西湖大學 WESTLAKE UNIVERSITY

SOCIETY OF ENGINEERING SCIENCE

SES 2024

Annual Technical Meeting

August 20-23, 2024 Hangzhou, China

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2024 SES Medalists
A. C. Eringen Medalist

Professor Julia R. Greer (California Institute of Technology)

Pioneering the field of three-dimensional nano- and micro-architected materials with unprecedented mechanical, physical and chemical properties and for the development of innovative in-situ experimental methods and instruments widely used to study mechanics of small-scale materials.

William Prager Medalist

Professor Pierre M. Suquet
(Aix Marseille Univ, CNRS, Centrale Marseille, France)

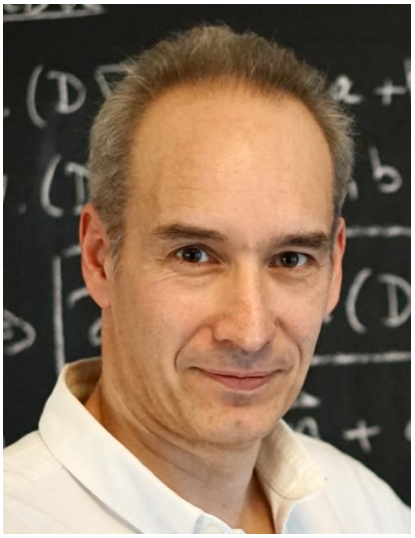
Suquet's pioneering work on mechanics of heterogeneous materials has established the foundations for analytical and numerical modeling of polycrystalline, porous and composite materials. He has solved some of the most challenging problems in solid mechanics.

G. I. Taylor Medalist

Professor George Karniadakis (Brown University)

For highly innovative, pioneering, and sustained contributions to computational and theoretical aspects of fluid dynamics.

Engineering Science Medalist



Professor Alain Goriely (University of Oxford)

For seminal contributions to the mechanics of growth and nonlinear anelasticity, with applications to engineering, biology, physiology, physics, and materials science.

James R. Rice Medalist

Professor Yihui Zhang (Tsinghua University)

For pioneering work on soft architected materials with unusual mechanical properties, rational 3D assembly driven by controlled buckling, and reconfigurable 3D mesostructures and electronics.

Young Investigator Medalist

Professor Grace X. Gu (University of California, Berkeley)

For outstanding contributions in understanding the mechanical behavior of heterogeneous and architected materials using a combined experimental and theoretical approach, leading to new design insights for structural applications.

Prager Lecture

Coupling Elasticity, Viscosity and Temperature in Heterogeneous Materials: A Strange Internal Variable Coming from Nowhere.

Professor Pierre M. Suquet
Aix Marseille Univ, CNRS, Centrale Marseille, France

8:15-9:15 a.m.
Hangzhou Ballroom

Many materials used in the energy industry, in particular nuclear fuels, are subjected to loading cycles during which they undergo several types of deformations including elastic, thermal, creep and irradiation strains. For the most part, these materials are heterogeneous at small scale, and understanding the interplay between these different mechanisms is the principal aim of this study.

The appearance of long memory effects resulting from the coupling between elasticity and viscosity in composite materials has been known for at least 50 years. It is less well known that these long-memory effects can be represented rigorously in many cases of interest by a finite (and small) number of internal variables, depending on the microstructure, which can be interpreted as generalized viscous strains. The additional coupling with temperature can also be handled with internal variables, which, in most case are also generalized viscous strains. But for a certain class of composites, additional internal variables, which can be interpreted as internal temperatures, arise in the effective relations. These “strange” effective internal variables are essential to capture the dissipation taking place at the microscopic scale which is not always apparent in the purely mechanical response of the material. In addition writing the thermodynamic functions free-energy and dissipation in terms of these internal variables gives access to some (limited but useful) information about the intraphase fluctuations of the microscopic stresses.
(This is a joint work with N. Lahellec and R. Masson).

Bio of the speaker:
Pierre M. Suquet is a Senior Researcher (emeritus) at the Centre National de la Recherche Scientifique (CNRS), Mechanics and Acoustics Laboratory in France. His research is in the field of theoretical solid mechanics where he is interested in the formulation of constitutive relations for solid materials when several scales interact, especially in composite materials and polycrystals. His work covers mathematical analyses of elastoplasticity, homogenization and bounding techniques for nonlinear composites, computational (spectral) methods for micromechanical problems and ductile failure of materials.

Pierre Suquet received his BS in Mathematics from the Ecole Normale Supérieure and his PhD in Theoretical Mechanics from the University Pierre et Marie Curie, both in Paris, France. He became Professor at Montpellier University in 1983. In 1988 he joined the Mechanics and Acoustics Laboratory in Marseille as CNRS senior researcher and was the head of the Laboratory from 1993 to 2000. He has also taught at the Ecole Polytechnique in Paris from 1986 to 2008 and has been a visiting Professor at the California Institute of Technology in 2000-2001. He has chaired the French National Committee for Mechanics from 2010 to 2022, has been as Secretary General of the European Society for Mechanics (EUROMECH) from

2014 to 2018 and is an Honorary member of this Society. He is a member of the French Academy of Sciences since 2004, an international member of the National Academy of Engineering (USA) since 2021. He was awarded the Ampère Prize by the French Academy of Sciences in 2000 and the Koiter medal by the American Society of Mechanical Engineers in 2006.

Taylor Lecture

Hidden Fluid Mechanics: Learning from Any (sparse) Data

Professor George Karniadakis
Brown University

8:15-9:15 a.m.
Hangzhou Ballroom

We will review physics-informed neural networks (PINNs) and summarize available extensions for applications in computational science and engineering. In particular, we will demonstrate how we can assimilate multimodal data in different types of flows, including turbulent jets and boundary layers, supersonic flows, biomedical flows, and flow over an espresso cup.

Bio of the speaker:
George Karniadakis is from Crete. He is a member of the National Academy of Engineering and a Vannevar Bush Faculty Fellow. He received his S.M. and Ph.D. from Massachusetts Institute of Technology (1984/87). He was appointed Lecturer in the Department of Mechanical Engineering at MIT and subsequently he joined the Center for Turbulence Research at Stanford / Nasa Ames. He joined Princeton University as Assistant Professor in the Department of Mechanical and Aerospace Engineering and as Associate Faculty in the Program of Applied and Computational Mathematics. He was a Visiting Professor at Caltech in 1993 in the Aeronautics Department and joined Brown University as Associate Professor of Applied Mathematics in the Center for Fluid Mechanics in 1994. After becoming a full professor in 1996, he continued to be a Visiting Professor and Senior Lecturer of Ocean/Mechanical Engineering at MIT. He is an AAAS Fellow (2018-), Fellow of the Society for Industrial and Applied Mathematics (SIAM, 2010-), Fellow of the American Physical Society (APS, 2004-), Fellow of the American Society of Mechanical Engineers (ASME, 2003-) and Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA, 2006-). He received the SIAM/ACM Prize on Computational Science & Engineering (2021), the Alexander von Humboldt award in 2017, the SIAM Ralf E Kleinman award (2015), the J. Tinsley Oden Medal (2013), and the CFD award (2007) by the US Association in Computational Mechanics. His h-index is 142 and he has been cited over 104,000 times.

Eringen Lecture

Intelligentsia of Nano-Architected Hierarchical Materials

Professor Julia R. Greer
California Institute of Technology

4:45-5:45 p.m.
Hangzhou Ballroom

Creation of reconfigurable and multi-functional materials can be achieved by incorporating architecture into material design. In our research, we design and fabricate three-dimensional (3D) nano-architected materials that can exhibit superior and often tunable thermal, photonic, electrochemical, biochemical, and mechanical properties at extremely low mass densities (lighter than aerogels), which renders them useful and enabling in technological applications. Dominant properties of such meta-materials are driven by their multi-scale hierarchy: from characteristic material microstructure (atoms) to individual constituents (nanometers) to structural components (microns) to overall architectures (millimeters and above).

Our research is focused on the fabrication, synthesis, and characterization of hierarchical materials using additive manufacturing (AM) techniques, as well as on investigating their mechanical, biochemical, electrochemical, and chemo-mechanical properties as a function of architecture, constituent materials, and microstructural detail. AM represents a set of processes that fabricate complex 3D structures using a layer-by-layer approach, with some advanced methods attaining nanometer resolution and the creation of unique, multifunctional materials and shapes derived from a photoinitiation-based polymerization of custom-synthesized resins and thermal post-processing. A type of AM, vat polymerization, has allowed for using hydrogels as precursors to produce 3D nano- and micro-architected metals and metal oxides, and exploiting their nano-induced material properties. We describe additive manufacturing via vat polymerization and function-containing chemical synthesis to create 3D nano- and micro-architected metals, ceramics, multifunctional metal oxides (nano- photonics, photocatalytic, piezoelectric, etc.), and metal-containing polymer complexes, etc., as well as demonstrate their potential in some biomedical, protective, and sensing applications. I will describe how the choice of architecture and material can elicit stimulus- responsive, reconfigurable, and multifunctional response.

Bio of the speaker:
Greer's research focuses on creating and characterizing nano- and micro-architected materials with multi-scale microstructural hierarchy using 3D lithography, nanofabrication, and additive manufacturing (AM) techniques, and investigate their mechanical, electrochemical, chemo-mechanical, and photonic properties as a function of architecture, constituent materials, and microstructural detail. We strive to uncover the synergy between the internal atomic- and molecular-level microstructure and the multi-scale external dimensionality, where *competing material- (nano) and structure- (architecture) induced size effects* drive overall response and govern these properties. Specific topics include applications of 3D nano- and micro-architected materials in devices, energy absorption, ultralightweight energy storage systems, chemically- assisted filtering, damage-tolerant fabrics, additive manufacturing, and multi-functional materials.

Greer obtained her S.B. in Chemical Engineering with a minor in Advanced Music Performance from MIT in 1997 and a Ph.D. in Materials Science from Stanford, worked at Intel (2000-03) and was a post-doc at PARC (2005-07). Julia joined Caltech in 2007 and currently is a *Ruben F. and Donna Mettler Professor of* Materials Science, Mechanics, and Medical Engineering at Caltech, as well as the *Fletcher Foundation Director of* the Kavli Nanoscience Institute, and the *Editor in Chief* of the Journal of Applied Physics.

Greer has more than 170 publications, has an h-index of 70, and has delivered over 100 invited lectures, which include 2 TEDx talks, multiple plenary lectures and named seminars at universities: Covestro Distinguished Speaker at U Pitt, Cooper lecture at Cornell, Israel Pollak Distinguished Lecture Series at Technion, David Pope lecture at Penn, and *Thayer Visionaries in Technology* at Dartmouth to name a few, the Watson lecture at Caltech, the Gilbreth Lecture at the National Academy of Engineering, the Midwest Mechanics Lecture series, and a "IdeasLab" at the World Economic Forum, and was selected as Alexander M. Cruickshank (AMC) Lecturer at the Gordon Research Conferences (2022).

She recently received the Nadai Medal from ASME Materials Deivision (2024), the Eringer Medal from the Society of Engineering Science (2024), was the inaugural AAAFM-Heeger Award (2019) and was namedaVannevar-Bush Faculty Fellow by the US Department of Defense (2016) and CNN's 20/20 Visionary (2016). Her work was recognized among Top-10 Breakthrough Technologies by MIT's Technology Review (2015). Greer was named as one of "100 Most Creative People" by *Fast Company* and a Young Global Leader by World Economic Forum (2014) and received multiple career awards: Kavli (2014), Nano Letters, SES, and TMS (2013); NASA, ASME (2012), Popular Mechanics Breakthrough Award (2012), DOE (2011), DARPA (2009), and Technology Review's TR-35, (2008). She is an active member of scientific community through professional societies (MRS, SES, TMS), having organized multiple symposia, been chosen as Conference Chair (MRS, 2021; GRC 2016), served on the Board of Directors for Society of Engineering Science (SES) and on government agency panels: DOE's Basic Research Needs workshop on setting Priority Research Directions (2020), National Materials and Manufacturing Board through National Academies (2020), and DoD's Bush Fellows Research Study Team (2020).

Greer is also a concert pianist who performs solo recitals and in chamber groups, with notable performances of "Prejudice and Prodigy" with the Caltech Trio (2019), "Nanomechanics Rap" with orchestra MUSE/IQUE (2009), and as a soloist of Brahms Concerto No. 2 with Redwood Symphony (2006).

Engineering Science Lecture

From Neurons, Plants, and Elephant Trunks to Actuators and Soft Robots: The fascinating Dynamics of Smart Active Solids.

Professor Alain Goriely
University of Oxford

8:15-9:15 a.m.
Hangzhou Ballroom

The world around us, both natural and man-made, is filled with structures that respond to external stimuli and adapt their internal structures to perform specific functions. For example, plants have the ability to sense changes in their environment, such as changes in gravity or light, and modify their shape accordingly to survive. During development, neurons respond to their surroundings by growing and connecting different parts of the brain. Additionally, the arms of octopuses and trunks of elephants are stunning examples of the versatility and beauty of responsive structures that inspire the development of soft robotics. In the field of engineering, liquid crystal elastomers can be designed to respond to light or heat, offering exciting opportunities for new devices and actuators. In this talk we will first develop a general theory of smart active solids, characterized by a solid matrix with embedded active components and suitable to model both biological and physical systems. I will propose a unified mathematical framework to model how multiple stimuli can be combined at the microscopic level to produce changes at the macroscopic level. This framework will allow us to uncover general principles for microstructure organization and activation for filamentary systems. Furthermore, the feedback loop created by shape-shifting in response to external sources can produce complex dynamics similar to natural behaviors, providing elegant solutions to functional problems.

Bio of the speaker:
Prof. Alain Goriely is the statutory Professor of Mathematical Modelling at the University of Oxford where he is also the Director of the Oxford Centre for Industrial and Applied Mathematics and a member of Saint Catherine's College. He is a mathematician with broad interests in mathematical methods, mechanics, sciences, and engineering having authored more than 300 scientific papers and three books. He is well known for his contributions to dynamical systems, mathematical biology, as well as fundamental and applied mechanics.
In addition, Alain enjoys scientific outreach based on problems connected to his research, including brain modelling, the mechanics of plants, the shape of seashells, twining plants, umbilical cord and whip cracking. His work has been recognized by a Sloan Fellowship, a Royal Society Wolfson Research Award, and the Cozzarelli Prize from the National Academy of Sciences. He was elected Fellow of the Royal Society in 2022 and Gresham Professor of Geometry at the Gresham College in 2024.

Rice Medalist Lecture

Mechanics-Guided 3D Assembly of Electronic Devices and Microsystems

Professor Yihui Zhang
Tsinghua University

10:00-10:40 a.m.
International Hall 2

Abstract: 3D micro-/nano-structures have widespread applications in a broad spectrum ofcutting-edge areas, such as bio-integrated electronics, microrobots, among others. Existingapproaches of 3D assembly/fabrication to form such micro-/nano-structures, however, can onlybe used directly with a narrow range of materials and/or 3D geometries. A grand challenge inthe field is in the development of schemes that allow construction of 3D structures in devicegrade crystalline inorganic materials essential for high-quality electronic systems and MEMS.In this talk, I will introduce a mechanics-guided assembly approach that exploits controlledbuckling to construct complex 3D micro/nanostructures rapidly from patterned 2Dmicro/nanoscale precursors. This approach applies to a broad set of materials (e.g.,semiconductors, polymers, metals, and ceramics) and even their heterogeneous integration,over a wide range of length scales (e.g., from 100 nm to 10 cm). Development of a rationalmicrolattice design allows transformation of 2D films into programmable 3D curvedmesosurfaces through this assembly approach. Analytical modeling and a machine learning–based computational approach serve as the basis for shape programming and determine theheterogeneous 2D microlattice patterns required for target 3D curved surfaces. Thecompatibility of the approach with the state-of-the-art fabrication/processing techniquesavailable in semiconductor industries, allow transformation of diverse existing 2Dmicrosystems into 3D configurations, providing unusual design options in the development offundamentally new devices. I will introduce a few examples of unusual bioelectronic devicesand bioinspired microrobots enabled by the mechanics-guided 3D assembly.

Friday, August 23

Young Investigator Medalist

AI- Enabled Architected Materials Design and Manufacturing

Professor Grace Gu
University of California, Berkeley

10:40-11:10 a.m.
International Hall 2

Architected materials are known for their customizable properties and superior performance characteristics. However, the design of these materials is inherently complex, as it involves navigating through an extensive array of possible material combinations and configurations. In this talk, I will first present novel computational approaches based on optimization algorithms and machine learning techniques to design architected and composite materials. Attention is focused on discovering new design strategies to achieve superior mechanical properties and describing structure-property relationships. Additive manufacturing is a promising technology to create materials with complex architectures. However, current additive manufacturing techniques are not robust when it comes to defects. In the second part of this talk, I will discuss how to improve the robustness of additive manufacturing by incorporating sensor technologies, computer vision, and machine learning models. I will present our recent work using a real-time monitoring and autonomous correction system to diagnose the quality of parts and adjust process parameters iteratively and adaptively to ensure high printing quality. I will conclude by describing how these intelligent design and manufacturing frameworks can be advantageous for challenging and extreme environments.

SES 2024 TECHNICAL SYMPOSIA & ORGANIZERS

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	Yonggang Huang, Northwestern University
▲ 1.2 Taylor Medal Symposium	Narayana R. Aluru, University of Texas at Austin
▲ 1.3 Engineering Science Medal Symposium	Arash Yavari, Georgia Institute of Technology
	Yibin Fu, Keele University
	Yang Liu, University of Oxford
▲ 1.4 SES Honorary Symposium	Hanqing Jiang, Westlake University
	Dixia Fan, Westlake University
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	Ryan Hurley, John Hopkins University
	Kimberly Hill, University of Minnesota
	Jidong Zhao, Hong Kong University of Science and Technology
	Chongpu Zhai, Xi'an Jiaotong University
	Jose E. Andrade, California Institute of Technology
	Teng Man, Westlake University
	Ken Kamrin, Massachusetts Institute of Technology
	Lu Liu, Dalian University of Technology
	Limin Wang, Chinese Academy of Sciences
	David Henann, Brown University
	Herbert E. Huppert, University of Cambridge
	Pei Zhang, Westlake University
	Lu Jing, Tsinghua University
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	Xuhui Meng, Huazhong University of Science and Technology
	Shengze Cai, Zhejiang University
	Tailin Wu, Westlake University
	Jiaqing Kou, Northwestern Polytechnical University
	Dixia Fan, Westlake University
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	Linlin Kang, Westlake University

	Chi Zhu, Peking University
	Yi Man, Peking University
	Zaiyi Shen, Peking University
	Qiang Zhong, Iowa State University
	Zerui Peng, Huazhong University of Science and Technology
	Ankang Gao, University of Science and Technology of China
	Xingwen Zheng, Zhejiang University
▲ 2.4 Novel Properties and Applications of Granular Metamaterials	Corey S. O'Hern, Yale University
	Dong Wang, Yale University
▲ 2.5 Fluid Mechanics for Wind Energy Harvesting	Xiaolei Yang, Chinese Academy of Sciences
	Zhaobin Li, Chinese Academy of Sciences
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	Douglas Cook, Brigham Young University
	Haruka Tomobe, Tokyo Institute of Technology
	Brian Cox, Arachne Consulting
	Xi-Qiao Feng, Tsinghua University
	Md Taher A Saif, University of Illinois
	Franck Vernery, University of Colorado
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	Bin Chen, Zhejiang University
	Vikram Deshpande, Cambridge University
	Krishna Garikipati, University of Southern California
	Guy Genin, Washington University in St. Louis
	Baohua Ji, Zhejiang University
	Dechang Li, Zhejiang University
	Shiva Rudraraju, University of Wisconsin-Madison
	Feng Xu, Xi'an Jiaotong University
	Guangkui Xu, Xi’an Jiaotong University
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	Juha Song, Nanyang Technological University
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	Giuseppe Buscarnera, Northwestern University
	Dawei Xue, Northwestern University
▲ 4.2 Advances in Multiscale Modeling and Nanomechanics	Huiling Duan, Peking University
	Fatemeh Ahmadpoor, New Jersey Institute of Technology

	Xin Yan, Beihang University
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▲ 4.4 AI for Architected Materials	Ke Liu, Peking University
	Sheng Mao, Peking University
	Grace Gu, University of California Berkeley
	Miguel Bessa, Brown University
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	Ying Li, University of Wisconsin-Madison
	Yanping Lian, Beijing Institute of Technology
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▲ 4.6 Computational Design Methods for Optimizing Materials and Structures	Xiaojia Shelly Zhang, University of Illinois at Urbana-Champaign
	Wei Chen, Northwestern University
	Xu Guo, Dalian University of Technology
	Yihui Zhang, Tsinghua University
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	Federico Renda, Khalifa University
	Kai Luo, Beijing Institute of Technology
▲ 5.2 Physical Intelligence for Soft Robotics	Li Wen, Beihang University
	Perla Maiolino, University of Oxford
	Yan Chen, Tianjin University
▲ 5.3 Tactile Sensing and Feedback for Human-Machine Interactions	Yuan Ma, The Hong Kong Polytechnic University
	Haimin Yao, The Hong Kong Polytechnic University
	Xinge Yu, City University of Hong Kong
	Chwee Teck Lim, National University of Singapore
	Zhuang Zhang, Westlake University
▲ 5.4 Origami/Kirigami Robotics	Jie Yin, NC State University
	Yan Chen, Tianjin University
	Glaucio Paulino, Princeton University
	Ahmad Rafsanjani Abbasi, University of Southern Denmark
▲ 5.5 Mini-Invasive Robotic Manipulation: from Medical to Industrial Applications	Yu Sun, Xi'an Jiaotong University
	Yajing Shen, Hong Kong University of Science and Technology
	Laihao Yang, Xi'an Jiaotong University
▲ 5.6 Intelligent Structures for	Mingchao Liu, University of Birmingham

Robotics	Yifan Wang, Nanyang Technological University
	Ke Liu, Peking University
Track 6: Soft Matter and Electronics	
▲ 6.1 Bio-Inspired Soft Composites: Structures, Mechanics, and Applications	Lizhi Xu, The University of Hong Kong
	Yuan Lin, The University of Hong Kong
	Qin Xu, The Hong Kong University of Science and Technology
	Ji Liu, Southern University of Science and Technology
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	Stephan Rudykh, University of Wisconsin-Madison
	Xuanhe Zhao, Massachusetts Institute of Technology
▲ 6.3 Extreme Soft Materials by Polymer-Network Design	Shaoting Lin, Michigan State University
	Jie Zheng, University of Akron
	Zhao Qin, Syracuse University
	Xiaoguang Dong, Vanderbilt University
	Xinyue Liu, Michigan State University
	Walter Voit, UT Dallas
	Xue Feng, Tsinghua University
	Tao Xie, Zhejiang University
▲ 6.4 Design, Manufacturing, and Applications of Adaptable Soft Materials	Emily Pentzer, Texas A&M University
	Pengfei Cao, Beijing University of Chemical Technology
	Qiang Li, Huazhong Agricultural University
	Peiran Wei, Texas A&M University
▲ 6.5 Soft Electronics: Mechanics, Materials, Manufacture and Devices	Cunjiang Yu, Pennsylvania State University
	Yong Zhu, North Carolina State University
	Yihui Zhang, Tsinghua University
	Jizhou Song, Zhejiang University
▲ 6.6 Functional and Programmable Soft Composites-Design, Mechanics, and Manufacturing	Renee Zhao, Stanford University
	H. Jerry Qi, Georgia Institute of Technology
	Wei Chen, Northwestern University
	Yayue Pan, University of Illinois at Chicago
▲ 6.7 Multiscale Modeling and Mechanics of Soft Matter and Hierarchical Materials	Yao Zhang, Huazhong University of Science and Technology
	Shengjie Ling, Shanghai Tech University
	Zhaoxu Meng, Clemson University
	Wenjie Xia, Iowa State University
	Anna Tarakanova, University of Connecticut
	Luis Ruiz Pestana, University of Miami
▲ 6.9 Adhesion, Friction, and	Ruobing Bai, Northeastern University

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	Qihan Liu, University of Pittsburgh
	Canhui Yang, Southern University of Science and Technology
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▲ 7.1 Advances in the Mechanics of Architected Materials	Tian Chen, University of Houston
	Xiaoyan Li, Tsinghua University
	Carlos Portela, Massachusetts Institute of Technology
	Vanessa Sanchez, Rice University
	Shelly Zhang, University of Illinois at Urbana-Champaign
▲ 7.2 Hierarchical Materials: Mechanical Design, Manufacturing, and Applications	Yin Zhang, Peking University
	Xuan Zhang, Peking University
	Xiaoding Wei, Peking University
	Xiaoyan Li, Tsinghua University
	Yujie Wei, Chinese Academy of Sciences
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	Mark Schenk, University of Bristol
	Evgueni T. Filipov, University of Michigan
▲ 7.4 Controlling Mechanical Waves with Metamaterials	Ramathasan Thevamaran, University of Wisconsin-Madison
	Charles Dorn, ETH Zurich
	Kathryn Matlack, University of Illinois-Urbana Champaign
	Serife Tol, University of Michigan
▲ 7.5 Underwater Acoustic Metamaterials: Fundamentals and Applications	Yan-Feng Wang, Tianjin University
	Tian-Xue Ma, Beijing Jiaotong University
▲ 7.6 Mechanical Metamaterials with Quasi-/Absolute Zero Stiffness	Yanfeng Wang, Tianjin University
	Lingling Wu, Xi'an Jiaotong University
	Yingli Li, Central South University
	Kun Wu, Tianjin University
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	Fenghua Liu, Chinese Academy of Sciences
▲ 8.2 Mechanics and Physics of Additive Manufacturing	Jinhui Yan, University of Illinois at Urbana-Champaign
	Wentao Yan, National University of Singapore
▲ 8.3 Intelligent Manufacturing of Materials and Structures by Solid-liquid Interactions	Yuan Gao, Huazhong University of Science and Technology
	Baoxing Xu, University of Virginia
	Narayana R Aluru, University of Texas at Austin
	Hangbo Zhao, University of Southern California

	Xiao Yan, Chongqing University
	Weiyi Lu, Michigan State University
Track 9: Instability and Failure of Materials	
▲ 9.1 Instabilities in Solids and Structures	Rainer Groh, University of Bristol
	Alberto Pirrera, University of Bristol
	Jiajia Shen, University of Exeter
	Jingzhong Tong, Zhejiang University
▲ 9.2 Multistability in Metamaterials, Structures and Robots	Guimin Chen, Xi'an Jiaotong University
	Larry Howell, Brigham Young University
	Yan Chen, Tianjin University
▲ 9.3 Complex Failure Mechanics of Materials	Bin Liu, Tsinghua University
	Filippo Berto, University of Rome La Sapienza
▲ 9.4 Ductile Failure: Experimental Characterization and Modeling of (non-) Proportional Loading Paths	Christian C. Roth, ETH Zurich
	Yanshan Lou, Xi'an Jiaotong University
▲ 9.5 Multi-field Coupled Fatigue and Fracture Mechanics	Guozheng Kang, Southwest Jiaotong University
	Xiangyu Li, Southwest Jiaotong University
	Qianhua Kan, Southwest Jiaotong University
▲ 9.6 Structural Signature of Elasticity, Plasticity, and Fracture in Disordered Materials	Hongyi Xiao, University of Michigan
	Liuchi Li, Johns Hopkins University
	Ge Zhang, City University of Hong Kong
	Yiqiu Zhao, Hong Kong University of Science and Technology
▲ 9.7 Friction, Fracture, and Damage of Quasi-Brittle Solids and Weak Interfaces	Ahmed Elbanna, University of Illinois Urbana Champaign
	David Kammer, ETH
	John Kolinski, EPFL
	K. Ravi-Chandar, University of Texas at Austin
▲ 9.8.Microstructural Mechanisms of Plasticity and Ductile Fracture	Christian C. Roth, ETH Zurich
	Jose A. Rodriguez-Martinez, University Carlos III of Madrid
	Krishnaswamy Ravi-Chandar, The University of Texas at Austin
Track 10: Mechanics of Materials and Structures	
▲ 10.1 Mechanics of Thin Films and Multilayered Structures	Jizhou Song, Zhejiang University
	Jianliang Xiao, University of Colorado Boulder
	Yuhang Li, Beihang University
▲ 10.2 Micromechanics, Biomechanics, and Mathematical Modeling of Materials	Liping Liu, Rutgers University
	Pradeep Sharma, University of Houston
	Sherry Xian Chen, Hongkong University of Science and Technology
	Tal Cohen, Massachusetts Institute of Technology

