cassio Ahumada, Texas A&M University; Scott Jackson, Texas A&M University; Eric Petersen, Texas A&M University; Elaine Oran, Texas A&M University
		Speaker: Ebuzer Balci (Contributed Talk)
10:45 AM	11:05 AM	**High-Speed Species-Specific Imaging of Inhomogeneous Ignition Events Through a Shock-Tube Endwall**
		Darryl Mohr, Texas A&M University; Matthew Hay, Texas A&M University; Waruna Kulatilaka, Texas A&M University; Eric Petersen, Texas A&M University
		Speaker: Darryl Mohr (Contributed Talk)

6.5 Frontiers of Tribology for a Green and Sustainable Future, including Hydrogen		
Session: 6A, Room: Hotel-Century IV		
Session Chair(s): Ali Erdemir, aerdemir@tamu.edu; Andreas Polycarpou, apolycarpou@tamu.edu		
2:15 PM	2:45 PM	**On the Critical Role of Hydrogen in Superlubricity of Diamondlike Carbon Films: Recent Developments and Future Prospects**
		Ali Erdemir, Mechanical Engineering Department, Texas A&M University
		Speaker: Ali Erdemir (Keynote Talk)
2:45 PM	3:15 PM	**Nanotribology of Phosphonium Phosphate Ionic Liquid: a Combined Atomic Force Microscopy and Surface Spectroscopic Study**
		Filippo Mangolini, The University of Texas at Austin
		Speaker: Filippo Mangolini (Keynote Talk)
3:15 PM	3:35 PM	**Safety Analysis of Proton Exchange Membrane Water Electrolysis Process**
		Yuanxing Liu, Artie McFerrin Department of Chemical Engineering, Texas A&M University, Mary Kay O'Connor Process Safety Center (MKOPSC), Texas A&M University, Texas A&M Energy Institute, Texas A&M University; Faisal Khan, Artie McFerrin Department of Chemical Engineering, Texas A&M University, Mary Kay O'Connor Process Safety Center (MKOPSC), Texas A&M University; Efstratios

		Pistikopoulos, Artie McFerrin Department of Chemical Engineering, Texas A&M University, Texas A&M Energy Institute, Texas A&M University
		Speaker: Yuanxing Liu (Invited Talk)
Session: 6B, Room: Hotel-Century IV		
Session Chair(s): Ali Erdemir, aerdemir@tamu.edu; Andreas Polycarpou, apolycarpou@tamu.edu		
4:10 PM	4:30 PM	**In situ Tribology Studies of Elastomers under High Pressure Hydrogen Environments**
		Wenbin Kuang, Pacific Northwest National Laboratory; Kevin Simmons, Pacific Northwest National Laboratory; Bruce Arey, Pacific Northwest National Laboratory; Alice Dohnalkova, Pacific Northwest National Laboratory; Ethan Nickerson, Pacific Northwest National Laboratory
		Speaker: Wenbin Kuang (Invited Talk)
4:30 PM	4:50 PM	**Surface coverage-dependent hydrogen uptake in pure Ni under electrochemical charging**
		Lai Jiang, Texas A&M University; Michael Demkowicz, Texas A&M University
		Speaker: Lai Jiang (Invited Talk)

6.7 Mechanically-Coupled and Surface-Enabled Functionality in 2D Materials		
Session: 5A, Room: Hotel-Century III		
Session Chair(s): Qing Tu, qing.tu@tamu.edu; Doyun Kim, kimdoyoon88@tamu.edu		
9:45 AM	10:05 AM	**In-Plane Thermo-Mechanical Property of 2D Hybrid Organic-Inorganic Perovskites**
		Doyun Kim, Department of Materials Science & Engineering, Texas A&M University, College Station; Eugenia Vasileiadou, Department of Chemistry, Northwestern University, Evanston; Ioannis Spanopoulos, Department of Chemistry, University of South Florida, Tampa; Mercouri Kanatzidis, Department of Chemistry, Northwestern University, Evanston; Qing Tu, Department of Materials Science & Engineering, Texas A&M University, College Station
		Speaker: Doyun Kim (Contributed Talk)
10:05 AM	10:25 AM	**Strain Engineering of Optoelectronic Devices based on Crumpled Graphene/Organic Semiconductor Heterostructure**
		Zhichao Zhang, University of Illinois at Urbana-Champaign; Sungwoo Nam, University of California, Irvine
		Speaker: Zhichao Zhang (Contributed Talk)
10:25 AM	10:45 AM	**Interface, Thermal, and Mechanical Properties of Low-dimensional Carbon-Based Materials**
		Abigail Eaton, University of Arkansas; Arun Nair, Associate Professor, University of Arkansas
		Speaker: Abigail Eaton (Contributed Talk)
10:45 AM	11:05 AM	**Electronic effects of large corrugation amplitude in twisted bilayer graphene**
		Tawfiqur Rakib, Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, Urbana IL 61801 USA; Elif Ertekin, Department of Mechanical Science and Engineering, Materials Research Laboratory, University of Illinois at Urbana-Champaign, Urbana IL 61801 USA; Pascal Pochet, Department of Physics, Univ. Grenoble-Alpes and CEA, Grenoble, France.; Harley Johnson, Department of Mechanical Science and Engineering, Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana IL 61801 USA
		Speaker: Tawfiqur Rakib (Contributed Talk)
Session: 5B, Room: Hotel-Century III		

Session Chair(s): Qing Tu, qing.tu@tamu.edu; Doyun Kim, kimdoyoon88@tamu.edu		
11:40 AM	12:00 PM	**Strain Engineering of Two-dimensional Tungsten Diselenide for Tunable Exciton Dynamics**
		Jin Myung Kim, University of Illinois at Urbana-Champaign; SungWoo Nam, University of California, Irvine
		Speaker: Jin Myung Kim (Contributed Talk)
12:00 PM	12:20 PM	**Atomic Fabrication of MXene: In-Situ Observation of Defect Healing**
		Chenglin Wu, Missouri University of Science and Technology; Yanxiao Li, Missouri University of Science and Technology; Wenpei Gao, North Carolina State University
		Speaker: Chenglin Wu (Contributed Talk)

6.11 Recent Advances on the Actuation and Failure Response of Active Materials		
Session: 5A, Room: Hotel-Reveille I		
Session Chair(s): Bjoern Kiefer, Bjoern.Kiefer@imfd.tu-freiberg.de		
9:45 AM	10:15 AM	**Phase-field simulations probing the temperature and rate dependence of ferroelectric switching**
		Dennis Kochmann, ETH Zurich; Roman Indergand, ETH Zurich
		Speaker: Dennis Kochmann (Keynote Talk)
10:15 AM	10:45 AM	**Multiscale Aspects of Modeling Ferroelectrics and Applications toward Actuation, Energy Harvesting and Lifetime Assessment**
		Andreas Ricoeur, University of Kassel; Lennart Behlen, University of Kassel; Stephan Lange, University of Kassel; Reschad Wakili, University of Kassel; Andreas Warkentin, University of Kassel
		Speaker: Andreas Ricoeur (Keynote Talk)
10:45 AM	11:05 AM	**A Finite-Strain Phase-Field Model for Fracture in Shape Memory Alloys: Modeling Framework and Experimental Validation**
		Theocharis Baxevanis, University of Houston; Mehedi Hasan, University of Houston
		Speaker: Md Mehedi Hasan (Contributed Talk)
11:05 AM	11:25 AM	**A Top-Down Characterization of NiTi Single Crystal Inelastic Properties within Confidence Bounds through Bayesian Inference**
		Theocharis Baxevanis, University of Houston; Afzal Hossain, University of Houston; Pejman Honarmadi, Texas A&M University; Raymundo Arroyave, Texas A&M University
		Speaker: Theocharis Baxevanis (Contributed Talk)
Session: 5B, Room: Hotel-Reveille I		
Session Chair(s): Stephan Rudykh, rudykh@wisc.edu		
11:40 AM	12:00 PM	**Actuation Response of Glass-Ceramics**
		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
		Speaker: Brian Lester (Contributed Talk)
12:00 PM	12:20 PM	**Bending Saint-Venant's principle to create stiff architectured morphing materials**
		Francois Barthelat, University of Colorado Boulder; Kenichiro Yokota, University of Colorado at Boulder
		Speaker: Kenichiro Yokota (Contributed Talk)
12:20 PM	12:40 PM	**Evolution of Localized Deformation in NiTi Tubes in a Constant Stress Thermal Cycle: Experiments and Analysis**

		Solon Tsimpoukis, University of Texas at Austin; Stelios Kyriakides, University of Texas at Austin
		Speaker: Solon Tsimpoukis (Contributed Talk)
Session: 6A, Room: Hotel-Reveille I		
Session Chair(s): Marcus Young, Marcus.Young@unt.edu		
2:15 PM	2:45 PM	**Shape Memory Alloy Actuators in Aerospace: Past, Present and Optimistic Future Outlook**
		Othmane Benafan, NASA Glenn Research Center
		Speaker: Othmane Benafan (Keynote Talk)
2:45 PM	3:05 PM	**Characterization, Processing, and Thermo-mechanical Behavior of Ti-Ni-Cu-Pd Low Hysteresis Shape Memory Alloys**
		Andre Montagnoli, University of North Texas; Jan Frenzel, ruhr-universität bochum; Marcus Young, University of North Texas; Douglas Nicholson, The Boeing Company; Frederick Calkins, The Boeing Company
		Speaker: Andre Montagnoli (Contributed Talk)
3:05 PM	3:25 PM	**On the role of interpolation functions and weighted averaging operators in the phase field modeling of phase transformations**
		Bjoern Kiefer, TU Bergakademie Freiberg; Vincent von Oertzen, TU Bergakademie Freiberg
		Speaker: Bjoern Kiefer (Contributed Talk)
3:25 PM	3:45 PM	**The Effect of Microstructure on Fracture and Fatigue Properties of NiTiHf High Temperature Shape Memory Alloys**
		Benjamin Young, Texas A&M University, Sandian National Laboratories; Roberto Orrostieta, Texas A&M University; Behrouz Haghgouyan, Texas A&M University, Exponent; Dimitris Lagoudas, Texas A&M University; Ibrahim Karaman, Texas A&M University
		Speaker: Roberto Orrostieta (Contributed Talk)
Session: 6B, Room: Hotel-Reveille I		
Session Chair(s): Theocharis Baxevanis, tbaxevanis@uh.edu		
4:10 PM	4:30 PM	**On the Fracture Toughness of Shape Memory Alloys**
		Chad Landis, The University of Texas at Austin; Mohammed Alsawalhi, The University of Texas at Austin
		Speaker: Chad Landis (Contributed Talk)
4:30 PM	4:50 PM	**Magnetomechanical deformations and instability-induced microstructure transformations in soft magnetoactive materials**
		Nitesh Arora, University of Wisconsin Madison; Quan Zhang, University of Galway; Vincent Chen, Air Force Research Laboratory, Wright-Patterson AFB; Philip Buskohl, Air Force Research Laboratory, Wright-Patterson AFB; Abigail Juhl, Air Force Research Laboratory, Wright-Patterson AFB; Stephan Rudykh, UW Madison
		Speaker: Stephan Rudykh (Contributed Talk)

Thematic Area 7. Robotics & Controls

7.2 Mechanics and Control to Advance Space Domain Awareness		
Session: 6A, Room: MSC-2401		
Session Chair(s): Maruthi Akella, makella@mail.utexas.edu; Roshan Thomas Eapen, reapen@tamu.edu		
2:15 PM	2:35 PM	**Measures of Parameter Identifiability for Learning Applications**
		Manoranjan Majji, Texas A&M University; Michael Wang, Texas A&M University
		Speaker: Manoranjan Majji (Contributed Talk)
2:35 PM	2:55 PM	**Opinion Dynamics and Multi-Thread Learning for Robust Adaptation and Control**
		Maruthi Akella, The University of Texas at Austin
		Speaker: Maruthi Akella (Contributed Talk)
2:55 PM	3:15 PM	**Efficient Approximation of Cislunar Highways for Tracking of Non-Cooperative Satellite**
		Puneet Singla, The Pennsylvania State University; Roshan Eapen, The Pennsylvania State University; David Schwab, The Pennsylvania State University
		Speaker: Puneet Singla (Contributed Talk)
3:15 PM	3:35 PM	**Rapid Orbit Determination Strategies for the Expanded Earth Neighborhood within Lunar Orbit**
		Roshan Eapen, The Pennsylvania State University; Madeline Mayer, The Pennsylvania State University; Erin Cope, The Pennsylvania State University; Puneet Singla, The Pennsylvania State University
		Speaker: Roshan Eapen (Contributed Talk)
3:35 PM	3:55 PM	**Uncorrelated Track Association Using the Mahalanobis Distance**
		Woosang Park, Department of Aerospace Engineering, Texas A&M University; Kyle Alfriend, Department of Aerospace Engineering, Texas A&M University
		Speaker: Woosang Park (Contributed Talk)

7.3 Natural and Engineered Approaches to Dynamic Friction Tuning		
Session: 5A, Room: MSC-2401		
Session Chair(s): Carmel Majidi, cmajidi@andrew.cmu.edu; M. Cynthia Hipwell, cynthia.hipwell@tamu.edu		
9:45 AM	10:15 AM	**Switchable Adhesives for Intelligent Manipulation**
		Michael Bartlett, Virginia Tech
		Speaker: Michael Bartlett (Keynote Talk)
10:15 AM	10:35 AM	**Dynamically Tunable Friction via Subsurface Stiffness Modulation**
		Wanliang Shan, Syracuse University; Siavash Sharifi, MAE Dept, Syracuse University; Guangchao Wan, MAE Dept, Syracuse University; Teng Zhang, MAE Dept, Syracuse University
		Speaker: Wanliang Shan (Invited Talk)
10:35 AM	10:55 AM	**Contacts with Tunable Friction Realized via Stiffness Tuning**
		Christopher Stabile, University of Pennsylvania; Kevin Turner, University of Pennsylvania

		Speaker: Christopher Stabile (Contributed Talk)
10:55 AM	11:15 AM	**Dynamics of Electroadhesion**
		James Colgate, Northwestern University
		Speaker: Ed Colgate (Contributed Talk)
Session: 5B, Room: MSC-2401		
Session Chair(s): Carmel Majidi, cmajidi@andrew.cmu.edu; M. Cynthia Hipwell, cynthia.hipwell@tamu.edu		
11:40 AM	12:00 PM	**Rubber friction: from steady sliding to squeaking**
		Gabriele Albertini, Harvard University, University of Nottingham; Adel Djellouli, Harvard University; Ilya Svetlizky, Harvard University; Shmuel Rubinstein, Hebrew University of Jerusalem; David Weitz, Harvard University; Katia Bertoldi, Harvard University
		Speaker: Adel Djellouli (Contributed Talk)
12:00 PM	12:20 PM	**Modeling the Multiphysics at the Electroadhesive Finger-device and Finger-material Interfaces**
		Xinyi Li, Texas A&M University; Yuan Ma, The Hong Kong Polytechnic University (PolyU); Yinzhong Guo, Dow Chemical Company; M. Cynthia Hipwell, Texas A&M University
		Speaker: Xinyi Li (Contributed Talk)
12:20 PM	12:40 PM	**Dynamically controllable directional adhesives: applications, functional requirements, and ramifications for manufacturing**
		Mark Cutkosky, Stanford University; Amar Hajj-Ahmad, Stanford University
		Speaker: Amar Hajj-Ahmad (Contributed Talk)

Thematic Area 8. Soft & Flexible

8.3 Extreme Soft Materials by Polymer-Network Design		
Session: 5A, Room: Hotel-Century II		
Session Chair(s): Junsoo Kim, junsookim@g.harvard.edu		
9:45 AM	10:15 AM	**Programmable Hydrogel Adhesion Via Engineered Network Topology**
		Zhen Yang, Mechanical Engineering McGill University; Jianyu Li, Mechanical Engineering, McGill Unviersity
		Speaker: Jianyu Li (Keynote Talk)
10:15 AM	10:45 AM	**Are polymeric networks flaw tolerant?**
		Shi-Qing Wang, University of Akron; Travis Smith, University of Akron; Chaitanya Gupta, University of Akron; Zehao Fan, University of Akron
		Speaker: Shi-Qing Wang (Keynote Talk)
10:45 AM	11:05 AM	**Extremely Coupled Stress-order Behavior of Liquid Crystal Elastomers**
		Lihua Jin, University of California, Los Angeles
		Speaker: Lihua Jin (Invited Talk)
11:05 AM	11:25 AM	**Fracture of highly entangled polymer network**
		Junsoo Kim, Harvard University; Guogao Zhang, Harvard University; Meixuanzi Shi, Harvard University; Zhigang Suo, Harvard University
		Speaker: Junsoo Kim (Contributed Talk)
Session: 5B, Room: Hotel-Century II		
Session Chair(s): Aniruddh Vashisth, vashisth@uw.edu		
11:40 AM	12:00 PM	**Surpassing intrinsic trade-offs in mechanical properties of polymer networks through sequence-controlled alternating polymer-nanoparticles hybrids**
		Shiwang Cheng, Michigan State University; Shalin Patil, Michigan State University; Dongdong Zhou, Sichuan University; Xue-Hui Dong, South China University of Technology
		Speaker: Shiwang Cheng (Invited Talk)
12:00 PM	12:20 PM	**Water adsorption by polymers with abnormal temperature dependence**
		Xinyue Liu, Massachusetts Institute of Technology; Shaoting Lin, Massachusetts Institute of Technology; Lenan Zhang, Massachusetts Institute of Technology; Evelyn Wang, Massachusetts Institute of Technology
		Speaker: Xinyue Liu (Contributed Talk)
12:20 PM	12:40 PM	**Giant Strain-Induced Crystallization in Ideal-Network Elastomers**
		Chase Hartquist, Massachusetts Institute of Technology; Shaoting Lin, Massachusetts Institute of Technology; Xuanhe Zhao, Massachusetts Institute of Technology
		Speaker: Chase Hartquist (Contributed Talk)
Session: 6A, Room: Hotel-Century II		
Session Chair(s): Xiaoguang Dong, xiaoguang.dong@vanderbilt.edu		

2:15 PM	2:45 PM	**Embodying Energy & Intelligence in Liquid Crystal Elasto-mer**
		Carmel Majidi, Carnegie Mellon University
		Speaker: Carmel Majidi (Keynote Talk)
2:45 PM	3:05 PM	**Shape-Morphable Magnetic Miniature Robots Towards Minimally Invasive Medical Applications**
		Xiaoguang Dong, Vanderbilt University, Vanderbilt Institute for Surgery and Engineering
		Speaker: Xiaoguang Dong (Contributed Talk)
3:05 PM	3:25 PM	**Shape Morphing Liquid Crystal Elastomers: 4D Printing and Self-Assembled Structures**
		Taylor Ware, Texas A&M University
		Speaker: Taylor Ware (Invited Talk)
3:25 PM	3:45 PM	**Soft adaptive structures with fluidic flexible matrix composite tubes**
		Aniruddh Vashisth, Department of Mechanical Engineering, University of Washington, Seattle; Charles Bakis, Engineering Science & Mechanics, Pennsylvania State University
		Speaker: Aniruddh Vashisth (Contributed Talk)
Session: 6B, Room: Hotel-Century II		
Session Chair(s): Zhao Qi, zqin02@syr.edu; Shaoting Lin, linshaot@msu.edu		
4:10 PM	4:30 PM	**Rational Polymeric Design of Multifunctional Hydrogels**
		Dong Zhang, University of Akron; Yijing Tang, University of Akron; Jie Zheng, University of Akron
		Speaker: Dong Zhang (Contributed Talk)
4:30 PM	4:50 PM	**Polymer-network Design of Hydrogels for Atmospheric Water Harvesting**
		Shaoting Lin, MASSACHUSETTS INSTITUTE OF TECHNOLOGY; James Zhang, Massachusetts Institute of Technology; Xinyue Liu, Massachusetts Institute of Technology; Xuanhe Zhao, Massachusetts Institute of Technology
		Speaker: Shaoting Lin (Contributed Talk)

8.4 Functional Soft Composites - Design, Mechanics, and Manufacturing		
Session: 5A, Room: Hotel-Traditions		
Session Chair(s): H. Jerry Qi, qih@me.gatech.edu		
9:45 AM	10:05 AM	**STRETCHABLE HYBRID RESPONSE PRESSURE SENSORS (SHRPS)**
		Nanshu Lu, The University of Texas at Austin
		Speaker: Nanshu Lu (Invited Talk)
10:05 AM	10:25 AM	**Bioactive Tissue Derived Nanocomposite Gel for Permanent Arterial Embolization**
		Jingjie Hu, North Carolina State University
		Speaker: Jingjie Hu (Contributed Talk)
10:25 AM	10:45 AM	**Modeling of Programmable Magnetic Artificial Cilia**
		HAO JIANG, Syracuse University; Teng Zhang, Syracuse University
		Speaker: Hao Jiang (Contributed Talk)
10:45 AM	11:05 AM	**Magnetic field-controlled buckling patterns in soft magnetoactive composites**

		Nitesh Arora, University of Wisconsin-Madison; Vincent Chen, Air Force Research Laboratory, Wright-Patterson AFB, Ohio; Abigail Juhl, Air Force Research Laboratory, Wright-Patterson AFB, Ohio; Philip Buskohl, Air Force Research Laboratory, Wright-Patterson AFB, Ohio; Stephan Rudykh, University of Wisconsin-Madison
		Speaker: Nitesh Arora (Contributed Talk)
11:05 AM	11:25 AM	**A Computational Study of the Effective Magnetostrictive Properties of Anisotropic Magneto-Active Elastomers**
		Connor Pierce, University of Illinois at Urbana-Champaign; Ignacio Arretche, University of Illinois at Urbana-Champaign; Nusrat Salim, University of Illinois at Urbana-Champaign; Kathryn Matlack, University of Illinois at Urbana-Champaign
		Speaker: Connor Pierce (Contributed Talk)
Session: 5B, Room: Hotel-Traditions		
Session Chair(s): Pu Zhang, pzhang@binghamton.edu		
11:40 AM	12:00 PM	**Machine Learning-Evolutionary Algorithm Enabled Design for 4D-Printed Active Composite Structures**
		Xiaohao Sun, Georgia Institute of Technology; Ruike Zhao, Stanford University; H. Jerry Qi, Georgia Institute of Technology
		Speaker: Xiaohao Sun (Contributed Talk)
12:00 PM	12:20 PM	**Multimaterial 3D Printing using Single Vat Single Cure Grayscale Digital Light Processing**
		liang yue, Georgia Institute of Technology; Stuart Montgomery, Georgia Institute of Technology; Xiaohao Sun, Georgia Institute of Technology; Luxia Yu, Georgia Institute of Technology; Jerry Qi, Georgia Institute of Technology
		Speaker: Liang Yue (Contributed Talk)
Session: 6A, Room: Hotel-Traditions		
Session Chair(s): Liang Yue, liang.yue@gatech.edu		
2:15 PM	2:35 PM	**Fractal Dimensions in the Parameter Space of Vibration-induced Shape Morphing of Bi-stable Metamaterials**
		Md Nahid Hasan, University of Utah; Robert G. Parker, University of Utah; Pai Wang, University of Utah
		Speaker: Md Nahid Hasan (Contributed Talk)
2:35 PM	2:55 PM	**Digital Synthesis of Free-form Multimaterial Structures for Realization of Arbitrary Programmed Mechanical Responses**
		Weichen Li, University of Illinois Urbana-Champaign; Fengwen Wang, Technical University of Denmark; Ole Sigmund, Technical University of Denmark; Xiaojia Shelly Zhang, University of Illinois Urbana-Champaign
		Speaker: Weichen Li (Contributed Talk)
2:55 PM	3:15 PM	**A Self-Heating Wearable Material for In Situ Thermal Decontamination**
		Marquise Bell, Rice University; Te Faye Yap, Rice University; Anoop Rajappan, Rice University; Colter Decker, Rice University; Daniel Preston, Rice University
		Speaker: Marquise Bell (Contributed Talk)
3:15 PM	3:35 PM	**Producing Functional Fiber-Reinforced Polymer Composites via Hybrid Additive Manufacturing Process**
		Connor Armstrong, Georgia Institute of Technology; Liang Yue, Georgia Institute of Technology; Devin Roach, Georgia Institute of Technology; H. Jerry Qi, Georgia Institute of Technology
		Speaker: Connor Armstrong (Contributed Talk)
3:35 PM	3:55 PM	**Pixel-level manipulation to improve accuracy in grayscale digital light processing printing**
		S. Macrae Montgomery, Georgia Institute of Technology; Craig Hamel, Sandia National Laboratories; Jerry Qi, Georgia Institute of Technology

		Speaker: S. Macrae Montgomery (Contributed Talk)
Session: 6B, Room: Hotel-Traditions		
Session Chair(s): Asaf Dana, adana@tamu.edu		
4:10 PM	4:30 PM	**Poroelastic swelling dynamics of plant-inspired closed-cell composites**
		Jeongeun Ryu, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign; John Chen, Department of Material Science and Engineering, University of Illinois Urbana-Champaign; Shelby Hutchens, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, Department of Material Science and Engineering, University of Illinois Urbana-Champaign
		Speaker: Jeongeun Ryu (Contributed Talk)
4:30 PM	4:50 PM	**Role of Interface on Mechanical Behavior of Polymethylmethacrylate/a-Zirconium Phosphate Nanocomposites**
		Zewen Zhu, Texas A&M University
		Speaker: Zewen Zhu (Contributed Talk)

8.6 Mechanics and Physics of Soft Materials		
Session: 5A, Room: Hotel-Hullabaloo		
Session Chair(s): Stephan Rudykh, rudykh@wisc.edu; Oscar Lopez-Pamies, pamies@illinois.edu		
9:45 AM	10:05 AM	**Modeling surface stresses in soft materials**
		Berkin Dortdivanlioglu, The University of Texas at Austin; Animesh Rastogi, The University of Texas at Austin
		Speaker: Berkin Dortdivanlioglu (Contributed Talk)
10:05 AM	10:25 AM	**Toughening brittle solids via crack tip instability**
		Xinyue Wei, Institute of Mechanical Engineering, School of Engineering, EPFL; John Kolinski, Institute of Mechanical Engineering, School of Engineering, EPFL
		Speaker: John Kolinski (Contributed Talk)
10:25 AM	10:45 AM	**Generalized Structure Tensor-based Constitutive Relation without Switching Criterion for Arterial Tissues**
		K Arvind, Indian Institute of Technology (Madras), India; Krishna Kannan, Indian Institute of Technology (Madras), India
		Speaker: K Arvind (Contributed Talk)
10:45 AM	11:05 AM	**Inertial Microcavitation Rheometry Under Restricted Information**
		Bachir Abeid, University of Michigan; Zhiren Zhu, University of Michigan; Jonathan Estrada, University of Michigan
		Speaker: Bachir Abeid (Contributed Talk)
11:05 AM	11:25 AM	**A Reactive Multicomponent Theory for Programmable and Stimuli-Responsive Polyelectrolyte Hydrogels**
		Brandon Zimmerman, Johns Hopkins University, Lawrence Livermore National Laboratory; Bibekananda Datta, Johns Hopkins University; Thao Nguyen, Johns Hopkins University
		Speaker: Brandon Zimmerman (Contributed Talk)
Session: 6A, Room: Hotel-Hullabaloo		
Session Chair(s): Stephan Rudykh, rudykh@wisc.edu; Oscar Lopez-Pamies, pamies@illinois.edu		
2:15 PM	2:35 PM	**Investigation of Thermo-chemo-mechanically Coupled Phenomena in Frontal Polymerization**