	Fan Feng, Peking University
▲ 10.3 High-Entropy Alloys and Metallic Glasses: From Local Structures to Mechanical and Physical Properties	Jun Ding, Xi'an Jiaotong University
	Yun-Jiang Wang, Chinese Academy of Sciences
	Qi An, Iowa State University
	Lin Li, Arizona State University
	Penghui Cao, University of California, Irvine
	Yue Fan, University of Michigan
	Yang Yang, The Pennsylvania State University
▲ 10.4 Mechanics of Materials in Extreme Environments	Shuozhi Xu, University of Oklahoma
	Dengke Chen, Shanghai Jiaotong University
	Yanqing Su, Utah State University
	Xiang Zhang, University of Wyoming
▲ 10.5 EML 10th Anniversary Symposium (Invitation Only)	Jingda Tang, Xi'an Jiaotong University
	Mingchao Liu, University of Birmingham
	Zheng Jia, Zhejiang University
▲ 10.6 Collective Machines, from Micro to Macro	Xudong Liang, Harbin Institute of Technology, Shenzhen
	Wei Wang, Harbin Institute of Technology, Shenzhen
	Zhen Yin, Tongji University
	Shilei Xue, Westlake University
▲ 10.7 Electrochemo-Mechanical of Energy Materials	Yikai Jia, Northwestern Polytechnical University
	Binghe Liu, Chongqing University
	Chunhao Yuan, Southeast University
	Jun Xu, University of Delaware
▲ 10.8 Mechanics of Batteries	Hao-Sen Chen, Beijing Institute of Technology
	Chunguang Chen, Chinese Academy of Sciences
	Le Yang, Beijing Institute of Technology
	Jici Wen, Chinese Academy of Sciences
	Yujie Wei, Chinese Academy of Sciences
	Wei Lu, University of Michigan
	Jonghyun Park, Missouri University of Science and Technology
▲ 10.9 Mechanics and Materials in Interdisciplinary Science: Honoring the Contributions of Prof. Wei Yang (Invitation Only)	Hongtao Wang, Zhejiang University
	Anmin Nie, Yanshan University
	Peng Wang, Shanghai University
	Yu Duan, Suzhou Laboratory
	Yeqiang Bu, Zhejiang University
▲ 10.11 Morphing Matters: Inspiration, Mechanics, Computation, Design, Fabrication, and Applications	Charles Dorn, ETH Zurich
	Bo Li, Tsinghua University
	Mingchao Liu, University of Birmingham

	Yang Li, Wuhan University
	Yong Ni, University of Science and Technology of China
	Shan Tang, Dalian University of Technology
	Baoxing Xu, University of Virginia
	Fan Xu, Fudan University
	Lining Yao, University of California, Berkeley
	Teng Zhang, Syracuse University
	Xiang Zhou, Shanghai Jiaotong University
	Yunlan Zhang, University of Texas at Austin
	Yihui Zhang, Tsinghua University

Wednesday, August 21, 2024

Track 1: Medalist Symposia

1.1 Prager Medal Symposium		
Session: 1 Room: Beijing1		
Session Chair(s): Pedro Ponte Castañeda, University of Pennsylvania; Yonggang Huang, Northwestern University		
09:30 AM	09:55 AM	**Crystal Plasticity, Dissipation and the Clausius-Duhem Inequality**
		Alan Needleman, Texas A&M; Ankit Srivastava, Texas A&M
09:55 AM	10:20 AM	**Mechanomaterials: Mechanics-Guided Fabrication of Ultralong High-Quality Semiconductor Fibers for Flexible and Wearable Optoelectronic Fabrics**
		Huajian Gao, Tsinghua University
10:20 AM	10:45 AM	**Relation between Blood Pressure and Pulse Wave Velocity for Human Arteries**
		Yonggang Huang, Northwestern University; Yinji Ma, Tsinghua University
10:45 AM	11:10 AM	**Design and Optimization for Nonlinear Force-Displacement Curve of Architected Materials**
		Hanqing Jiang, Westlake University
Session: 3 Room: Beijing 1		
Session Chair(s): Pedro Ponte Castañeda, University of Pennsylvania; Yonggang Huang, Northwestern University		
13:30 PM	13:55 PM	**Variational Linear Comparison Estimates for the Flow of Viscoplastic Media through Porous Media**
		Pedro Ponte Castañeda, University of Pennsylvania
13:55 PM	14:20 PM	**Discontinuous Galerkin Methods for Phase-Field Fracture**
		Blaise Bourdin, McMaster University; Frederic Marazzato, University of Arizona
14:20 PM	14:45 PM	**What Are Internal Variables?**
		Kaushik Bhattacharya, California Institute of Technology
14:45 PM	15:10 PM	**The Nonlinear Viscoelastic Response of Suspensions of Rigid Inclusions and Vacuous Bubbles in Rubber**
		Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign

Track 2: Fluid Mechanics and Granular Media

2.1 Multi-Physical Processes in Granular Media: Experiments, Theory, and Modeling
Session: 1 Room: International Hall 1

Session Chair(s): Sergio Andres Galindo Torres, Westlake University; Limin Wang, Chinese Academy of Sciences		
09:30 AM	09:55 AM	**(Invited) Coupled Lattice Boltzmann Method and Discrete Element Method Enabling Discrete Simulation of Gas-Solid Flows**
		Limin Wang, Chinese Academy of Sciences
09:55 AM	10:20 AM	**(Invited) Coupled DEM-SPH Model and its Application for the Analysis of Polar Ship Performance**
		Lu Liu, Dalian University of Technology; Shunying Ji, Dalian University of Technology
10:20 AM	10:40 AM	**A Three-Species Model of Aeolian Saltation Incorporating Cooperative Splash**
		Yulan Chen, Zhejiang University; Thomas Pähtz, Zhejiang University; Katharina Tholen, Leipzig University; Klaus Kroy, Leipzig University
10:40 AM	11:00 AM	**Using High-Fidelity Discrete Element Method to Calibrate an Expeditious Soil Contact Model via a Virtual Bevameter Test**
		Yuemin Zhang, Shanghai Jiaotong University
11:00 AM	11:20 AM	**Material Point Method with Dynamic Load Balancing Technique for Large-Scale Landslide-Induced Tsunami Simulation**
		Shaoyuan Pan, Tohoku University; Lu Jing, Tsinghua University; Soma Hidano, Tohoku University; Reika Nomura, Tohoku University; Yohei Miki, University of Tokyo; Masatoshi Kawai, Nagoya University; Shuji Moriguchi, Tohoku University; Nakajima Kengo, University of Tokyo; Kenjiro Terada, Tohoku University
11:20 AM	11:40 AM	**Microsized Checkerboard Sand Barriers Employing Selective Laser Sintering of SiO_2 Grains**
		Minglong Wang, Xi'an Jiaotong University; Xiaobing Cai, Xi'an Jiaotong University
Session: 3 Room: International Hall 1		
Session Chair(s): Ryan Hurley, John Hopkins University; Lu Liu, Dalian University of Technology		
13:30 PM	13:55 PM	**(Invited) Enhancing Capillary Pressure Accuracy for Multicomponent Lattice Boltzmann Method Simulations of Partially-Saturated Granular Media**
		Hongyang Cheng, University of Twente; S. Joseph, University of Twente; S. Luding, University of Twente; V. Magnanimo, University of Twente
13:55 PM	14:20 PM	**(Invited) Efficient, High-Fidelity Modeling of Particle-Fluid Interactions in RTDEM-CFD Coupling**
		Shiwei Zhao, Hong Kong University of Science and Technology; Hao Chen, HKUST; Jidong Zhao, HKUST

14:20 PM	14:40 PM	**A Point-Cloud Based Coarse-Graining CFD-DEM Method and Application in Particle-Fluid Flow**
		Yuxiang Liu, Tsinghua University; Lu Jing, Tsinghua University
14:40 PM	15:00 PM	**Data-Driven Micromorphic Mechanics**
		Jacinto Ulloa, California Institute of Technology; José E. Andrade, California Institute of Technology; Laurent Stainier, Nantes University; Michael Ortiz, California Institute of Technology
15:00 PM	15:20 PM	**Inverse Design of Particulate Processes Using Efficient Machine Learning Approach**
		Xizhong Chen, Shanghai Jiaotong University
15:20 PM	15:40 PM	**Random-Walk Metaball-Imaging Discrete Element Lattice Boltzmann Method for 3D Solute Transport in Fluid-Particle Systems with Complex Granular Morphologies**
		Yifeng Zhao, Zhejiang University; Pei Zhang, Westlake University; Sergio Andres Torres, Westlake University
Session: 4 Room: International Hall 1		
Session Chair(s): Jose Andrade, California Institute of Technology; Pei Zhang, Westlake University		
16:00 PM	16:25 PM	**(Invited) 4D Grain Stress and Strain Measurements in Triaxially-Compressed Sand: Recent Challenges and Results**
		Ryan Hurley, Johns Hopkins University; Kwangmin Lee, Johns Hopkins University
16:25 PM	16:50 PM	**(Invited) Particle Movement Manipulation by Acoustic and Electromagnetic Metasurfaces**
		Xiaobing Cai, Xi'an Jiaotong University
16:50 PM	17:10 PM	**Novel Densest-Packed Crystal Structures From Cylindrical Confinement**
		Ho-Kei Chan, Harbin Institute of Technology, Shenzhen
17:10 PM	17:30 PM	**Particle and Continuum Rotations of Granular Materials: DEM Simulations and Experiment**
		Chaofa Zhao, Zhejiang University
17:30 PM	17:50 PM	**A Preliminary Study on the Largest Cluster in Strong Contact Network of Granular Materials**
		Jiaying Liu, Hangzhou City University; Ziyu Jin, Hangzhou City University; Miaomiao Sun, Hangzhou City University; Gang Ma, Wuhan University
17:50 PM	18:10 PM	**Shear Strength Weakening of Granular Assembles under Vibration**
		Tang Hao, Shenzhen University

18:10 PM	18:30 PM	**Microscopic Dynamics of Particle Rearrangement and its Correlation with Stick-Slip Behavior in Granular Shear**
		Kwangmin Lee, Johns Hopkins University; Ryan Hurley, Johns Hopkins University
2.3 Bio-Fluid and Bio-Inspired Fluid Mechanics		
Session: 4 Room: Beijing 1		
Session Chair(s): Xing Zhang, Chinese Academy of Sciences; Linlin Kang, Westlake University; Chi Zhu, Peking University; Yi Man, Peking University		
16:00 PM	16:20 PM	**Modelling and Fabrication of Muscle-Powered Bio-Hybrid Swimmers at Low Re**
		Onur Aydin, University of Illinois at Urbana-Champaign; William C. Drennan, University of Illinois at Urbana-Champaign; M. Taher A. Saif, University of Illinois at Urbana-Champaign
16:20 PM	16:40 PM	**Modeling Hydrodynamics and Hydrodynamic Mechanisms of Fin-Actuated Robotic Swimming as Fishes**
		Xingwen Zheng, Zhejiang University
16:40 PM	17:00 PM	**Flow-Induced Sound Generated by Bio-Inspired Swimmers**
		Yan Yang, Chinese Academy of Sciences; Cheng Zhao, Wuhan Second Ship Design and Research Institute
17:00 PM	17:20 PM	**An Interpretable Decomposition of Perceived Flow Information for Improving Motion Estimation of Fish Robot**
		Yufan Zhai, Peking University
17:20 PM	17:40 PM	**Thrust and Energetics of a Bio-Inspired Robotic Dog Paddling from 3D Simulation**
		Yihan Wang, South China University of Technology; Yumeng Cai, South China University of Technology; Yunquan Li, South China University of Technology; Ye Chen, South China University of Technology
17:40 PM	18:00 PM	**Effect of the Fish Body Wake on Tail Fin Propulsion**
		Xianguang Luo, University of Science and Technology of China; Ankang Gao, University of Science and Technology of China

Track 3: Biomechanics and Biomaterials

3.2 Mechanobiology Across Scales: Molecular, Cellular and Tissue Mechanics
Session: 2 Room: Hangzhou 5
Session Chair(s): Baohua Ji, Zhejiang University; Gangkui Xu, Xi'an Jiaotong University

10:15 AM	10:40 AM	**(Invited) Harnessing Mechanobiology to Optimize Tissue Engineering and Wound Healing**
		Guy Genin, Wasington University in St. Louis; Farid Alisafaei, New Jersey Institute of Technology; Delaram Shakiba, Washington University in St. Louis; Yuan Hong, Washington University in St. Louis; Ghiska Ramahdita, Washington University in St. Louis; Yuxuan Huang, Washington University in St. Louis; Dashiell Flory, Washington University in St. Louis; Yin-Yuan Huang, Washington University in St. Louis; Haomin Yu, Washington University in St. Louis; Elliot Elson, Washington University in St. Louis
10:40 AM	11:05 AM	**(Invited) Membrane Tension Mediated Lipid Nanotube Formation Under Acoustic Radiation Force**
		Liangfei Tian, Zhejiang University
11:05 AM	11:30 AM	**(Invited) Multiphysics of Neuronal Injury - A Mechano-Chemical Treatment of Neuron-Scale Mechanics and Injury Pathways Underlying TBI**
		Shiva Rudraraju, University of Wisconsin-Madison; Debabrata Auddya, University of Wisconsin-Madison; Rahul Gulati, University of Wisconsin-Madison; Prakarsh Pandey, University of Wisconsin-Madison
11:30 AM	11:50 AM	**A Synthetic Retinoid Induces Apoptosis of Cancer Stem Cells Like Cells Tumor Repopulating Cells via Reducing Cellular Tension and Decondensing Chromatin**
		Junwei Chen, Huazhong University of Science and Technology
11:50 AM	12:10 PM	**CCDC176 Mechanically Stabilizes Microtubule Doublets 1 and 9 to Ensure Proper Sperm Movement**
		Qianchun Wang, University of Chinese Academy of Sciences; Chao Liu, Guangzhou Medical University, Chinese Academy of Sciences; Lusheng Gu, Chinese Academy of Sciences; Xiuge Wang, Chinese Academy of Sciences; Yingying Yin, Shandong University; Tao Huang, Shandong University; Sai Xiao, Chinese Academy of Sciences, University of the Chinese Academy of Sciences; Shuwen Zhang, Chinese Academy of Sciences; Fuqiang Wang, Nanjing Medical University; Tao Zhou, The Affiliated Wuxi Maternity and Child Health Care Hospital of Nanjing Medical University; Guangqiong Xu, Nanjing Medical University; Liying Wang, Guangzhou Medical University, Chinese Academy of Sciences; Fucheng Dong, Chinese Academy of Sciences, University of the Chinese Academy of Sciences; Jing Jiang, Chinese Academy of Sciences; Mengcheng Luo, Guangzhou Medical University, Shandong University; Jinsong Li, Chinese Academy of Sciences; Haobo Zhang, Shandong University; Zi-Jiang Chen, Shandong University; Wei Ji, Chinese Academy of Sciences; Baohua Ji,

		Zhejiang University; Hongbin Liu, Shandong University; Wei Li, Guangzhou Medical University, Chinese Academy of Sciences, University of the Chinese Academy of Sciences
Session: 3 Room: Hangzhou 5		
Session Chair(s): Feng Xu, Xi'an Jiaotong University; Shiva Rudraraju, University of Wisconsin		
13:30 PM	13:55 PM	**(Invited) Mechanical Roles of Actin-Ring in Wound/Gap Closure**
		Baohua Ji, Zhejiang University
13:55 PM	14:20 PM	**(Invited) Cell Mechanosensing of Matrix Viscosity and Plasticity: a Mechanistic Study**
		Ze Gong, University of Science and Technology of China
14:20 PM	14:45 PM	**(Invited) Mechanotherapy in Oncology: Targeting the Dynamics of Cell Nucleus**
		Shaobao Liu, Nanjing University of Aeronautics and Astronautics
14:45 PM	15:05 PM	**Quantifying Stiffness and Forces in Zebrafish Embryo by the Same Probe**
		Fuxiang Wei, Huazhong University of Science and Technology
15:05 PM	15:25 PM	**The Flexibility of Short DNAs by Modeling as Transversely Isotropic Rings in Series**
		Chenyu Shi, Zhejiang University; Bin Chen, Zhejiang University
15:25 PM	15:45 PM	**Theoretical and Simulation Studies on the Mechanism of Interaction Between Cells and SARS-CoV-2 Mediated by Flexible Molecules**
		Chuhan Zhong, Xi'an Jiaotong University; Guangkui Xu, Xi'an Jiaotong University
Session: 4 Room: Hangzhou 5		
Session Chair(s): Dechang Li, Zhejiang University; Guy Genin, Washington University in St. Louis		
16:00 PM	16:25 PM	**(Invited) Mechanomedicine: From Biomechanics and Mechanobiology to Mechanodiagnosis and Mechanotherapy**
		Feng Xu, Xi'an Jiaotong University
16:25 PM	16:50 PM	**(Invited) Multiscale Brain Biomechanics for Neurodegenerative Disease**
		Yuan Feng, Shanghai Jiaotong University; Shengyuan Ma, Shanghai Jiaotong University; Huijing Jin, Shanghai Jiaotong University; Peijun Zhao, Shanghai Jiaotong University; Runke Wang, Shanghai Jiaotong University; Suhao Qiu, Shanghai Jiaotong University; Linghan Kong, Shanghai Jiaotong University; Wei Jin, Shanghai Jiaotong University; Yiwen Shen, Ruijin Hospital Luwan Branch; Qingfang Sun, Ruijin Hospital; Fuhua Yan, Ruijin Hospital; Jun Liu, Ruijin Hospital; Guang-Zhong Yang, Shanghai Jiaotong

		University
16:50 PM	17:15 PM	**(Invited) Bacterial Multiphysical Interactions with Hard and Soft Materials Interfaces: Towards Computational Design of Engineered Living Materials**
		Jingjie Yeo, Cornell University
17:15 PM	17:35 PM	**Multiscale Biomechanics of Soft Tissue Injury and Rehabilitation Translation**
		Yifei Yao, Shanghai Jiaotong University
17:35 PM	17:55 PM	**Rational Design of Mechanically Assisted Dressings towards Personalized Wound Repair**
		Hao Liu, Xi'an Jiaotong University; Feng Xu, Xi'an Jiaotong University
17:55 PM	18:15 PM	**Nuclear Deformation Regulates Subcellular YAP Transport Dynamics in Cancer Associated Fibroblasts**
		Md Abul Bashar Emon, University of Illinois at Urbana-Champaign; Md Taher Abu Saif, University of Illinois at Urbana-Champaign
18:15 PM	18:35 PM	**Unveiling Rheological Changes in Cell Dynamics from Fluid-Like to Solid-Like**
		Linru Qiao, Xi'an JiaoTong University; Zhuo Chang, Xi'an JiaoTong University; Guolin Shi, Northwestern Polytechnical University; Hui Yang, Northwestern Polytechnical University; Guangkui Xu, Xi'an JiaoTong University
3.4 Biological, Bio-Inspired, and Biomedical Materials and Applications		
Session: 1 Room: London 2		
Session Chair(s): Juha Song, Nanyang Technological University		
09:30 AM	09:55 AM	**(Invited) Elastography Mapped by Untangling Compressional and Shear Deformation**
		Lizhi Sun, University of California Irvine; Dongxu Liu, UC Irvine
09:55 AM	10:15 AM	**Self-Powered, Bioresorbable Optoelectronic Platforms for Programmed Drug Delivery and Electrotherapy**
		Yamin Zhang, National University of Singapore
10:15 AM	10:35 AM	**Bioinspired Design of Multifunctional Solid-Repellent Coatings**
		Jing Wang, Shanghai Jiaotong University
10:35 AM	11:00 AM	**(Invited) Nano-Architectured Surfaces of Bio-Metals for Biomedical Applications**
		Tae-Sik Jang, Pusan National University
11:00 AM	11:20 AM	**Unravelling the Size and Shape Tuning Mechanisms of Microparticle**

		Formation in Pollen-Hydrogel Composites
		Yanzhang Xu, Nanyang Technological University; Chenchen Zhou, Nanyang Technological University; Juha Song, Nanyang Technological University; Namjoon Cho, Nanyang Technological University
11:20 AM	11:45 AM	**(Invited) From Bio-Inspirations to New Mechanical Metamaterials: New Mechanics in Sutural Tessellations**
		Yaning Li, Northeastern University; Richard Nash, Northeastern University; Shujing Dong, Northeastern University; Yunzheng Yang, Northeastern University; Yanzhang Xu, Northeastern University; Tiantian Li, Northeastern University; Siyao Liu, Northeastern University; Ammar Batwa, Northeastern University; Lin Gu, Northeastern University
Session: 3 Room: London 2		
Session Chair(s): Yaning Li, Northeastern University		
13:30 PM	13:55 PM	**(Invited) Bionic Folding Flapping Wing and the Mechanism of Collision Recovery**
		Hui Yao, Beihang University
13:55 PM	14:15 PM	**Monitoring, Manipulating and Mimicking Motor Systems**
		Pingqiang Cai, Nanjing University
14:15 PM	14:35 PM	**3D Printed Highly Flexible Microneedle-Based Glucose Sensor**
		Wen See Tan, Nanyang Technological University; Jie Hao Tay, Nanyang Technological University; Chenjie Xu, City University of Hong Kong; Juha Song, Nanyang Technological University
14:35 PM	14:55 PM	**Pollen-Templated Scaffolds for Pulmonary Alveolar Tissue Engineering**
		Chenchen Zhou, Nanyang Technological University; Nam-Joon Cho, Nanyang Technological University; Choungmo Yang, Nanyang Technological University; Yanzhang Xu, Nanyang Technological University; Juha Song, Nanyang Technological University
14:55 PM	15:15 PM	**Engineered Biofilms for Living Energy Materials**
		Xinyu Wang, Chinese Academy of Sciences
15:15 PM	15:40 PM	**(Invited) Simulation of 4D Printing Concepts Mimicking Bio-Inspired Self-Organization**
		Ramana Pidaparti, University of Georgia
Session: 4 Room: London 2		
Session Chair(s): Xinyu Wang, Chinese Academy of Sciences (SIAT)		
16:00 PM	16:25 PM	**(Invited) Investigation of An Emerging Mechano-sensitive Target to Eradicate Tumors**

		Laura Garzon, University of Florida; Xin Tang, University of Florida; Miao Huang, University of Florida; Mu Yu, University of Florida; Chase Stallings, University of Florida; Heyang Wang, Northwestern University; Lu Li, University of Florida; Conner M. Traugot, University of Florida; Mingyi Xie, University of Florida; Youhua Tan, The Hong Kong Polytechnic University; Franziska Haderk, University of California; Juan Guan, University of Texas at Austin; Lizi Wu, University of Florida
16:25 PM	16:45 PM	**Additively Manufactured Biodegradable Zn-3Mg Alloy Mimicking Cortical Bone**
		Yageng Li, University of Science and Technology Beijing
16:45 PM	17:05 PM	**Intracerebral Nanoparticle Transport Facilitated by Alzheimer Pathology and Age**
		Shengzhe Ding, University of Illinois Urbana-Champaign; Kai-Yu Huang, University of Illinois Urbana-Champaign; Yu-Tong Hong, University of Illinois Urbana-Champaign; Gregory C. Tracy, University of Illinois Urbana-Champaign; Hayden A. Noblet, University of Illinois Urbana-Champaign; Ki H. Lim, University of Illinois Urbana-Champaign; Eung Chang Kim, University of Illinois Urbana-Champaign; Hee Jung Chung, University of Illinois Urbana-Champaign; Hyunjoon Kong, University of Illinois Urbana- Champaign
17:05 PM	17:25 PM	**Construction of Microbial Living Functional Materials Based on Surface Display of Aspergillus niger Cell Walls**
		Ke Li, Chinese Academy of Science

Track 4: Machine Learning and Multiscale Simulations

4.3 Atomistic Modelling for Advanced Alloys		
Session: 4 Room: Athens		
Session Chair(s): Jianli Shao, Beijing Institute of Technology; Haifei Zhan, Zhejiang University		
16:00 PM	16:25 PM	**(Invited) Stress-Driven Anisotropic Element Diffusion in Nickel Alloy via Atomistic Simulations**
		Haifei Zhan, Zhejiang University; Bin Dong, Zhejiang Unviersity; Chaofeng Lü, Zhejiang University
16:25 PM	16:50 PM	**(Invited) Orientation-Dependent Plasticity Deformation of HfNbTaTiZr Refractory High Entropy Alloy from Atomistic Perspective**
		Wei Jian, Ningbo University
16:50 PM	17:15 PM	**(Invited) New Tetragonal Phases of Titanium under Shock Loading - Predicted by Molecular Dynamics and Ab Initio Calculations**

		Dongdong Jiang, Beijing Institute of Technology; Jian-Li Shao, Beijing Institute of Technology
17:15 PM	17:35 PM	**FCC-BCC Phase Transformation Induced Simultaneous Enhancement of Tensile Strength and Ductility at High Strain Rate in High-Entropy Alloy**
		Yongchao Wu, Beijing Institute of Technology; Jianli Shao, Beijing Institute of Technology
17:35 PM	17:55 PM	**Microstructural and Mechanical Analysis on the Shock-Induced Spalling with Structural Transformation in Single Crystal Iron: Atomistic Simulations**
		Jinmin Yu, Shanghai Institute of Laser Plasma; Jianli Shao, Beijing Institute of Technology; Hua Shu, China Academy of Engineering Physics; Xiuguang Huang, China Academy of Engineering Physics; Sizu Fu, China Academy of Engineering Physics
17:55 PM	18:15 PM	**An Optimized Spectral Neighbor Analysis Potential Model: A Study Based on Machine Learning Strategies**
		Fenglian Li, Taiyuan University of Technology; Zeyi Guo, Taiyuan University of Technology
18:15 PM	18:35 PM	**Phase Transformation-Assisted Twin Formation**
		Lei Cao, University of Nevada, Reno
4.4 AI for Architected Materials		
Session: 1 Room: Athens		
Session Chair(s): Ke Liu, Peking University; Grace Gu, University of California, Berkeley		
09:30 AM	09:55 AM	**(Invited) Neuromorphic Mechanical Computing with Explicit Neurons**
		Changqing Chen, Tsinghua University; Tie Mei, Tsinghua University; Yuan Zhou, Tsinghua University
09:55 AM	10:20 AM	**(Invited) On the Physical Intelligence of Re-Customizable Mechanical Metamaterials**
		Fei Pan, Beihang Universiry; Yuli Chen, Beihang University
10:20 AM	10:40 AM	**Computational Investigation of Crack Evolution in Particle-Reinforced Composites**
		Wei Fan, Imperial College London; Hao Xu, Peking University; Hua Yang, Hebei University of Technology; Dongxiao Zhang, Eastern Institute of Technology; Ambrose Taylor, Imperial College London
10:40 AM	11:00 AM	**Canonical Descriptors for Periodic Lattice Truss Materials**

		Ge Qi, Jiangsu University; Huai-Liang Zheng, Harbin Engineering University; Chen-Xi Liu, Jiangsu University; Li Ma, Harbin Institute of Technology; Kai-Uwe Schröder, RWTH Aachen University
11:00 AM	11:20 AM	**Discover the Diversity of Property Space of Metamaterials by Evolutionary Computation**
		Maohua Yan, Peking University; Ke Liu, Peking University; Ruicheng Wang, Peking University
11:20 AM	11:40 AM	**G-code Net: Learning-Based Rational Design and Optimization for Additively Manufactured Structures**
		Xinxin Wu, Peking University; Tianju Xue, The Hong Kong University of Science and Technology; Sheng Mao, Peking University
Session: 3 Room: Athens		
Session Chair(s): Sheng Mao, Peking University; Miguel Bessa, Brown University		
13:30 PM	13:55 PM	**(Invited) Text-Guided Bio- Architectured Materials Library Building and Application to Structural Design**
		Weisheng Zhang, Dalian University of Technology; Yue Wang, Dalian University of Technology; Sung-Kie Youn, Dalian University of Technology, KAIST; Xu Guo, Dalian University of Technology, Ningbo Institute of Dalian University of Technology
13:55 PM	14:20 PM	**(Invited) Intelligent Metamaterials: Assembling Topologies, Materials and Functionalities**
		Xiaoyu Zheng, University of California, Berkeley
14:20 PM	14:40 PM	**Elastic Computational Metasurfaces for Subwavelength Differentiations**
		Yongquan Liu, Xi'an Jiaotong University; Guangyuan Su, Xi'an Jiaotong University; Zongliang Du, Dalian University of Technology
14:40 PM	15:00 PM	**Learning the Nonlinear Dynamics of Mechanical Metamaterials with Graph Networks**
		Tianju Xue, HKUST; Sheng Mao, Peking University
15:00 PM	15:20 PM	**Learning Uncertainty-Aware Composite Constitutive Laws via Bayesian Recurrent Neural Network**
		Jiaxiang Yi, Delft University of Technology; Miguel Bessa, Brown University
15:20 PM	15:40 PM	**Understanding through Creating: a Comprehensive AI Framework for Disordered Materials**
		Min Shen, Peking University; Ke Liu, Peking University; Sheng Mao, Peking University

4.5 Machine Learning and Multiscale Modeling for Complex Materials and Structures		
Session: 1 Room: New York 2		
Session Chair(s): Shan Tang, Dalian University of Technology; Yanping Lian, Beijing Institute of Technology		
09:30 AM	09:55 AM	**(Invited) Multigrid Finite Element Analysis Neural Network (FEA-Net) for Scalable Material Simulation**
		Yongming Liu, Arizona State University; Changyu Meng, Arizona State University
09:55 AM	10:20 AM	**(Invited) Machine Learning Based Prediction Models for Metal Additive Manufacturing Process**
		Yanping Lian, Beijing Institute of Technology
10:20 AM	10:40 AM	**Cyclic Softening in Nonlocal Shells—A Data-driven Graph-Gradient Plasticity Approach**
		Shan Tang, Dalian University of Technology; Daoping Liu, Dalian University of Technology; Hang Yang, Dalian University of Technology; K.I. Elkhodary, The American University in Cairo; Xu Guo, Dalian University of Technology
10:40 AM	11:00 AM	**Stochastic Nonlinear Behaviors of Spherical Shells with Random Field Imperfections by a Machine Learning-Based Simulation**
		Yan-Ping Liang, HangZhou City University; Xiaodan Ren, Tongji University
11:00 AM	11:20 AM	**A Machine Learning Perspective on the Inverse Indentation Problem**
		Quan Jiao, Liaoning Academy of Materials; Yongchao Chen, Harvard University; Jong-hyoung Kim, Harvard University; Chang-Fu Han, Taiwan Semiconductor Manufacturing Company, Taiwan, China; Joost J. Vlassak, Harvard University
11:20 AM	11:40 AM	**A Smart CAD Embed Finite Element Model Generation Method and Its Implementation**
		Zhifeng Xu, Wuhan Institute of Technology
Session: 3 Room: New York 2		
Session Chair(s): Zhanli Liu, Tsinghua University; Qingkun Zhao, Zhejiang University		
13:30 PM	13:55 PM	**(Invited) Advanced Structural Material Design based on Computational Simulation and Data-Driven Method**
		Zhanli Liu, Tsinghua University
13:55 PM	14:20 PM	**(Invited) Atom-S2 : Imaging of Atomic Stress at Lattice Defects Based on Machine Learning**
		Qingkun Zhao, Zhejiang University; Haofei Zhou, Zhejiang University; Wei Yang, Zhejiang University; Huajian Gao, Tsinghua University