		Xuanhe Li, MIT; Tal Cohen, MIT
		Speaker: Xuanhe Li (Contributed Talk)
2:35 PM	2:55 PM	**Instability-driven microstructure transformations in soft (meta)materials with tunable functions**
		Nitesh Arora, University of Wisconsin Madison; Viacheslav Slesarenko, University of Freiburg; Jian Li, Massachusetts Institute of Technology; Stephan Rudykh, UW Madison
		Speaker: Stephan Rudykh (Contributed Talk)
2:55 PM	3:15 PM	**A passive bidirectional soft valve**
		Wen Song, University of Texas at Austin
		Speaker: Wen Song (Contributed Talk)
3:15 PM	3:35 PM	**Transition from subcritical to supercritical buckling in helical elastic rods**
		Dezhong Tong, University of California, Los Angeles; Andy Borum, Hofstra University; Khalid Jawed, University of California, Los Angeles
		Speaker: Dezhong Tong (Contributed Talk)
3:35 PM	3:55 PM	**Unravelling the Mechanics of Knitted Fabrics Using Multiscale Simulation Techniques**
		Xiaoxiao Ding, Harvard University; Chris Rycroft, Harvard University
		Speaker: Xiaoxiao (Catherine) Ding (Contributed Talk)
Session: 6B, Room: Hotel-Hullabaloo		
Session Chair(s): Stephan Rudykh, rudykh@wisc.edu; Oscar Lopez-Pamies, pamies@illinois.edu		
4:10 PM	4:30 PM	**Inverse design of magneto-mechanical metamaterials with tunable responses**
		Zhi Zhao, University of Illinois at Urbana Champaign; Xiaojia Shelly Zhang, University of Illinois at Urbana Champaign
		Speaker: Xiaojia Shelly Zhang (Contributed Talk)
4:30 PM	4:50 PM	**A Subdivision-stabilized B-spline Material Point Method for Nonlinear Nearly Incompressible Solids**
		Ashkan Ali Madadi, university of texas at austin; Berkin Dortdivanlioglu, university of texas at austin
		Speaker: Ashkan Ali Madadi (Contributed Talk)
4:50 PM	5:10 PM	**Programmable morphologies and snapping capabilities via cutting and pasting**
		Yaoye Hong, North Carolina State University; Jie Yin, North Carolina State University
		Speaker: Yaoye Hong (Contributed Talk)

8.9 Mechanics, Materials, Manufacture and Device Innovations of Soft Electronics		
Session: 5A, Room: Hotel-Century IV		
Session Chair(s): Cunjiang Yu, cmy5358@psu.edu; Limei Tian, ltian@tamu.edu		
9:45 AM	10:05 AM	**Soft ultrasonic technologies for deep tissue sensing**
		Sheng Xu, University of California San Diego
		Speaker: Sheng Xu (Invited Talk)
10:05 AM	10:25 AM	**Biointegrated optoelectronic devices with radiative coolers for highly reliable data acquisition**
		Young Min Song, GIST

		Speaker: Young Min Song (Invited Talk)
10:25 AM	10:45 AM	**Highly Flexible and Wearable Microfluidic Sensors for Healthcare Applications**
		Chwee Lim, National University of Singapore
		Speaker: Chwee Teck Lim (Contributed Talk)
10:45 AM	11:05 AM	**Shape-Adaptive Curvy Imager Manufactured by Conformal Additive Stamp Printing**
		Zhoulyu Rao, Pennsylvania State University; Cunjiang Yu, Department of Engineering Science and Mechanics, Department of Biomedical Engineering, Pennsylvania State University
		Speaker: Zhoulyu Rao (Contributed Talk)
11:05 AM	11:25 AM	**Shape-morphing Materials for Deployable Intracortical Probes**
		Mahjabeen Javed, Texas A&M University; Joseph Pancrazio, The University of Texas at Dallas; Taylor Ware, Texas A&M University
		Speaker: Mahjabeen Javed (Contributed Talk)
Session: 5B, Room: Hotel-Century IV		
Session Chair(s): Limei Tian, ltian@tamu.edu; Cunjiang Yu, cmy5358@psu.edu		
11:40 AM	12:00 PM	**Soft and flexible bioelectronics for brain-machine interface**
		Jia Liu, Harvard University
		Speaker: Jia Liu (Invited Talk)
12:00 PM	12:20 PM	**Soft Wearable Biosensors for Monitoring Biophysical and Biochemical Parameters**
		Limei Tian, Texas A&M University
		Speaker: Limei Tian (Contributed Talk)
12:20 PM	12:40 PM	**Implantable, Wireless, Self-fixing Thermal Sensors for Continuous Measurements of Microvascular Blood Flow in Flaps and Organ Grafts**
		Shupeng Li, Northwestern University; Yonggang Huang, Northwestern University
		Speaker: Shupeng Li (Contributed Talk)

Thematic Area 9. Solids & Structures

9.1 Vibrations, Adaptive Structures and Testing		
Session: 5A, Room: Hotel-Corps II		
Session Chair(s): Patrick Musgrave, pmusgrave@ufl.edu; Saed Alajlouni, saed@tamu.edu		
9:45 AM	10:05 AM	**Modal analysis of a parabolic tape spring boom for space applications**
		Deven Mhadgut, Virginia Tech; Sheyda Davaria, Research Associate, Virginia Tech; Jonathan Black, Professor, Virginia Tech
		Speaker: Deven Mhadgut (Invited Talk)
10:05 AM	10:25 AM	**Field Evaluation of Machine Learning Models in Augmented Reality Environment**
		Alan Smith, Virginia Polytechnic Institute and State University; Rodrigo Sarlo, Virginia Polytechnic Institute and State University
		Speaker: Alan Smith (Contributed Talk)
10:25 AM	10:45 AM	**Low-cost sensing strategies for teaching dynamics and signal processing**
		Rodrigo Sarlo, Virginia Tech
		Speaker: Rodrigo Sarlo (Contributed Talk)
10:45 AM	11:05 AM	**Arbitrary-Order Sensitivity Analysis in Wave Propagation Problems Using the Hypercomplex Time-Domain Spectral Finite Element Method (ZSFEM)**
		Juan Navarro, Margie and Bill Klesse College of Engineering and Integrated Design, The University of Texas at San Antonio, San Antonio, TX, 78249, USA; Juan Velasquez-Gonzalez, Margie and Bill Klesse College of Engineering and Integrated Design, The University of Texas at San Antonio, San Antonio, TX 78249, USA; Harry Millwater, Margie and Bill Klesse College of Engineering and Integrated Design, The University of Texas at San Antonio, San Antonio, TX, 78249, USA; Arturo Montoya, Margie and Bill Klesse College of Engineering and Integrated Design, The University of Texas at San Antonio, San Antonio, TX, 78249, USA; David Restrepo, Margie and Bill Klesse College of Engineering and Integrated Design, The University of Texas at San Antonio, San Antonio, TX, 78249, USA
		Speaker: Juan Navarro (Contributed Talk)
11:05 AM	11:25 AM	**Arbitrary-order Sensitivity Analysis of Eigenfrequency Problems Using the Hypercomplex Taylor Series Expansion (ZTSE)**
		Juan Velasquez-Gonzalez, University of Texas at San Antonio; Juan David Navarro, University of Texas at San Antonio; Arturo Montoya, University of Texas at San Antonio; Harry Millwater, University of Texas at San Antonio; David Restrepo, University of Texas at San Antonio
		Speaker: Juan C. Velasquez-Gonzalez (Contributed Talk)
Session: 5B, Room: Hotel-Corps II		
Session Chair(s): Pablo Tarazaga, patarazaga@tamu.edu; Sriram Malladi, smalladi@mtu.edu		
11:40 AM	12:00 PM	**Programming Bandgaps Using Metastructures with Bistable Resonators**
		Sriram Malladi, Michigan Tech
		Speaker: Sriram Malladi (Contributed Talk)
12:00 PM	12:20 PM	**A Surging FlexWEC: An Adaptive Structure Using Distributed Embedded Energy Converting Technologies for Ocean Wave Energy Conversion**

		Sahand Sabet, National Renewable Energy Laboratory; Blake Boren, National Renewable Energy Laboratory
		Speaker: Sahand Sabet (Invited Talk)
12:20 PM	12:40 PM	**Generating Traveling Waves in Coexistence of Standing Waves in a Beam under a Single-Point Excitation Using Multiple Spring-Dampers Discontinuities**
		Seyedmostafa Motaharibidgoli, Virginia Tech; Pablo Tarazaga, Texas A&M
		Speaker: Seyedmostafa Motaharibidgoli (Contributed Talk)
Session: 6A, Room: Hotel-Corps II		
Session Chair(s): Rodrigo Sarlo, sarlo@vt.edu; Ipar Ferhat, iparferhat@gmail.com		
2:15 PM	2:35 PM	**Examination of Propagation Direction Behavior in Superimposed Two-Dimensional Structure-borne Traveling Waves**
		William Rogers, Texas A&M University; Mohammad Albakri, Texas A&M Qatar
		Speaker: William Rogers (Contributed Talk)
2:35 PM	2:55 PM	**Utilization of Fracture-Induced Acoustic Emissions in Mechanical Characterization of Soft Materials**
		Karthik Yerrapragada, University of Wisconsin-Madison; Dipul Chawla, University of Wisconsin-Madison; Corinne Henak, University of Wisconsin- Madison; Melih Eriten, University of Wisconsin- Madison
		Speaker: Karthik Yerrapragada (Contributed Talk)
2:55 PM	3:15 PM	**Leveraging the continuous residue interpolation method for optimizing IMMAT**
		Amirhossein Omidi Soroor, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Pablo Tarazaga, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University
		Speaker: Amirhossein Omidi Soroor (Contributed Talk)
3:15 PM	3:35 PM	**Selective Pattern for Circular Dimples Distribution as Means to Enhance Structural Mechanical Response of Tubular Components**
		Marcelo Paredes, Texas AM University; Cuneyt Sakonder, Texas AM University
		Speaker: Cuneyt Sakonder (Contributed Talk)

9.2 Classical and Nonclassical Continuum Theories and their Application		
Session: 5A, Room: Hotel-Ross II		
Session Chair(s): Karan Surana, kssurana@ku.edu; Jacob Kendall, j842k961@ku.edu		
9:45 AM	10:15 AM	**Thermodynamic Consistency of Nonclassical Continuum Theories for Solid Continua Incorporating Rotations**
		Karan Surana, University of Kansas; Sri Sai Charan Mathi, University of Kansas
		Speaker: Sri Sai Charan Mathi (Keynote Talk)
10:15 AM	10:45 AM	**Stress Waves in Polymeric Fluids**
		Karan Surana, University of Kansas; Michael Kitchen, University of Kansas
		Speaker: Karan Surana (Keynote Talk)
10:45 AM	11:05 AM	**Exact Cloaks in 3D Classical and Non-Classical Elasticity, Elastic Plates, and Optimal Approximate Cloaks**
		Arash Yavari, Georgia Institute of Technology
		Speaker: Arash Yavari (Contributed Talk)
11:05 AM	11:25 AM	**Design of Origami Structures with Curved Tiles between the Creases**

		Huan Liu, University of Minnesota; Richard James, University of Minnesota
		Speaker: Huan Liu (Contributed Talk)
Session: 5B, Room: Hotel-Ross II		
Session Chair(s): Karan Surana, kssurana@ku.edu; Jacob Kendall, j842k961@ku.edu		
11:40 AM	12:00 PM	**Space-time decoupled methods for IVPs arising in classical continuum mechanics in Eulerian descriptions of fluent continua**
		Karan Surana, University of Kansas; Payton Miller, University of Kansas
		Speaker: Karan Surana (Contributed Talk)
12:00 PM	12:20 PM	**Application of Asymptotic Methods and XFEM to the Analysis of Indentation Fracture**
		Alvaro Gomez-Ovalle, Department of Materials Science & Engineering, Texas A&M University, College Station, TX, 77843-3003, USA; George Pharr, Department of Materials Science & Engineering, Texas A&M University, College Station, TX, 77843-3003, USA
		Speaker: Alvaro Gomez-Ovalle (Contributed Talk)
12:20 PM	12:40 PM	**Non-classical continuum theories for fluent continua incorporating rotation rates and their thermodynamic consistency**
		Karan Surana, University of Kansas; Celso Carranza, University of Kansas
		Speaker: Celso Carranza (Contributed Talk)
Session: 6A, Room: Hotel-Ross II		
Session Chair(s): Karan Suran, kssurana@ku.edu; Celso Carranza, ccarranza@ku.edu		
2:15 PM	2:35 PM	**"Homogenization" for Fracture: Peridynamic Models**
		Florin Bobaru, University of Nebraska-Lincoln; Ziguang Chen, Huazhong University of Science and Technology
		Speaker: Florin Bobaru (Contributed Talk)
2:35 PM	2:55 PM	**Bandgap formation in a locally resonant metamaterial strain gradient nanobeam**
		Mohamed TRABELSSI, University of Tunis; Sami EL-BORGI, TEXAS AM University at Qatar
		Speaker: Sami El-Borgi (Contributed Talk)
2:55 PM	3:15 PM	**Size Effect on Copper Cantilever Bending Experiments with Couple Stress Elastoplasticity**
		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; Hojang Kim, Korea Advanced Institute of Science and Technology; Gi-Dong Sim, Korea Advanced Institute of Science and Technology
		Speaker: Jae-Hoon Choi (Contributed Talk)
3:15 PM	3:35 PM	**Rotational Inertial Physics in Non-Classical Thermoviscous Fluent Continua Incorporating Internal Rotation Rates**
		Karan Surana, University of Kansas; Jacob Kendall, University of Kansas
		Speaker: Jacob Kendall (Contributed Talk)
3:35 PM	3:55 PM	**Application of the J-integral and Linear Beam Theories to Single and Double Cantilever Beam Tests to Determine Mode I Interlaminar Fracture Toughness**
		Anthony Paris, University of Alaska Anchorage
		Speaker: Anthony Paris (Contributed Talk)