14:20 PM	14:40 PM	**On the Coupling of Data-Driven Model and Model-Driven Model of Thin-Walled Engineering Structures**
		Yanchuan Hui, Shenyang University; Yutong Liu, Shenyang University; Jiexuan Liu, Shenyang University; Jie Yang, Wuhan University; Qun Huang, Wuhan University; Heng Hu, Ningxia University; Xiao Liu, Shenyang University; Zheng Jia, Shenyang University; Erasmo Carrera, Politecnico di Torino; Gaetano Giunta, Luxembourg Institute of Science and Technology
14:40 PM	15:00 PM	**Multi-Scale Physics-Informed Edge Recurrent Simulator for Learning the Dynamics of Continuous Deformable Bodies**
		Qianyi Chen, Westlake University; Tailin Wu, Westlake University
15:00 PM	15:20 PM	**Micro-Mechanics Informed Neural Operator Framework for Multiscale Polycrystalline Material Modelling**
		Rui Wu, University of Cambridge; Burigede Liu, University of Cambridge; Nikola Kovachki, Nvidia; Yannick Hollenweger, ETH
15:20 PM	15:40 PM	**Machine Learning-Based Polycrystalline Model Incorporating Microstructure Features with Graph Neural Networks**
		Yuanzhe Hu, Shanghai Jiaotong University; Guowei Zhou, Shanghai Jiaotong University; Peidong Wu, McMaster University; Dayong Li, Shanghai Jiaotong University
Session: 4 Room: New York 2		
Session Chair(s): Shaoping Xiao, University of Lowa; Ying Li, University of Wisconsin-Madison		
16:00 PM	16:25 PM	**(Invited) Active Learning in Computational Materials Science at Various Scales**
		Shaoping Xiao, University of Iowa; Yingbin Chen, University of Iowa
16:25 PM	16:50 PM	**(Invited) High-Throughput Screening and Prediction of High Modulus of Resilience Polymers Using Explainable Machine Learning**
		Ying Li, University of Wisconsin-Madison
16:50 PM	17:10 PM	**Blast Protection Armour Design Based on Functionally Graded TPMS Structures**
		Zhanli Liu, Tsinghua University; Yizhi Zhang, Tsinghua University; Ziming Yan, Tsinghua University; Xinghao Wang, Tsinghua University
17:10 PM	17:30 PM	**Quantifying the Propagation of Material Uncertainties across Multiple Scales**
		Xingsheng Sun, University of Kentucky
17:30 PM	17:50 PM	**Exploring Atomistic Mechanisms in Laser Processing of Two-Dimensional Material Oxides through Machine Learning Potential-Based Molecular Dynamics**

		Yan Wang, University of Nevada, Reno
17:50 PM	18:10 PM	**Copolymer Processing Optimization through High-Throughput Data Analysis and Machine Learning**
		Boran Ma, The University of Southern Mississippi; Bradley Lamb, The University of Southern Mississippi; Saroj Upreti, The University of Southern Mississippi; Dan Struble, The University of Southern Mississippi; Yunfei Wang, The University of Southern Mississippi; Xiaodan Gu, The University of Southern Mississippi
18:10 PM	18:30 PM	**Shock Behavior of Nanocrystalline Boron Carbide from Deep Learning Molecular Dynamics Simulations**
		Jun Li, Wuhan University of Technology; Qi An, Lowa State University; Lisheng Liu, Wuhan University of Technology
4.6 Computational Design Methods for Optimizing Materials and Structures		
Session: 1 Room: Tianjin		
Session Chair(s): Xiaojia Shelly Zhang, University of Illinois at Urbana Champaign; Yihui Zhang, Tsinghua University		
09:30 AM	09:50 AM	**Interface-Filtering Based Structural Optimization**
		Xiaoping Qian, University of Wisconsin-Madison; Tianye Wang, University of Wisconsin – Madison
09:50 AM	10:10 AM	**Gradient-Free Neural Topology Optimization**
		Miguel Bessa, Brown University; Gawel Kus, Brown University
10:10 AM	10:30 AM	**Simultaneous Topology Optimization via Kernel-Assisted Neural Networks**
		Ramin Bostanabad, University of California, Irvine
10:30 AM	10:50 AM	**Design of Elastically Isotropic Shell Lattices with Superior Stiffness Via Shape Optimization**
		Qingping Ma, The Chinese University of Hong Kong; Lei Zhang, Shanghai Jiaotong University; Junhao Ding, Chinese University of Hong Kong; Shuo Qu, Chinese University of Hong Kong; Xu Song, Chinese University of Hong Kong; Michael Yu Wang, Great Bay University
10:50 AM	11:10 AM	**Nano-Topology Optimization for Materials Design with Atom-by-Atom Control**
		Chun-Teh Chen, University of California, Berkeley
11:10 AM	11:30 AM	**Accelerating High-Resolution Structural Topology Optimization via Deep Learning-Based Image Super-Resolution**
		Kyusoon Jung, Seoul National University; Jaekyung Lim, Seoul National University; Do-Nyun Kim, Seoul National University
Session: 3 Room: Tianjin		

Session Chair(s): Wei Chen, Northwestern University		
13:30 PM	13:50 PM	**Machine Learning for Materials Optimization**
		Changyu Deng, University of Michigan; Wei Lu, University of Michigan
13:50 PM	14:10 PM	**Liquid Crystal Elastomer Metamaterials with Giant Biaxial Thermal Shrinkage based on Soft Network Design**
		Jun Wu, Chinese Academy of Sciences; Daining Fang, Beijing Institute of Technology; Yihui Zhang, Tsinghua University
14:10 PM	14:30 PM	**Modulate Stress Distribution with Optimally Distributed Irregular Architected Materials**
		Xiaojia Shelly Zhang, University of Illinois at Urbana-Champaign; Yingqi Jia, University of Illinois Urbana-Champaign; Ke Liu, Peking University
14:30 PM	14:50 PM	**Generative Inverse Design of Metamaterials with Functional Responses by Interpretable Learning**
		Doksoo Lee, Northwestern University; Wei (Wayne) Chen, Texas A&M University; Rachel Sun, Massachusetts Institute of Technology; Carlos M. Portela, Massachusetts Institute of Technology; Wei Chen, Northwestern University
14:50 PM	15:10 PM	**Defect-Insensitive Mechanical Responses of Random Network Materials with Horseshoe-Shaped Microstructures**
		Yue Xiao, Tsinghua University; Yihui Zhang, Tsinghua University
15:10 PM	15:30 PM	**Inverse Design of Vitrimers Using Machine Leaning and Molecular Dynamics**
		Yiwen Zheng, University of Washington; Prakash Thakolkaran, Delft University of Technology; Jake Smith, Microsoft Research AI4Science; Ziheng Lu, Microsoft Research AI4Science; Shuxin Zheng, Microsoft Research AI4Science; Bichlien Nguyen, Microsoft Research AI4Science; Siddhant Kumar, Delft University of Technology; Aniruddh Vashisth, University of Washington
15:30 PM	15:50 PM	**Data-Driven Bi-directional Homogenization Framework for the Design of Multi-Scale Metamaterials**
		Senlin Huo, National University of Defense Technology; Bingxiao Du, National University of Defense Technology; Yong Zhao, National University of Defense Technology; Xiaoqian Chen, Chinese Academy of Military Science
Session: 4 Room: Tianjin		
Session Chair(s): Xiaojia Shelly Zhang, University of Illinois at Urbana Champaign		
16:00 PM	16:20 PM	**Inverse Design of Novel Functionally Graded Porous Structures Via Diffusion Models**
		Kang Gao, Southeast University

16:20 PM	16:40 PM	**Inverse Design for the Mechanically Guided Assembly of Three-Dimensional Structures**
		Zhichao Fan, Hunan University
16:40 PM	17:00 PM	**A Hybrid Operator-Based Multifactorial Evolutionary Algorithm for Inverse-Engineering Design of Soft Network Materials**
		Shunze Cao, Sichuan University; Xiao Feng, University of Electronic Science and Technology of China
17:00 PM	17:20 PM	**Data-Driven Strategies to Navigate the Bias-variance Landscape in Mechanical Metamaterials**
		Namjung Kim, Gachon University; Dongseok Lee, KAIST; Chanyoung Kim, KAIST; Dosung Lee, Gachon University; Youngjoon Hong, KAIST
17:20 PM	17:40 PM	**Detection and Resolution of Geometric Over-Constraints During the Manipulation of Free-Form Surfaces**
		Hao Hu, Westlake University
17:40 PM	18:00 PM	**Nonlinear Properties of Irregular Architected Materials**
		Ruicheng Wang, Peking University; Ke Liu, Peking University
18:00 PM	18:20 PM	**Research on Condenser Optimization Methods Based on Two-Fluid Numerical Simulation Approach**
		Ruihan Zhang, Tsinghua University; Yuxin Wu, Tsinghua University; Junfu Lyu, Tsinghua University; Xiongshi Wang, Tsinghua University

Track 5: Robotics

5.2 Physical Intelligence for Soft Robotics		
Session: 1 Room: Berlin		
Session Chair(s): Jie Yin, North Carolina State University		
09:30 AM	09:55 AM	**(Invited) Synchronized Self-Oscillating Limbs for Ultrafast Soft Fluidic Robots**
		Johannes T.B. Overvelde, AMOLF / TUE; Alberto Comoretto, AMOLF; Mannus Schomaker, AMOLF
09:55 AM	10:15 AM	**Elasto-Electromagnetic Actuation System: A Leap Forward in Autonomous Insect-Scale Robots**
		Changyu Xu, Westlake University; Hanqing Jiang, Westlake University; Yajun Cao, Westlake University
10:15 AM	10:35 AM	**Droplet Based Combinatorial Antibiotics Susceptibility**
		Junnan Zhang, University of Hong Kong; Haisong Lin, University of Hong

		Kong; Ho Cheung Shum, University of Hong Kong; Xiaoxue Fan, University of Hong Kong; Chi Song, University of Hong Kong, Hong Kong Science Park; Miao Xu, University of Hong Kong
10:35 AM	10:55 AM	**A Flexible Biomimetic Remora Suckerfish with Adaptive Head Adhesion System**
		Fuqiang Yang, Beihang University; Lei Li, Beihang University; Siqi Wang, Intelligent Science & Technology Academy of CASIC; Wenzhuo Gao, Beihang University; Yiyuan Zhang, National University of Singapore; Yuchen Liu, Beihang university; Li Wen, Beihang University
10:55 AM	11:15 AM	**A Multimodal Robot with Biomimetic Suction for Amphibious Perching and Climbing**
		Haoyuan Xu, Beihang University; Jiale Zhi, Beihang University; Shuyong Zhao, Beihang University; Chongze Bi, Beihang University; Li Wen, Beihang University
11:15 AM	11:35 AM	**A 5-DOF Aerial-Aquatic Robot with a Remora-Inspired Disc Capable of Autonomous Hitchhiking**
		Bocheng Tian, Beihang University; Yuchen Liu, Beihang University; Yinuo Cheng, Beihang University; Li Wen, Beihang University
Session: 3 Room: Berlin		
Session Chair(s): Johannes Overvelde, AMOLF & Eindhoven University of Technology		
13:30 PM	13:55 PM	**(Invited) Physically Intelligent Soft Machines**
		Jie Yin, North Carolina State University
13:55 PM	14:15 PM	**Bridging Vision and Touch: Advancing Robotic Interaction Prediction with Self-Supervised Multimodal Learning**
		Luchen Li, University College London; Thomas George Thuruthel, University College London
14:15 PM	14:35 PM	**Magnetically-Actuated Soft Miniature Device for Peripheral Airway Clearance**
		Ziyu Ren, Beihang University; Li Wen, Beihang University; Shiqing Liu, Beihang University
14:35 PM	14:55 PM	**Towards Mechanical Intelligence: Exploiting Origami Bifurcations for Robot Reconfiguration**
		Chenying Liu, University of Oxford; Liang He, University of Oxford; Albert Wiliams, University of Oxford; Perla Maiolino, University of Oxford; Zhong You, University of Oxford
14:55 PM	15:15 PM	**Hydrogel Ionotronic Multi-Sensing for Soft Machine**

		Kun Jia, Xi'an Jiaotong University
15:15 PM	15:35 PM	**A Deepsea Sensorized Soft Hand Capable of Force Estimation and Interactive Gripping**
		Zonghao Zuo, Beihang University; Haoxuan Wang, Beihang University; Xia He, Beihang University; Qiyi Zhang, Beihang University; Li Wen, Beihang University
Session: 4 Room: Berlin		
Session Chair(s): Ziyu Ren, Beihang University		
16:00 PM	16:25 PM	**(Invited) Multimodal, High-Accuracy, High-Load-Carrying Soft Pneumatic Robots**
		Zhuang Zhang, Westlake University; Hanqing Jiang, Westlake University
16:25 PM	16:45 PM	**Reconfigurable Mechanical Logic Metamaterial**
		Kaili Xi, Tianjin University; Yan Chen, Tianjin University; Xiaoyi Jiang, Tianjin University; Jiayao Ma, Tianjin University; Chuhan Xu, Tianjin University
16:45 PM	17:05 PM	**Quick Fabrication of Liquid-Metal Based Smart Materials for Soft Robotics**
		Bo Yuan, Beihang University
17:05 PM	17:25 PM	**System Integration of Power, Control, Actuation and Sensing in a Soft Walking Robot**
		Shibo Zou, AMOLF Institute; Lucas van Laake, Eindhoven University of Technology; Johannes Overvelde, AMOLF Institute
5.4 Origami/Kirigami Robotics		
Session: 4 Room: Fuzhou		
Session Chair(s): Yan Chen, Tianjian University; Jie Yin, North Carolina State University		
16:00 PM	16:25 PM	**(Invited) Materializing Advanced Memories in Hysteronic Metamaterials**
		Lishuai Jin, The City University of Hong Kong
16:25 PM	16:45 PM	**A Physical Intelligent Control Strategy for a Kirigami Soft Robot**
		Qiguang He, The Chinese University of Hong Kong
16:45 PM	17:05 PM	**Origami Pump with Antagonistic Chambers for Soft Robot Actuation**
		Hanwen Cao, The Chinese University of Hong Kong; Qiguang He, The Chinese University of Hong Kong; Jianshu Zhou, The Chinese University of Hong Kong
17:05 PM	17:25 PM	**Buckling-Induced Kirigami Robot Design via Topology Optimization**

		Aocheng Li, Dalian University of Technology; Weisheng Zhang, Dalian University of Technology, Ningbo Institute of Dalian University of Technology; Xu Guo, Dalian University of Technology, Ningbo Institute of Dalian University of Technology
17:25 PM	17:45 PM	**Fabric Origami: A Wearable Exoskeleton for Wrist Exercise and Rehabilitation**
		Liang He, University of Oxford; Chenying Liu, University of Oxford; Shuai Mao, University of Oxford
17:45 PM	18:05 PM	**Energy Absorption Characteristics of A New Origami Sandwich Structure**
		Weiwei Sun, Beijing University of Technology; Hongling Ye, Beijing University of Technology
5.6 Intelligent Structures for Robotics		
Session: 1 Room: Dalian		
Session Chair(s): Mingchao Liu, University of Birmingham; Changjin Huang, Nanyang Technological University		
09:30 AM	09:55 AM	**(Invited) Ratio of Hard-to-Soft Parts in Crawlers for Bio-Inspired Robotics**
		K Jimmy Hsia, Nanyang Technological University; Jiayi Lei, Nanyang Technological University; Changhong Linghu, Nanyang Technological University; Min Pan, University of Bath
09:55 AM	10:20 AM	**(Invited) 3D-Printed Magnetic Soft Millirobots for Drolpet Manipulation**
		Yi Zhang, University of Electronic Science and Technology of China; Aiwu Zhou, Nanyang Technological University
10:20 AM	10:45 AM	**(Invited) Magnetic Micro-Fiberbot for Robotic Embolization**
		Liu Wang, University of Science and Technology of China
10:45 AM	11:05 AM	**Active Fabrics with Controllable Stiffness for Robotic Assistive Interfaces**
		Xudong Yang, Nanyang Technological University; Yifan Wang, Nanyang Technological University
11:05 AM	11:25 AM	**Design of an SMA Linear Actuator and its Application on a Crawling Robot**
		Shuiqing Yan, Shanghai Jiaotong University
11:25 AM	11:45 AM	**Adaptive Tensegrity Robotic Inchworm**

		Xueying Chang, University of Science and Technology Beijing; Li-Yuan Zhang, University of Science and Technology Beijing
Session: 3 Room: Dalian		
Session Chair(s): Yifan Wang, Nanyang Technological University; Liu Wang, University of Science and Technology of China		
13:30 PM	13:55 PM	**(Invited) Origami and Kirigami Inspired Structures**
		Zhong You, University of Oxford
13:55 PM	14:20 PM	**(Invited) Soft, Stimuli-Responsive Liquid Crystal Elastomer Structures for Intelligent Systems**
		Xueju Wang, University of Connecticut
14:20 PM	14:40 PM	**Integration of Kinks and Creases Enables Tunable Folding in Meta-ribbons**
		Mingchao Liu, University of Birmingham
14:40 PM	15:00 PM	**Self-Deployment Dynamics Modeling of Intelligent Flexible Origami Structure Based on Light Activated Shape Memory Polymers**
		Tingting Yuan, Guangxi University; Kunming Ren, Shanghai Jiaotong University; Jinyang Liu, Shanghai Jiaotong University; Wei Zhang, Guangxi University
15:00 PM	15:20 PM	**Multi-Stable Pop-up Kirigami Design by Multi-Loop Coupling**
		Tong Zhou, Wuhan University; Jiahao Xiong, Wuhan University; Yang Li, Wuhan University
15:20 PM	15:40 PM	**An Origami-Inspired Wave Energy Converter**
		Jingyi Yang, University of Oxford; Zhong You, University of Oxford; Deborah Greaves, University of Plymouth
Session: 4 Room: Dalian		
Session Chair(s): Ke Liu, Peking University; Jingyi Yang, University of Oxford		
16:00 PM	16:25 PM	**(Invited) Plant-Inspired Shape-Morphing Structure Engineering**
		Changjin Huang, Nanyang Technological University
16:25 PM	16:50 PM	**(Invited) Monolithic Soft Fibrous Valves Capable of Generating Air Pressure Cutoff, Maintaining, and Oscillation for Pneumatic Systems**
		Huichan Zhao, Tsinghua University; Zhonghan Lin, Tsinghua University
16:50 PM	17:10 PM	**Scale-Inspired Programmable Robotic Structures with Concurrent Shape Morphing and Stiffness Variation**
		Tianyu Chen, Nanyang Technological University; Yifan Wang, Nanyang Technological University

17:10 PM	17:30 PM	**Design of Negative-Stiffness Compliant Mechanisms for Collision Resilience**
		Nan Liu, University of Liverpool; Pooya Sareh, Newcastle University & University of Liverpool
17:30 PM	17:50 PM	**Robotic Granular Matter: From Bond Reconfiguration to Phase Transition and Swarm Behavior**
		Zhiqiang Meng, Nanyang Technological University; Yifan Wang, Nanyang Technological University

Track 6: Soft Matter and Electronics

6.1 Bio-Inspired Soft Composites: Structures, Mechanics, and Applications		
Session: 2 Room: Hangzhou 4		
Session Chair(s): Yuan Lin, The University of Hong Kong; Qin Xu, The Hong Kong University of Science and Technology		
10:15 AM	10:37 AM	**(Invited) Passive and Active Hydrodynamic Metamaterials**
		Lei Xu, The Chinese University of Hong Kong
10:37 AM	10:59 AM	**(Invited) Functional Condensates**
		Lingxiang Jiang, South China University of Technology
10:59 AM	11:21 AM	**(Invited) Jamming Criticality in Amorphous Solid Composites**
		Qin Xu, Hong Kong University of Science and Technology; Yiqiu Zhao, The Hong Kong University of Science and Technology
11:21 AM	11:43 AM	**(Invited) Strain-Programmable Particle Diffusion in Stretchable Polymeric Medium**
		Shaoting Lin, Michigan State University
11:43 AM	12:05 PM	**(Invited) Time-Dependent Constitutive Behaviors of Soft Materials with Dynamic Networks**
		Ji Lin, Ningbo University; Jin Qian, Zhejiang University
Session: 3 Room: Hangzhou 4		
Session Chair(s): Ji Liu, Southern University of Science and Technology; Qin Xu, The Hong Kong University of Science and Technology		
13:30 PM	13:52 PM	**(Invited) Soft Network Materials and their Applications in Bio-Integrated Devices**
		Yihui Zhang, Tsinghua University
13:52 PM	14:14 PM	**(Invited) Design of Bioinspired Structural Composites for Enhanced Toughness and Impact Resistance**

		Yong Ni, University of Science and Technology of China; Kaijin Wu, University of Science and Technology of China; Xiao Zhang, University of Science and Technology of China; Linghui He, University of Science and Technology of China
14:14 PM	14:36 PM	**(Invited) Bio-Like Soft Materials with Life-Like Intelligence**
		Ximin He, University of California, Los Angeles
14:36 PM	14:58 PM	**(Invited) Developing Strong and Tough Soft Materials through Nature-Inspired Hierarchical Strategies**
		Wei Zhai, National University of Singapore; Xinyu Dong, National University of Singapore; Xiao Guo, National University of Singapore; Tian Li, National University of Singapore; Haobo Qi, National University of Singapore; Quyang Liu, National University of Singapore; Yijing Zhao, National University of Singapore; Hao Zhuo, National University of Singapore
14:58 PM	15:20 PM	**(Invited) Biomimetic 3D Microfibrillar Networks for Bio-Integrated Soft Devices**
		Lizhi Xu, The University of Hong Kong
15:20 PM	15:42 PM	**(Invited) Dynamic Phase Separation for Smart Soft Materials**
		Shengtong Sun, Donghua University
Session: 4 Room: Hangzhou 4		
Session Chair(s): Lizhi Xu, The University of Hong Kong; Yifan Wang, Nanyang Technological University		
16:00 PM	16:22 PM	**(Invited) Ice-Templating Technique and its Application in Bioinspired Macroporous Materials**
		Hao Bai, Zhejiang University
16:22 PM	16:44 PM	**(Invited) Engineered Synthetic Protein Hydrogels with Tunable Mechanical Properties for Biomedical Applications**
		Yi Cao, Nanjing University
16:44 PM	17:06 PM	**(Invited) Bio-Inspired Multifunctional Robotic Metamaterials**
		Yifan Wang, Nanyang Technological University
17:06 PM	17:28 PM	**(Invited) Soft Composite Metamaterials with Switchable and Programable Mechanical Behaviors**
		Ye Xu, Beihang University; Lamei Du, Beihang University; Qiuting Zhang, Beihang University; Tingting Zhu, Beihang University
17:28 PM	17:50 PM	**(Invited) Bioinspired Surface Engineering for Coatings and Materials in Health Management**
		Xi Yao, City University of Hong Kong

17:50 PM	18:12 PM	**(Invited) Rational Design of Orally Administered Liposomal Nanocarriers**
		Falin Tian, National Center for Nanoscience and Technology (NCNST); Xinghua Shi, National Center for Nanoscience and Technology (NCNST)
18:12 PM	18:34 PM	**(Invited) Bio-Inspired 1D, 2D, and 3D Composite Manufacturing for Versatile Applications**
		Kenan Song, University of Georgia
6.3 Extreme Soft Materials by Polymer-Network Design		
Session: 2 Room: Hangzhou 3		
Session Chair(s): Shaoting Lin, Michigan State University; Heling Wang, Tsinghua University		
10:15 AM	10:40 AM	**(Invited) A Strategy for Ultra-Tough and Fatigue-Resistant Hydrogels via Loose Cross-Linking and Dense Dehydration-Induced Entanglements**
		Shaoxing Qu, Zhejiang University; Danming Zhong, Zhejiang University; Zhicheng Wang, Zhejiang University
10:40 AM	11:05 AM	**(Invited) Delayed Fatigue Fracture Behavior of Self-Healing Hydrogels**
		Xueyu Li, Hokkaido University; Jian Ping Gong, Hokkaido University
11:05 AM	11:30 AM	**(Invited) On the Molecular Model of Silk Protein Network Structure and Its Toughening Mechanism**
		Dechang Li, Zhejiang University
11:30 AM	11:55 AM	**(Invited) Macroscopic Supramolecular Assembly and Its Applications**
		Feng Shi, Beijing University of Chemical Technology
11:55 AM	12:15 PM	**Temperature- and Rate-Dependent Fracture in Disulfide Vitrimers**
		Zhaoqiang Song, University of California San Diego; Shengqiang Cai, University of California San Diego
Session: 3 Room: Hangzhou 3		
Session Chair(s): Tao Xie, Zhejiang University; Walter Voit, The University of Texas at Dallas		
13:30 PM	13:55 PM	**(Invited) Advancing Bioadhesive Intelligence with Polymer-Network Design**
		Jianyu Li, McGill University
13:55 PM	14:20 PM	**(Invited) Addressing Unmet Needs with 3D Printed Electronics**
		Yong Lin Kong, University of Utah
14:20 PM	14:45 PM	**(Invited) Bioadhesive Electronics for Atraumatic Sensing and Stimulation**
		Yu Deng, Fudan University

14:45 PM	15:10 PM	**(Invited) Designing High-Performance Conducting Polymer Hydrogels via Molecular/Phase Engineering**
		Baoyang Lu, Jiangxi Science and Technology Normal University
15:10 PM	15:30 PM	**Governing Thermomechanics of Modulus-Sensitive Polymer Materials for 3D Printing, Flexible Electronics and Neural Interfaces**
		Walter Voit, University of Texas at Dallas
15:30 PM	15:50 PM	**Hydrogels of Arrested Phase Separation Achieve Exceptional Mechanical Properties**
		Guogao Zhang, Xi'an Jiaotong University; Junsoo Kim, Harvard University; Sammy Hassan, Harvard University; Zhigang Suo, Harvard University
Session: 4 Room: Hangzhou 3		
Session Chair(s): Tao Xie, Zhejiang University; Walter Voit, The University of Texas at Dallas		
16:00 PM	16:25 PM	**(Invited) Soft Nanofluidic Machinery**
		Zhiping Xu, Tsinghua University
16:25 PM	16:50 PM	**(Invited) Soft Intelligent Materials for Innovative Medical Devices**
		Jianfeng Zang, Huazhong University of Science and Technology
16:50 PM	17:15 PM	**(Invited) Flexible Sono-Piezo Patch for Functional Tissue Rrepair through Endogenous Microenvironmental Remodeling**
		Yue Shao, Tsinghua University
17:15 PM	17:40 PM	**(Invited) High Performance Flexible Thermal Sensor with High Sensitivity and Self-Healing**
		Lidong Wu, Chinese Academy of Fishery Sciences; Haiyang Qin,Chinese Academy of Fishery Sciences; Yuanxin Li, Chinese Academy of Fishery Sciences; Jinxue Zhao, Chinese Academy of Fishery Sciences ; Xuejing Zhai, Chinese Academy of Fishery Sciences; Yahui Wen, Chinese Academy of Fishery Sciences; Xinghai Wang, Chinese Academy of Fishery Sciences
17:40 PM	18:05 PM	**(Invited) Electrochromic Elastomers with Rapid Color Changes and Shape Morphing**
		Ming Xiao, Sichuan University
18:05 PM	18:25 PM	**Decoding Stiffness into Elastic Color by Microphase Separation**
		Bohan Liu, Zhejiang University; Zheqi Chen, Zhejiang University; Yingwu Luo, Zhejiang University
18:25 PM	18:45 PM	**Boosting Macroscopic Flexoelectric Effect via the Manipulation of Crumpled Electret films**
		Jianhua Ma, Shandong University; Binglei Wang, Shandong University; Shengyou Yang, Shandong University

6.4 Design, Manufacturing, and Applications of Adaptable Soft Materials		
Session: 1 Room: Dubai		
Session Chair(s): Qiang Li, Huazhong Agricultural University; Pengfei Cao, Beijing University of Chemical Technology		
09:30 AM	09:55 AM	**(Invited) Light-Steered Locomotion of Nanocomposite Hydrogels**
		Zi Liang Wu, Zhejiang University
09:55 AM	10:20 AM	**(Invited) Self-Growing Polymer Materials**
		Jiaxi Cui, University of Electronic Science and Technology; Xinhong Xiong, University of Electronic Science and Technology; Yuanlai Fang, University of Electronic Science and Technology
10:20 AM	10:45 AM	**(Invited) Bifunctional Organoborane Compounds for Copolymerization of Epoxides and CO2**
		Guang-Peng Wu, Zhejiang University
10:45 AM	11:10 AM	**(Invited) Reinforcing and Toughening Recyclable Polyurea and Polyurethane**
		Yanfeng Zhang, Xi'an Jiaotong University
11:10 AM	11:35 AM	**(Invited) Mechano-Responsive Polymers for Stress Self-Reporting and Self-Strengthening**
		Yulan Chen, Jilin University
11:35 AM	11:55 AM	**Soft Ionotronic CNF Composite Films Showing Electrochemical Osmotic Actuation**
		Lengwan Li, Beijing University of Chemical Technology
Session: 3 Room: Dubai		
Session Chair(s): Pengfei Cao, Beijing University of Chemical Technology; Qiang Li, Huazhong Agricultural University		
13:30 PM	13:55 PM	**(Invited) Electricity-Free Heating and Cooling Strategies for Water and Energy Sustainability**
		Qiaoqiang Gan, King Abdullah University of Sci & Tech
13:55 PM	14:20 PM	**(Invited) Preparation and Industrial Application of Double Network Hydrogel-Modified PTFE Hollow Fiber Membranes for High Antifouling Property**
		Xuefeng Li, Hubei University of Technology; Hanyu Chen, Hubei University of Technology
14:20 PM	14:45 PM	**(Invited) Cellulosic Biocomposites**
		Chaoji Chen, Wuhan University