9.4 Continuum Based Modeling of Heterogeneous Materials		
Session: 5A, Room: Hotel-Eagle		
Session Chair(s): Yong-Rak Kim, yong-rak.kim@tamu.edu; David Allen, dhallen@tamu.edu		
9:45 AM	10:15 AM	**Modeling the ECOT Test**
		Marvin Zocher, Los Alamos National Laboratory
		Speaker: Marvin Zocher (Keynote Talk)
2:55 PM	3:15 PM	**Two-way Coupled Multiscale Modeling of Heterogeneous Elastic-Viscoelastic Solids**
		Yong-Rak Kim, Texas A&M University
		Speaker: Yong-Rak Kim (Invited Talk)
10:35 AM	10:55 AM	**Localization limiter for stochastic computation of quasibrittle fracture**
		Jia-Liang Le, University of Minnesota; Anna Gorgogianni, California Institute of Technology; Jan Elias, Brno University of Technology
		Speaker: Jia-Liang Le (Contributed Talk)
10:55 AM	11:15 AM	**A Chemo-Elastic Model based on the Chemical Potential**
		Kirill Rebrov, Oden Institute for Computational Engineering and Sciences, University of Texas at Austin; Nicolás Molina, Texas Materials Institute, University of Texas at Austin; Logan Kirsch, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin; Filippo Mangolini, Texas Materials Institute, University of Texas at Austin, Walker Department of Mechanical Engineering, University of Texas at Austin; Gregory Rodin, Department of Aerospace Engineering and Engineering Mechanics, University of Texas at Austin, Oden Institute for Computational Engineering and Sciences, University of Texas at Austin
		Speaker: Kirill Rebrov (Contributed Talk)
Session: 6A, Room: Hotel-Eagle		
Session Chair(s): Yong-Rak Kim, yong-rak.kim@tamu.edu; David Allen, dhallen@tamu.edu		
2:15 PM	2:35 PM	**Limpet Teeth Microstructure Unites Auxeticity with Extreme Strength and High Stiffness**
		Yue Liu, University of Michigan; Huajian Gao, Nanyang Technological University
		Speaker: Yue Liu (Contributed Talk)
2:35 PM	2:55 PM	**A poromechanics theory explaining the initial shrinkage of nanoporous materials upon adsorption**
		Yida Zhang, University of Colorado Boulder
		Speaker: Yida Zhang (Contributed Talk)
10:15 AM	10:35 AM	**Modeling of Fracture in Viscoelastic Bituminous Mixtures Using an Extrinsic Nonlinear Viscoelastic Cohesive Zone Model**
		Luiz Veras, Sao Carlos School of Engineering, University of Sao Paulo; Jamilla Teixeira, University of Nebraska - Lincoln; Yong-Rak Kim, Texas A&M University
		Speaker: Jamilla Teixeira (Contributed Talk)
3:15 PM	3:35 PM	**Homogenization of the Relaxed Micromorphic Model Towards Multiscale Metamaterial Design**
		Noah Francis, University of Colorado Boulder, Center for Integrated Nanotechnologies, Sandia National Laboratories; Fatemeh Pourahmadian, University of Colorado Boulder; Rémi Dingreville, Center for Integrated Nanotechnologies, Sandia National Laboratories
		Speaker: Noah Francis (Contributed Talk)
3:35 PM	3:55 PM	**Mechanics of Needle Insertion in Soft Tissues**

		Samer Al-Safadi, Temple University; Parsaoran Hutapea, Temple University
		Speaker: Samer Al-Safadi (Contributed Talk)

9.5 Controlling Mechanical Waves with Metamaterials		
Session: 5A, Room: Hotel-Ross I		
Session Chair(s): Thevamaran Ramathasan, thevamaran@wisc.edu		
9:45 AM	10:05 AM	**Mathematical structure of bandgaps in 1D phononic crystals**
		Joaquin Garcia-Suarez, École Polytechnique Fédérale de Lausanne
		Speaker: Joaquin Garcia-Suarez (Contributed Talk)
10:05 AM	10:25 AM	**Topological Maxwell Bilayers with Omnimodal Polarization Capabilities**
		Mohammad Charara, University of Minnesota; James McInerney, University of Michigan; Kai Sun, University of Michigan; Xiaoming Mao, University of Michigan; Stefano Gonella, University of Minnesota
		Speaker: Mohammad Charara (Contributed Talk)
10:25 AM	10:45 AM	**Ray Tracing for Graded Metamaterial Waveguides**
		Charles Dorn, ETH Zurich; Dennis Kochmann, ETH Zurich
		Speaker: Charles Dorn (Contributed Talk)
10:45 AM	11:05 AM	**Observation of robust bulk states in non-hermitian acoustic waveguides**
		Hamidreza Ramezani, University Of Texas Rio Grande Valley
		Speaker: Hamidreza Ramezani (Contributed Talk)
11:05 AM	11:25 AM	**Extreme Frequency Conversion via Transition Waves in Structurally Excited Metastructures**
		Myungwon Hwang, Purdue University; Suriyan Anandavel, Purdue University; Andres Arrieta, Purdue University
		Speaker: Andres Arrieta (Contributed Talk)
Session: 5B, Room: Hotel-Ross I		
Session Chair(s): Thevamaran Ramathasan, thevamaran@wisc.edu		
11:40 AM	12:00 PM	**High-Throughput Dynamic Characterization of Metamaterials via Laser-Induced Wave Propagation**
		Yun Kai, MIT; Thomas Pezeril, CNRS, MIT; Carlos Portela, MIT
		Speaker: Carlos Portela (Contributed Talk)
12:00 PM	12:20 PM	**Wave propagation in spatially-variant architected truss lattices**
		Bastian Telgen, Mechanics & Materials Lab, Department of Mechanical and Process Engineering, ETH Zurich; Vignesh Kannan, Mechanics & Materials Lab, Department of Mechanical and Process Engineering, ETH Zurich; Charles Dorn, Mechanics & Materials Lab, Department of Mechanical and Process Engineering, ETH Zurich; Dennis Kochmann, Mechanics & Materials Lab, Department of Mechanical and Process Engineering, ETH Zurich
		Speaker: Bastian Telgen (Contributed Talk)
12:20 PM	12:40 PM	**Effective phononic crystals to control radially-propagating elastic waves**
		Kathryn Matlack, University of Illinois at Urbana-Champaign; Ignacio Arretche, University of Illinois at Urbana-Champaign
		Speaker: Kathryn Matlack (Contributed Talk)

9.6 High-Strain-Rate Behavior of Heterogeneous Materials		
Session: 5A, Room: Hotel-Leadership		
Session Chair(s): Marcia Cooper, macoope@tamu.edu		
9:45 AM	10:15 AM	**High-rate Triaxial Compression Behavior of Composite Materials**
		Weinong Chen, Purdue University
		Speaker: Weinong "Wayne" Chen (Keynote Talk)
10:15 AM	10:35 AM	**A multisurface theory of ductile fracture for rate-dependent solids**
		Vigneshwaran Radhakrishnan, Texas A&M university; Amine Benzerga, Texas A&M university
		Speaker: Vigneshwaran Radhakrishnan (Contributed Talk)
10:35 AM	10:55 AM	**Intermediate Strain Rate Behavior of a Polymer-Particulate Composite with High Solids Loading**
		Mark Luke, Cooper Research Group - Texas A&M University; Marcia Cooper, J. Mike Walker '66 Department of Mechanical Engineering; Judith Brown, Sandia National Laboratories; Michael Kaneshige, Sandia National Laboratories
		Speaker: Mark Luke (Contributed Talk)
10:55 AM	11:15 AM	**The effect of impedance contrast on spall strength in multilayered composites**
		Liya Semenchenko, Materials Science & Engineering, Texas A&M University
		Speaker: Liya Semenchenko (Contributed Talk)

9.8 Multiscale Mechanics of Materials		
Session: 5A, Room: Hotel-Corps I		
Session Chair(s): Haoran Wang, haoran.wang@usu.edu		
9:45 AM	10:05 AM	**Characterizing the Mechanical Properties of Metal Thin Films via Membrane Deflection Experiments**
		Hojang Kim, KAIST; Jae-Hoon Choi, KAIST; Yu Hyun Park, KAIST; Sunkun Choi, KAIST; Zhuo Feng Lee, KAIST; Gi-Dong Sim, KAIST
		Speaker: Hojang Kim (Contributed Talk)
10:05 AM	10:25 AM	**Comparison of Anisotropic Simulation and Measured Microstructure Evolution in Ni and SrTiO3**
		S. Kiana Naghibzadeh, CARNEGIE MELLON UNIVERSITY; Zipeng Xu, CARNEGIE MELLON UNIVERSITY; Vivekanand Muralikrishnan, University of Florida; Amanda Krause, University of Florida; David Kinderlehrer, CARNEGIE MELLON UNIVERSITY; Robert Suter, CARNEGIE MELLON UNIVERSITY; Kaushik Dayal, CARNEGIE MELLON UNIVERSITY; Gregory Rohrer, CARNEGIE MELLON UNIVERSITY
		Speaker: S. Kiana Naghibzadeh (Contributed Talk)
10:25 AM	10:45 AM	**Intermetallic Particle Heterogeneity Controls Shear Localization in High-strength Nanostructured Al Alloys**
		Tianjiao Lei, University of California Irvine; Esther Hessong, University of California Irvine; Jungho Shin, University of California Santa Barbara, Gangneung-Wonju National University; Daniel Gianola, University of California Santa Barbara; Timothy Rupert, University of California Irvine
		Speaker: Tianjiao Lei (Invited Talk)
10:45 AM	11:05 AM	**Thermodynamically consistent derivation of variational multiscale DG crystal plasticity and finite element implementation**

		Amirfarzad Behnam, Department of Civil and Environmental Engineering, University of Tennessee, Knoxville, 318 John D. Tickle Engineering Building, Knoxville, TN 37996, United States; Timothy Truster, Department of Civil and Environmental Engineering, University of Tennessee, Knoxville, 318 John D. Tickle Engineering Building, Knoxville, TN 37996, United States
		Speaker: Amirfarzad Behnam (Contributed Talk)
11:05 AM	11:25 AM	**Constitutive Modeling of the Mechanics of Lithium-Metal Anodes in Solid-State Lithium Batteries**
		Md Takmil Sakir, Utah State University; Haoran Wang, Utah State University
		Speaker: Md Takmil Sakir (Contributed Talk)
Session: 5B, Room: Hotel-Corps I		
Session Chair(s): Haoran Wang, haoran.wang@usu.edu		
11:40 AM	12:00 PM	**Architecture Brings Ductility in a Brittle System**
		Angkur Shaikeea, University of Cambridge; Huachen Cui, University of California Los Angeles; Xiaoyu (Rayne) Zheng, University of California Los Angeles; Vikram Deshpande, University of Cambridge
		Speaker: Angkur Shaikeea (Contributed Talk)
12:00 PM	12:20 PM	**Spinodoid metamaterials with enhanced toughening mechanisms**
		Somayajulu Dhulipala, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
		Speaker: Somayajulu Dhulipala (Contributed Talk)
12:20 PM	12:40 PM	**Toughness Amplification in Lightweight Nano-Bouligand Materials**
		Zainab Patel, University of Washington; Lucas Meza, University of Washington
		Speaker: Zainab Patel (Contributed Talk)

9.11 Phase-Field Models of Fracture for Solids, Hard and Soft		
Session: 5A, Room: Hotel-Oak		
Session Chair(s): Trisha Sain, tsain@mtu.edu		
9:45 AM	10:15 AM	**Phase-field Fracture Modeling for Large Structures**
		Chad Landis, The University of Texas at Austin
		Speaker: Chad Landis (Keynote Talk)
10:15 AM	10:35 AM	**The revisited phase-field approach to brittle fracture: Application to indentation and notch problems**
		Oscar Lopez-Pamies, Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign; Aditya Kumar, Department of Aerospace Engineering, University of Illinois Urbana-Champaign
		Speaker: Oscar Lopez-Pamies (Contributed Talk)
10:35 AM	10:55 AM	**Phase Field based Cohesive Zone Modeling for Interface Fracture and Fatigue in Fiber Reinforced Polymer Composites**
		Trisha Sain, Michigan Technological University; Akash Kumar, Michigan Technological University
		Speaker: Trisha Sain (Contributed Talk)
10:55 AM	11:15 AM	**A Phase-Field Model of Ductile Fracture based on a Variational Framework for Materials with Thermo-Viscoplastic Behavior**
		Lampros Svolos, Los Alamos National Laboratory; Hashem Mourad, Los Alamos National Laboratory
		Speaker: Lampros Svolos (Contributed Talk)

Session: 5B, Room: Hotel-Oak		
Session Chair(s): Shelly Zhang, zhangxs@illinois.edu		
11:40 AM	12:00 PM	**Phase-field model of a surface crack in a graded coating-homogeneous half-plane under thermal loading**
		Raghu PISKA, BITS Pilani Hyderabad, Hyderabad, Telangana 500078, India; Sami EL-BORGI, Mechanical Engineering Program, Texas A&M University at Qatar, PO Box 23874, Education City, Doha, Qatar; Amirtham RAJAGOPAL, Department of Civil Engineering, IIT Hyderabad, Hyderabad, Telangana 502285, India; J.N. REDDY, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University, College Station, Texas, USA; Nafees Muhammad, Texas A&M University
		Speaker: Sami El-Borgi (Contributed Talk)
12:00 PM	12:20 PM	**Nucleation and propagation of fracture in viscoelastic elastomers: A phase-field approach**
		Bhavesh Shrimali, Ph.D. Student (University of Illinois at Urbana-Champaign); Oscar Lopez-Pamies, Professor, University of Illinois at Urbana-Champaign
		Speaker: Bhavesh Shrimali (Contributed Talk)
12:20 PM	12:40 PM	**Multi-objective Topology Optimization for Fracture Resistant Structures: Integrating Fracture Nucleation and Propagation**
		Yingqi Jia, University of Illinois Urbana-Champaign; Oscar Lopez-Pamies, University of Illinois Urbana-Champaign; Xiaojia Shelly Zhang, University of Illinois Urbana-Champaign
		Speaker: Yingqi Jia (Contributed Talk)

9.12 Pushing Materials Mechanics for Extreme Thermo-Mechanical-Environmental Conditions		
Session: 6A, Room: Hotel-Century III		
Session Chair(s): Yupeng Zhang, yupeng@northwestern.edu		
2:15 PM	2:45 PM	**A universal bridging law and its use in computational composite fracture models**
		brian cox, gentleman scientist
		Speaker: Brian Cox (Keynote Talk)
2:45 PM	3:05 PM	**Phase-field Fracture Coupled with Transient Network Theory to Model Thermo-Oxidative Degradation in Polymers**
		Trisha Sain, Michigan Technological University
		Speaker: Trisha Sain (Invited Talk)
3:05 PM	3:25 PM	**Localized oxidation processes governing the high temperature failure under cyclic conditions**
		Yanfei Gao, University of Tennessee
		Speaker: Yanfei Gao (Contributed Talk)
3:25 PM	3:45 PM	**A novel dislocation-He bubble interaction mechanism in copper**
		Wurong Jian, Stanford University; Shuozhi Xu, University of California, Santa Barbara; Yanqing Su, Utah State Universtiy; Irene Beyerlein, University of California, Santa Barbara
		Speaker: Yanqing Su (Invited Talk)
Session: 6B, Room: Hotel-Century III		
Session Chair(s): Yupeng Zhang, yupeng@northwestern.edu		
4:10 PM	4:30 PM	**Nanotwinned Ni-Mo-W Thin Films with Exceptional Thermal, Mechanical Stability**

		Yu Hyun Park, Korea Advanced Institute of Science and Technology; Jung-Hun Park, Korea Advanced Institute of Science and Technology; KenHee Ryou, Korea Advanced Institute of Science and Technology; Pyuck-Pa Choi, Korea Advanced Institute of Science and Technology; Gi-Dong Sim, Korea Advanced Institute of Science and Technology
		Speaker: Gi-Dong Sim (Invited Talk)
4:30 PM	4:50 PM	**Biomimetic 'torene' architecture provides significant magnification of flexural stiffness in plates and shells**
		Maziyar Bazmara, University of Houston; Roger Sauer, RWTH Aachen University; Ashutosh Agrawal, University of Houston
		Speaker: Maziyar Bazmara (Contributed Talk)

9.13 Recent Advances in Modeling and Simulation of Nano and Micromechanics of Materials		
Session: 5A, Room: Hotel-Century I		
Session Chair(s): Paul Plucinsky, plucinsk@usc.edu		
9:45 AM	10:15 AM	**Modeling crystallographic anisotropy effects on crack-propagation at the microscale**
		Zubaer Hossain, University of Delaware
		Speaker: Zubaer Hossain (Keynote Talk)
10:15 AM	10:35 AM	**Characterizing interface dislocations in 2D heterostructures**
		Nikhil Chandra Admal, University of Illinois at Urbana-Champaign; Tusher Ahmed, University of Illinois at Urbana-Champaign
		Speaker: Nikhil Chandra Admal (Invited Talk)
10:35 AM	10:55 AM	**Multiscale particles for next-generation battery technologies**
		Dibakar Datta, New Jersey Institute of Technology (NJIT)
		Speaker: Dibakar Datta (Invited Talk)
10:55 AM	11:15 AM	**Residual Stresses in Thin Film Deposition Mechanics**
		Musanna Galib, Department of Mechanical Engineering, University of British Columbia, 2054 - 6250 Applied Science Lane, Vancouver, BC, V6T 1Z4, Canada; Okan Orhan, Department of Mechanical Engineering, University of British Columbia, 2054 - 6250 Applied Science Lane, Vancouver, BC, V6T 1Z4, Canada; Jian Liu, School of Engineering, Faculty of Applied Science, University of British Columbia, Kelowna, BC, Canada; Mauricio Ponga, Department of Mechanical Engineering, University of British Columbia, 2054 - 6250 Applied Science Lane, Vancouver, BC, V6T 1Z4, Canada
		Speaker: Musanna Galib (Contributed Talk)
Session: 5B, Room: Hotel-Century I		
Session Chair(s): Nikhil Chandra Admal, admal@illinois.edu		
11:40 AM	12:00 PM	**Untangling inelasticity and phase transition kinetics in Sn under extreme deformation conditions**
		William Schill, Lawrence Livermore National Laboratory; Kathleen Schmidt, Lawrence Livermore National Laboratory; Ryan Austin, Lawrence Livermore National Laboratory; Jon Belof, Lawrence Livermore National Laboratory; Justin Brown, Sandia National Laboratories; Nathan Barton, Lawrence Livermore National Laboratory
		Speaker: William Schill (Contributed Talk)
12:00 PM	12:20 PM	**Continuum field theory for the deformations of planar kirigami**
		Paul Plucinsky, Univeristy of Southern California
		Speaker: Paul Plucinsky (Invited Talk)

12:20 PM	12:40 PM	**Application of Strain Functionals for Physics Informed Machine Learning**
		Edward Kober, Los Alamos National Laboratory; Avanish Mishra, Los Alamos National Laboratory; Colin Adams, Los Alamos National Laboratory; Nithin Mathew, Los Alamos National Laboratory
		Speaker: Edward Kober (Contributed Talk)
Session: 6A, Room: Hotel-Century I		
Session Chair(s): Mauricio Ponga, mponga@mech.ubc.ca		
2:15 PM	2:35 PM	**Investigating the Performance of Strength Models for High Energy Density Applications**
		Kazem Alidoost, Lawrence Livermore National Laboratory; Damian Swift, Lawrence Livermore National Laboratory; Raymond Smith, Lawrence Livermore National Laboratory; Ryan Austin, Lawrence Livermore National Laboratory; James Mcnaney, Lawrence Livermore National Laboratory
		Speaker: Kazem Alidoost (Contributed Talk)
2:35 PM	2:55 PM	**Disorder and Strain Driven Phase Transitions in Magnetic Topological Insulators**
		Swarnava Ghosh, Oak Ridge National Laboratory; Markus Eisenbach, Oak Ridge National Laboratory
		Speaker: Swarnava Ghosh (Contributed Talk)
2:55 PM	3:15 PM	**FFT and FEA based solutions in micromechanical modeling of SMAs**
		Jobin Joy, Department of Aerospace Engineering, Texas A&M University, College Station, TX 77843, USA; Aitor Cruzado, Department of Aerospace Engineering, Texas A&M University, College Station, TX 77843, USA; Amine Benzerga, Department of Aerospace Engineering, Texas A&M University, College Station, TX 77843, USA, Department of Materials Science and Engineering, Texas A&M University, College Station, TX 77843, USA; Dimitris Lagoudas, Department of Aerospace Engineering, Texas A&M University, College Station, TX 77843, USA, Department of Materials Science and Engineering, Texas A&M University, College Station, TX 77843, USA
		Speaker: Jobin Joy (Contributed Talk)
3:15 PM	3:35 PM	**Symmetric Tilt Grain Boundary Free Energy Calculations by a Finite-Temperature Quasicontinuum Method**
		Miguel Spinola, ETH Zürich; Shashank Saxena, ETH Zurich; Prateek Gupta, IIT Delhi; Dennis Kochmann, ETH Zürich
		Speaker: Miguel Spinola (Contributed Talk)
Session: 6B, Room: Hotel-Century I		
Session Chair(s): Swarnava Ghosh, ghoshs@ornl.gov		
4:10 PM	4:30 PM	**Lattice instabilities and amorphous shear band formation in intermetallic alloys**
		PRAKARSH PANDEY, University of Wisconsin - Madison; Shiva Rudraraju, University of Wisconsin- Madison
		Speaker: Prakarsh Pandey (Contributed Talk)
4:30 PM	4:50 PM	**Controlling mechanical properties in high-entropy alloys via alloying and additive manufacturing processes**
		Mauricio Ponga, The University of British Columbia
		Speaker: Mauricio Ponga (Contributed Talk)
4:50 PM	5:10 PM	**High-throughput exploration of chemical short-range order through OPERA framework**
		Gautam Anand, Indian Institute of Engineering Science and Technology, Shibpur, India; Swarnava Ghosh, Oak Ridge National Laboratory, USA; Markus Eisenbach, Oak Ridge National Laboratory, USA
		Speaker: Swarnava Ghosh (Invited Talk)

Thematic Area 10. Special Symposia

10.3 Materials and Structures for Defense Applications		
Session: 5A, Room: MSC-2501		
Session Chair(s): Francis Phillips, francis.r.phillips7.civ@army.mil; Frank Gardea, frank.gardea4.civ@army.mil		
9:45 AM	10:05 AM	**Reusable, Liquid-Nanoporous Energy Dissipation Structures**
		Baoxing Xu, University of Virginia
		Speaker: Baoxing Xu (Contributed Talk)
10:05 AM	10:25 AM	**Thermohydrogen Refinement of Microstructure (THRM) to Improve the Performance of Material Extrusion Additively Manufactured Ti-6Al-4V**
		Brady Butler, DEVCOM - ARL, Texas A&M Unviersity, Department of Materials Science and Engineering; Daniel Lewis, Texas A&M University, Department of Materials Science and Engineering; Taylor Hurst, DEVCOM - ARL; James Paramore, DEVCOM - ARL, Texas A&M University, Department of Materials Science and Engineering
		Speaker: Brady Butler (Invited Talk)
10:25 AM	10:45 AM	**Hydrogen-enabled Microstructural Engineering of Additively Manufactured Titanium Alloys**
		James Paramore, DEVCOM Army Research Laboratory; Michael Hurst, DEVCOM Army Research Laboratory; Matthew Dunstan, DEVCOM Army Research Laboratory; Daniel Lewis, Texas A&M University; Brady Butler, DEVCOM Army Research Laboratory
		Speaker: James Paramore (Invited Talk)
10:45 AM	11:05 AM	**Thermodynamically Assisted Microstructure Evolution Simulator, THAMES, on the Virtual Microstructure Generation and Kinetic Investigation of Materials at Various Simulation Conditions**
		Mine Ucak-Astarlioglu, USACE/ ERDC; Jedadiah Burroughs, USACE/ERDC; Yoonjung Han, Texas A&M University; Jeffrey Bullard, Texas A&M University; Robert Moser, USACE/ERDC
		Speaker: Mine Ucak-Astarlioglu (Contributed Talk)
11:05 AM	11:25 AM	**Multifunctional Reconfigurable Materials based on Dynamic Covalent Polymer Networks**
		Svetlana Sukhishvili, Department of Materials Science & Engineering, Texas A&M University, College Station, Texas 77843; Qing Zhou, Department of Materials Science & Engineering, Texas A&M University, College Station, Texas 77843; Zhen Sang, Department of Materials Science & Engineering, Texas A&M University, College Station, Texas 77843; Kartik Rajagopalan, TDepartment of Materials Science & Engineering, Texas A&M University, College Station, Texas 77843; Frank Gardea, Weapons and Materials Research Directorate, DEVCOM Army Research Laboratory South, College Station, TX 77843, USA
		Speaker: Svetlana Sukhishvili (Invited Talk)
Session: 5B, Room: MSC-2501		
Session Chair(s): Francis Phillips, francis.r.phillips7.civ@army.mil; Frank Gardea, frank.gardea4.civ@army.mil		
11:40 AM	12:00 PM	**The Development of a Directed Energy Deposition (DED) Printability Framework for Improving Part Density and Performance in High Strength Steels**
		Matthew Vaughan, Texas A&M University; Michael Elverud, Texas A&M University; Jiahui Ye, Texas A&M University; Raiyan Seede, Texas A&M University; Sean Gibbons, Air Force Research Laboratory; Philip Flater, Air Force Research Laboratory; Bernard Gaskey, Air

		Force Research Laboratory; Raymundo Arroyave, Texas A&M University; Alaa Elwany, Texas A&M University; Ibrahim Karaman, Texas A&M University
		Speaker: Matthew Vaughan (Invited Talk)
12:00 PM	12:20 PM	**Actuation Improvement in Humidity-driven Artificial Muscles by Graphene Incorporation**
		Sevketcan Sarikaya, Texas A&M University; Hannah Strong, Texas A&M University; Frank Gardea, DEVCOM Army Research Laboratory South; Jeffrey Auletta, DEVCOM Army Research Laboratory; David Mackie, DEVCOM Army Research Laboratory; Mohammad Naraghi, Texas A&M University
		Speaker: Sevketcan Sarikaya (Invited Talk)

10.4 Celebrating Mechanics of Materials: Honoring the legacy of Prof. Sia Nemat-Nasser		
Session: 5A, Room: MSC-2500		
Session Chair(s): Mohammed A. Zikry, zikry@ncsu.edu; Alireza Amirkhizi, alireza_amirkhizi@uml.edu		
9:45 AM	10:05 AM	**Time-dependent deformation and rupture of vitrimer**
		Shengqiang Cai, University of California, San Diego
		Speaker: Shengqiang Cai (Invited Talk)
10:05 AM	10:25 AM	**Mechanics of Metamaterials – Origami and Kirigami**
		Horacio Espinosa, Northwestern University; Nicolas Alderete, Northwestern University; Zhaowen Lin, Northwestern University
		Speaker: Horacio Espinosa (Invited Talk)
10:25 AM	10:45 AM	**Breaking up is hard to do**
		KT Ramesh, Johns Hopkins University
		Speaker: K.T. Ramesh (Invited Talk)
10:45 AM	11:05 AM	**Overall properties of heterogeneous media for wave propagation**
		Alireza Amirkhizi, University of Massachusetts, Lowell
		Speaker: Alireza Amirkhizi (Invited Talk)
Session: 5B, Room: MSC-2500		
Session Chair(s): Mohammed A. Zikry, zikry@ncsu.edu; Alireza Amirkhizi, alireza_amirkhizi@uml.edu		
11:40 AM	12:00 PM	**Causality and Metamaterials**
		Ankit Srivastava, Illinois Institute of Technology
		Speaker: Ankit Srivastava (Invited Talk)
12:00 PM	12:20 PM	**Machine Learning Predictions of Failure in Hydrided Zirconium Materials**
		Tamir Hasan, North Carolina State University; Laurent Capolungo, Los Alamos National Laboratory; Mohammed Zikry, North Carolina State University
		Speaker: Mohammed Zikry (Invited Talk)
Session: 6A, Room: MSC-2500		
Session Chair(s): Alireza Amirkhizi, alireza_amirkhizi@uml.edu; Ghatu Subhash, subhash@ufl.edu		
2:15 PM	2:35 PM	**Exploiting "Classical Entanglement" of Acoustic Waves for Quantum Analogue Information Processing**