14:45 PM	15:10 PM	**(Invited) Chemically Engineered Sustainable Polyhydroxyalkanoates with Superior Material Performance**
		Zhen Zhang, South China University of Technology
15:10 PM	15:35 PM	**(Invited) Self Assembled Polymeric Biomaterials for Combined Chemo-Radiotherapy**
		Wei Cao, Beijing Normal University
15:35 PM	15:55 PM	**Fabrication and Multifunctional Application of Lignin-Based Bio-Degradable Composite Films**
		Yan Zhang, Huazhong Agriculture University; Qiang Li, Huazhong Agricultural University
Session: 4 Room: Dubai		
Session Chair(s): Qiang Li, Huazhong Agricultural University; Pengfei Cao, Beijing University of Chemical Technology		
16:00 PM	16:25 PM	**(Invited) Stretchable Gel Fibers for Adaptive Applications**
		Peiyi Wu, Donghua University
16:25 PM	16:50 PM	**(Invited) Marangoni Self-Propulsion for Precise Macroscopic Self-Assembly and Energy Harvest**
		Mengjiao Cheng, Beijing University of Chemical Technology
16:50 PM	17:15 PM	**(Invited) Transient Flexible Electronic Materials and Devices**
		Hanbin Liu, Shaanxi University of Science & Technology; Huacui Xiang, Shaanxi University of Science & Technology; Zhijian Li, Shaanxi University of Science & Technology
17:15 PM	17:40 PM	**(Invited) Flexible Tactile Sensing Materials and Devices**
		Jiajie Liang, Nankai University
17:40 PM	18:05 PM	**(Invited) Functional Soft Materials by Microadhesion Guided Technologies**
		Yu Wang, Sichuan University
18:05 PM	18:25 PM	**A Semi-Interpenetrating Polyurethane Network with Fatigue Elimination and Mechanically Upcycling Performance**
		Bing Yu, Beijing University of Chemical Technology; Ming Tian, Beijing University of Chemical Technology
6.5 Soft Electronics: Mechanics, Materials, Manufacture and Devices		
Session: 1 Room: International Hall 2		
Session Chair(s): Yong Zhu, North Carolina State University; Jizhou Song, Zhejiang University		
09:30 AM	09:55 AM	**(Invited) Printed Liquid Metal Electronics for Wearable Applications**
		Jianliang Xiao, University of Colorado Boulder

09:55 AM	10:20 AM	**(Invited) Heterogeneous Integration of 3D Curvy Electronics**
		Xue Feng, Tsinghua University
10:20 AM	10:45 AM	**Multi-Modal Haptic Actuators**
		Shupeng Li, Northwestern University
10:45 AM	11:05 AM	**(Invited) Mechanically-Guided Assembly of Complex 3D Structures and Electronics on Curved Surfaces**
		Zhaoguo Xue, Beihang University
11:05 AM	11:30 AM	**(Invited) Three-Dimensional Micro Strain Gauges for Tactile Sensing**
		Mengdi Han, Peking University
11:30 AM	11:55 AM	**(Invited) Rubbery Electronics for the Heart**
		Cunjiang Yu, University of Illinois, Urbana-Champaign
Session: 3 Room: International Hall 2		
Session Chair(s): Cunjiang Yu, University of Illinois, Urbana-Champaign; Yong Zhu, North Carolina State University		
13:30 PM	13:55 PM	**(Invited) Implantable Soft Bioelectronics and Microfluidics to Unlock Brain Chemistry**
		Yi Zhang, University of Connecticut
13:55 PM	14:20 PM	**(Invited) Flexible Implantable Optogenetic Devices for Artificial Perception Delivery**
		Yiyuan Yang, National University of Singapore
14:20 PM	14:40 PM	**Mechanically Adaptive and Deployable Intracortical Probes for Chronic Neural Recordings**
		Suhao Wang, Zhejiang University; Qianqian Jiang, Zhejiang University; Hang Liu, Zhejiang University; Chaonan Yu, Nanhu Brain-Computer Interface Institute; Pengxian Li, Zhejiang University; Kedi Xu, Zhejiang University; Rui Xiao, Zhejiang University; Yaoyao Hao, Zhejiang University; Chengjun Wang, Zhejiang University; Jizhou Song, Zhejiang University
14:40 PM	15:00 PM	**A Miniaturized, Wireless, and Bioresorbable ICP Monitoring System Based on Magnetic Field**
		Zhongyi Nie, Peking University; Ji Wan, Peking University; Jie Xu, Peking University; Kedong Wu, Peking University; Mengdi Han, Peking University
15:00 PM	15:20 PM	**Elastic Surfactant Leads to Stretchable Liquid-metal Nanocomposite Thermal Heat Material**
		Rui Dong, Zhejiang University
15:20 PM	15:45 PM	**(Invited) Tissue-Like Soft Electronics for Neural Interface**
		Tao Zhou, Penn State University

Session: 4 Room: International Hall 2		
Session Chair(s): Yihui Zhang, Tsinghua University; Jizhou Song, Zhejiang University		
16:00 PM	16:25 PM	**(Invited) 3D-Printed Flexible High-Density Surface Electromyography Electrode Arrays for Decomposition-Based Human-Machine Interfaces**
		Yi Zhao, Shanghai Jiaotong University; Chen Chen, Shanghai Jiaotong University; Baoyang Lu, Jiangxi Science and Technology Normal University; Guoying Gu, Shanghai Jiaotong University; Xiangyang Zhu, Shanghai Jiaotong University
16:25 PM	16:50 PM	**(Invited) Curvature-Matching Mechanics in Skin-Based Bioelectronics to Minimize Interfacial Stresses**
		Raudel Avila, Rice University
16:50 PM	17:10 PM	**A Soft Microrobot with Highly Deformable 3D Actuators for Climbing and Transitioning Complex Surfaces**
		Shiwei Xu, Tsinghua University; Yihui Zhang, Tsinghua University
17:10 PM	17:30 PM	**Wearable Sweat Sensor with Advanced Designs Microfluidic Channel**
		Pengcheng Zhao, Peking University; Ji Wan, Peking University; Haixia Zhang, Peking University; Mengdi Han, Peking University; Xinyan Chen, Peking University
17:30 PM	17:50 PM	**Imperceptible On-Skin Electronics by Adaptive Fibre Tethering**
		Wenyu Wang, Hong Kong University of Science and Technology (Guangzhou); Yifei Pan, University of Cambridge; Stanley Gong Sheng Ka, University of Cambridge; Yan Yan Shery Huang, University of Cambridge
17:50 PM	18:10 PM	**Mechano-Acoustic-Wave (MAW) Sensing Technology for Continuous Monitoring of Tissue Mechanics**
		Chenhang Li, Duke University; Changsheng Wu, National University of Singapore; Heling Wang, Tsinghua University; Yonggang Huang, Northwestern University; John A. Rogers, Northwestern University; Xiaoyue Ni, Duke University
18:10 PM	18:35 PM	**(Invited) Organic Soft Stretchable Electronic Materials and Devices**
		Ying-Shi Guan, Southeast University
6.6 Functional and Programmable Soft Composites-Design, Mechanics, and Manufacturing		
Session: 2 Room: Hangzhou 1		
Session Chair(s): Jerry Qi, Georgia Tech		
10:15 AM	10:40 AM	**(Invited) Next-Generation Lightning Strike Protection by Super-Aligned Carbon Nanotube Films**

		Zhong Zhang, University of Science and Technology of China; Shijun Wang, Chinese Academy of Sciences; Feng Gao, Chinese Academy of Sciences; Mingquan Zhu, Chinese Academy of Sciences; Yunxiang Bai, Chinese Academy of Sciences; Hui Zhang, Chinese Academy of Sciences; Zhiping Xu, Tsinghua University
10:40 AM	11:00 AM	**The Resistive Viscoelasticity of Conductive Polymer Composite for Soft Strain Sensors**
		Quanyi Mu, Ningxia University
11:00 AM	11:20 AM	**Stretchable Conductive Shape Memory Nanocomposites via Photo-mediate Multiscale Structural Design**
		Hongqiu Wei, Northwest University; Zhenyu Zheng, Northwest University
11:20 AM	11:40 AM	**Magnetically Reconfigurable Conformal Metamaterials with Global Area-Preservation and Widely Tunable Physical Properties**
		Renee Zhao, Stanford University; Shuai Wu, Stanford University; Jay Sim, Stanford University
Session: 3 Room: Hangzhou 1		
Session Chair(s): Qiji Ze, Xi'an Jiaotong University		
13:30 PM	13:55 PM	**(Invited) Interfacial Mechanics for Flexible Thin Film/ Substrate System**
		Xue Feng, Tsinghua University
13:55 PM	14:15 PM	**Reconfigurable Soft Chiral Structure for Adaptive Mobile Robots**
		Zeang Zhao, Beijing Institute of Technology; Shengyu Duan, Beijing Institute of Technology; Pan He, Beijing Institute of Technology; Hongshuai Lei, Beijing Institute of Technology
14:15 PM	14:35 PM	**Grayscale Digital Light Processing for Multi-Material 3D Printing and Shape Morphing 4D Printing**
		Liang Yue, Hongkong Univeristy of Science and Technology (Guangzhou); Xiaohao Sun, University of Science and Technology of China
14:35 PM	14:55 PM	**Opposite Deformability of Shape-Changing Polymers in Response to a Single Stimulus**
		Yuxing Yao, California Institute of Technology; Milan Wilborn, Harvard University; Xiaoguang Wang, The Ohio State University; Michael Lerch, University of Groningen; Joanna Aizenberg, Harvard University
14:55 PM	15:20 PM	**(Invited) Mechanics-Based Design for 4D Printed Structures Towards Engineering Applications**
		Chao Yuan, Xi'an Jiaotong University; Tiejun Wang, Xi'an Jiaotong

		University
Session: 4 Room: Hangzhou 1		
Session Chair(s): Jerry Qi, Georgia Tech		
16:00 PM	16:25 PM	**(Invited) Differentiable Inverse Design of Active Morphing Material Systems with Multi-Stimuli Responsiveness**
		Wei Chen, Northwestern University; Liwei Wang, Northwestern University; Alexander L. Evenchik, Northwestern University; Jared Mi Yang, Northwestern University; Ryan L Truby, Northwestern University
16:25 PM	16:45 PM	**Elephant Trunk Inspired Multimodal Deformations and Movements of Soft Robotic Arms**
		Sophie Leanza, Stanford University; Juliana Lu-Yang, MIT; Shuai Wu, Stanford University; Ellen Kuhl, Stanford University; Renee Zhao, Stanford University
16:45 PM	17:05 PM	**A Mechanically Robust and Facile Shape Morphing Using Tensile-Induced Buckling**
		Siqi An, Westlake University; Yajun Cao, Westlake University; Hanqing Jiang, Westlake University
17:05 PM	17:25 PM	**Machine Learning and Sequential Subdomain Optimization for Ultrafast Inverse Design of 4D-Printed Active Composite Structures**
		Xiaohao Sun, University of Science and Technology of China; Luxia Yu, University of Science and Technology of China; Liang Yue, The Hong Kong University of Science and Techology (Guangzhou); H. Jerry Qi, Georgia Institute of Technology
17:25 PM	17:45 PM	**Model-Driven Process Design for Additive Manufacturing of Thermoplastics**
		Ming Lei, Northwestern Polytechnical University
17:45 PM	18:05 PM	**A Phantom-Chain based Viscoplastic Model for Local Relaxation of Magneto-Active Polymer Composites under Dynamic Magnetic Field**
		Yiqi Mao, Hunan University; Li Zhang, Hunan University
18:05 PM	18:25 PM	**Advancements in Tailoring a Multifunctional Soft Magneto-Active Elastomer Substrate with Self-Cleaning Effect**
		Vaisakh V M, The Hong Kong University of Science and Technology; Yiqiu Zhao, The Hong Kong University of Science and Technology; Qin Xu, The Hong Kong University of Science and Technology
6.7 Multiscale Modeling and Mechanics of Soft Matter and Hierarchical Materials		
Session: 1 Room: Seoul		
Session Chair(s): Zhaoxu Meng, Clemson University		

09:30 AM	09:50 AM	**Functions of Prolyl Hydroxylation in Elastin**
		Anna Tarakanova, University of Connecticut
09:50 AM	10:15 AM	**(Invited) Tunable Secondary Bonding Forces in Macromolecules**
		Shuze Zhu, Zhejiang University
10:15 AM	10:40 AM	**(Invited) Hierarchical Porous Hydrogel with Integrated Cushioning, PH-Indicating and Antibacterial Functions**
		Zhengjin Wang, Xi'an Jiaotong University; Yilin Yu, Xi'an Jiaotong University
10:40 AM	11:00 AM	**Mechanics of Biopolymer-Based Soft Materials**
		Yao Zhang, Huazhong University of Science and Technology
11:00 AM	11:20 AM	**Superstretchable Elastomer from Cross-Linked Ring Polymers**
		Jiuling Wang, Beijing Institute of Technology
11:20 AM	11:40 AM	**Influence of Molecular Factors on the Segmental Dynamics and Mechanical Properties of Glassy Cross-Linked Polymers**
		Xiangrui Zheng, Huazhong University of Science and Technology; Yao Zhang, Huazhong University of Science and Technology; Yafang Guo, Beijing Jiaotong University; Jack F. Douglas, National Institute of Standards and Technology; Wenjie Xia, Iowa State University
Session: 3 Room: Seoul		
Session Chair(s): Anna Tarakanova, University of Connecticut		
13:30 PM	13:50 PM	**Investigating the Role of Nanoparticle Configurations in Mechanical Properties of Polymer Nanocomposites by Using Coarse-Grained Molecular Dynamics Simulations**
		Zhaoxu Meng, Clemson University; Zhangke Yang, Clemson University
13:50 PM	14:15 PM	**(Invited) Mechanics and Morphology Transitions of Twisted Ribbons**
		Dabiao Liu, Huazhong University of Science and Technology
14:15 PM	14:35 PM	**Combining Multiscale Simulations and Deep Learning to Understand the Structure–Property Relationship Contributed by Silk Nanofibril Networks**
		Shengjie Ling, Shanghai University of Science and Technology
14:35 PM	15:00 PM	**(Invited) Hierarchical Structure of Biological and Bioinspired Impact Resistant Materials**
		Wei Huang, Huazhong University of Science and Technology
15:00 PM	15:20 PM	**Mechanism Of Coupling Polymer Thickness And Interfacial Interactions on Strength And Toughness Of Non-Covalent Nacre-**

		Inspired Graphene Nanocomposites
		Ning Liu, Tongji University; Shaoheng Li, University of Georgia, Athens; Xianqiao Wang, University of Georgia, Athens
15:20 PM	15:40 PM	**Shear of Open Cell Auxetic Polyurethane Foams**
		Qicheng Zhang, Beihang University; Xindi Yu, University of Bristol; Yuying Xia, Swansea University; Dayi Zhang, Beihang University; Roderic Lakes, University of Wisconsin-Madison; Fabrizio Scarpa, University of Bristol
Session: 4 Room: Seoul		
Session Chair(s): Yao Zhang, Huazhong University of Science and Technology		
16:00 PM	16:25 PM	**(Invited) Mechanism of Moisture-Induced Shape Memory of Wood Cell Wall Revealed by Multiscale Modeling**
		Chi Zhang, Sun Yat-Sen University
16:25 PM	16:50 PM	**(Invited) Efficient Structural Coarse-Graining of Polymeric Materials via Differentiable Simulation**
		Zhenghao Wu, Xi'an Jiaotong Liverpool University; Tianhang Zhou, China University of Petroleum-Beijing
16:50 PM	17:10 PM	**Multiscale Instability Analysis of Layered Magnetoactive Elastomers**
		Chen Xie, University of Galway; Andrei Cherkasov, University of Galway; Quan Zhang, University of Galway; Parag Pathak, University of Wisconsin – Madison; Stephan Rudykh, University of Galway
17:10 PM	17:30 PM	**Effect of Composition and Structure on Mechanical Properties of Tendon-to-Bone Insertion**
		Zhangke Yang, Clemson University; Zhaoxu Meng, Clemson University; Yongren Wu, Clemson University; Daniel Gordon, Clemson University
17:30 PM	17:50 PM	**Oxidation Levels and Configurations in Graphene Oxide Influencing the Mechanical and Viscoelastic Properties of Polymer Nanocomposites**
		Yitong Chen, Clemson University/Northwestern University; Zhangke Yang, Clemson University; Linjiale Dai, Clemson University; Zhaoxu Meng, Clemson University
6.9 Adhesion, Friction, and Fracture at Soft Interfaces: Theory, Simulation, and Experiment		
Session: 1 Room: Beijing 2		
Session Chair(s): Ruobing Bai, Northeastern University; Qihan Liu, University of Pittsburgh		
09:30 AM	09:55 AM	**(Invited) Topology, Geometry, and Fracture in Networked Materials: A Tale of Scales**
		Ahmed Elbanna, University of Illinois Urbana Champaign; Ahmed

		Ghareeb, University of Illinois Urbana Champaign
09:55 AM	10:20 AM	**(Invited) Detaching a Rigid Sphere from an Ultrathin Elastic Sheet: Experiments and Multiscale Theories**
		Zhaohe Dai, Peking University
10:20 AM	10:40 AM	**Multiscale Theory and Simulation Method of the Anisotropic Damage Behavior of Double Network Hydrogels**
		Jincheng Lei, Xi'an Jiaotong University
10:40 AM	11:00 AM	**A Numerical Model for the Van Der Waals Interaction between a Spherical Particle and Periodic Asperities**
		Ji Zhang, Xidian University; Tarek Ragab, Arkansas State University
11:00 AM	11:20 AM	**Corrugated Instability of Anisotropic Thin Film on a Soft Substrate**
		Zhijie Li, Sustech; Wei Hong, Southern University of Science and Technology
11:20 AM	11:40 AM	**Creep-Fatigue Interaction Behaviour of Soft Adhesive under Shear**
		Zhongmeng Zhu, Southwest Jiaotong University; Yan Xia, Southwest Jiaotong University; Chengbin Yao, Southwest Jiaotong University; Zhuoran Yang, Tsinghua University; Han Jiang, Tsinghua University
Session: 3 Room: Beijing 2		
Session Chair(s): Ruobing Bai, Northeastern University; Canhui Yang, Southern University of Science and Technology		
13:30 PM	13:55 PM	**(Invited) Pneumatically Tunable Adherence of Elastomeric Soft Hollow Pillars with Non-Circular Contacts**
		Wanliang Shan, Syracuse University; Guangchao Wan, Texas A&M University
13:55 PM	14:20 PM	**(Invited) Osmocapillary Adhesion between Hydrogel and Various Substrates**
		Qihan Liu, University of Pittsburgh
14:20 PM	14:40 PM	**Overcoming the Adhesion Paradox and Switchability Conflict on Rough Surfaces with Shape Memory Polymers**
		Changhong Linghu, Nanyang Technological University; Huajian Gao, Tsinghua University; Jimmy Hsia, Nanyang Technological University
14:40 PM	15:00 PM	**Competition Between Interfacial Cavitation and Debonding in Viscoelastic Ddhesives**
		Weiyu Zhou, Southern University of Science and Technology; Wei Hong, Southern University of Science and Technology; Fangyuan Zheng,

		Southern University of Science and Technology; Yushen Zhong, Southern University of Science and Technology; Ziyue Yu, Southern University of Science and Technology
15:00 PM	15:20 PM	**Aggregation of Multiple Adhesive Fronts in Adhesive Friction Caused by Re-Attachment**
		Puyu Cao, Zhejiang University; Bin Chen, Zhejiang University
15:20 PM	15:40 PM	**Hydrogel Stretchable Adhesion Strategy of Large Deformation and Low Elastic Modulus**
		Daochen Yin, Zhejiang University; Zheng Jia, Zhejiang University
Session: 4 Room: Beijing 2		
Session Chair(s): Qihan Liu, University of Pittsburgh; Ruobing Bai, Northeastern University		
16:00 PM	16:25 PM	**(Invited) Adhesion Fatigue Resistance of Textile-Hydrogel Composites**
		Xi Yao, Henan University; Xiaomin Yuan, Henan University
16:25 PM	16:45 PM	**Hydrogel–Mesh Composite for Wound Closure**
		Yang Gao, Xi'an Jiaotong University
16:45 PM	17:05 PM	**Strength and Toughness of Adhesion of Soft Materials**
		Yecheng Wang, Sun Yat-sen University
17:05 PM	17:30 PM	**(Invited) Enhance the Adhesion of Soft Materials by Large-Scale Riding**
		Canhui Yang, Southern University of Science and Technology
17:30 PM	17:50 PM	**Adhesive Contact Between Functional Films and Inhomogeneous Substrates**
		Peijian Chen, China University of Mining and Technology; Juan Peng, China University of Mining and Technology; Dengke Li, China University of Mining and Technology; Shaohua Chen, Beijing Institute of Technology
17:50 PM	18:10 PM	**Adhesive Cryogel Particles for Bridging Confined and Irregular Tissue Defects**
		Xuxu Yang, Zhejiang University
18:10 PM	18:30 PM	**Large Deformation and Puncture of Soft Materials under Continuous Axisymmetric Indentation**
		Junjie Liu, Southwest Jiaotong University

Track 7: Metamaterials and Architected Materials

7.1 Advances in the Mechanics of Architected Materials		
Session: 1 Room: Chongqing		
Session Chair(s): Xiaojia Zhang, University of Illinois Urbana-Champaign		
09:30 AM	09:55 AM	**(Invited) Topology and Material Optimization of Polarized Kagome Lattices with Enhanced Impact Resistance against Small-Profile Projectiles**
		Xuedong Zhai, University of Michigan; McInerney James, the University of Michigan; Fan Liu, the University of Michigan; Heye-Smith Karina, the University of Michigan; Arruda Ellen, the University of Michigan; Xiaoming Mao, the University of Michigan
09:55 AM	10:15 AM	**Strengthening Architected Instability-Based Metamaterials**
		Li Wan, The University of Texas at Austin; Yunlan Zhang, The University of Texas at Austin
10:15 AM	10:35 AM	**Design and Functionality of a Thermomechanical Metamaterial as a Macro-Scale Thermal Diode**
		Qinyun Ding, Shanghai Jiaotong University; Jaehyung Ju, Shanghai Jiaotong University; Yuhao Wang, Shanghai Jiaotong University; Guanqing Xiong, Shanghai Jiaotong University; Zhaoguang Wang, Shanghai Jiaotong University; Bihui Zou, Shanghai Jiaotong University
10:35 AM	10:55 AM	**Fracture Mechanics and Toughening Design of Bioinspired Bouligand Structures**
		Kaijin Wu, University of Science and Technology of China; Yong Ni, University of Science and Technology of China
10:55 AM	11:15 AM	**Inverse Design 3D Anisotropic Chiral Lattice Metamaterials**
		Huina Mao, KTH Royal Institute of Technology; Gunnar Tibert, KTH Royal Institute of Technology; R. Rumpler, KTH Royal Institute of Technology; P. Göransson, KTH Royal Institute of Technology
11:15 AM	11:35 AM	**Enhanced Energy Absorption Performance of Aux-Hex Honeycomb Filled Tubes Due to Double Interaction Effect**
		Weizhu Yang, Northwestern Polytechnical University; Sichen Dong, Northwestern Polytechnical University; Peijie Sun, Northwestern Polytechnical University; Lei Li, Northwestern Polytechnical University
Session: 3 Room: Chongqing		
Session Chair(s): Tian Chen, University of Houston		
13:30 PM	13:55 PM	**(Invited) Mesoscale Defect Dynamics Model for Plasticity in Nano-**

		Architectured Metals
		Ill Ryu, Seoul National University
13:55 PM	14:15 PM	**Axial-Bending Couplings in Non-Centrosymmetric Cubic Lattices**
		Dijia Zhong, Shanghai Jiaotong University; Duo Qi, Shanghai Jiaotong University; Jauhyung Ju, Shanghai Jiaotong University
14:15 PM	14:35 PM	**Flexural and Impact Behavior of Architected Lattices-Reinforced Composites Beams**
		Binglin Xie, South China University of Technology; Ruiqi Ma, South China University of Technology; Jinchi Cai, South China University of Technology; Yishen Wei, South China University of Technology; Nan Hu, South China University of Technology, State Key Laboratory of Subtropical Building and Urban Science
14:35 PM	14:55 PM	**Asymptotic Higher Order Homogenisation of Discrete Structures**
		Yang Ye, Ecole Polytechnique; Basile Audoly, Ecole Polytechnique; Claire Lestringant, Sorbonne University
14:55 PM	15:15 PM	**Architected Octahedral Microstructures Exhibiting Near-Complete Mechanical Isotropy**
		Gisoo Lee, Korea Advanced Institute of Science and Technology; Jehoon Moon, Korea Advanced Institute of Science and Technology; Hansohl Cho, Korea Advanced Institute of Science and Technology
15:15 PM	15:35 PM	**A New Continuum Model of a Type of Elastic Metamaterials**
		Xiaodong Wang, University of Alberta; Antonio Schiavone, University of Cambridge
Session: 4 Room: Chongqing		
Session Chair(s): Vanessa Sanchez, Rice University		
16:00 PM	16:25 PM	**(Invited) Tailoring Architected Materials for Resilient Infrastructure**
		Nan Hu, South China University of Technology; Binglin Xie, South China University of Technology; Xianhua Yao, South China University of Technology; Zhixiong Li, South China University of Technology; Wenqian Ma, South China University of Technology; Yangsheng Lin, South China University of Technology
16:25 PM	16:45 PM	**Mechanical Metamaterials with Prescribed Response Based on 1-DOF Kinematic Bases Incorporated with Elastic Components**
		Hui Li, Wuhan University; Yang Li, Wuhan University
16:45 PM	17:05 PM	**Microstructural Investigation of Bistable Auxetic Surfaces**
		Yue Wang, University of Houston; Tian Chen, University of Houston

17:05 PM	17:25 PM	**Tensegrity-Inspired Metamaterial for Tunable Stiffness and Impact Mitigation**
		Bowen Tan, Peking University; Ke Liu, Peking University
17:25 PM	17:45 PM	**Mechanics of Knit Fabrics from Yarns to Haptic Devices**
		Tian Chen, University of Houston
17:45 PM	18:05 PM	**Aluminum-Based Multiscale 3D Lithography for Customizable Sensing**
		Liaoyong Wen, Westlake University
18:05 PM	18:25 PM	**Considering Manufacturing-Induced Anisotropy in Topology Optimization of Architected Materials**
		Hajin Kim-Tackowiak, MIT; Josephine Carstensen, MIT
7.2 Hierarchical Materials: Mechanical Design, Manufacturing, and Applications		
Session: 1 Room: Fuzhou		
Session Chair(s): Yin Zhang, Peking University		
09:30 AM	09:55 AM	**(Invited) Inhomogeneities in Compositionally Complex Alloys Help Mitigate the Trade-off Between Yield Strength and Tensile Ductility**
		Evan Ma, Xi'an Jiaotong University
09:55 AM	10:20 AM	**(Invited) Fundamentals and Processing of Heterostructured Materials**
		Yuntian Zhu, City University of Hong Kong
10:20 AM	10:45 AM	**(Invited) Enhancing the Adhesion of Soft Materials Through Structural Design at the Interface**
		Tongqing Lu, Xi'an Jiaotong University; Xiaochun Jiang, Xi'an Jiaotong University; Tiejun Wang, Xi'an Jiaotong University
10:45 AM	11:10 AM	**(Invited) Thin-Walled Lattice Design of Hierarchical Superhydrophobic Materials with Extreme Anti-Dew Properties**
		Chen Ma, Tsinghua University
11:10 AM	11:35 AM	**(Invited) Enhancing Adhesion and Expanding Applications of Film-Terminated Fibrillar Adhesives: From Smart Manufacturing to Skin-Friendly Wearable Devices**
		Haocheng Quan, Nanjing University; Shijia Gou, Saarland University; Shirui Zhang, Saarland University; Xuan Zhang, Peking University; Zeyu Yang, Nanjing University; Eduard Arzt, Saarland University & University of California, San Diego
11:35 AM	12:00 PM	**(Invited) Superior Mechanical Properties in Shell-Based Lattices from Meso to Nanoscale**