		M Arif Hasan, Wayne State University; Pierre Deymier, University of Arizona; Keith Runge, University of Arizona
		Speaker: M Arif Hasan (Invited Talk)
2:35 PM	2:55 PM	**Wave Propagation Through A 180-Degree Bend Junction of Rectangular Cross Section - Theoretical Foundation for A Novel Millipede Bar**
		Ghatu Subhash, University of Florida
		Speaker: Ghatu Subhash (Invited Talk)
2:55 PM	3:15 PM	**An Investigation of Deformation Fields around Collapsing Pores and Associated Failure Modes**
		Barry Lawlor, California Institute of Technology; Guruswami Ravichandran, California Institute of Technology
		Speaker: Barry Lawlor (Invited Talk)
3:15 PM	3:35 PM	**Understanding how curing rates affect the structure and strength of polyurea through coarse-grained molecular simulation**
		Jay Oswald, Arizona State University; Minghao Liu, Arizona State University
		Speaker: Jay Oswald (Invited Talk)
3:35 PM	3:55 PM	**Mitigating Shock, Impact and Control Fragmentation with Metamaterials**
		Vitali Nesterenko, Distinguished Professor, Department of Mechanical and Aerospace Engineering, Materials Science and Engineering Program, University of California, San Diego
		Speaker: Vitali Nesterenko (Invited Talk)

POSTER SESSION

Poster Session

Monday, 10/17/200, 7:00 PM - 9:00 PM

Texas A&M Hotel & Conference Center - Century Ballroom

Thematic Area 2. Biomechanics & Mechanobiology
The True Toughness of Human Cortical Bone?
Glynn Gallaway, Purdue University; Laura Pyrak-Nolte, Purdue University; Thomas Siegmund, Purdue University
Presenter: Glynn Gallaway
Micromechanics and Bone Hydration: Computations and SAXS Experiments
Elizabeth Montagnino, Purdue University; Thomas Siegmund, Purdue University; John Howarter, Purdue University
Presenter: Elizabeth Montagnino
A Mixed Reality System Combining Augmented Reality, 3D Bio Printed Physical Environments and Inertial Measurement Unit Sensors for Task Planning
Ernest Kabuye, Carnegie Mellon University
Presenter: Ernest Kabuye
A novel approach to diagnose breast cancer using ultrasound elastography technique
Mutaz Dwairy, Zachry Department of Civil & Environmental Engineering, Texas A&M University, College Station, Texas, USA; J.N. Reddy, Department of Mechanical Engineering, Texas A&M University, College Station, Texas, USA; Arun Srinivasa, Department of Mechanical Engineering, Texas A&M University, College Station, Texas, USA
Presenter: Mutaz Dwairy
Simulation-assisted Discovery of Membrane-active Antimicrobials
*Guijin Zou, Institute of High Performance Computing; Huajian Gao, School of Mechanical and Aerospace Engineering, College of Engineering, Nanyang Technological University, Singapore 639798, Singapore, Institute of High Performance Computing, A*STAR, Singapore 138632, Singapore; Wooseong Kim, College of Pharmacy, Graduate School of Pharmaceutical Sciences, Ewha Womans University, Seoul 03760, Republic of Korea*
Presenter: Guijin Zou
Taylor-Couette system for superimposed-shear cavitation experiments
Christopher Karber, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Yuan Ji, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Travis Byrd, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Justin Wilkerson, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University
Presenter: Christopher Karber

A model for mechanosensitive cell migration in dynamically morphing soft tissues
Jaemin Kim, Cornell University
Presenter: Jaemin Kim
Image-based inverse modeling to study the effect of myocardial stiffness on its relaxation
Tanmay Mukherjee, Department of Biomedical Engineering, Texas A&M University, College Station, TX 77840; Reza Avazmohammadi, Department of Biomedical Engineering, Texas A&M University, College Station, TX 77840, Department of Mechanical Engineering, Texas A&M University, College Station, TX 77840
Presenter: Tanmay Mukherjee
Thematic Area 3. Data Science & Machine Learning
Machine learning model for predicting SMA actuation response
Jobin Joy, Texas A&M University, College Station, TX 77843, USA; Behrouz Haghgouyan, Texas A&M University, College Station, TX 77843, USA; Manish Vasoya, Texas A&M University, College Station, TX 77843, USA; Dimitris Lagoudas, Texas A&M University, College Station, TX 77843, USA
Presenter: Jobin Joy
Exploring the Structure-Property Relations of Thin-walled, 2D Extruded Lattices using Neural Networks
Junyan He, University of Illinois at Urbana-Champaign; Shashank Kushwaha, University of Illinois at Urbana-Champaign; Diab Abueidda, University of Illinois at Urbana-Champaign; Iwona Jasiuk, University of Illinois at Urbana-Champaign
Presenter: Junyan He
Deep-Learning based One-Dimensional Energy Model for Elastic Ribbon
Shivam Panda, University of California Los Angeles; Qiaofeng Li, University of California Los Angeles; Mohammad Khalid Jawed, University of California Los Angeles
Presenter: Shivam Panda
Under-Extrusion Error Correction for Additive Manufacturing
Michael Goldberg, School of Mechanical Engineering, Purdue University; William Keller, School of Mechanical Engineering, Purdue University; Jack Girard, School of Mechanical Engineering, Purdue University; Frances O'leary, Department of Computer Sciences, Purdue University; Song Zhang, School of Mechanical Engineering, Purdue University
Presenter: Michael Goldberg
Machine Learning-Enabled Modeling and Design of Additively Manufactured Zero-Stiffness Elastomer Springs
Hyeongkeun Kim, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign; Sameh Tawfick, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign; William King, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign
Presenter: Hyeongkeun Kim
A Language-Based Deep Learning Model for Designing Triply-Periodic Surfaces

Prakash Thakolkaran, Delft University of Technology; Li Zheng, ETH Zurich; Dennis Kochmann, ETH Zurich; Siddhant Kumar, Delft University of Technology
Presenter: Prakash Thakolkaran
Machine learning prediction of glass transition temperature of conjugated polymers from chemical structure
Amirhadi Alesadi, North Dakota State University; Zhaofan Li, North Dakota State University; Zhiqiang Cao, University of Southern Mississippi; Xiaodan Gu, University of Southern Mississippi; Wenjie Xia, North Dakota State University
Presenter: Amirhadi Alesadi
Model-Free Data-Driven Viscoelasticity in the Frequency Domain
Hossein Salahshoor, California Institute of Technology; Michael Ortiz, California Institute of Technology
Presenter: Hossein Salahshoor
Using Machine Intelligence to Analyze Sketched Solutions to Open-Ended Truss Design Problems
Matthew Runyon, Texas A&M University; Seth Polsley, Texas A&M University; Samantha Ray, Texas A&M University; Paul Taele, Texas A&M University; Julie Linsey, Georgia Institute of Technology; Tracy Hammond, Texas A&M University
Presenter: Matthew Runyon
Thematic Area 4. Fluid & Granular
Influencing Cellular Communication with Microfluidic Based Controlled Checkpoints
Mark DeAngelis, Department of Mechanical Engineering, Carnegie Mellon University; Philip LeDuc, Department of Mechanical Engineering, Carnegie Mellon University, Department of Biological Sciences, Carnegie Mellon University, Department of Biomedical Engineering, Carnegie Mellon University, Department of Computational Biology, Carnegie Mellon University, Department of Electrical and Computer Engineering, Carnegie Mellon University; Warren Ruder, Department of Bioengineering, University of Pittsburgh, Department of Mechanical Engineering, Carnegie Mellon University
Presenter: Mark DeAngelis
Modeling the Terradynamics of Deformable Solids using Resistive Force Theory
Joshua VanCura, Texas A&M; Justin Wilkerson, Texas A&M
Presenter: Joshua VanCura
Emerging contact force heterogeneity in ordered soft granular media
Liuchi Li, Johns Hopkins University
Presenter: Liuchi Li
Quantum Effects on H2O and D2O under Confinement
Chenxing Liang, The University of Texas at Austin; Archith Rayabharam, University of Illinois Urbana-Champaign; Narayana Aluru, The University of Texas at Austin
Presenter: Chenxing Liang
Water Isotope Separation with a Single Layer MoS2 Nanopore

Jinu Jeong, University of Illinois, Urbana-Champaign; Chenxing Liang, The University of Texas at Austin; Narayana Aluru, The University of Texas at Austin
Presenter: Jinu Jeong
Thematic Area 5. Maufacturing & Infrastructure
Minor Titanium Addition Allows the Fabrication of Novel Copper-Tantalum Composite Structures
Charles Borenstein, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843; Brady Butler, DEVCOM-ARL, Army Research Lab South at Texas A&M University, College Station, 77843, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843; James Paramore, DEVCOM-ARL, Army Research Lab South at Texas A&M University, College Station, 77843, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843; Karl Hartwig, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843, Shear Form, Inc. Bryan, Texas 77840; Michael Demkowicz, Department of Materials Science and Engineering, Texas A&M University, College Station, Texas 77843
Presenter: Charles Borenstein
Effects of Shape-stabilized Phase Change Materials in Cementitious Composites on Thermal-mechanical Properties and Economic Benefits
In Kyu Jeon, Zachry Department of Civil and Environmental Engineering, Texas A&M University, College Station; Abdullah Azzam, Zachry Department of Civil and Environmental Engineering, Texas A&M University, College Station, TX, USA; Hussein Al Jebaei, Department of Construction Science, Texas A&M University, College Station, TX, USA; Yong Rak Kim, Zachry Department of Civil and Environmental Engineering, Texas A&M University, College Station, TX, USA; Ashrant Aryal, Department of Construction Science, Texas A&M University, College Station, TX, USA; Juan Carlos Baltazar, Department of Architecture, Texas A&M University, College Station, TX, USA
Presenter: In Kyu Jeon
Application of Microbially Induced Calcium Carbonate Precipitation in Bio-Mortar
Maryam Ghadami, Texas State University; Robert McLean, Texas State University; Xijun Shi, Texas State University
Presenter: Maryam Ghadami
Freeform 3D ICE Printing (3D-ICE) at the Micro Scale
Akash Garg, Carnegie Mellon University; Burak Ozdoganlar, Carnegie Mellon University; Philip LeDuc, Carnegie Mellon University
Presenter: Akash Garg
Image recognition with Machine Learning for Control of Freeform 3D Ice printing
Andres Garcia, Carnegie Mellon University; Akash Garg, Carnegie Mellon University; Burak Ozdoganlar, Carnegie Mellon University; Philip Leduc, Carnegie Mellon University
Presenter: Andres Garcia

Electrically Conductive Concrete by Adding Recycled Carbon Fibers
Precious Aduwenye, Texas State University; Xijun Shi, Texas State University
Presenter: Precious Aduwenye
LatticeOPT: A Heuristic Topology Optimization Framework for Thin-walled, 2D Extruded Lattices
Junyan He, University of Illinois at Urbana-Champaign; Shashank Kushwaha, University of Illinois at Urbana-Champaign; Diab Abueidda, University of Illinois at Urbana-Champaign; Iwona Jasiuk, University of Illinois at Urbana-Champaign
Presenter: Junyan He
Design Insights and Structure-Property Relations in Bio-inspired Low Porosity Structures using Neural Networks
Shashank Kushwaha, University of Illinois Urbana-Champaign; Junyan He, University of Illinois Urbana-Champaign; Diab Abueidda, University of Illinois Urbaba-Champaign; Iwona Jasiuk, University of Illinois Urbana-Champaign
Presenter: Shashank Kushwaha
Feasible Regions of Extrusion-based 3D Printing Process Parameters to Fabricate Microalgae Enriched Cookies
Taieba Rahman, Department of Industrial and Systems Engineering, Texas A&M University, College Station, TX 77843; Al Mazedur Rahman, Department of Industrial and Systems Engineering, Texas A&M University, College Station, TX 77843; Ketan Thakare, Department of Industrial and Systems Engineering, Texas A&M University, College Station, TX 77843; Aleena Khan, Department of Biotechnology Engineering, Texas A&M University, College Station, TX 77843; Hongmin Qin, Department of Biology, Texas A&M University, College Station, TX 77843; Zhijian Pei, Department of Industrial and Systems Engineering, Texas A&M University, College Station, TX 77843
Presenter: Taieba Rahman
Stabilization of Weak Clayey Soils Using One-Part Alkali-Activated Material: Engineering Properties, Geochemical and Mineralogical Characteristics
Ayazhan Bazarbekova, Zachry Department of Civil and Environmental Engineering, Texas A&M University; Saureen Naik, Zachry Department of Civil and Environmental Engineering, Texas A&M University; Yong-Rak Kim, Zachry Department of Civil and Environmental Engineering, Texas A&M University; Dallas Little, Zachry Department of Civil and Environmental Engineering, Texas A&M University
Presenter: Ayazhan Bazarbekova
Conformal Additive Stamp Printing for 3D Curvy Electronics
Zhoulyu Rao, Pennsylvania State University; Cunjiang Yu, Department of Engineering Science and Mechanics, Department of Biomedical Engineering, Pennsylvania State University
Presenter: Zhoulyu Rao
A Machine Learning Approach to Material Property Prediction of Shape Memory Polymers that are Additively Manufactured via Fused Filament Fabrication (FFF)
Andreas K. Lianos, Texas A&M University; Satish Bukkapatnam, Texas A&M; Dimitris Lagoudas, Texas A&M
Presenter: Andreas Lianos

Compositionally Graded V-Fe-Al-W System via Directed Energy Deposition
Deniz Ebeperi, Department of Materials Science and Engineering, Texas A&M University; Raiyan Seede, Department of Materials Science and Engineering, Texas A&M University; Austin Whitt, Department of Materials Science and Engineering, Texas A&M University; Ibrahim Karaman, Department of Materials Science and Engineering, Texas A&M University
Presenter: Deniz Ebeperi
Investigation Into the Effects of Nucleation Agents in a Calcium Chloride Hexahydrate System for Thermal Energy Storage Applications
Denali Ibbotson, Texas A&M; Sophia Ahmed, Texas A&M; Patrick Shamberger, Texas A&M
Presenter: Denali Ibbotson
Phase Stability of Zinc Nitrate Hexahydrate Eutectics for Low-Cost Thermal Energy Storage
Sophia Ahmed, Texas A&M University; Denali Ibbotson, Texas A&M University; Patrick Shamberger, Texas A&M University
Presenter: Sophia Ahmed
Thematic Area 6. Multifunctional & Multified
Tortuosity-derived Corrosion Protection of Aluminum Alloys by Polyetherimide-based Graphene Nanocomposite Coatings
Tiffany Sill, Department of Chemistry and Materials Science and Engineering, Texas A&M University
Presenter: Tiffany Sill
Extreme Dynamic Performance of Nanofiber Mats under Supersonic Impacts Mediated by Interfacial Hydrogen Bonds
Jizhe Cai, University of Wisconsin-Madison; Nicholas Jaegersberg, University of Wisconsin-Madison; Ramathasan Thevamaran, University of Wisconsin-Madison
Presenter: Jizhe Cai
Superior Friction and Wear Properties of Black Phosphorous (BP) Coating in the Presence of Glycerol as a Green Lubricant
MERVE UYSAL KOMURLU, Texas A&M University
Presenter: Merve Uysal Komurlu
Measurements of Emission Spectra of Spherically Expanding Methane-Air Flames Doped with DMMP
Mattias Turner, Texas A&M University; Pradeep Parajuli, Texas A&M University; Waruna Kulatilaka, Texas A&M University; Eric Petersen, Texas A&M University
Presenter: Mattias Turner
Speckle Patterning Highly Hydrated Blood Clots for Digital Image Correlation (DIC)
Gabriella Sugerman, University of Texas at Austin; Berkin Dortdivanlioglu, The University of Texas at Austin; Sapun Parekh, The University of Texas at Austin; Manuel Rausch, The University of Texas at Austin
Presenter: Gabriella Sugerman
Understanding the Role of Architecture on the Impact Response of Metamaterials
Thomas Butruille, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology

Presenter: Thomas Butruille
Synthesis and Characterization of Ti3CN MXene as a Bifunctional Catalyst for the Oxygen Reduction and Oxygen Evolution Reactions
Eugenie Marie Pranada, Department of Materials Science and Engineering, Texas A&M University, College Station, TX 77843, USA; Ekenedilichukwu Uwadiunor, Artie McFerrin Department of Chemical Engineering, Texas A&M University, College Station, TX 77843, USA; Abdoulaye Djire, Department of Materials Science and Engineering, Texas A&M University, College Station, TX 77843, USA, Artie McFerrin Department of Chemical Engineering, Texas A&M University, College Station, TX 77843, USA
Presenter: Eugenie Marie Pranada
Corrosion and Wear Resistant Composite Coatings for Energy Applications
Mohsen Tajedini, Texas A&M University; Peter Renner, Texas A&M University; Swan Jha, Texas A&M University; Hong Liang, Texas A&M University
Presenter: Mohsen Tajedini
Heterogeneous Martensitic Nucleation of Single Microparticles
Juan Lago, Texas A&M University, Department of Material Science & Engineering; Woohyun Cho, Texas A&M University, Department of Material Science & Engineering; Daniel Salas, Texas A&M University, Department of Material Science & Engineering; Ibrahim Karaman, Texas A&M University, Department of Material Science & Engineering; Patrick Shamberger, Texas A&M University, Department of Material Science & Engineering
Presenter: Juan Carlos Lago
Experimental Exploration of Coupled Electrochemical and Mechanical Phenomena of Zn-ion Battery Cathodes
Juanita Pombo Garcia, Texas A&M University; Dimitrios Loufakis, Texas A&M University; Jodie Lutkenhaus, Texas A&M University; Dimitris Lagoudas, Texas A&M University
Presenter: Juanita Pombo Garcia
Kinematic bifurcation enabled multifunctional hierarchical mechanical metamaterial
Yanbin Li, Mr.; Jie Yin, Dr.
Presenter: Yanbin Li
A Unified Approach for Characterizing Mechanical and Actuation Fatigue
Hrishikesh Padalia, Texas A&M University; Dimitris Lagoudas, Texas A&M University
Presenter: Hrishikesh Padalia
Thematic Area 7. Robotics & Controls
Thermally induced friction modulation of finger for human machine interface
Changhyun Choi, Texas A&M University; Yuan Ma, The Hong Kong Polytechnic University; Xinyi Li, Texas A&M University; Sitangshu Chatterjee, Texas A&M University; Rebecca Friesen, Texas A&M University; Jonathan Felts, Texas A&M University; Cynthia Hipwell, Texas A&M University

Presenter: Changhyun Choi
Geometric Solution to Probabilistic Admissible Regions for Multiple Space Object Tracking
Utkarsh Mishra, Texas A&M University; Suman Chakravorty, Department of Aerospace Engineering, Texas A&M University
Presenter: Utkarsh Mishra
Kirigami-inspired universal grippers with programmable morphology and trajectory
Yaoye Hong, North Carolina State University; Yao Zhao, North Carolina State University; Yinding Chi, North Carolina State University; Fangjie Qi, North Carolina State University; Frances McBride, North Carolina State University; Jie Yin, North Carolina State University
Presenter: Yaoye Hong
Bandgap Formation in a Periodic Chain of Tensegrity Prisms
Rawad Yazbeck, Texas A&M Department of Aerospace Engineering; Ralston Fernandes, Department of Aerospace Engineering Texas A&M University; Sami El-Borgi, Department of Mechanical Engineering, Texas A&M University at Qatar; Manoranjan Majji, Department of Aerospace Engineering, Texas A&M University; James Boyd, Department of Aerospace Engineering, Texas A&M University; Dimitris Lagoudas, Department of Aerospace Engineering, Texas A&M University
Presenter: Rawad Yazbeck
Thematic Area 8. Soft & Flexible
In-situ Measurement of the Swelling, Mechanical Properties, and Doping Kinetics of Electrochromic Polymers
Xiaokang Wang, School of Mechanical Engineering, Purdue University; Jianguo Mei, Department of Chemistry, Purdue University; Kejie Zhao, School of Mechanical Engineering, Purdue University
Presenter: Xiaokang Wang
Reversible and programmable shape change of living materials
Suitu Wang, Texas A&M University; Manivannan Kalairaj, Texas A&M University; Laura Rivera-Tarazona, Texas A&M University; Mustafa Abdelrahman, Texas A&M University; Taylor Ware, Texas A&M University
Presenter: Suitu Wang
Liquid Crystal Elastomer fibers with reversible shape change at low temperatures
Sasha George, Material Science and Engineering, Texas A&M University; Taylor Ware, Assistant Professor, Biomedical Engineering, Texas A&M University
Presenter: Sasha George
Fuel-Powered Polymer Artificial Muscles
Sevketcan Sarikaya, Texas A&M University; Frank Gardea, DEVCOM Army Research Laboratory South; Jeffrey Auletta, DEVCOM Army Research Laboratory; Alex Langrock, DEVCOM Army Research Laboratory; David Mackie, DEVCOM Army Research Laboratory; Mohammad Naraghi, Texas A&M University
Presenter: Sevketcan Sarikaya

Controlled Actuation of Microactuators Towards Adhesives Inspired by Endoparasites
Yoo Jin Lee, Texas A&M University; Taylor Ware, Texas A&M University
Presenter: Yoo Jin Lee
Transdermal Drug Delivery Through a Patch
Fjola Jonsdottir, University of Iceland
Presenter: Fjola Jonsdottir
Investigation of the effects of polystyrene sulfonate (PSS) properties in stabilizing a sandy soil
Jianxin Huang, Texas A&M University; Ardak Makhatova, Texas A&M University; Reginald Kogbara, Texas A&M University at Qatar; Eyad Masad, Texas A&M University at Qatar; Svetlana Sukhishvili, Texas A&M University; Dallas Little, Texas A&M University
Presenter: Jianxin Huang
Micro- and macroscopically structured zwitterionic polymers with ultralow fouling property
Yijing Tang, the University of Akron; Dong Zhang, the University of Akron; Jie Zheng, the University of Akron
Presenter: Yijing Tang
Spatiotemporal Mapping of Cardiac Electrophysiology with Fully Rubbery Epicardial Bioelectronics
Faheem Ershad, Department of Biomedical Engineering, Pennsylvania State University; Kyoseung Sim, Department of Chemistry, Ulsan National Institute of Science & Technology, Korea (ROK); Cunjiang Yu, Department of Biomedical Engineering, Pennsylvania State University, Department of Engineering Science and Mechanics, Pennsylvania State University,
Presenter: Faheem Ershad
A New Strain Energy Function Representing the Passive Behavior of the Myocardium
Tawfik Hussein, Georgia Institute of Technology, Emory University; John Criscione, Texas A&M University
Presenter: Tawfik Hussein
A Tribological and Surface Analytical Study of Lubricating Oils Derived from Upcycled Plastic Wastes
Seungjoo Lee, Texas A&M University; Ali Erdemir, Texas A&M University
Presenter: Seungjoo Lee
Thematic Area 9. Solids & Structures
A ROADMAP TO IN SITU RESOURCE UTILIZATION OF EXTRATERRESTRIAL SOILS
FNU Anita, Chemistry Department, Texas A&M University
Presenter: FNU Anita
Microstructure and Dynamics of Nanocellulose Network: Insights into the Deformational Behaviors
Zhaofan Li, North Dakota State University; Yangchao Liao, North Dakota State University; Wenjie Xia, North Dakota State University
Presenter: Zhaofan Li

On Relations Between Fracture and Contact Mechanics
Logan Kirsch, University of Texas at Austin; Kirill Rebrov, University of Texas at Austin; Nicolas Molina, University of Texas at Austin; Gregory Rodin, University of Texas at Austin; Filippo Mangolini, University of Texas at Austin
Presenter: Logan Kirsch
Stress-assisted Out-diffusion of Ag in TiSiN/Al2O3 Coatings at Elevated Temperatures
Nicolas Molina, Texas Materials Institute, The University of Texas at Austin, Austin, Texas 78712, USA, Materials Science and Engineering Program, The University of Texas at Austin, Austin Texas 78712, USA; Kirill Rebrov, Oden Institute for Computational Engineering and Sciences, The University of Texas at Austin, Austin, TX 78712, USA; Logan Kirsch, Mike Walker Department of Mechanical Engineering, The University of Texas at Austin, Austin, Texas 78712, USA; Gregory Rodin, Oden Institute for Computational Engineering and Sciences, The University of Texas at Austin, Austin, TX 78712, USA, Department of Aerospace Engineering and Engineering Mechanics, The University of Texas at Austin, Austin, TX 78712, USA; Filippo Mangolini, Texas Materials Institute, The University of Texas at Austin, Austin, Texas 78712, USA, Mike Walker Department of Mechanical Engineering, The University of Texas at Austin, Austin, Texas 78712, USA
Presenter: Nicolas Molina
Attenuating Frequency of Free-Free Beam Transverse Vibration using an Array of Additively Manufactured Multiple Degrees of Freedom Tuned Mass Damper
Sourabh Sangle, Texas A&M, Fusion of Analysis & Testing Lab, Texas A&M; Pablo Tarazaga, Texas A&M, Fusion of Analysis, Simulation & Testing Lab, Texas A&M
Presenter: Sourabh Sangle
Uncertainty Analysis of an Occupant Localization Technique based on Simulated Structural Vibrations
Murat Ambarkutuk, The Bradley Electrical and Computer Engineering, Virginia Polytechnic Institute and State University; Pablo Tarazaga, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University
Presenter: Murat Ambarkutuk
Sound radiation prediction model for a simply supported thin plate using acoustic monopole sources.
Lucas Spies, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University; Pablo Tarazaga, J. Mike Walker '66 Department of Mechanical Engineering, Texas A&M University
Presenter: Lucas Spies
Acoustic Metamaterials at the Microscale
Rachel Sun, Massachusetts Institute of Technology; Katherine Guo, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
Presenter: Rachel Sun
Boosting the Purcell Enhancement Factor near an Exceptional Point in a non-Hermitian Elastodynamic Metamaterial