		Yujia Wang, Institute of High Performance Computing (IHPC), A*STAR; Xiaoyan Li, Tsinghua University; Huajian Gao, Tsinghua University
Session: 3 Room: Fuzhou		
Session Chair(s): Xuan Zhang, Peking University		
13:30 PM	13:55 PM	**(Invited) Dynamic Fracture under Pulsed Load and Cell Model for the Solid with Damages under Wave Propagation**
		Su Hao, ACII, Inc., CA, US / University Guangxi
13:55 PM	14:20 PM	**(Invited) High-Order Extremal Materials: Hierarchical Microstructure Design and High-Order Homogenization Method**
		Shengyu Duan, Beijing Institute of Technology; Zeang Zhao, Beijing Institute of Technology; Hongshuai Lei, Beijing Institute of Technology
14:20 PM	14:45 PM	**(Invited) Electrically/Magnetically Dual-Driven Shape-Memory Composites Fabricated by Multi-Material Magnetic Field-Assisted 4D Printing**
		Tianyu Yu, Harbin Institute of Technology; Pan Wu, Harbin Institute of Technology; Mingjun Chen, Harbin Institute of Technology; Nan Kang, HESAM Université; Mohamed El Mansori, HESAM Université. Texas A&M Engineering Experiment Station
14:45 PM	15:10 PM	**(Invited) Mechanical Properties Analysis and Enhanced Design Method of Large Size Ultra-thin Flexible Silicon Wafers**
		Chuanlei Li, Beijing Forestry University; Xue Feng, Tsinghua University; Ying Chen, Institute of Flexible Electronics Technology of Tsinghua, Zhejiang
7.3 Origami/Kirigami-Inspired Meta-Structures and Metamaterials		
Session: 1 Room: Sydney		
Session Chair(s): Qingkun Liu, Shanghai Jiaotong University		
09:30 AM	09:55 AM	**(Invited) Topologically Variable and Volumetric Morphing of 3D Modular Origami Structures with Shape Locking**
		Jaehyung Ju, Shanghai Jiaotong University; Kai Xiao, Shanghai Jiaotong University; Yuhao Wang, Shanghai Jiaotong University; Chao Song, Westlake University; Bihui Zou, Shanghai Jiaotong University; Zihe Liang, Shanghai Jiaotong University; Heeseung Han, Shanghai Jiaotong University; Yilin Du, University of Southern California; Shane Johnson, Shanghai Jiaotong University; Hanqing Jiang, Westlake University
09:55 AM	10:20 AM	**(Invited) Mechanical Functional Metamaterials**
		Pengcheng Jiao, Zhejiang University

10:20 AM	10:40 AM	**Designing Active Kirigami Metamaterials With Effective Continuum Modeling**
		Luna Zheng, Drexel University
10:40 AM	11:00 AM	**A Generic Mechanical Model for 3D Printing Origami-Inspired Metamaterials**
		Yucong Sun, Shanghai Jiaotong University; Keyao Song, Shanghai Jiaotong University; Xiang Zhou, Shanghai Jiaotong University
11:00 AM	11:20 AM	**Mountain-Valley Crease Reconfiguration of 4-Crease Origami Vertices and Tessellations**
		Weiqi Liu, Tianjin University; Song Cao, Tianjin University; Yan Chen, Tianjin University
11:20 AM	11:40 AM	**Controlled Dynamics of Origami Structures: Modeling, Analysis, and Actuation Strategies**
		Koshiro Yamaguchi, Seoul National University; Ran Dai, Purdue University; Mehran Mesbahi, University of Washington; Jinkyu Yang, Seoul National University
Session: 3 Room: Sydney		
Session Chair(s): Lifeng Zhou, Peking University		
13:30 PM	13:55 PM	**(Invited) Design and Analysis of DNA Meta-Structures**
		Lifeng Zhou, Peking University
13:55 PM	14:20 PM	**(Invited) Microscopic, Electronically Configurable Metamaterial Robots**
		Qingkun Liu, Shanghai Jiaotong University; Wei Wang, Cornell University; Himani Sinhmar, Cornell University; Itay Griniasty, Cornell University; Jason Z. Kim, Cornell University; JacobT. Pelster, Cornell University; Paragkumar Chaudhari, Cornell University; Michael F. Reynolds, Cornell University; Michael C. Cao, Cornell University; David A.Muller, Cornell University; Alyssa B. Apsel, Cornell University; Nicholas L. Abbott, Cornell University; Hadas Kress-Gazit, Cornell University; Paul L.McEuen, Cornell University; Itai Cohen, Cornell University
14:20 PM	14:40 PM	**Kirigami-Inspired 3D Metamaterial with Broad Range Programmable Thermal Expansion**
		Zhibo Wei, Tianjin University; Yuanqing Gu, Tianjin University; Jiayao Ma, Tianjin University; Yan Chen, Tianjin University
14:40 PM	15:00 PM	**Residual Stress-Driven Non-Euclidean Morphing in Origami Structures**
		Zihe Liang, Shanghai Jiaotong University; Sibo Chai, Tianjin University; Qinyun Ding, Shanghai Jiaotong Univerisity; Kai Xiao, Shanghai Jiaotong Univerisity; Ke Liu, Peking University; Jiayao Ma, Tianjin University;

		Jaehyung Ju, Shanghai Jiaotong Univerisity
15:00 PM	15:20 PM	**Thermal Computing with Mechanical Transistors**
		Huyue Chen, Koc University; Chao Song, Shanghai Jiaotong University, Westlake University; Jaehyung Ju, Shanghai Jiaotong University
15:20 PM	15:40 PM	**Kirigami Metamaterials for Negative Poisson's Ratios in Large Tensions**
		Yiqiang Wang, Dalian University of Technology; Chen Du, Dalian University of Technology; Zhan Kang, Dalian University of Technology; Zexin Song, Dalian University of Technology
Session: 4 Room: Sydney		
Session Chair(s): Pengcheng Jiao, Zhejiang University		
16:00 PM	16:25 PM	**(Invited) Design and Engineering Applications of Origami Honeycomb Structures**
		Jianguo Cai, Southeast University
16:25 PM	16:50 PM	**(Invited) Curved Panels with Double Arrow and Stacked Miura Origami Core against Impact**
		Zhejian Li, Guangzhou University; Lingfeng Wang, Guangzhou University; Ruofei Yan, Guangzhou University; Yuanpeng He, Guangzhou University; Hong Hao, Guangzhou University; Qiusong Yang, Guangzhou University
16:50 PM	17:10 PM	**Mechanical Metamaterials with Prescribed Reaction Response Based on Origami Structures**
		Xianghong He, Wuhan University; Qingyang Chen, Wuhan University; Jun Chen, Wuhan University; Yuanmin Zhang, Wuhan University; Yang Li, Wuhan University
17:10 PM	17:30 PM	**Design of Arbitrarily Responsive Mechanical Metamaterials based on Tape Springs and Zigzag Structures**
		Yuhang Yang, Wuhan University; Kuan Zhang, Wuhan University; Yang Li, Wuhan University
17:30 PM	17:50 PM	**Parametric Study of the Porous Origami-based Mechanical Metamaterials with Curvatures**
		Zihang Ma, Shanghai Jiaotong University
17:50 PM	18:10 PM	**Mechanical Insights into Curved Crease Origami Metamaterials: Inspired by Tiling Patterns**
		Li Han, Shanghai Jiaotong University
7.4 Controlling Mechanical Waves with Metamaterials		

Session: 4 Room: Cairo		
Session Chair(s): Charles Dorn, ETH Zurich		
16:00 PM	16:25 PM	**(Invited) Impact and Vibration Energy Control with Origami-Based Metamaterials**
		Jinkyu Yang, Seoul National University; Yasuhiro Miyazawa, University of Washington; James O'Neil, University of Washington; Eunho Kim, Jeonbuk National University; Marco Salviato, University of Washington
16:25 PM	16:45 PM	**Damping Reveals Hidden Dimensions in Elastic Metastructures Through Induced Transparency**
		Yanghao Fang, University of Wisconsin-Madison; William Tuxbury, Wesleyan University; Abhishek Gupta, University of Wisconsin-Madison; Tsampikos Kottos, Wesleyan University; Ramathasan Thevamaran, University of Wisconsin-Madison
16:45 PM	17:05 PM	**On the Dynamics of Discrete Solitary Wave Interactions in Nonlinear Metamaterials**
		Yasuhiro Miyazawa, Seoul National University; Christopher Chong, Bowdoin College; Panayotis Kevrekidis, University of Massachusetts Amherst; Jinkyu Yang, Seoul National University
17:05 PM	17:25 PM	**Tunable Tensegrity Metamaterials for Controlling Mechanical Waves**
		Ao Li, University of Science and Technology Beijing; Yu Xin, Xi'an Jiaotong University; Guang-Kui Xu, Xi'an Jiaotong University; Li-Yuan Zhang, University of Science and Technology Beijing
17:25 PM	17:45 PM	**Linear and Nonlinear Dynamics of Magneto-Elastic Metamaterials**
		Weijian Jiao, Tongji University; Stefano Gonella, University of Minnesota
17:45 PM	18:05 PM	**Optimal Design of Graded Metamaterial Waveguides via Ray Tracing**
		Charles Dorn, ETH Zurich; Dennis Kochmann, ETH Zurich
18:05 PM	18:25 PM	**Hard-Magnetic Soft Elastic Metamaterials: Mechanics, Microstructure Design, and Tunable Wave Manipulation**
		Quan Zhang, University of Galway; Stephan Rudykh, University of Galway, University of Wisconsin - Madison
7.5 Underwater Acoustic Metamaterials: Fundamentals and Applications		
Session: 1 Room: New York 1		
Session Chair(s): Yan-Feng Wang, Tianjin University; Fuyin Ma, Xi'an Jiaotong University		
09:30 AM	09:55 AM	**(Invited) Reshaping the Soundscape with User Defined Metamaterials**
		Nicholas Fang, University of Hong Kong

09:55 AM	10:20 AM	**(Invited) Topological Optimization of Metascreens for Underwater Sound Insulation**
		Honggang Zhao, National University of Defense Technology; Yang Wang, National University of Defense Technology; Chao Wang, National University of Defense Technology; Yejin Wei, National University of Defense Technology; Jihong Wen, National University of Defense Technology
10:20 AM	10:40 AM	**Inverse Design and Wave Manipulation of Underwater Acoustic Metasurfaces**
		Hao-Wen Dong, Beijing Institute of Technology
10:40 AM	11:00 AM	**An Ultra-Thin Underwater Sound Absorbing Metamaterial with an Acoustic Black Hole Cavity Configuration in a Carbon Fiber Honeycomb Skeleton**
		Nansha Gao, Northwestern Polytechnical University; Yanbiao Zhao, Northwestern Polytechnical University; Yiting Li, Northwestern Polytechnical University; Guang Pan, Northwestern Polytechnical University
11:00 AM	11:20 AM	**Acoustic-Based Biofouling Detection for Underwater Sensors**
		Bo Hao, The Chinese University of Hong Kong; Li Zhang, The Chinese University of Hong Kong; Xurui Liu, The Chinese University of Hong Kong
11:20 AM	11:40 AM	**Fluid-Solid Interaction Makes Waterborne Acoustic Metasurface Unique**
		Hong-Tao Zhou, Tianjin University; Yan-Feng Wang, Tianjin University; Yue-Sheng Wang, Tianjin University
Session: 3 Room: New York 1		
Session Chair(s): Nansha Gao, Northwestern Polytechnical University; Kaijun Yi, Beijing Institute of Technology		
13:30 PM	13:55 PM	**(Invited) Elastic Waves in Nonlinear Mechanical Metamaterials**
		Yi-Ze Wang, Tianjin University
13:55 PM	14:15 PM	**Design Method and Application Exploration of Metamaterial-based Underwater Acoustic Functional Devices**
		Fuyin Ma, Xi'an Jiaotong University
14:15 PM	14:35 PM	**Underwater Acoustic Gradient Metamaterials**
		Yabin Jin, East China University of Science and Technology; Xiao Pan, Tongji University
14:35 PM	14:55 PM	**Ultra-Thin Underwater Absorber with Impedance-Matched Composite**
		Nan Gao, Polytechnic University of Valencia; Sichao Qu, The Hong Kong University of Science and Technology, The University of Hong Kong; Alain

		Tinel, Normandie University; Bruno Morvan, Normandie University; Vicente Romero-García, Universitat Politècnica deValència; Jean Phillippe Groby, Laboratoire d'Acoustique de l'Université du Mans; Ping Sheng, The Hong Kong University of Science and Technology
14:55 PM	15:15 PM	**Refined Acoustic Holography via Nonlocal Metasurfaces**
		Shuhuan Xie, Tongji University; Hongyu Ma, Tongji University; Junmei Cao, Tongji University; Fangshuo Mo, Tongji University; Qian Cheng, Tongji University; Yong Li, Tongji University; Tong Hao, Tongji University
15:15 PM	15:35 PM	**Multi-Types of Corner States in Glide Higher-Order Topological Phononic Crystals**
		Tao Young, Chinese Academy of Scienses; Heng Jiang, Chinese Academy of Sciences; Boya Xiao, Chinese Academy of Scienses; Yu Liu, Chinese Academy of Scienses; Wenshuai Xu, Chinese Academy of Scienses
Session: 4 Room: New York 1		
Session Chair(s): Yabin Jin, East China University of Science and Technology; Hao-Wen Dong, Beijing Institute of Technology		
16:00 PM	16:25 PM	**(Invited) Tunable Coding Metasurfaces for Customized Underwater Acoustic Scattering**
		Bing Li, Northwestern Polytechnical University; Jiali Cheng, Northwestern Polytechnical University; Yu Liu, Chinese Academy of Sciences; Yongquan Liu, Xi'an Jiaotong University
16:25 PM	16:45 PM	**Design of Metamaterials based on Digitally Resonant Microstructures for Underwater Vibration and Noise Control**
		Kaijun Yi, Beijing institute of technology
16:45 PM	17:05 PM	**Reconfigurable Phononic Crystal Sensor for Liquid Detection**
		Tingting Wang, Northwestern Polytechnical University
17:05 PM	17:25 PM	**Pentamode Materials for Controlling Underwater Acoustic Waves**
		Zhaoyong Sun, Beijing Institute of Graphical Communication; Jun Yang, Chinese Academy of Sciences
17:25 PM	17:45 PM	**Underwater Acoustic Metagratings Based on Fluid-structure Interaction**
		Junmei Cao, Tongji University; Hongyu Ma, Tongji University; Shuhuan Xie, Tongji University; Jiayan Li, Tongji University; Yong Li, Tongji University; Qian Cheng, Tongji University
17:45 PM	18:05 PM	**Power Flow Tracing Metamirrors for Underwater Acoustic Focusing**
		Hongyu Ma, Tongji University; Junmei Cao, Tongji University; Shuhuan Xie, Tongji University; Yong Li, Tongji University; Qian Cheng, Tongji

		University
18:05 PM	18:25 PM	**Liquid Sensors based on Topological Interface States in Solid/Liquid Acoustic Metamaterials**
		Dong Li, Beijing Jiaotong University; Tian-Xue Ma, Beijing Jiaotong University; Kai Wang, Academy of Military Science; Yue-Sheng Wang, Beijing Jiaotong University, Tianjin University

Track 8: Advances in Manufacturing

8.2 Mechanics and Physics of Additive Manufacturing		
Session: 1 Room: London 1		
Session Chair(s): Jinhui Yan, University of Illinois, Urbana-Champaign		
09:30 AM	09:55 AM	**(Invited) Thermo-Chemo-Mechanical Model and Variational Multiscale Framework for Material and Geometric Evolution in Frontal Polymerization**
		Arif Masud, University of Illinois Urbana-Champaign; Ignasius Wijaya, University of Illinois Urbana-Champaign
09:55 AM	10:15 AM	**Crystal Plasticity Modeling for Mechanical Behaviors in Additive Manufacturing**
		Daijun Hu, National University of Singapore; Nicolò Grilli, University of Bristol; Wentao Yan, National University of Singapore
10:15 AM	10:35 AM	**A Characterization Method of Strain Partitioning, Grain Boundary Sliding and Slip Activation for Additively Manufactured Metals**
		Zixu Guo, National University of Singapore; Lei Fan, National University of Singapore; Wentao Yan, National University of Singapore
10:35 AM	10:55 AM	**Modelling of Hierarchical Nanostructures Enabled by Advanced Manufacturing Methods**
		Zhi Li, IHPC; Huajian Gao, Tsinghua University
10:55 AM	11:15 AM	**A General and Thermodynamically Consistent Phase-Field-Micromechanics Model of Microstructure Evolution in Sintering-Based Additive Manufacturing**
		Qingcheng Yang, Shanghai University; Arkadz Kirshtein, Tufts University
11:15 AM	11:35 AM	**Optimization of Continuous Fiber Reinforced Structures for Additive Manufacturing**
		Ling Liu, Temple University; MD MOHAIMINUL ISLAM, Temple University
Session: 3 Room: London 1		

Session Chair(s): Arif Masud, University of Illinois, Urbana-Champaign		
13:30 PM	13:55 PM	**(Invited) Dynamics and Mechanisms of Metal Additive Manufacturing Processes**
		Lianyi Chen, University of Wisconsin-Madison
13:55 PM	14:15 PM	**High-Fidelity Modeling of Multi-Material Additive Manufacturing: from Micro-/Nano-Particle Reinforced Composites to In-Situ Alloying**
		Wentao Yan, National University of Singapore
14:15 PM	14:35 PM	**Modelling of Keyhole Pore Formation and Concentration Evolution in Molten Pool During Metal Additive Manufacturing**
		Lu Wang, National University of SIngapore; Yanmin Zhang, National Univerisity of Singapore; Wentao Yan, National University of Singapore
14:35 PM	14:55 PM	**Towards Defect-Free and Reliable Multi-Material Metal Additive Manufacturing: Computational Modelling and Experimental Validation**
		Yanming Zhang, National University of Singapore; Wentao Yan, National University of Singapore
14:55 PM	15:15 PM	**Uncertainty Quantification and Printing Parameters Optimization of FDM-based Architected Lattice**
		Liangyu Huang, South China University of Technology; Zhantu Gan, South China University of Technology; Wenqian Ma, South China University of Technology; Nan Hu, South China University of Technology
15:15 PM	15:35 PM	**3D Printing Magnetic Metamaterials: From Manufacturing Techniques to Soft Robotic Applications**
		Ze Chang, Eindhoven University of Technology; Ron Peerlings, University of Eindhoven; Marc Geers, University of Eindhoven, Mechanical Engineering; Bas Overvelde, University of Eindhoven; Ondřej Rokoš, University of Eindhoven
Session: 4 Room: London 1		
Session Chair(s): Wentao Yan, National University of Singapore		
16:00 PM	16:25 PM	**(Invited) Machine Learning for Next Generation Additively Manufactured High-Temperature Strength Aluminum Alloys**
		S. Mohadeseh Taheri-Mousavi, Carnegie Mellon University
16:25 PM	16:45 PM	**A Mixed Diffusive-Sharp Interface Approach for Multi-Physics Modeling of 3D Printing of Metallic Materials**
		Jinhui Yan, University of Illinois Urbana Champaign
16:45 PM	17:05 PM	**Numerical Investigation on the Elastoviscoplastic Polymer Flow in Material Extrusion Additive Manufacturing**

		Haifeng Zhang, Xi'an Jiaotong University; Fei Chen, Xi'an Jiaotong University; Wenjun Yuan, Xi'an Jiaotong University
17:05 PM	17:25 PM	**Micro DIW and Assembly of 2D Materials-Dominated Nanocompostes**
		Changhong Cao, McGill University
17:25 PM	17:45 PM	**Sustainable Closed-Loop 3D Printing: A Way Forward to Net-Zero Textile Industry**
		Omid Doustdar, The University of Birmingham
17:45 PM	18:05 PM	**Macroscale Superlubricity on Carbon Coated Metallic Surfaces**
		Tabiri Asumadu, Suny Polytechnic Institute; Nima Rahbar, Worcester Polytechnic Institute; Wole Soboyejo, Suny Polytechnic Institute; K. Mensah-Darkwa, Kwame Nkrumah University of Science andTechnology; E. Gikunoo, Kwame Nkrumah University of Science andTechnology; D.E.P. Klenam, University of the Witwatersrand; M. Vandadi, Worcester Polytechnic Institute; S. Kwofie, Kwame Nkrumah University of Science andTechnology

Track 9: Instability and Failure of Materials

9.1 Instabilities in Solids and Structures		
Session: 2 Room: Hangzhou 6		
Session Chair(s): Rainer Groh, University of Bristol; Jingzhong Tong, Zhejiang University; Jiajia Shen, University of Exeter		
10:15 AM	10:40 AM	**(Invited) Statistical Scaling in Buckling of Spherical Shells with Geometrical Imperfections**
		Jia-Liang Le, University of Minnesota; Zheren Baizhikova, University of Houston; Roberto Ballarini, University of Houston
10:40 AM	11:00 AM	**Optimal Bracing System Design for Funicular Twin Arches Based on Exact Out-of-Plane Buckling Analysis**
		Chuanhao Zhao, Zhejiang University; Wenhao Pan, Zhejiang University; Chienming Wang, The University of Queensland; Yaozhi Luo, Zhejiang University
11:00 AM	11:20 AM	**Stability in Tensegrity Systems Considering Member and Global Buckling**
		Shuo Ma, Zhejiang University of Technology; Muhao Chen, University of Kentucky
11:20 AM	11:40 AM	**Post-Fire Behaviour of Laser-Welded Stainless Steel T-Sections under Compression**

		Yao Sun, Hunan University; Xi Chen, Hunan University; Kang Chen, Xi'an Jiaotong-Liverpool University; Fangcheng Shi, University of Liverpool
11:40 AM	12:00 PM	**Analytical Solution of Distortional Buckling of CFS Beams with Edge-Stiffened Perforations Subject to Uniformly Distributed Transverse Loads**
		Nan-Ting Yu, Zhejiang University of Technology; Yuan Shen, Zhejiang University of Technology; Jia-Hao Zhang, Zhejiang University of Technology; Xin-Yu Zheng, Zhejiang University of Technology
Session: 3 Room: Hangzhou 6		
Session Chair(s): Rainer Groh, University of Bristol; Jingzhong Tong, Zhejiang University; Jiajia Shen, University of Exeter		
13:30 PM	13:55 PM	**(Invited) Recent Progress on Some Novel Analytic Methods in Mechanics of Plates and Shells**
		Rui Li, Dalian University of Technology
13:55 PM	14:20 PM	**(Invited) Hencky Bar-Chain Model for Buckling Analysis of Beams and Frames Using Matrix Method**
		Meiwen Tan, Zhejiang University; Wenhao Pan, Zhejiang University; CM Wang, The University of Queensland; Yaozhi Luo Zhejiang University
14:20 PM	14:40 PM	**Plastic Analysis and Design of Buckling-Restrained Steel Plate Shear Wall Using Continuous Truss Model**
		Jian Hou, Zhejiang University of Technology; Lanhui Guo, Harbin Institute of Technology; Jingzhong Tong, Zhejiang University
14:40 PM	15:00 PM	**The Rayleigh-Taylor Instability of Hydrogel under Hypergravity**
		Kecheng Li, Ningbo University; Haoran Zhang, Ningbo University; Chaofeng Lü, Ningbo University, Zhejiang University
15:00 PM	15:20 PM	**What Does the Transition to Turbulence in Shear Flows Tell Us about the Buckling of Elastic Slender Structures**
		Tian Yang, EPFL; Tobias M. Schneider, EPFL
15:20 PM	15:40 PM	**Tensile Buckling of a Stretched Sheet**
		Marc Suñé, University of Oxford; Mingchao Liu, University of Birmingham; Kexin Guo, Nanyang Technological University; K Jimmy Hsia, Nanyang Technological University; Dominic Vella, University of Oxford
Session: 4 Room: Hangzhou 6		
Session Chair(s): Rainer Groh, University of Bristol; Jingzhong Tong, Zhejiang University; Jiajia Shen, University of Exeter		

16:00 PM	16:25 PM	**(Invited) A Computational Strategy for Efficient Performance-Based Inverse Design of Functionalised Nonlinear Structures**
		Jingzhong Tong, Zhejiang University; Yujia Zhang, Zhejiang University; Jiajia Shen, University of Exeter
16:25 PM	16:50 PM	**(Invited) Energy Barriers Measurement for Efficient Shape-Shifting in Multistable Lattice Metamaterials**
		Qicheng Zhang, University of Bristol; Jiajia Shen, University of Exeter; Martin Garrad, University of Bristol; Fabrizio Scarpa, University of Bristol; Alberto Pirrera, University of Bristol; Rainer Groh, University of Bristol
16:50 PM	17:10 PM	**Harnessing Material Phase Change and Elastic Tailoring for Rapid Response Shape-Shifting Structures**
		Hongxin Lu, Zhejiang university; Jiajia Shen, University of Exeter; Jingzhong Tong, Zhejiang university; Ken Evans, University of Exeter; Oana Ghita, University of Exeter
17:10 PM	17:30 PM	**Self-Centering and Reversible Energy Dissipation Shear Wall via Controlled Elastic Instabilities**
		Yufei Liu, Zhejiang University; Yujia Zhang, Zhejiang University; Lei Zhang, Zhejiang University; Jingzhong Tong, Zhejiang University; Jiajia Shen, University of Exeter
17:30 PM	17:50 PM	**Enhancing the Mobility of a Vibration-Driven Robot Using Von Mises Truss Spring**
		Yujia Zhang, Zhejiang University; Jia-Jia Shen, Department of Engineering, University of Exeter; Yao Yan, University of Electronic Science and Technology of China; Jing-Zhong Tong, Zhejiang University; Lei Zhang, Zhejiang University; Yang Liu, University of Exeter
17:50 PM	18:10 PM	**The Double-Eigenvalue Bifurcation and Multistable Behaviors in Serpentine Strips**
		Qiyao Shi, South University of Science and Technology; Weicheng Huang, Newcastle University; Tian Tu, Southern University of Science and Technology; Mingwu Li, Southern University of Science and Technology
18:10 PM	18:30 PM	**Re-Programmable Energy Dissipation Mechanical Metamaterial Struts via Elastic Tailoring**
		Lingqi Wang, Zhejiang University; Yujia Zhang, Zhejiang University; Jingzhong Tong, Zhejiang University; Jiajia Shen, University of Exeter
9.4 Ductile Failure: Experimental Characterization and Modeling of (non-) Proportional Loading Paths		
Session: 4 Room: Guangzhou		

Session Chair(s): Xueyang Li, ETH Zurich; Christian Roth, ETH Zurich		
16:00 PM	16:25 PM	**(Invited) Enhancing Strain-Rate and Temperature Dependent Phenomenological Models with Machine Learning**
		Xueyang Li, ETH Zurich; Christian Roth, ETH Zurich; Dirk Mohr, ETH Zurich
16:25 PM	16:45 PM	**Machine Learning Basde Localization Prediction Under Non-Proportional Loading:Expermental Validation and Numerical Consistency**
		Muhammed Adil Yatkin, Tallinn University of Technology; Mihkel Korgesaar, Tallinn University of Technology
16:45 PM	17:05 PM	**A New Ductile Failure Criterion for Cast Aluminum Alloy Considering Influences of Microstructure Inhomogeneity and Casting Pores**
		Baocheng Yang, Chinese Academy of Scinces; Shuaifeng Chen, Chinese of Academy of Sciences; Hongwu Song, Chinese Academy of Sciences; Yong Xu, Chinese Academy of Sciences; Shihong Zhang, Chinese Academy of Sciences
17:05 PM	17:25 PM	**Leveraging Miniature Testing to Investigate the Location Dependent Material Response in Structures**
		Thomas Beerli, ETH Zürich; Thomas Tancogne-Dejean, ETH Zürich; Christian Roth, ETH Zürich; Vincent Sébastien Grolleau, ETH Zürich; Dirk Mohr, ETH Zürich
17:25 PM	17:45 PM	**Using Full Field Digital Image Correlation to Calibrate Constitutive Models up to Large Strain**
		Benoit Jordan, ETH Zurich; Dirk Mohr, ETH Zurich; Emmanouil Sakaridis, ETH Zurich; Christian Roth, ETH Zurich; Vincent Grolleau, ETH Zurich
17:45 PM	18:05 PM	**Strain Rate and Stress State Dependent Conversion of Plastic Work into Heat: Experiments and Modeling**
		Vincent Grolleau, ETH Zurich; Xueyang Li, ETH Zurich; Christian Roth, ETH Zurich; Dirk Mohr, ETH Zurich
18:05 PM	18:25 PM	**Development of Shear Bands in Amorphous Glassy Polymers Under Various Stress States**
		Peidong Wu, McMaster University; Tianxiang Lan, Peking University; Weiqin Tang, Shanghai Jiao Tong University; Dayong Li, Shanghai Jiao Tong University

Track 10: Mechanics of Materials and Structures

10.1 Mechanics of Thin Films and Multilayered Structures		
Session: 1 Room: Cairo		
Session Chair(s): Yuhang Li, Beihang University; Guorui Wang, University of Science and Technology of China		
09:30 AM	09:55 AM	**(Invited) Thermo-Mechanical Analysis of Flexible Electronics Considering Human Biological Characteristics**
		Yuhang Li, Beihang University; Wenbin Wu, Beihang University; Xuanqing Fan, Beihang University
09:55 AM	10:20 AM	**(Invited) Transfer Printing Technology and Its Application in Flexible Electronics**
		Yinji Ma, Tsinghua University
10:20 AM	10:45 AM	**(Invited) Anisotropic Fracture of Two-Dimensional Ta2NiSe5**
		Guorui Wang, University of Science and Technology of China
10:45 AM	11:05 AM	**Bending Responses and Morphological Transformation of Multilayered Materials with Periodic Interlayer Interactions**
		Zezhou He, University of Science and Technology of China, Nanyang Technological University
11:05 AM	11:25 AM	**Programmable Strainscapes in a Two-Dimensional (2D) Material Monolayer**
		Qingchang Liu, University of Illinois Urbana-Champaign; T. Johnson, University of Illinois at UrbanaChampaign
11:25 AM	11:45 AM	**Millipede-Like Tail Swing of Graphene Nanoribbons During Sliding**
		Ruiyang Li, Fudan University; Cong Yu, Université Paris-Saclay; Fan Xu, Fudan University
Session: 3 Room: Cairo		
Session Chair(s): Chengjun Wang, Huanjiang Laboratory; Xuanqing Fan, Beihang University		
13:30 PM	13:55 PM	**(Invited) Remote Actuation and Giant Deformation in Curved Films of Hard Magnetic Elastomers by Using Snap-through Instability**
		Shengyou Yang, Shandong University; Lingling Chen, Shandong University
13:55 PM	14:20 PM	**(Invited) A Kirigami-Based Reconfigurable Electromagnetic Metasurface for Tunable and Selective Transmission**
		Chengjun Wang, Huanjiang Laboratory; Shuchang He, Zhejiang University;

		Jizhou Song, Zhejiang University
14:20 PM	14:45 PM	**(Invited) Instabilities of Film/Substrate Bilayers**
		Yang Liu, Tianjin University
14:45 PM	15:05 PM	**Nonlinear Sound Propagation in High Mach Number Oscillating Bubble Media**
		Jiangyi Zhang, Harbin Engineering University; Jiawen Yu, Harbin Engineering University; Desen Yang, Harbin Engineering University
15:05 PM	15:25 PM	**Investigating the Modulation of Electromagnetic Properties in Flexible Frequency Selective Surfaces Through Mechanical Deformation**
		Xuanqing Fan, Beihang University; Yuhang Li, Beihang University
15:25 PM	15:45 PM	**On Yhermo-Mechanical Buckling of Porous Bi-Directional Functionally Graded Plates Using Isogeometric Analysis**
		Shuangpeng Li, Zhejiang University; Chunli Zhang, Zhejiang University; Weiqiu Chen, Zhejiang University
10.2 Micromechanics, Biomechanics, and Mathematical Modeling of Materials		
Session: 1 Room: Bangkok		
Session Chair(s): Fan Feng, Peking University		
09:30 AM	09:55 AM	**(Invited) Mesomechanics Experimental Mechanics Characterization by Quantitative Optical Differential Interference Microscope**
		Xian Chen, The Hong Kong University of Science and Technology
09:55 AM	10:20 AM	**(Invited) Extremely Confined Ion Transport under Multifield Coupling to Mimic the Full Functionalities of Biological Ion Channels**
		Yahui Xue, Southern University of Science and Technolodgy
10:20 AM	10:40 AM	**Finite Element Analysis of Eshelby Twist in Crystals with Screw Dislocation**
		Shunsuke Kobayashi, Osaka university; Ryuichi Tarumi, Osaka university
10:40 AM	11:00 AM	**Mixed Correspondences in Tetragonal to Monoclinic Phase Transformation of Zirconia Materials**
		Hanlin Gu, Peking University
11:00 AM	11:20 AM	**Micromechanics and Machining of Dental Ceramics**
		Yu Zhang, University of Pennsylvania; Marwa Bawazir, University of Pennsylvania
11:20 AM	11:40 AM	**Development of a Group Random Algorithm to Generate a RVE Model**

		for Discontinuous Fiber-Reinforced Composites with More Accurate Description of Fiber Orientation
		Guodong Xu, Shantou University; Yangpeng Zheng, Shantou University; Fengrui Liu, Beihang University; Xiaotian Yi, Western University; Liying Jiang, Western University
Session: 3 Room: Bangkok		
Session Chair(s): Hanlin Gu, Peking University		
13:30 PM	13:55 PM	**(Invited) Multi-Scale Modelling and Design of Magnetoelastic Materials and Structures**
		Vivekanand dabade, Indian Institute of Science; G. R. Krishna Chand Avatar, Indian Institute of Science; Chinika Dangi, Amrita University
13:55 PM	14:20 PM	**(Invited) Tensile Deformation Behavior of Small-Scale Phase-Transforming Alloy**
		Mostafa Karami, Hong Kong University of Science and Technology; Xian Chen, Hong Kong University of Science and Technology
14:20 PM	14:40 PM	**The Contact Force and Internal Forces of Surface-Constrained Elastic Rods Expressed by Local Geometry**
		Meng Wang, Peking University; Xin Yi, Peking University
14:40 PM	15:00 PM	**Modeling the Flexoelectric Effect in Semiconductors via a Higher-Order Collocation MFEM**
		Xinpeng Tian, Huazhong University of Science and Technology; Qian Deng, Huazhong University of Science and Technology
15:00 PM	15:20 PM	**Method for Computing the Complex Permittivity of Nonuniform Absorbing Materials at Subwavelength Scales**
		Yuanyang Du, Nanjing University of Science and Technology
15:20 PM	15:40 PM	**Electromechanical Responses of Piezoelectric Semiconductors Considering Surface Elastic Effect**
		Xiaobao Li, Hefei University of Technology; Chunxiao Zhan, Hefei University of Technology
15:40 PM	16:00 PM	**Slip, Transformation Twinning and Scaling Effect of Phase-transforming Ferroelectric Materials in the Micro/nano Scales**
		Zeyuan Zhu, The Hong Kong University of Science and Technology; Xian Chen, The Hong Kong University of Science and Technology
Session: 4 Room: Bangkok		
Session Chair(s): Liping Liu, Rutgers University		

16:00 PM	16:25 PM	**(Invited) Mechanical Properties of Isotropic-Genesis Polydomain Nematic Elastomers**
		Kaushik Bhattacharya, California Institute of Technology
16:25 PM	16:50 PM	**(Invited) Surface Instability in a Nematic Elastomer**
		John Biggins, Cambridge University; Fan Feng, Peking University; Morgan Barnes, University College London
16:50 PM	17:15 PM	**(Invited) Learning the Hyperelastic Constitutive Relations from Full- Field Data**
		Sheng Mao, Peking University; Yin Zhang, Peking University; Xinxin Wu, Peking University
17:15 PM	17:35 PM	**Statistical-Physics-Informed Neural Networks (Stat-PINNs): Coarse- Graining Dissipative Evolution from Particle Dynamics**
		Shenglin Huang, Nanyang Technological University; Zequn He, University of Pennsylvania; Nicolas Dirr, Cardiff University; Johannes Zimmer, Technische Universität München; Celia Reina, University of Pennsylvania; Huajian Gao, Nanyang Technological University
17:35 PM	17:55 PM	**Rational Design of Deployable/multistable Origami and Kirigami Structures**
		Fan Feng, Peking University
17:55 PM	18:15 PM	**Modeling Growth and Mechanical Feedback in Elastic Biological Tissues**
		Chaozhen Wei, University of Electronic Science and Technology of China; Nonthakorn Olaranont, University of California, Irvine; John Lowengrub, University of California, Irvine; Min Wu, Worcester Polytechnic Institute
18:15 PM	18:35 PM	**Morphogenesis of Growing Curly Petals and Leaves**
		Ting Wang, Tongji University; Fan Xu, Fudan University; Michel Potier-Ferry, Université de Lorraine
10.3 High-Entropy Alloys and Metallic Glasses: From Local Structures to Mechanical and Physical Properties		
Session: 1 Room: Shanghai		
Session Chair(s): Qian Yu, Zhejiang University; Yong Yang, City University of Hong Kong		
09:30 AM	09:55 AM	**(Invited) Oxidation Induced Superelasticity in Metallic-Glass Nanotubes**
		Yong Yang, City University of Hong Kong

09:55 AM	10:20 AM	**(Invited) The Influence of Dislocation-Solute Inelastic Interactions on Materials' Mechanical Properties**
		Qian Yu, Zhejiang University
10:20 AM	10:45 AM	**(Invited) Determining the 3D Atomic Structures of High Entropy Materials – Alloy and Metallic Glass**
		Yao Yang, Westlake University
10:45 AM	11:10 AM	**(Invited) Intrinsic Correlation between Spatial Heterogeneity and Mechanical Properties of Metallic Glasses**
		Fan Zhu, Fudan University; Zhenzhen Yan, Fudan University; Guohang Wang, Fudan University; Wenxin Wen, Fudan University; Jiong Zhou, Fudan University; Mingwei Chen, Johns Hopkins University
11:10 AM	11:35 AM	**(Invited) Mechanism of Ductile-to-Brittle Transition in Metals**
		Weizhong Han, Xi'an Jiaotong University
11:35 AM	11:55 AM	**Room-Temperature Super-Elongation in High-Entropy Alloy Nanopillars**
		Qian Zhang, The University of Hong Kong; Ranming Niu, The University of Sydney; Xianghai An, The University of Sydney; Xiaozhou Liao, The University of Sydney; Huajian Gao, Tsinghua University; Xiaoyan Li, Tsinghua University; Ying Liu, The University of Sydney; Jiaxi Jiang, Tsinghua University; Fan Xu, Fudan University; Xuan Zhang, Peking University; Julie M.Cairney, The University of Sydney
Session: 3 Room: Shanghai		
Session Chair(s): Lin Li, Arizona State University; Suzhi Li, Xi'an Jiaotong University		
13:30 PM	13:55 PM	**(Invited) A Hall-Petch-like Relationship Linking Nanoscale Heterogeneity to Yield Strength of Heterogeneous Metallic Glasses**
		Lin Li, Arizona State University; Yucong Gu, Arizona State University; Jonathan Cappola, Arizona State University; Jian Wang, University of Nebraska-Lincoln
13:55 PM	14:20 PM	**(Invited) Multiscale Modeling of Dislocation-Mediated Plasticity of Refractory High Entropy Alloys**
		Yin Zhang, Peking University
14:20 PM	14:45 PM	**(Invited) Effect of Solute-solute Interactions on Solute Strengthening in Random Alloys**
		Binglun Yin, Zhejiang University
14:45 PM	15:10 PM	**(Invited) Influence of Local Lattice Distortion on Dislocation Mobility in Multi-Principal Element Alloys with Body-Centered-Cubic**

		Structure
		Suzhi Li, Xi'an Jiaotong University
15:10 PM	15:35 PM	**(Invited) Non-Monotonic Evolution of Shear Banding under Random Pinning in Metallic Glasses**
		Hailong Peng, Central South University
15:35 PM	16:00 PM	**(Invited) Investigation on the Energy Landscape of Grain Boundary- Mediated Plasticity in High Entropy Alloys**
		Xiao-Zhi Tang, Beijing Jiaotong University; Xiao-Tong Li, Beijing Jiaotong University; Yue Fan, University of Michigan; Ya-Fang Guo, Beijing Jiaotong University; Haoyu Li, University of Michigan
Session: 4 Room: Shanghai		
Session Chair(s): Lin Liu, Huazhong University of Science and Technology; Zhiming Li, Central South University		
16:00 PM	16:25 PM	**(Invited) Chemical Inhomogeneities in High-entropy Alloys Promote Strength-Ductility Synergy**
		En Ma, Xi'an Jiaotong University
16:25 PM	16:50 PM	**(Invited) Novel High-Temperature Deformation Mechanisms in a Dual- Phase High-Entropy Alloy: A Synergy of Deformation-Induced Twinning and Martensite Transformation**
		Lin Liu, Huazhong Univeristy of Science and Technology; Rong Guo, Huazhong University of Science and Technology; Jie Pan, Huazhong University of Science and Technology; Cheng Zhang, Huazhong University of Science and Technology
16:50 PM	17:15 PM	**(Invited) Nanocrystalline High-Entropy Alloys with High Strength and Thermal Stability**
		Yu Zou, University of Toronto
17:15 PM	17:40 PM	**(Invited) Novel Strategies for Strengthening and Toughening Multicomponent High-Entropy Materials**
		Zhiming Li, Central South University
17:40 PM	18:05 PM	**(Invited) Recent Progress in Compositionally Complex Steels**
		Zhangwei Wang, Central South University
18:05 PM	18:30 PM	**(Invited) Enhancing Strengthening Effect of Topologically Close-Packed Superlattices in Medium- Entropy Alloys via Enabling Imperfect Atomic Packing**
		Zhifeng Lei, Hunan University; Guangsheng Cheng, Hunan University; Yunzhu Shi, Hunan University; Yihan, Wang, University of Science and Technology Beijing; Fei Zhang, Chinese Academy of Sciences; Rui Li,

		Northwestern Polytechnical University; Yuhao Zhou, Northwestern Polytechnical University; Zhenggang Wu, Hunan University; Chao Ma, Hunan University; Zhaoping Lu, University of Science and Technology Beijing
18:30 PM	18:55 PM	**(Invited) Phase Inversion in a Lightweight High Al Content BCC High-Entropy Alloy**
		Yi Li, Institute of Metal Research, Chinese Academy of Sciences; Yuexin Chu, Institute of Metal Research, Chinese Academy of Sciences; Kuan Gao, University of Science and Technology Beijing; Weihua Zhou, Institute of Metal Research, Chinese Academy of Sciences; Yong Tian, Northeastern University; Yong Zhang, University of Science and Technology Beijing
10.5 EML 10th Anniversary Symposium (Invitation Only)		
Session: 2 Room: Hangzhou 2		
Session Chair(s): Teng Li, University of Maryland; Nanshu Lu, The University of Texas at Austin		
10:15 AM	10:40 AM	**(Invited) Discrete Differential Geometry-Based Model for Nonlinear Analysis of Slender Structures**
		K Jimmy Hsia, Nanyang Technological University; Mingchao Liu, University of Birmingham; Weicheng Huang, University of Newcastle; Dominic Vella, University of Oxford
10:40 AM	11:05 AM	**(Invited) Exercise and Mental Health**
		M Taher Saif, University of Illinois at Urbana-Champaign; Ki Yun Lee, University of Illinois at Urbana-Champaign; Saddam Joy, University of Illinois at Urbana-Champaign
11:05 AM	11:30 AM	**(Invited) Intelligentsia of Nano-Architected Hierarchical Materials**
		Julia Greer, California Institute of Technology
11:30 AM	11:55 AM	**(Invited) Solid-State Cooling with High Elastocaloric Strength and Low Driving Force via NiTi Shape Memory Alloy Helical Springs: Experiment and Theoretical Model**
		Kang Guozheng, Southwest Jiaotong University
11:55 AM	12:20 PM	**(Invited) A Thermodynamic Theory Coupling Photo-Chemo-Mechano Interactions for Light-Responsive Hydrogel**
		Shaoxing Qu, Zhejiang University; Zhe Chen, Zhejiang University
Session: 3 Room: Hangzhou 2		
Session Chair(s): Pedro Reis, EPFL; Zheng Jia, Zhejiang University		
13:30 PM	13:55 PM	**(Invited) Investigating the Mechanoresilience of Circulating**

		Cancer Cells
		Chwee Teck Lim, National University of Singapore
13:55 PM	14:20 PM	**(Invited) Data-Driven Rational Design of High Entropy Alloys**
		Teng Li, University of Maryland
14:20 PM	14:45 PM	**(Invited) Toughening and Crack Healing Mechanisms in Nanotwinned Diamond Composites**
		Xiaoyan Li, Tsinghua University
14:45 PM	15:05 PM	**The Interplay Between Mechanics and Chemistry in Living Polymers**
		Yuhang Hu, Georgia Institute of Technology; Jiahe Huang, Georgia Institute of Technology; Haohui Zhang, Georgia Institute of Technology
15:05 PM	15:25 PM	**Fracture and Adhesion of Blood Clots**
		Jianyu Li, McGill University
15:25 PM	15:45 PM	**Soft Morphing Materials and Multistable Structures for Applications in Soft Robotics**
		Xueju Wang, University of Connecticut
Session: 4 Room: Hangzhou 2		
Session Chair(s): Ahmed Elbanna, UIUC; Mingchao Liu, University of Birmingham		
16:00 PM	16:20 PM	**A Simple Yet Versatile Simulation Method of Magneto-mechanical Metamaterials Using ABAQUS**
		Teng Zhang, Syracuse Univeristy; Yuying Zhang, Syracuse University; Gabriel Alkuino, Syracuse University
16:20 PM	16:40 PM	**Extreme Soft Materials by Polymer-Network Design**
		Shaoting Lin, Michigan State University
16:40 PM	17:00 PM	**Thermomechanical and Photomechanical Coupling in Liquid Crystal Elastomers**
		Ruobing Bai, Northeastern University
17:00 PM	17:20 PM	**Mechanics of Extremely Small Lipid Vesicles**
		Changjin Huang, Nanyang Technological University
10.7 Electrochemo-Mechanical of Energy Materials		
Session: 1 Room: Guangzhou		
Session Chair(s): Chunhao Yuan, Southeast University; Lubing Wang, Ningbo University		
09:30 AM	09:55 AM	**(Invited) Carbon Binder Domain (CBD) Inhomogeneity in SiO/Graphite Composite Anode**

		Jun Xu, University of Delaware; Xiang Gao, University of Delaware
09:55 AM	10:20 AM	**(Invited) Mechanical-Electrical-Thermal Coupling Analysis of Lithium-Ion Batteries: Experiment and Simulation**
		Zixuan Huang, North China Electric Power University; Xinchun Zhang, North China Electric Power University
10:20 AM	10:45 AM	**(Invited) Reveal the Mechanical Mechanisms of Failure Evolution of Aged Batteries**
		Yikai Jia, Northwestern Polytechnical University; Jun Xu, University of Delaware
10:45 AM	11:10 AM	**(Invited) Study on the Dynamic Mechanical Behavior and Failure Mechanism of Lithium-Ion Batteries under the Coupled Effect of Discharge State and Mechanical Impact**
		Kangpei Meng, Ningbo University of Technology
11:10 AM	11:30 AM	**Investigating the Lithium Plating Triggering Criterion for Graphite Electrode**
		Jiani Li, University of North Carolina at Charlotte; Lubing Wang, Ningbo University; Jun Xu, University of Delaware
11:30 AM	11:50 AM	**Experimental and Modelling Study of Lithium-Ion Battery Swelling Behaviour**
		Yangzheng Cao, Chongqing University; Binghe Liu, Chongqing University
Session: 3 Room: Guangzhou		
Session Chair(s): Yikai Jia, Northwestern Polytechnical University; Kangpei Meng, Ningbo University of Technology		
13:30 PM	13:55 PM	**(Invited) Revealing the Internal Short Circuit Mechanisms and Progressive Failure Behaviors in Electrodes of Lithium-Ion Batteries Upon Dynamic Loading**
		Lubing Wang, Ningbo University; Jianping Li, Ningbo University; Binqi Li, Ningbo University; Jiaying Chen, Beihang University; Xudong Duan, Beihang University
13:55 PM	14:20 PM	**(Invited) Electrochemical-Mechanical Coupling Failure Mechanism of Composite Cathode in All-Solid-State Batteries**
		Chunhao Yuan, Southeast University
14:20 PM	14:40 PM	**A Mechanical Perspective on Aged Lithium Iron Phosphate Batteries**
		Huacui Wang, Chongqing University; Binghe Liu, Chongqing University
14:40 PM	15:00 PM	**Internal Short Circuit of Lithium Metal Batteries under Mechanical**

		Abuse
		Yue Liu, Chongqing University; Binghe Liu, Chongqing University

Thursday, August 22, 2024

Track 1: Medalist Symposia

1.2 Taylor Medal Symposium		
Session: 5 Room: Beijing 1		
Session Chair(s): NR Aluru, The University of Texas at Austin		
09:30 AM	09:55 AM	**A Seamless Multiscale Operator Neural Network for Inferring Bubble Dynamics**
		Chensen Lin, Fudan University
09:55 AM	10:20 AM	**"Manipulating" Blood Clot to Treat Stroke**
		Renee Zhao, Stanford University
10:20 AM	10:45 AM	**Transfer Learning on Physics-Informed Neural Networks for Tracking the Hemodynamics in the Evolving False Lumen of Dissected Aorta**
		He Li, University of Georgia; Mitchell Daneker, University of Pennsylvania; Shengze Cai, Zhejiang University; Ying Qian, University of Georgia; Eric Myzelev, University of Pennsylvania; Arsh Kumbhat, ETH Zurich; Xiaoning Zheng, Jinan University; Lu Lu, Yale University
10:45 AM	11:10 AM	**Stochastic Multiscale Fractional Modeling in Turbulence and Material Failure**
		Mohsen Zayernouri, Michigan State University
11:10 AM	11:35 AM	**DEIM Cross Algorithms for the Cost-Optimal Low-Rank Approximation of Nonlinear Tensor Differential Equations**
		Hessam Babaee, University of Pittsburgh
11:35 AM	12:00 PM	**Shape Transition and Traversal Dynamics of Mesenchymal Stem Cells in Confined Microflow**
		Xuejin Li, Zhejiang University
Session: 7 Room: Beijing 1		
Session Chair(s): Renee Zhao, Stanford University		
13:30 PM	13:55 PM	**Residual-Based Closure Models for Incompressible Turbulent Flows**
		Arif Masud, University of Illinois Urbana-Champaign; Shoaib Goraya, University of Illinois Urbana-Champaign; Lixing Zhu, Chinese Academy of Sciences
13:55 PM	14:20 PM	**Neural Operator Learning for Multiscale Problems in Mechanical Engineering**

		Zhen Li, Clemson University; Gang Li, Clemson University; George Karniadakis, Brown University
14:20 PM	14:45 PM	**Quantum Coupling at Nanofluidic Interfaces**
		Narayana Aluru, University of Texas at Austin
1.3 Engineering Science Medal Symposium		
Session: 5 Room: Beijing 2		
Session Chair(s): Arash Yavari, Georgia Institute of Technology		
09:30 AM	09:55 AM	**Memory and Cognition Under Tension**
		M Taher Saif, University of Illinois at Urbana-Champaign
09:55 AM	10:20 AM	**Biochemomechanical Morphogenesis of Biological Tissues**
		Xi-Qiao Feng, Tsinghua University
10:20 AM	10:45 AM	**Necking and Bifurcations of Thin-Walled Cylinders and Coated Elastic Disks**
		Davide Bigoni, University of Trento
10:45 AM	11:10 AM	**Realization of Planar and Surface Conformal Mappings Through Stress-Free Growth of Hyperelastic Plates**
		Jiong Wang, South China University of Technology
11:10 AM	11:35 AM	**Statistical Mechanics of Compressed Filaments**
		Ousmane Kodio, UC Santa Barbara
11:35 AM	12:00 PM	**Gyrophilia: Waltzing with Instabilities to Morph Rotating Structures**
		Pedro Reis, EPFL; Eduardo Gutierrez-Prieto, Ecole Polytechnique Fédérale de Lausanne; Gilad Yakir, Ecole Polytechnique Fédérale de Lausanne; Michael Gomez, Ecole Polytechnique Fédérale de Lausanne, King's College London
Session: 7 Room: Beijing 2		
Session Chair(s): Yibin Fu, Keele University		
13:30 PM	13:55 PM	**Curvature Regulates Morphology on Active Surfaces**
		Fan Xu, Fudan University
13:55 PM	14:20 PM	**Nonlinear Anisotropic Visco-Anelasticity**
		Souhayl Sadik, Aarhus University; Arash Yavari, Georgia Institute of Technology
14:20 PM	14:45 PM	**Localized Instabilities of a Residually Stressed Solid Cylinder Under Stretch**
		Yang Liu, Tianjin University
14:45 PM	15:10 PM	**(Virtual) Wrinkling in Substrate-Dominated Growing Bilayers**

		Rainer Groh, University of Bristol; Jiajia Shen, University of Exeter; Yibin Fu, Keele University; Alberto Pirrera, University of Bristol
Session: 8 Room: Beijing 2		
Session Chair(s): Pedro Reis , EPFL		
15:30 PM	15:55 PM	**(Virtual) Reversing the Poynting Effect in Soft Matter Mechanics Through Geometry**
		Destrade Michel, University of Galway; Y. Du, Zhejiang University; J. Blackwell, Royal College of Surgeons in Ireland Bahrain; V. Balbi, University of Galway
15:55 PM	16:20 PM	**(Virtual) The Mechanics of Seashells**
		Derek E Moulton, University of Oxford; Alain Goriely, University of Oxford; Régis Chirat, Université Lyon
16:20 PM	16:45 PM	**(Virtual) Elastic Snap-Through: Delay and Dynamic Amplification of Asymmetry**
		Dominic Vella, University of Oxford; Qiong Wang, University of Illinois at Urbana-Champaign; Andrea Giudici, University of Oxford; Weicheng Huang, Southeast University; Yuzhe Wang, Singapore Institute of Manufacturing Technology; Michael Gomez, University of Cambridge; Mingchao Liu, University of Oxford, Nanyang Technological University, University of Birmingham; Sameh Tawfick, University of Illinois at Urbana-Champaign

Track 2: Fluid Mechanics and Granular Media

2.1 Multi-Physical Processes in Granular Media: Experiments, Theory, and Modeling		
Session: 5 Room: International Hall 1		
Session Chair(s): Thomas Pahtz, Zhejiang University; Lu Jing, Tsinghua Univerrsity		
09:30 AM	09:55 AM	**(Invited) The Scaling Behavior of Windblown Sand and Fluvial Bedload Transport**
		Thomas Pähtz, Zhejiang University; Orencio Duran, Texas A&M University
09:55 AM	10:20 AM	**(Invited) A Discrete Element Method for Rigid and Largely Deformed Granular Materials Based on the Minkowski Sum Approach**
		Siqiang Wang, Dalian University of Technology; Shunying Ji, Dalian University of Technology
10:20 AM	10:40 AM	**Influence of Trapping Efficiency on the Pile-up Geometry of Granular Flows behind Slit Dams**
		Nanjun Li, Chinese Academy of Sciences; Gordon Zhou, Chinese Academy of Sciences; Hongsen Hu, Guizhou Minzu University; Kahlil Cui, Chinese Academy of Sciences; Yu Huang, Tongji University

10:40 AM	11:00 AM	**Shear Viscosity Scaling of Granular Suspensions across Semi-Dilute to Dense Regimes**
		Zaohui Zhang, Westlake University; Man Teng, Westlake University; Sergio Andres Galindo Torres, Westlake University; Herber E. Huppert, University of Cambridge
11:00 AM	11:20 AM	**Flow Rule for Unsteady Flows of Spherical and Non-Spherical Grains Down Rough Inclined Planes**
		Yanbin Wu, Zhejiang University; Zixiao Guo, Zhejiang University; Yulan Chen, Zhejiang University; Thomas Pähtz, Zhejiang University; Zhiguo He, Zhejiang University
11:20 AM	11:40 AM	**An Extended Nonlocal Granular Fluidity Model Considering the Cohesion Force for Wet Granular Flows**
		Xiaodong Liu, Tsinghua University; Lu Jing, Tsinghua University
11:40 AM	12:00 PM	**Investigating Root Growth in Granular Media with X-ray Computed Tomography**
		Soham Dorle, Duke Kunshan University; Ethan Mills, Duke Kunshan University
Session: 7 Room: International Hall 1		
Session Chair(s): Kahlil Fredrick Cui, Chinese Academy of Sciences; Jiaying Liu, Hangzhou City University		
13:30 PM	13:55 PM	**(Invited) Transitions in the Size Sorting of Sheared Bidisperse Mixtures Immersed in Fluid**
		Kahlil Fredrick Cui, Chinese Academy of Sciences; Gordon Zhou, Chinese Academy of Sciences; Lu Jing, Tsinghua University
13:55 PM	14:15 PM	**Failure Mechanism and its Governing Factors of Programmable Deployable Fabric Structure**
		Zhantu Gan, South China University of Technology; Weining Mao, Nanyang Technological University; Nan Hu, South China University of Technology; Yifan Wang, Nanyang Technological University
14:15 PM	14:35 PM	**Improved Sound Absorption by Size Gradient Granular Materials Due to Brazil-Nut Effect**
		Long Xu, Xi'an Jiaotong University; Xiaobing Cai, Xi'an Jiaotong University
14:35 PM	14:55 PM	**Analytical and Experimental Study of Velocity Distribution in Adverse-Slope Channel Flow**
		Kang Yuan, Hohai University
14:55 PM	15:15 PM	**A Bedload Transport Formula for Vegetated Channels**