Abhishek Gupta, Department of Mechanical Engineering, University of Wisconsin Madison; Madison, Wisconsin, 53706, USA; Arkady Kurnosov, Wave Transport in Complex Systems Lab, Physics Department, Wesleyan University; Middletown, CT-06459, USA; Tsampikos Kottos, Wave Transport in Complex Systems Lab, Physics Department, Wesleyan University; Middletown, CT-06459, USA; Ramathasan Thevamaran, Department of Engineering Physics, University of Wisconsin Madison; Madison, Wisconsin, 53706, USA, Department of Mechanical Engineering, University of Wisconsin Madison; Madison, Wisconsin, 53706, USA
Presenter: Abhishek Gupta
High-throughput design, synthesis and characterization of W-based refractory high-entropy alloys
Cafer Acemi, Texas A&M University; William Trehern, Texas A&M University; Eli Norris, Texas A&M University; Brent Vela, Texas A&M University; Raymundo Arroyave, Texas A&M University; Ibrahim Karaman, Texas A&M University
Presenter: Cafer Acemi
A Simplified Continuum Particle Model for Effective Mechanical Properties of Granular Materials with Regular Packing Lattices
Junhe Cui, Columbia University; Huiming Yin, Columbia University
Presenter: Junhe Cui
Understanding the Size Effects on Crumpling Behaviors of Nanoribbons
Yangchao Liao, North Dakota State University; Oriana Molares, University of Florida; Zhaofan Li, North Dakota State University; Wenjian Nie, North Dakota State University; Wenjie Xia, North Dakota State University
Presenter: Yangchao Liao
Investigation of the Role of Second-Phase Particles on Damage in Rolled Magnesium Alloys
Isabella Mihalic, Texas A&M University; Caleb Foster, Texas A&M University; Justin Wilkerson, Texas A&M University
Presenter: Isabella Mihalic
Homogenized Modeling of Anisotropic Impact Damage in Rolled AZ31B with Aligned Second-Phase Particles
Caleb Foster, Texas A&M University; Angela Olinger, Texas A&M University; Justin Wilkerson, Texas A&M University
Presenter: Caleb Foster
Spinodoid metamaterials with enhanced toughening mechanisms
Somayajulu Dhulipala, Massachusetts Institute of Technology; Carlos Portela, Massachusetts Institute of Technology
Presenter: Somayajulu Dhulipala
Role of interfaces in stiff biomaterials: toughness vs strength
Sayaka Kochiyama, Brown University; Wenqiang Fang, Brown University; Haneesh Kesari, Brown University
Presenter: Sayaka Kochiyama
Investigation of Mechanical Properties of Cortical Bone at the Lamellar Level via AFM Nanoindentation
Thomas Cisneros, New Mexico State University; Borys Drach, New Mexico State University
Presenter: Thomas Cisneros
The effect of mechanical loading on the formation of transformation twins

Lei Cao, University of Nevada, Reno
Presenter: Lei Cao

DAY-BY-DAY SESSION ROOM OVERVIEW

Day-by-Day Session Room Overview | Monday, Oct. 17, 2022

Time	9:45-11:25 AM	11:40-12:40 PM	2:15-3:55 PM	4:10-5:10 PM
Symposium	1A	1B	2A	2B
1.1 Prager Medal Symposium	2406A		2406A	2406A
1.3 Engineering Science Medal Symposium	2405	2405	2405	
1.4 Taylor Medal Symposium	2502	2502		
2.1 Brain Physics and Mechanics	Laurel	Laurel		
2.2 Cell and Tissue Mechanics in Health and Disease	2404	2404	2404	
2.6 Injury Biomechanics Symposium			Laurel	Laurel
3.2 Approaches for Materials Data Validation and Dataset Standardization			1403	1403
3.3 Data-Driven Approaches for Complex Multiphysics Systems, Structures, and Materials		2505	2505	2505
3.4 Data-driven and Machine-learning based Mechanics of Materials	1400	1400	1400	
4.4 Mechanics of Granular Media: Experiments, Theory, and Modeling	Shield	Shield	Shield	
5.1 3D Printing of Multifunctional Structures	2503	2503	2503	
5.2 Advanced Manufacturing: Materials, Mechanics, Processing and Data			2502	
5.3 Mechanics and Materials for Infrastructure and Construction			2504	2504
5.5 Multiscale Models and Experiments for In-Space Manufacturing		2504		
6.1 Adaptive Structures	2500		2500	2500
6.4 Effective Properties of Multifunctional Composite Materials				Ross II
6.8 Mechanics of Electrochemical Systems	Reveille I	Reveille I	Reveille I	Reveille I
6.9 Mesoscale Mechanics of Multifunctional Materials	Leadership	Leadership	1401	
6.12 Multiscale Extreme Behavior of Materials: Structure, Mechanisms, and Kinetic Process	Traditions	Traditions	Traditions	Traditions
7.1 Tensegrity Systems: Mechanics, Control and Manufacturing Principles	2504			
7.4 Soft Robotics: Matter, Structure, and Intelligence	2401	2401	2401	2401
8.1 3D Printing of Polymers and Composites			Oak	Oak
8.2 Sustainability in Soft and Polymeric Materials	Oak	Oak	2402	
8.5 Functional Soft Materials in Additive Manufacturing: from Design to Application			Leadership	Leadership
8.6 Mechanics and Physics of Soft Materials	Hullabaloo	Hullabaloo	Hullabaloo	Hullabaloo
8.7 Mechanics of Complex Networks in Materials and Biology	Ross I	Ross I		
8.8 Mechanics of Soft Materials with Dynamic Non-Covalent Bonds	Corps I			
9.3 Computational and Experimental Analysis of Damage at Interfaces	Eagle	Eagle	Eagle	

9.5 Controlling Mechanical Waves with Metamaterials			Ross I	Ross I
9.6 High-Strain-Rate Behavior of Heterogeneous Materials	Ross II	Ross II	Ross II	
9.7 Micro-to-Macro Mechanics of Heterogeneous Solids and Granular Media	Reveille II	Reveille II	Reveille II	Reveille II
9.10 Multiscale Modeling of Phase Transitions, Dislocations, and Twining in Materials		Corps I	Corps I	Corps I
9.14 Thermodynamics, Kinetics and Mechanical Behaviors of Metallic Glasses and High Entropy Alloys		Corps II	Corps II	Corps II
10.1 Experimental & Theoretical Micro & Nano-Mechanics: Honoring Contributions Prof. Kyung-Suk Kim	2406B	2406B	2406B	2406B
10.2 A Celebration of Peridynamics: Honoring the contributions of Dr. Stewart Silling	2501	2501	2501	
	Texas A&M Memorial Student Center (MSC)			
	Texas A&M Hotel and Conference Center			

Day-by-Day Session Room Overview | Tuesday, Oct. 18, 2022

Time	9:45-11:25 AM	11:40-12:40 PM	2:15-3:55 PM	4:10-5:10 PM
Symposium	3A	3B	4A	4B
1.1 Prager Medal Symposium	2406A	2406A	2406A	2406A
1.2 Eringen Medal Symposium	2406B	2406B	2406B	2406B
1.3 Engineering Science Medal Symposium	2405	2405	2405	2405
2.2 Cell and Tissue Mechanics in Health and Disease	2404		2404	2404
2.3 Cell Mechanics, Biomechanics and Mechanobiology	2502	2502	2502	2502
2.4 Mechanobiology of Disease			Laurel	Laurel
2.5 Mechanics of Engineered Living Materials	Laurel			
2.6 Injury Biomechanics Symposium		Laurel		
3.1 Advancing Multi-scale Modeling Capabilities in Metal Additive MFG through Machine Learning				2505
3.3 Data-Driven Approaches for Complex Multiphysics Systems, Structures, and Materials	2505	2505	2505	
3.4 Data-driven and Machine-learning based Mechanics of Materials	1400	1400	1400	1400
3.7 Uncertainty Quantification: An Interactive Symposium on Applications, Theory, and Education	1403	1403	1403	1403
4.1 Computational Fluid Dynamics for Engineering Applications	Shield			
4.3 Laser-based Methods for High-speed and Reacting Flows Diagnostics		Shield	Shield	Shield
5.2 Advanced Manufacturing: Materials, Mechanics, Processing and Data	2503	2503	2503	2503
5.3 Mechanics and Materials for Infrastructure and Construction	2504	2504	2504	
6.2 Chemo-thermo-mechanics of Energetics and Reacting Flows				Reveille II
6.3 Damage and Thermo-Chemo-Mechanical Coupling in Soft Materials			Reveille I	Reveille I
6.4 Effective Properties of Multifunctional Composite Materials	Ross II	Ross II		
6.6 Symposium on Advanced Experimental Techniques				Eagle
6.7 Mechanically-Coupled and Surface-Enabled Functionality in 2D Materials	Century III	Century III	Century III	Century III
6.8 Mechanics of Electrochemical Systems	Reveille I			
6.10 Modeling of Complex Fluids and Applications			Leadership	
6.12 Multiscale Extreme Behavior of Materials: Structure, Mechanisms, and Kinetic Process	Traditions	Traditions		
7.4 Soft Robotics: Matter, Structure, and Intelligence	2401	2401	2401	2401
8.1 3D Printing of Polymers and Composites	Oak			
8.3 Extreme Soft Materials by Polymer-Network Design		Century II	Century II	Century II

8.4 Functional Soft Composites - Design, Mechanics, and Manufacturing			Traditions	Traditions
8.5 Functional Soft Materials in Additive Manufacturing: from Design to Application	Leadership			
8.6 Mechanics and Physics of Soft Materials	Hullabaloo	Hullabaloo	Hullabaloo	Hullabaloo
8.9 Mechanics, Materials, Manufacture and Device Innovations of Soft Electronics	Century IV	Century IV	Century IV	Century IV
9.1 Vibrations, Adaptive Structures and Testing			Corps II	
9.2 Classical and Nonclassical Continuum Theories and their Application			Ross II	Ross II
9.5 Controlling Mechanical Waves with Metamaterials	Ross I	Ross I	Ross I	
9.8 Multiscale Mechanics of Materials			Corps I	Corps I
9.9 Multiscale Modeling and Mechanics of Soft Matter and Hierarchical Materials	Reveille II	Reveille II	Reveille II	
9.10 Multiscale Modeling of Phase Transitions, Dislocations, and Twining in Materials	Corps I	Corps I		
9.13 Recent Advances in Modeling and Simulation of Nano and Micromechanics of Materials	Century I	Century I	Century I	Century I
9.14 Thermodynamics, Kinetics and Mechanical Behaviors of Metallic Glasses and High Entropy Alloys	Corps II			
10.1 Experimental & Theoretical Micro & Nano-Mechanics: Honoring Contributions Prof. Kyung-Suk Kim	2500	2500		
10.2 A Celebration of Peridynamics: Honoring the contributions of Dr. Stewart Silling	2501	2501	2501	
10.4 Celebrating Mechanics of Materials: Honoring the legacy of Prof. Sia Nemat-Nasser			2500	
	Texas A&M Memorial Student Center (MSC)			
	Texas A&M Hotel and Conference Center			

Day-by-Day Session Room Overview | Wednesday, Oct. 19, 2022

Time	9:45-11:25 AM	11:40-12:40 PM	2:15-3:55 PM	4:10-5:10 PM
Symposium	5A	5B	6A	6B
1.1 Prager Medal Symposium	2406A	2406A	2406A	2406A
1.2 Eringen Medal Symposium	2406B	2406B	2406B	2406B
2.2 Cell and Tissue Mechanics in Health and Disease	2404	2404		
2.3 Cell Mechanics, Biomechanics and Mechanobiology	2502			
2.4 Mechanobiology of Disease	Laurel		Laurel	
3.1 Advancing Multi-scale Modeling Capabilities in Metal Additive MFG through Machine Learning	2505			
3.4 Data-driven and Machine-learning based Mechanics of Materials	1400	1400	1400	
3.5 Machine Learning in Cardiovascular Modeling and Simulations			1403	
3.6 Multiscale Mechanics at the Intersection of Theoretical, Computational and Data Driven Approach		2505	2505	2505
4.2 Hydrodynamic Stability: Theory, Experiments and Numerics		Shield	Shield	Shield
4.5 Micro/Nano-Fluidics and Lab-on-Chip	Shield			
5.4 The Mechanics and Manufacturing of Programmable Soft Matter	2504	2504	2504	
5.6 Mechanics and Physics of Additive Manufacturing	2503	2503	2503	
6.2 Chemo-thermo-mechanics of Energetics and Reacting Flows	Reveille II			
6.5 Frontiers of Tribology for a Green and Sustainable Future, including Hydrogen			Century IV	Century IV
6.7 Mechanically-Coupled and Surface-Enabled Functionality in 2D Materials	Century III	Century III		
6.11 Recent Advances on the Actuation and Failure Response of Active Materials	Reveille I	Reveille I	Reveille I	Reveille I
7.2 Mechanics and Control to Advance Space Domain Awareness			2401	
7.3 Natural and Engineered Approaches to Dynamic Friction Tuning	2401	2401		
8.3 Extreme Soft Materials by Polymer-Network Design	Century II	Century II	Century II	Century II
8.4 Functional Soft Composites - Design, Mechanics, and Manufacturing	Traditions	Traditions	Traditions	Traditions
8.6 Mechanics and Physics of Soft Materials	Hullabaloo		Hullabaloo	Hullabaloo
8.9 Mechanics, Materials, Manufacture and Device Innovations of Soft Electronics	Century IV	Century IV		
9.1 Vibrations, Adaptive Structures and Testing	Corps II	Corps II	Corps II	
9.2 Classical and Nonclassical Continuum Theories and their Application	Ross II	Ross II	Ross II	
9.4 Continuum Based Modeling of Heterogeneous Materials	Eagle		Eagle	
9.5 Controlling Mechanical Waves with Metamaterials	Ross I	Ross I		
9.6 High-Strain-Rate Behavior of Heterogeneous Materials	Leadership			

9.8 Multiscale Mechanics of Materials	Corps I	Corps I		
9.11 Phase-Field Models of Fracture for Solids, Hard and Soft	Oak	Oak		
9.12 Pushing Materials Mechanics for Extreme Thermo-Mechanical-Environmental Conditions			Century III	Century III
9.13 Recent Advances in Modeling and Simulation of Nano and Micromechanics of Materials	Century I	Century I	Century I	Century I
10.3 Materials and Structures for Defense Applications	2501	2501		
10.4 Celebrating Mechanics of Materials: Honoring the legacy of Prof. Sia Nemat-Nasser	2500	2500	2500	
	Texas A&M Memorial Student Center (MSC)			
	Texas A&M Hotel and Conference Center			

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