		Yihan Qu, Hohai University; Zhiheng Ye, Guangdong Research Institute of Water Resources and Hydropower; Limo Tang, Hohai University
Session: 8 Room: International Hall 1		
Session Chair(s): Teng Man, Westlake University		
15:30 PM	15:55 PM	**(Invited) Unjamming and Yielding of Intruder-Deformation-Driven Dense Granular Materials**
		Guangyang Hong, Northeastern University; Jian Li, Northeastern University
15:55 PM	16:15 PM	**Yielding, Jamming, and Rheology of Submerged Granular Avalanche**
		Zhuan Ge, Westlake University; Teng Man, Westlake University; Sergio Andres Galindo Torres, Westlake University
2.2 AI for Fluid Dynamics		
Session: 5 Room: New York 2		
Session Chair(s): Jiaqing Kou, Northwestern Polytechnical University		
09:30 AM	09:50 AM	**Multi-Source Aerodynamic Data Fusion and Uncertainty Quantification based on Bayesian Neural Network**
		Fangfang Xie, Zhejiang University
09:50 AM	10:10 AM	**Enhanced Vehicle Aerodynamic Dataset and Improved Neural Network/Operator Models**
		Lyulin Kuang, NVIDIA; Jiyan Qiu, NVIDIA; Pengwei Liu, Zhejiang University; Guan Wang, Baidu
10:10 AM	10:30 AM	**Generative Fluid Control**
		Long Wei, Westlake University; Peiyan Hu, Chinese Academy of Sciences; Haodong Feng, Westlake University; Ruiqi Feng, Westlake University; Yixuan Du, Jilin University; Tao Zhang, Westlake University; Rui Wang, Fudan University; Dixia Fan, Westlake University; Tailin Wu, Westlake University
10:30 AM	10:50 AM	**VLT-PINN: Variable Linear Transformation Improved Physics- Informed Neural Networks to Solve Thin-Layer Flow Problems**
		Jiahao Wu, Tsinghua University; Xin Li, Tsinghua University; Yuxin Wu, Tsinghua University; Guihua Zhang, Tsinghua University
10:50 AM	11:10 AM	**Surrogate Model for Unsteady Flow Based on DeepONet**
		Bai Heming, Zhejiang University; Bian Xin, Zhejiang University; Zhicheng Wang, Dalian University of Technology; Jian Deng, Zhejiang University
Session: 7 Room: New York 2		
Session Chair(s): Shengze Cai, Zhejiang University; Xuhui Meng, Huazhong University of Science		

and Technology		
13:30 PM	13:50 PM	**A Hybrid Modeling Approach Based on Physics-informed Machine Learning Method for the Analysis of Elastohydrodynamic Lubrication**
		Hanyu Gao, Zhejiang University; Hao Liu, Zhejiang University; Hua Fang, Zhejiang University; Xiaoping Ouyang, Zhejiang University
13:50 PM	14:10 PM	**Solving Heat Transfer in Geological Time for Rock Cooling Ages Using Physics-Informed Neural Networks**
		Ruohong Jiao, University of Victoria; Shengze Casz, Zhejiang University; Jean Braun, GFZ German Research Centre for Geosciences
14:10 PM	14:30 PM	**Dual-Driven PINNs Model for Premixed Sooting and Non-Sootong Flames Predictions**
		QianLong Wang, Tianjin University,
14:30 PM	14:50 PM	**An Analysis and Solution of Ill-Conditioning in Physics-Informed Neural Networks**
		Wenbo Cao, Northwestern Polytechnical University; Weiwei Zhang, Northwestern Polytechnical University
14:50 PM	15:10 PM	**Physics-Informed Neural Networks for Super-Resolution of Multiscale Flow Fields via Kinetic Model**
		Qingyi Lin, Huazhong University of Science and Technology; Xuhui Meng, Huazhong University of Science and Technology; Zhaoli Guo, Huazhong University of Science and Technology
Session: 8 Room: New York 2		
Session Chair(s): Tailin Wu, Westlake University		
15:30 PM	15:50 PM	**Enhancing Large Language Models' Scientific Reasoning Across Mathematics and Physics**
		Hui Xiang, Scien42.tech
15:50 PM	16:10 PM	**Multi-Source Heterogeneous Aerodynamic Data Fusion Neural Network Embedding Reduced-Dimension Features**
		Chenjia Ning, Northwestern Polytechnical University; Weiwei Zhang, Northwestern Polytechnical University
16:10 PM	16:30 PM	**Fast Physics-Informed DeepONet for Unsteady Incompressible Flow**
		Yuanye Zhou, Shandong University
2.3 Bio-Fluid and Bio-Inspired Fluid Mechanics		
Session: 7 Room: Hangzhou 6		
Session Chair(s): Zaiyi Shen, Peking University; Zerui Peng, Huazhong University of Science and		

Technology		
13:30 PM	13:50 PM	**Vorticity Dynamics of the Leading- Edge Vortex Attachment on a Flapping Wing**
		Long Chen, Beihang University
13:50 PM	14:10 PM	**The Mechanism of Insect Wing Pitch and Deviation Modulation**
		Jinjing Hao, Beihang University; Jianghao Wu, Beihang University; Yanlai Zhang, Beihang University
14:10 PM	14:30 PM	**Unsteady Aerodynamic Forces of Tandem Flapping Wings**
		Zengshuang Chen, Xi'an Jiaotong University; Yuxin Xie, Xi'an Jiaotong University; Xueguang Meng, Xi'an Jiaotong University
14:30 PM	14:50 PM	**A Reduced-Order Fluid-Structure Interaction Model for Accurate Estimation of Wall Shear Stress in Blood Vessels**
		Chi Zhu, Peking University; Peishuo Wu, Peking University
14:50 PM	15:10 PM	**Propulsion at Intermediate Reynolds Numbers**
		Yang Ding, Beijing Computational Science Research Center
2.5 Fluid Mechanics for Wind Energy Harvesting		
Session: 5 Room: Dubai		
Session Chair(s): Xiaolei Yang, Chinese Academy of Sciences; Xueling Cheng, Chinese Academy of Sciences		
09:30 AM	09:55 AM	**(Invited) Extrapolating the Wind Speed Profile from Surface Observations in a Flat Grassland**
		Xueling Cheng, Institute of Atmospheric Physics; Yuanyuan He, Chinese Academy of Sciences; Rong Zhu, National Climate Center
09:55 AM	10:20 AM	**(Invited) Probe Atmospheric Flows around a Utility-Scale Turbine via Snow-Powered Field Research**
		Jiarong Hong, University of Minnesota
10:20 AM	10:40 AM	**Numerical Investigations of Atmospheric Turbulence and Wind Turbine Wakes**
		Linlin Tian, Nanjing University of Aeronautics and Astronautics
10:40 AM	11:00 AM	**Assessment of Environmental Impacts of Large-Scale Wind Farm Clusters based on Numerical Weather Forecasting Model**
		Qiang Wang, Zhejiang University; Kun Luo, Zhejiang University; Jianren Fan, Zhejiang University
11:00 AM	11:20 AM	**Impacts of Imposed Floating Motions on the Wake and Load**

		Fluctuations of a Model Wind Turbine
		Yushuai Zhao, Hohai University; Huiwen Liu, Hohai University; Songsong Yang, Hohai University; Tayier Tuniyazi, Hohai University; Zhenzhou Zhao, Hohai University
11:20 AM	11:40 AM	**Aerodynamic Characteristics of Offshore Counter-Rotating Dual Rotor Vertical Axis Wind Turbine**
		Yupeng Duan, Harbin Engineering University; Dan Yu, Harbin Engineering University; Quanyu Li, Harbin Engineering University; Yahui Zhou, Harbin Engineering University; Keyi Wang, Harbin Engineering University; Hengxu Liu, Harbin Engineering University
11:40 AM	12:00 PM	**Constrained Actuator Line Model with Controls in a Lattice Boltzmann Framework for Floating Offshore Wind Turbine Simulations**
		Ling Qiu, Westlake University; Pei Zhang, Westlake University; S.A. Galindo - Torres, Westlake University
Session: 7 Room: Chongqing		
Session Chair(s): Deshun Li, Lanzhou University of Technology; Chang Xu, Hohai University		
13:30 PM	13:50 PM	**Wind Energy Resource Assessment Technology and Software Application for Typical Terrain Wind Farm**
		Li Li, North China Electric Power University; Rong Zhu, National Climate Center
13:50 PM	14:10 PM	**Research on the Wake Effect of Wind Farm Clusters in the Hexi Region**
		Zhizhao Zang, Lanzhou University of Technology; Ye Li, Lanzhou University of Technology; DeShun Li, Lanzhou University of Technology, Gansu Wind Turbine Engineering Technology Research Center
14:10 PM	14:30 PM	**Evaluation Method Based on Entropy Weight Variation for Wind Farm Cluster Considering Dynamic Hierarchical Sorting**
		Shang Wei, Hohai University; Chang Xu, Hohai University; Yansong Gao, Hohai University; Wei Wang, Hohai University
14:30 PM	14:50 PM	**Interaction Between Wind Turbines and Suspended Dust Transport Under Dusty Weather Conditions**
		Yan Wang, Lanzhou University of Technology
14:50 PM	15:10 PM	**Wake Dynamics in Tandem Configured Turbines with Different Blade Designs**
		Guodan Dong, Hohai University; Xiaolei Yang, Chinese Academy of Sciences

Session: 8 Room: Chongqing		
Session Chair(s): Weijun Zhu, Yangzhou University		
15:30 PM	15:55 PM	**(Invited) Wind Farm Flow and Noise Propagation**
		Weijun Zhu, Yangzhou University; Guangxing Guo, Yangzhou University; Sun Zhenye, Yangzhou University; Fu Shifeng, Yangzhou University; Shen Wenzhong, Yangzhou University
15:55 PM	16:15 PM	**Phenomenon and Mechanism on the Flapwise Vibration of the Wind Turbine Airfoil**
		Chuanqiang Gao, Northwestern Polytechnical University; Dening Li, Northwestern Polytechnical University; Weiwei Zhang, Northwestern Polytechnical University
16:15 PM	16:35 PM	**Effects of Wake Characteristics on Flow-induced Aerodynamic Noise of Two Tandem Offshore Wind Turbines**
		Ruosi Zha, Sun Yat-sen University; Wenyu Chen, Shanghai Jiaotong University; Peng Xiao, Sun Yat-sen University

Track 3: Biomechanics and Biomaterials

3.1 Growth and Remodeling in Living Matter - Emergent Behavior and Mechanics		
Session: 7 Room: Dubai		
Session Chair(s): Bin Chen, Zhejiang University		
13:30 PM	13:55 PM	**(Invited) Cross-Scale Constitutive Theory of Growth and Remodeling of Gel Networks**
		Bin Chen, Zhejiang University
13:55 PM	14:20 PM	**(Invited) Emergent Biomimicry Networks: Bridging Bionetwork Simulations to Robotic Swarm Applications**
		Christian Peco, The Pennsylvania State University; Joe Sgarrella, The Pennsylvania State University; Shishir Barai, The Pennsylvania State University; Manik Kumar, The Pennsylvania State University; William Laplante, The Pennsylvania State University
14:20 PM	14:40 PM	**Challenges in Implementing Models of Skin Expansion for FEM Simulations**
		Annie Ruimi, Texas A&M University
14:40 PM	15:00 PM	**A Framework for Quantifying the Subject-Specific Three-Dimensional Residual Stress Field in the Aortic Wall**
		Haofei Liu, Tianjin University

15:00 PM	15:20 PM	**Modelling and Numerical Analysis of Plant Form and Function based on Riemannian Manifolds**
		Ryuichi Tarumi, Osaka University; Shunsuke Kobayashi, Graduate School of Engineering Science
Session: 8 Room: Dubai		
Session Chair(s): Haruka Tomobe, Tokyo Institute of Technology, Japan; Douglas Cook, Brigham Young University		
15:30 PM	15:55 PM	**(Invited) Visualizing, Controlling, and Decoding Electro-Mechano-Physiological Rules of Life: A New 2D/3D All-Optical Interrogation Technology**
		Chenyu Liang, University of Florida; Xin Tang, University of Florida; Erica Hengartner, University of Florida; Abygale Cochrane, University of Florida; BrunaBalbino de Paula, University of Florida; Basak Ayaz, University of Florida; Robert Caudle, University of Florida; Allison Campbell, University of Florida; Christine Schmidt, University of Florida; Tian He, Harvard University; Christopher Werley, Vertex Pharmaceuticals; Urs Böhm, Charité - Universitätsmedizin Berlin; Christopher McCurdy, University of Florida; Landon Min Lin, University of Florida; Habibeh Khoshbouei, University of Florida
15:55 PM	16:15 PM	**Effects of Bending Stiffness on the Pull-Out of Model Root Systems**
		Tetsuo Yamaguchi, The University of Tokyo; Mayu Kinoshita, The University of Tokyo
16:15 PM	16:35 PM	**Recrystallization-Induced Laser Lift-off Strategy for Flexible Thermal Sensors with Near-Limit Sensitivity**
		Fan Zhang, Huazhong University of Science and Technology; YongAn Huang, Huazhong University of Science and Technology
3.2 Mechanobiology Across Scales: Molecular, Cellular and Tissue Mechanics		
Session: 6 Room: Hangzhou 5		
Session Chair(s): Shiva Rudraraju, University of Wisconsin; Bin Chen, Zhejiang University		
10:15 AM	10:40 AM	**(Invited) Primary Tumor Mechanical Heterogeneity Facilitates Metastatic Organotropism**
		Youhua Tan, Hong Kong Polytechnic University; Kai Tang, Hong Kong Polytechnic University; Yufan Zheng, Hong Kong Polytechnic University
10:40 AM	11:05 AM	**(Invited) Studying the Quantitative Relationship between Mechanical Forces on Cell Nucleus and YAP Protein Translocation**
		Miao Huang, University of Florida; Maedeh Lotfi, University of Florida;

		Kevin Connell, University of Florida; Malisa Sarntinoranont, University of Florida; Hitomi Yamaguchi, University of Florida; Juan Guan, University of Texas at Austin; Xin Tang, University of Florida
11:05 AM	11:30 AM	**(Invited) Biophysical Modeling of Anisotropic Brain Tumor Growth**
		Mutaz Dwairy, Yarmouk University; J.N. Reddy, Texas A&M University
11:30 AM	11:50 AM	**Cell Volume Regulation and Electromechanical Coupling Mechanisms: Mechanical Response of Open Systems**
		Yuehua Yang, University of Science and Technology of China
11:50 AM	12:10 PM	**Elastography of Cell Nucleus: Understanding the Nonhomogeneous Biomechanical Behavior of Cell Nucleus**
		Yue Mei, Dalian University of Technology
12:10 PM	12:30 PM	**Spontaneous Oscillation in Collective Bacteria: Insights from a Self-Propelled Rods Model**
		Shuangquan He, Xi'an Jiaotong University; Xu Yin, Xi'an Jiaotong University; Dong Liang, Xi'an Jiaotong University; Zhuo Chang, Xi'an Jiaotong University; Guangkui Xu, Xi'an Jiaotong University

Track 4: Machine Learning and Multiscale Simulations

4.1 Mechanics and Modeling of Multi-Scale Inelasticities in Geomaterials		
Session: 5 Room: Dalian		
Session Chair(s): Xilin Lu, Tongji University; Shaokun Ma, Guangxi University		
09:30 AM	09:55 AM	**(Invited) Formulating a Constitutive Model for Anisotropic Sand Based on Stress Probing Analysis**
		Zhongxuan Yang, Zhejiang University; Dong Liao, Zhejiang University
09:55 AM	10:20 AM	**(Invited) Microseismic Damage Evolution and Identification of Risk Areas of the Dagangshan Arch Dam in Ms6.8 Luding Earthquake**
		Ke Ma, Dalian University of Technology; Longjiang Wang, Dalian University of Technology; Tang Chunan, Dalian University of Technology; Huang Huibao, Sichuan University; Gao Zhiliang, Dalian University of Technology, CHN Energy Dadu River Hydropower Development Co; Shen Dingbin, CHN Energy Dadu River Hydropower Development Co
10:20 AM	10:40 AM	**Analytical Analysis of Cavity Expansion Considering Particle Breakage Effect of Sand and its Application for Cone Penetration Tests**
		Changhong Wang, Shanghai University

10:40 AM	11:00 AM	**Environmental Geomechanics: Towards a Minimised Chemical Footprint in Geo-Energy Engineering**
		Manman Hu, The University of Hong Kong
11:00 AM	11:20 AM	**Constitutive Interpretation of Dilative Creep in Porous Rocks Via Material Stability Analysis**
		Tianyu Gan, Tongji University; Zhenhao Shi, Tongji University; Xilin Lv, Tongji University; Giuseppe Buscarnera, Northwestern University
11:20 AM	11:40 AM	**Simulating and Explaining Plastic Compaction Patterns Around Deep Boreholes**
		Dawei Xue, Northwestern University; Xilin Lu, Tongji University; Giuseppe Buscarnera, Northwestern University
11:40 AM	12:00 PM	**Enhancing Photonic Crystal Design through Machine Learning: A Breakthrough in Nanofabrication Technology**
		Shunyu Yin, Brown University
Session: 7 Room: Dalian		
Session Chair(s): Changhong Wang, Shanghai University; Manman Hu, The University of Hong Kong		
13:30 PM	13:55 PM	**(Invited) Study on New Flexible Ecological Slope Protection Method for Expansive Soil Slopes Based on PWC**
		Shaokun Ma, Guangxi University; Min Ma, Guangxi University
13:55 PM	14:20 PM	**(Invited) Multiscale Analysis Methods and Numerical Simulation of Progressive Failure of Soil**
		Xilin Lü, Tongji University; Sheng Zeng, University of British Columbia; Yiyue Ma, Zhejiang Jiaogong Group Co; Yucheng Zhao, Tongji University; Dawei Xue, Tongji University, Northwestern University
14:20 PM	14:40 PM	**A Hydrodynamic Model for Chemical Dissolution of Porous Geomaterials**
		Yanni Chen, Zhejiang University; Itai Einav, the University of Sydney
14:40 PM	15:00 PM	**The Study of Two-Phase Flow in Porous Media through Microfluidics Test and Numerical Simulation**
		Zhao Lu, Hong Kong University of Science and Technology
15:00 PM	15:20 PM	**Thermo-Poroelastic Response of Saturated Porous Medium Based on Local Thermal Non-Equilibrium During Fluid Injection**
		Xinle Zhai, Southwest Jiaotong University
Session: 8 Room: Dalian		

Session Chair(s): Yanni Chen, Zhejiang University; Dawei Xue, Northwestern University		
15:30 PM	15:50 PM	**Microscopic Insights into Local Scour Around the Submerged Pile: Coupled LES-CGDEM Simulations**
		Linlong Mu, Tongji University; Peiyun Zhang, Tongji University
15:50 PM	16:10 PM	**Multi-Scale Study on the Vertical Bearing Characteristics of Screw Pile Group in Sand**
		Lin Songchao, Shanghai University; YeLu, Shanghai University; Yangyu Hu, Shanghai University; Jiaxiang Yang Department of Civil Engineering, Shanghai University
16:10 PM	16:30 PM	**Study on Mechanical Properties of Artificial Frozen Clay and Its Frost Heave and Thaw Settlement Characteristics**
		Yu Zeng, Tongji University
4.2 Advances in Multiscale Modeling and Nanomechanics		
Session: 5 Room: London 1		
Session Chair(s): Xin Yan, Beihang University; Huiling Duan, Peking University		
09:30 AM	09:55 AM	**(Invited) Multiscale Mechanical Interactions between 2D Materials: Adhesion, Friction and Moiré**
		Rui Huang, University of Texas at Austin
09:55 AM	10:20 AM	**(Invited) Dynamics and Heterogeneity of Particle Network in Composite Electrodes**
		Kejie Zhao, Purdue University
10:20 AM	10:40 AM	**Dislocations, Interfaces, Phonons, and Their Collective Dynamics**
		Youping Chen, University of Florida
10:40 AM	11:00 AM	**Multiscale Modeling of Stress-Induced Phase Transitions in Two-Dimensional Semiconductors and Metals**
		Wenqing Zhu, City University of Hong Kong; Sheng Mao, Peking University; Xiaoding Wei, Peking University; Yong Yang, City University of Hong Kong
11:00 AM	11:25 AM	**(Invited) Towards Quantum Computational Mechanics**
		Burigede Liu, University of Cambridge; Michael Ortiz, California Institute of Technology; Fehmi Cirak, University of Cambridge
11:25 AM	11:50 AM	**(Invited) A Deep Learning-Based Interatomic Potential for Zirconia Ceramic**
		Chao Sui, Harbin Institute of Technology

11:50 AM	12:10 PM	**Time–Temperature Superposition for Cavitation Resistance of Metals with Nonequilibrium Vacancy Concentrations**
		Sara Adibi, San Diego State University
Session: 7 Room: London 1		
Session Chair(s): Guijin Zou, Nanyang Technological University; Wenqing Zhu, City University of Hong Kong		
13:30 PM	13:55 PM	**(Invited) Atomistic Approach to Thermodynamic and Mechanical Stability of Multi-Principal Elemental Alloys**
		Yunjiang Wang, Chinese Academy of Sciences
13:55 PM	14:20 PM	**(Invited) Physics-Transfer Learning for Material Strength Screening**
		Yingjie Zhao, Tsinghua University; Zhiping Xu, Tsinghua University
14:20 PM	14:40 PM	**Computational Simulation Predictions of High-Performance Filtering**
		Chun Shen, Nanjing University of Aeronautics and Astronautics
14:40 PM	15:00 PM	**Role of Quantum Tunneling and Transition State Search Calculation in Peptide Bond Formation**
		Sarah Ghazanfari, Virginia Tech; Yulun Han, North Dakota State University; Wenjie Xia, Iowa State University; Svetlana Kilina, North Dakota State University; Dmitri Kilin, North Dakota State University
15:00 PM	15:20 PM	**Solder Joint Fatigue Analysis of DRAM Module Using Two-Step Sub-Modeling Framework**
		Hyun Suk Lee, Seoul National University; Do-Nyun Kim, Seoul National University
4.6 Computational Design Methods for Optimizing Materials and Structures		
Session: 8 Room: Beijing 1		
Session Chair(s): Xiaojia Shelly Zhang, University of Illinois at Urbana Champaign		
15:30 PM	15:50 PM	**Large Stroke Nonsymmetric Constant Torque Mechanisms Synthesis Based on Iterative Structural Optimization**
		Shun Bi, University of Michigan - Shanghai Jiaotong University Joint Institute; Shane Johnson, University of Michigan-Shanghai Jiaotong University Joint Institute; Tanzeel Ur Rehman, University of Michigan - Shanghai Jiaotong University Joint Institute
15:50 PM	16:10 PM	**Multiscale Investigation of Surface Modification Effects on Interfacial Properties Between Cement Matrix and Recycled Plastic Aggregates**
		Huali Hao, Wuhan University
16:10 PM	16:30 PM	**Enhancing PFAS Removal Efficiency: Optimizing Carbon-Based Sorbents through Molecular Dynamics Simulations**

		Bradley Lamb, The University of Southern Mississippi; Boran Ma, The University of Southern Mississippi

Track 5: Robotics

5.1 Dynamics and Control of Continuum and Soft Robots		
Session: 5 Room: Sydney		
Session Chair(s): Federico Renda, Khalifa University		
09:30 AM	09:55 AM	**(Invited) Implicit Time Integration Simulation of Robots with Rigid Bodies and Cosserat Rods Based on a Newton-Euler Recursive Algorithm**
		Frédéric Boyer, IMT-Atlantique (LS2N)
09:55 AM	10:20 AM	**(Invited) A Continuum Robot Mimicking an Elephant Trunk and its Applications**
		Haijun Peng, Dalian University of Technology; ChaoZhong, Dalian University of Technology; Hao Yang, Dalian University of Technology; Fei Li, Dalian University of Technology
10:20 AM	10:40 AM	**Discernibility of Topological Variations for Networked LTI Systems**
		Yuqing Hao, Beihang University; Qingyun Wang, Beihang University; Zhisheng Duan, Beihang University; Guanrong Chen, Beihang University
10:40 AM	11:00 AM	**Mechanics Modeling of a Double-Joint Catheter Robot with Wire-Reinforced Spring Backbones**
		Xuefeng Wang, Peking University; Chenglong Wang, Peking University
11:00 AM	11:20 AM	**The 2D Peeling Dynamics Near the Contact Points at the Edges of a Forming Ruck**
		Zhen Zhao, Beihang University; Shuaibin Zhao, Beihang University; Zhixiang Li, Beihang University; Caishan Liu, Peking University
11:20 AM	11:40 AM	**A Bio-Inspired Meniscus Structure to Attenuate Impacts in Robotic Joints**
		Lianxin Yang, Tsinghua University; Zhihua Zhao, Tsinghua University
11:40 AM	12:00 PM	**Kinematics Modeling and Control of Cable-Driven Continuum Robots**
		Yuhang Liu, Beijing Institute of Technology; Kai Luo, Beijing Institute of Technology; Qiang Tian, Beijing Institute of Technology; Haiyan Hu, Beijing Institute of Technology

Session: 7 Room: Sydney		
Session Chair(s): Kai Luo, Beijing Institute of Technology		
13:30 PM	13:55 PM	**(Invited) Dynamics and Control of Soft Robots with Linear, State-Dependent, and Implicit Strain Parametrization**
		Federico Renda, Khalifa University
13:55 PM	14:15 PM	**Model Reduction of Flexible Multibody Dynamics via Spectral Submanifolds**
		Mingwu Li, Southern University of Science and Technology; Xianhao Han, Dalian University of Technology; Haijun Peng, Dalian University of Technology
14:15 PM	14:35 PM	**Dynamic Modeling of a Soft Robotic Fish Driven by Dielectric Elastomer based on the ANCF and IB-LBM**
		Yuqing Guo, Nanjing University of Science and Technology; Liang Li, Nanjing University of Science and Technology; Fanggui Li, Nanjing University of Sciece and Technology; Dingguo Zhang, Nanjing University of Science and Technology; Wei-hsin Liao, The Chinese University of Hong Kong
14:35 PM	14:55 PM	**A Kirigami Multi-Stable Flexible Gripper with Energy-Free Configurations Switching**
		Zhifeng Qi, Tongji University; Xiuting Sun, Tongji University; Jian Xu, Tongji University
14:55 PM	15:15 PM	**A Nonsmooth Method for Frictional Contact Dynamics Simulation of Soft Robots**
		Kun Wang, Beijing Institute of Technology; Kai Luo, Beijing Institute of Technology; Qiang Tian, Beijing Institute of Technology
Session: 8 Room: Sydney		
Session Chair(s): Kai Luo, Beijing Institute of Technology		
15:30 PM	15:55 PM	**(Invited) A General Empirical Framework for Modeling and Control of Tensegrity Robots Using Markov Parameters**
		Yuling Shen, Soochow University; Muhao Chen, University of Kentucky; Robert Skelton, Texas A&M University
15:55 PM	16:15 PM	**Gravity-Adjustment-Assisted Control of a Hybrid Wheeled-Bipedal Mobile Manipulator Robot**

		Rui Zhang, Beijing Institute of Technology; Chongshang Yan, Beijing Institute of Technology; Hao Liu, Beijing Institute of Technology; Weicheng Liu, Beijing Institute of Technology; Shuangyuan Sun, Beijing Institute of Technology; Wenjie Song, Beijing Institute of Technology
16:15 PM	16:35 PM	**A Data-Driven Reconstruction Method for Dynamic Systems with Multistable Property**
		Jiawei Qian, Tongji University; Xiuting Sun, Tongji University; Jian Xu, Tongji University
5.3 Tactile Sensing and Feedback for Human-Machine Interactions		
Session: 5 Room: London 2		
Session Chair(s): Zhuang Zhang, Westlake University		
09:30 AM	09:55 AM	**(Invited) Curved Origami for Robotics and Active Mechanical Haptics**
		Hanqing Jiang, Westlake University; Zhuang Zhang, Westlake University; Zhenghao Xu, Zhejiang University; Yong Wang, Zhejiang University; Zirui Zhai, Arizona State University
09:55 AM	10:20 AM	**(Invited) Flexible Electromechanical Transducers and the Dual-Directional Human-Machine Interactive Applications**
		Junwen Zhong, University of Macau
10:20 AM	10:45 AM	**(Invited) Touch: From Skin Friction to Tactile Intelligence**
		Si Chen, Jiangsu University
10:45 AM	11:05 AM	**Softness Recognition Sensory Device for Robotic Applications**
		Ye Qiu, Zhejiang University of Technology; Huaping Wu, Zhejiang University of Technology
11:05 AM	11:25 AM	**Active Haptic Joystick for Teleoperation with Multi-Modal Feedback**
		Luoqian Emu, Westlake University; Zhuang Zhang, Westlake University; Sentao Chen, Westlake University; Yuan Ma, The Hong Kong Polytechnic University; Hanqing Jiang, Westlake University
Session: 7 Room: London 2		
Session Chair(s): Yuan Ma, The Hong Kong Polytechnic University		
13:30 PM	13:55 PM	**(Invited) Recent Advances in Robotic Tactile Perception and Wearable Haptic Interface for Enhanced Human-robot Interaction**
		Dandan Zhang, Imperial College London
13:55 PM	14:20 PM	**(Invited) Electronic Skin as Haptic Interface for VR and Human-Machine Interaction**
		Xinge Yu, City University of Hong Kong

14:20 PM	14:45 PM	**(Invited) Developing Advanced Human-Machine Mechanical Interfaces**
		Yuan Ma, The Hong Kong Polytechnic University
14:45 PM	15:05 PM	**Wearable Multimodal Actuators For Full-Body High-Fidelity Haptics**
		Sentao Chen, Westlake University; Zhuang Zhang, Westlake University; Zihang Yang, Westlake University; Luoqian Emu, Westlake University; Hanqing Jiang, Westlake University
15:05 PM	15:25 PM	**Self-Powered Electro-Tactile System for Virtual Tactile Experiences**
		Yuxiang Shi, Beijing Institute of Technology; Guozhen Shen, Beijing Institute of Technology
Session: 8 Room: London 2		
Session Chair(s): Heng Xu, CVTE		
15:30 PM	15:55 PM	**(Invited) Wearable Haptics for Virtual Reality**
		Dangxiao Wang, Beihang University
15:55 PM	16:20 PM	**(Invited) Focused Tactile Feedback Using Time Reversal Mirror**
		Heng Xu, CVTE; Chengyang Huang, University of California San Diego
16:20 PM	16:40 PM	**Skin-Inspired Multi-Modal Mechanoreceptors for Dynamic Haptic Exploration**
		Jiangtao Su, Nanyang Technological University; Xiaodong Chen, NanyangTechnological University
5.5 Mini-Invasive Robotic Manipulation: from Medical to Industrial Applications		
Session: 5 Room: Athens		
Session Chair(s): Yu Sun, Xi'an Jiaotong University; Yajing Shen, The Hong Kong University of Science and Technology		
09:30 AM	09:55 AM	**(Invited) Flagellar/Ciliary Intrinsic Driven Mechanism Inspired All-In-One Tubular Robotic Actuator**
		Tieshan Zhang, City University of Hong Kong; Jiaqi Miao, City University of Hong Kong; Yajing Shen, Hong Kong University of Science and Technology
09:55 AM	10:15 AM	**Kinetostatic-Based Stiffness Analysis of the Tendon-Driven Continuum Robots**
		Zheshuai Yang, Xi'an Jiaotong University; Xuefeng Chen, Xi'an Jiaotong University
10:15 AM	10:35 AM	**Snake-Inspired Soft Robots**
		Shan Jiang, Xidian University; Yizhou Zuo, Xidian University; Hannong Yu, Xidian University; Xingdong Feng, Xidian University; Shengtao Niu, Xidian University

10:35 AM	10:55 AM	**Iterative Cost Volume Stereo Matching for Aero-Engine Internal Map Construction**
		Shaoxuan Suo, Xi'an Jiaotong University; Jinxin Liu, Xi'an Jiaotong University
10:55 AM	11:15 AM	**Miniature Robots for Wireless Temperature Monitoring and Regulation**
		Xurui Liu, The Chinese University of Hong Kong; Bo Hao, The Chinese University of Hong Kong; Li Zhang, The Chinese University of Hong Kong
11:15 AM	11:35 AM	**Equivalent Modeling and Compliant Control of a Hybrid Rigid-Flexible Dual-Arm Space Robot for On-Orbit Servicing**
		Bingquan Wang, Xi'an Jiaotong University; Qian Zhang, Xi'an Jiaotong University; Jinxin Liu, Xi'an Jiaotong University
11:35 AM	11:55 AM	**Continuum Robot Design and Motion Planning for In-Situ Aero-Engine Inspection**
		Changlong Zhang, Xi'an Jiaotong University; Bing Han, Xi'an Jiaotong University; Jinxin Liu, Xi'an Jiaotong University
Session: 7 Room: Athens		
Session Chair(s): Yu Sun, Xi'an Jiaotong University; Laihao Yang, Xi'an Jiaotong University		
13:30 PM	13:55 PM	**(Invited) Bistable Thick-Panel Origami Mini-Robot with Untethered Magnetic Control**
		Chong Huang, Wuhan University; Heming Wang, National University of Singapore; Zhuangzhi Miao, Wuhan University; Yang Li, Wuhan University
13:55 PM	14:15 PM	**3D-Printed Magnetic Thermosensitive Microrobots for Drug Delivery**
		Mei Zhou, Hongkong University of Science and Technology (Guangzhou); Zeji Sun, The Hong Kong University of Science and Technology (Guangzhou); Kai Zhuang, The Hong Kong University of Science and Technology (Guangzhou); Naerkezha Nuermuhanmode, The Hong Kong University of Science and Technology (Guangzhou); Jizhuang Wang, Jinan University; Mojun Chen, The Hong Kong University of Science and Technology (Guangzhou)
14:15 PM	14:35 PM	**Kresling with Differentiation Flaw Design for Multidirectional Bending Based on 3D printing**
		Yuxin Lu, Xi'an Jiaotong University
14:35 PM	14:55 PM	**A Ferrobotic System for Digital Health Monitoring**
		Haisong Lin, Westlake University; Haoran Pang, Westlake University

Track 6: Soft Matter and Electronics

6.1 Bio-Inspired Soft Composites: Structures, Mechanics, and Applications		
Session: 6 Room: Hangzhou 4		
Session Chair(s): Lizhi Xu, The University of Hong Kong; Jing Yu, Nanyang Technological University		
10:15 AM	10:40 AM	**(Invited) Reconfigured Graphene Oxide Aerogel Metamaterials for Ultra-Robust Directional Sensing**
		Ben Xu, Northumbria University; Yuhao Wang, Xi'an Jiaotong University; Zhuofan Qin, Northumbria University; Ding Wang, Offshore Renewable Energy Catapult, Offshore House; Dong Liu, Xi'an Jiaotong University; Zibi Wang, Xi'an Jiaotong University; Abdullatif Jazzar, University of California, Los Angeles (UCLA); Ping He, University of California; Zhanhu Guo, Northumbria University; Xue Chen, Northumbria University; Chunjiang Jia, Offshore Renewable Energy Catapult, Offshore House; Ximin He, University of California, Los Angeles (UCLA); Xuehua Zhang, University of Alberta; Ben Bin Xu, Northumbria University; Fei Chen, Xi'an Jiaotong University
10:40 AM	11:05 AM	**(Invited) Developing Conductive Hydrogel Materials for Epidermal Flexible Sensors**
		Jing Yu, Nanyang Technological University
11:05 AM	11:30 AM	**(Invited) Designing Hydrogel-Based Optics: from Biomedicine to Biomanufacturing**
		Xinyue Liu, Michigan State University
11:30 AM	11:50 AM	**Integrated 3D Printing of Flexible Electroluminescent Devices and Soft Robots**
		Pei Zhang, Southern University of Science and Technology; Ji Liu, Southern University of Science and Technology
11:50 AM	12:10 PM	**Acoustic Bio-Metamaterials: Design, Manufacturing, and Applications**
		Hanchuan Tang, Huazhong University of Science and Technology
Session: 7 Room: Hangzhou 4		
Session Chair(s): Xinyue Liu, Michigan State University; Zhipeng Ni, Southern University of Science and Technology		
13:30 PM	13:50 PM	**Time-Space Regulating Nanohybrid Prodrug Hydrogels for Prevention of Peritendinous Adhesion**
		Ni Zhipeng, Southern University of Science and Technology; Ji Liu, Southern University of Science and Technology
13:50 PM	14:10 PM	**Mechanics of the Actin-M icrotubule Composite Networks**

		Zhongwei Wang, Kunming University of Science and Technology; Bo Gong, Kunming University of Science and Technology; Liren Yuan, Kunming University of Science and Technology; Wei Xu, Kunming University of Science and Technology
14:10 PM	14:30 PM	**Harnessing Gradients for Self-Assembly of Peptides into Nanocapsules**
		Xuliang Qian, Nanyang Technological University; Haopeng Li, Nanyang Technological University, Dalian University of Technology; Harini Mohanram, NanyangTechnological University; Xiao Han, Nanyang Technological University; Huitang Qi, Dalian University of Technology; Guijin Zou, A*STAR; Fenghou Yuan, Dalian University of Technology; Ali Miserez, Nanyang Technological University; Tian Liu, Dalian University of Technology; Qing Yang, Chinese Academy of Agricultural Sciences; Jing Yu, Nanyang Technological University; Huajian Gao, Nanyang Technological University, A*STAR, Tsinghua University
6.2 Mechanics and Physics of Soft Materials		
Session: 5 Room: Cairo		
Session Chair(s): Xianqiao Wang, University of Georgia; Rui Xiao, Zhejiang University		
09:30 AM	09:50 AM	**Automated Discovery of Hyperelastic Models for the Human Brain Cortex through Symbolic Regression**
		Xianqiao Wang, University of Georgia; Jixin Hou, University of Georgia
09:50 AM	10:10 AM	**Experimental and Theoretical Analysis of Soft Matter Cavitation under Complex Stress States**
		Justin Wilkerson, Texas A&M University
10:10 AM	10:30 AM	**On the Theory of Mechanically Induced Chemiluminescence in Multiple Network Elastomers**
		Rui Xiao, Zhejiang University
10:30 AM	10:50 AM	**Harnessing Network Topology of Hydrogels Via Controlled Radical Polymerization**
		Chao Ma, Southern University of Science and Technology; Wei Hong, Southern University of Science and Technology; Yifei Wang, Southern University of Science and Technology; Weixuan Liu, Southern University of Science and Technology
10:50 AM	11:10 AM	**The Mechanical Properties and Fracture Mechanism with Hyperconnective Microfibrillar Networks**
		Xi Wei, Tongji Medical College, Huazhong University of Science and Technology

11:10 AM	11:30 AM	**Effect of Random Distribution of Entanglements within Highly Entangled Hydrogels on Their Mechanical Behaviors**
		Jinlong Liu, Zhejiang University; Di Lu, Zhejiang University; Bin Chen, Zhejiang University
Session: 7 Room: Cairo		
Session Chair(s): Yu-Xin Xie, Tianjin University; Stefan Scheiner, Vienna University of Technology		
13:30 PM	13:50 PM	**A New Drop Weight Tensile Testing System for Soft Matter at Intermediate Strain Rates**
		Juan Carlos Nieto-Fuentes, University Carlos III of Madrid; Adeline Wihardja, California Institute of Technology; Paul Stovall, California Institute of Technology; Trent Wilson, California Institute of Technology; Kaushik Bhattacharya, California Institute of Technology; Daniel Rittel, Israel Institute of Technology
13:50 PM	14:10 PM	**Compression, Viscosity, and Extrusion Tests Performed on Rubber Serving as Basis for a Gibbs Energy-Based, Elasto-Viscous Model of Rubber Die Swell**
		Stefan Scheiner, TU Wien; Robert Plachy, TU Wien; Christian Hellmich, TU Wien; Florian Arthofer, Semperit Technische Produkte GmbH; Armin Holzner, Semperit Technische Produkte GmbH
14:10 PM	14:30 PM	**Nonlinear Oscillations in Dielectric Elastomer Transducers**
		Yu-Xin Xie, Tianjin University; Xiaotian Song, Tianjin University
6.3 Extreme Soft Materials by Polymer-Network Design		
Session: 6 Room: Hangzhou 3		
Session Chair(s): Xinyue Liu, Michigan State University; Hong Chen, Sichuan University		
10:15 AM	10:40 AM	**(Invited) Natural Globulin-Based Tough Gels and Tough Adhesive Interfaces**
		Qiang Chen, University of Chinese Academy of Sciences
10:40 AM	11:05 AM	**(Invited) Engineering Hydrogel Materials with Tailored Mechanics**
		Ji Liu, Southern University of Science and Technology
11:05 AM	11:30 AM	**(Invited) Ultra-Recyclable, High-Toughness Thermoset Elastomers**
		Pengfei Cao, Beijing University of Chemical Technology; Jiayao Chen, Beijing University of Chemical Technology
11:30 AM	11:55 AM	**(Invited) A Novel Design of Mechanical Strong Hydrogel Through Elastomers and Hydrogels Integration**
		Hong Chen, Sichuan University

11:55 AM	12:15 PM	**Designing Ultratough Single-Network Hydrogels with Centimeter-Scale Fractocohesive Lengths Via Inelastic Crack Blunting**
		Jie Ma, Zhejiang University; Zheng Jia, Zhejiang University; Xizhe Zhang, Zhejiang University; Shuze Zhu, Zhejiang University
Session: 7 Room: Hangzhou 3		
Session Chair(s): Xinyue Liu, Michigan State University; Hong Chen, Sichuan University		
13:30 PM	13:55 PM	**(Invited) Advances in Vapor Phase Infiltration for Solid Polymer Electrolytes in Lithium Batteries**
		Jin Xie, ShanghaiTech University
13:55 PM	14:20 PM	**(Invited) Tough Zwitterionic Hydrogels**
		Jintao Yang, Zhejiang University of Technology; Si Yu Zheng, Zhejiang University of Technology; Mengjie Si, Zhejiang University of Technology; Yuming Deng, Zhejiang University of Technology; Jing Feng, Zhejiang University of Technology
14:20 PM	14:40 PM	**Tough Hydrogel Adhesion Based on the Long-Chain Mechanism**
		Tongqing Lu,Xi'an Jiaotong University; Yang Gao, Xi'an Jiaotong University; Zhigang Suo, Harvard University
14:40 PM	15:00 PM	**Synthesis and Toughening of Amphiphilic Hydrogel by RAFT Polymerization**
		Zhiwei Yang, Southern University of Science and Technology
6.5 Soft Electronics: Mechanics, Materials, Manufacture and Devices		
Session: 5 Room: International Hall 2		
Session Chair(s): Yihui Zhang, Tsinghua University; Cunjiang Yu, University of Illinois, Urbana-Champaign		
09:30 AM	09:55 AM	**(Invited) Highly Sensitive, Stretchable and Robust Strain Sensors Based on Crack Advancing and Opening**
		Yong Zhu, North Carolina State University; Shuang Wu, North Carolina State University at Raleigh
09:55 AM	10:20 AM	**(Invited) A Multifunctional Flexible Tactile Sensor Based on Resistive Effect for Simultaneous Sensing of Pressure and Temperature**
		Jizhou Song, Zhejiang University
10:20 AM	10:45 AM	**Design of a Highly Sensitive Capacitive Pressure Sensor Using Acetylene Black and PDMS Based on the Percolation Theory Principles**

		Zeji Sun, Hongkong University of science and technology; Naerkezha Nuermuhanmode, The Hong Kong University of Science and Technology (Guangzhou); Kai Zhuang, The Hong Kong University of Science and Technology (Guangzhou); Mei Zhou, The Hong Kong University of Science and Technology (Guangzhou); Zidan Gong, Shenzhen Technology University; Mojun Chen, The Hong Kong University of Science and Technology (Guangzhou)
10:45 AM	11:05 AM	**Flexible 3D Strain Gauge Array for Shape Reconstruction and Super-Resolution Tactile Sensing**
		Jingyan Zhang, Peking University; Xiang Lin, Peking University; Chen Xu, Peking University; Yiran Wang, Peking University; Mengdi Han, Peking University
11:05 AM	11:25 AM	**(Invited) Flexible Electronics for Healthcare Applications**
		Wei Lan, Lanzhou University
11:25 AM	11:50 AM	**(Invited) Highly Stretchable and Customizable Microneedle Electrode Arrays for Intramuscular Electromyography**
		Hangbo Zhao, University of Southern California
Session: 7 Room: International Hall 2		
Session Chair(s): Wei Lan, Lanzhou University; Yingshi Guan, Southeast University		
13:30 PM	13:55 PM	**(Invited) Soft Bioelectrochemical Transistors: An Emerging Technology to Overcoming Sensitivity Barriers of Biowearables**
		Shiming Zhang, University of Hong Kong
13:55 PM	14:20 PM	**(Invited) Wireless and Flexible Bioelectronics for Digital Wound Management**
		Ze Xiong, ShanghaiTech University
14:20 PM	14:40 PM	**(Invited) Bio-Inspired 3D Soft Metamaterials and Unusual Mechanical Properties**
		Dongjia Yan, University of Science and Technology Beijing; Jingxuan Zhou, University of Science and Technology Beijing; Zheng-Yang Li, University of Science and Technology Beijing; Chuanzeng Zhang, University of Siegen
14:40 PM	15:05 PM	**Design Development and Fabrication of the Flexible Thin Film Sensor and Application in the Extreme Environment**
		Guanwen Liang, Zhejiang University; Longhua Guan, Zhejiang University; Chengpeng Hong, Zhejiang university; Haoran Fu, Zhejiang University; Jianqun Jiang, Zhejiang University; Yunmin Chen, Zhejiang University

15:05 PM	15:30 PM	**(Invited) Laser-Induced Graphene (LIG) for the Flexible Electronics and Deformation Feedback**
		Xiaogang Guo, Beijing Institute of Technology
Session: 8 Room: International Hall 2		
Session Chair(s): Yingshi Guan, Southeast University; Wei Lan, Lanzhou University		
15:30 PM	15:50 PM	**Iontophoresis-Based Wearable Device for Non-invasive Skin Tattooing**
		Huiyanchen Li, Hongkong University; Haisong Lin, University of Hongkong; Ho Cheung Shum, University of Hongkong
15:50 PM	16:10 PM	**Frequency Dependent Sensitivity and Dynamic Sensing Properties of Hydrogel Iontronic Sensor**
		Jianxing Liu, Xi'an Jiaotong University; Tongqing Lu, Xi'an Jiaotong University
16:10 PM	16:30 PM	**A Fast-Moving Flexible Microrobot with Passively Morphable Wheel for Multimodal Locomotion**
		Yuchen Lai, Tsinghua University
6.6 Functional and Programmable Soft Composites-Design, Mechanics, and Manufacturing		
Session: 6 Room: Hangzhou 1		
Session Chair(s): Chao Yuan, XJTU		
10:15 AM	10:40 AM	**(Invited) Reconfigurable 4D Printing via Mechanically Robust Covalent Adaptable Network Shape Memory Polymer**
		Qi Ge, Southern University of Science and Technology
10:40 AM	11:00 AM	**Hot-Pressing Welding of Vitrimer**
		Le An, Xi'an Jiaotong University
11:00 AM	11:20 AM	**Vitrimer-Derived Covalent Adaptive Interfaces: Mechanical Design and Potential Applications**
		Zhiqiang Chen, Xi'an Jiaotong University
11:20 AM	11:40 AM	**Macro-Micro Constitutive Modeling of Dynamically Crosslinked Polymers Based on the Mechano-Chemical Coupling of Chain Scission**
		Qian Shi, Xi'an Jiaotong University
Session: 7 Room: Hangzhou 1		
Session Chair(s): Sophie Leanza, Stanford University		
13:30 PM	13:55 PM	**(Invited) Hybrid 3D Printing Empowering Programmable Metallic Polymer Composite Design**

		Yong Chen, University of Southern California; Yeowon Yoon, University of Southern California; Youngwoo Lee, University of Southern California; Yang Xu, University of Southern California
13:55 PM	14:15 PM	**3D Printing of Photonic Crystals Via Continuous Digital Light Processing**
		Zhen Ding, Chinese Academy of Sciences; Wei Cai, Chinese Academy of Sciences; Jingyi Zhang, Chinese Academy of Sciences, Harbin Institute of Technology; Yafei Wang, Chinese Academy of Sciences, Harbin Institute of Technology
14:15 PM	14:35 PM	**Fabricating Heterogeneous Polymer Networks with Multiscale Heterogeneity for a Broad Spectrum of Applications**
		Jiabao Bai, Zhejiang University; Zheng Jia, Zhejiang University; Zihang Shen, Zhejiang University
14:35 PM	14:55 PM	**Mechanically Programmable Composite Metamaterials with Switchable Positive/negative Poisson's Ratio**
		Qiuting Zhang, Beihang University; Lamei Du, Beihang University; Tingting Zhu, Beihang University; Ye Xu, Beihang University
14:55 PM	15:15 PM	**4D Printed Stiffness-Tunable Actuator for Load-Bearing Soft Machines**
		Qingqing Chen, Xi'an Jiaotong University; Xinpeng Chen, Xi'an Jiaotong University; Xiang Ren, Xi'an Jiaotong University; Meng Yang, Xi'an Jiaotong University; Chao Yuan, Xi'an Jiaotong University
6.9 Adhesion, Friction, and Fracture at Soft Interfaces: Theory, Simulation, and Experiment		
Session: 7 Room: Hangzhou 5		
Session Chair(s): Canhui Yang, Southern University of Science and Technology; Qihan Liu, University of Pittsburgh		
13:30 PM	13:50 PM	**Probing Complex Mechanical Behaviors of Soft Materials Combining Micro-Mechanical Testing and in Situ Imaging**
		Shaohua Yang, Beihang University; Yue Liu, Beihang University; Kaiqiang Sun, Beihang University; Ye Xu, Beihang University
13:50 PM	14:10 PM	**Emergence and Growth Dynamics of Wetting-Induced Phase Separation on Soft Solids**
		Wenjie Qian, The Hong Kong University of Science and Technology; Weiwei Zhao, The Hong Kong University of Science and Technology; Tiezheng Qian, The Hong Kong University of Science and Technology; Qin Xu, The Hong Kong University of Science and Technology

14:10 PM	14:30 PM	**Micromechanical Mechanisms of Nanoconfined Fluid Transports**
		Hangtong Li, Westlake University; Zhuan Ge, Westlake University; Sergio Andres Galindo-Torres, Westlake University
14:30 PM	14:50 PM	**Dynamic Responses of Ca-Alginate/Polyacrylamide Hydrogels at High Strain Rates**
		Qiqi Xue, Southern University of Science and Technology; Yihang Xiao, Southern University of Science and Technology; Xiaoyu Zhang, Southern University of Science and Technology; Xin Zhang, Southern University of Science and Technology; Wei Hong, Southern University of Science and Technology; Canhui Yang, Southern University of Science and Technology

Track 7: Metamaterials and Architected Materials

7.1 Advances in the Mechanics of Architected Materials		
Session: 5 Room: Chongqing		
Session Chair(s): Xiaoyan Li, Tsinghua University		
09:30 AM	09:55 AM	**(Invited) The Ultra-Low-Frequency Bandgap in Inerter-Based Metamaterials**
		Pai Wang, University of Utah; Fei Chen, University of Utah; Bolei Deng, Georgia Institute of Technology; Tyler S Silva, University of Utah; Michael Anthony Turja, University of Utah; Chad Thomas Hickey, University of Utah; Jack Elliott Godfrey, University of Utah; Jan Luka Cas, University of Utah; Jack R Platt, University of Utah; Xuan Zhu, University of Utah; Zilong Zhao, University of Utah
09:55 AM	10:15 AM	**Nonreciprocal Elastic Behaviors of Curved Lattice Spokes in Nonpneumatic Wheels**
		Zhipeng Liu, Shanghai Jiaotong University; Heeseung Han, Shanghai Jiaotong University; Jaehyung Ju, Shanghai Jiaotong University
10:15 AM	10:35 AM	**Advancing Mechanical Computing: Modular Design and Multi-Dimensional Signal Transmission**
		Heeseung Han, Shanghai Jiaotong University; Bihui Zou, Shanghai Jiaotong University; Zhipeng Liu, Shanghai Jiaotong University; Jaehyung Ju, Shanghai Jiaotong University
10:35 AM	10:55 AM	**Elastic Properties and Bandgaps of Mechanical Metastructures Modified by Tension/Compression–Torsion Coupling Elements**
		Haishan Tang, Zhejiang University; Shuchang He, Zhejiang University; Jizhou Song, Zhejiang University

7.5 Underwater Acoustic Metamaterials: Fundamentals and Applications		
Session: 5 Room: New York 1		
Session Chair(s): Tian-Xue Ma, Beijing Jiaotong University		
09:30 AM	09:50 AM	**Underwater Acoustic Metastructure based on Structural Modification of Rubber Coating**
		Enshuai Wang, Nanjing University of Aeronautics and Astronautics; Cheng Shen, Nanjing University of Aeronautics and Astronautics
09:50 AM	10:10 AM	**Topological Rainbow Trapping and Energy Amplification of Waterborne Sounds within Gradient Acoustic Metamaterials**
		Yida Liu, Tianjin University; Xiao-Lei Tang, Tianjin University; Tian-Xue Ma, Beijing Jiaotong University; Yue-Sheng Wang, Tianjin University
7.6 Mechanical Metamaterials with Quasi-/Absolute Zero Stiffness		
Session: 5 Room: Berlin		
Session Chair(s): Yanfeng Wang, Tianjin University; Yingli Li, Central South University		
09:30 AM	09:55 AM	**(Invited) Quasi-Zero-Stiffness Meta-Structure for Low-Frequency Vibration Isolation**
		Jiaxi Zhou, Hunan University; Jiahao Zhou, Hunan University; Chen Zhang, Hunan University
09:55 AM	10:20 AM	**(Invited) Bio-Inspired Multi-Directional Vibration Isolator with Bending Strips**
		Yong Wang, Zhejiang University; Zhenghao Xu, Zhejiang University
10:20 AM	10:40 AM	**Multi-Objective Optimization and Experiment of a Bio-Inspired Floating Slab Insolation Track**
		Guodong Xiao, Tongji University; Xiuting Sun, Tongji University; Jian Xu, Tongji University; Jiawei Qian, Tongji University; Chao He, TongjiUniversity
10:40 AM	11:00 AM	**Mechanical Metamaterials Incorporating Multi-Modal Quasi-Zero Stiffness Systems for Enhanced Vibration Isolation**
		Yuhao Wang, Shanghai Jiaotong University; Bihui Zou, Shanghai Jiaotong University; Jaehyung Ju, Shanghai Jiaotong University
11:00 AM	11:20 AM	**Bio-Inspired Mechanical Metamaterial with Ultrahigh Load-Bearing Capacity for Energy Dissipation**
		Sen Yan, Tsinghua University; Jingbo Sun, Tsinghua University; Lingling Wu, Xi'an Jiaotong University; Ji Zhou, Tsinghua University
Session: 7 Room: Berlin		

Session Chair(s): Lingling Wu, Xi'an Jiaotong University; Kun Wu, Tianjin University		
13:30 PM	13:55 PM	**(Invited) Topology Optimization of Quasi-Zero-Stiffness Metastructure for Low-frequency Vibration Isolation**
		Kun Wu, Tianjin University; Yan-Feng Wang, Tianjin University; Chao Ma, Tianjin University
13:55 PM	14:20 PM	**(Invited) Full-Band Vibration Isolation of Multi-Step Quasi-Zero Stiffness Systems**
		Zhiying Wu, Central South University; Yingli Li, Central South University
14:20 PM	14:45 PM	**(Invited) Research on the Underwater Sound-Absorbing Performance of a Flexible Metasurface**
		Hongming Wang, Northeastern University; Hangyuan Lv, Northeastern University
14:45 PM	15:05 PM	**Nonlinear Topological Mechanics in Elliptically Geared Isostatic Metamaterials**
		Di Zhou, Beijing Institute of Technology
15:05 PM	15:25 PM	**Load-Adjustable Quasi-Zero Stiffness Isolator**
		Huaping Wu, Zhejiang University of Technology; Jun Zhu, Zhejiang University of Technology; Zhengzheng Wang, Zhejiang University of Technology; Daming Chen, Zhejiang University of Technology; Changchao Wu, Zhejiang University of Technology
Session: 8 Room: Berlin		
Session Chair(s): Yingli Li, Central South University; Lingling Wu, Xi'an Jiaotong University		
15:30 PM	15:50 PM	**Metamaterial Springs for Low-Frequency Vibration Isolation**
		Wenlong Liu, Central South University of Forestry and Technology; Lingling Wu, Xi'an Jiaotong University; Jingbo Sun, Xi'an Jiaotong University; Ji Zhou, Xi'an Jiaotong University
15:50 PM	16:10 PM	**Design and Experiment of Multiple-Layer Quasi-Zero-Stiffness Isolator for Variable Loads**
		Shuaijie Yang, Tongji University; Xiuting Sun, Tongji University; Jian Xu, Tongji University
16:10 PM	16:30 PM	**Tensegrity-Based Quasi-Zero Stiffness Mechanical Metamaterials for Torsional Vibration**
		Zi-Yan Sun, University of Science and Technology Beijing; Li-Yuan Zhang, University of Science and Technology Beijing

Track 8: Advances in Manufacturing

8.3 Intelligent Manufacturing of Materials and Structures by Solid-Liquid Interactions		
Session: 5 Room: Fuzhou		
Session Chair(s): Yuan Gao, Huazhong University of Science and Technology; Xiao Yan, Chongqing University		
09:30 AM	09:55 AM	**(Invited) Bioinspired Two-Dimensional Carbon-Based Nanocomposites**
		Qunfeng Cheng, Beihang University
09:55 AM	10:20 AM	**(Invited) Surface Hydrophilicity-Mediated Migration of Nano/Micro Particles under Temperature Gradient**
		Xinghua Shi, National Center for Nanoscience and Technology
10:20 AM	10:40 AM	**Metal Additive Manufacturing Enabled Micro/Nanostructured Surfaces for Enhanced Phase-Change Heat and Mass Transfer**
		Jin Yao Ho, Nanyang technological University; Leymus Yong Xiang Lum, Nanyang technological University; Huanyu Zhao, Nanyang Technological University
10:40 AM	11:05 AM	**(Invited) Double-Sided Process For Dual-Patterned Ultra-Thin Silicon Film**
		Seok Kim, POSTECH
11:05 AM	11:30 AM	**(Invited) Multi-Dimensional Manipulation of Solid-Liquid Interaction**
		Xu Deng, University of Electronic Science and Technology of China
11:30 AM	11:55 AM	**(Invited) Pioneering Molecular Manual-Assembly by Nanofluidics**
		Yan Xu, Osaka Metropolitan University
11:55 AM	12:15 PM	**Nanoscale Additive Manufacturing of Perovskites**
		Mojun Chen, Hong Kong University of Science and Technology(Guangzhou); Kai Zhuang, Hong Kong University of Science and Technology(Guangzhou); Mei Zhou, Hong Kong University of Science and Technology(Guangzhou); Wenrui Zhang, Hong Kong University of Science and Technology(Guangzhou); Yijie Bian, Hong Kong University of Science and Technology(Guangzhou); Xiao Xiao, Hong Kong University of Science and Technology(Guangzhou)
Session: 7 Room: Fuzhou		
Session Chair(s): Yuan Gao, Huazhong University of Science and Technology; Xiao Yan, Chongqing University		
13:30 PM	13:50 PM	**Printing of Metal Droplet Streams Using Continuous Ejection of a Liquefied Feedstock**
		Kaihao Zhang, The Hong Kong University of Science and Technology (Guangzhou)
13:50 PM	14:10 PM	**Fluid Dynamics of the Droplet Impact Processes in Cell Printing**

		Rui Qiao, Virginia Tech
14:10 PM	14:30 PM	**Anti-Icing Coatings on Surface of Wind Turbine Blades**
		Zhiyuan He, Beijing Institute of Technology
14:30 PM	14:50 PM	**Thermal Transport of Copper Atoms Confined in Single-Wall Carbon Nanotubes**
		Lin Yang, Peking University; Lv Jun, Peking University; Shuai Liu, Chinese Academy of Sciences; Lixing Kang, Chinese Academy of Sciences
14:50 PM	15:10 PM	**Theory of Wetting and Capillarity on the Nanoscale**
		Fengchao Wang, University of Science and Technology of China
Session: 8 Room: Fuzhou		
Session Chair(s): Yuan Gao, Huazhong University of Science and Technology		
15:30 PM	15:50 PM	**Fluid Convection in Frontal Polymerization and Potential Implications in Morphogenic Manufacturing**
		Yuan Gao, Huazhong University of Science and Technology; Justine Paul, University of Iinois; Manxin Chen, University of Iinois; Nancy Sottos, University of Iinois; Philippe Geubelle, University of Iinois
15:50 PM	16:10 PM	**Manipulating Solid-Liquid Interaction for Spontaneous Microdroplet Self-Transport and Enhanced Condensation Heat Transfer**
		Xiao Yan, Chongqing University; Rong Chen, Chongqing University; Xun Zhu, Chongqing University; Qiang Liao, Chongqing University
16:10 PM	16:30 PM	**Compliant Solid in Liquid: Mechanics and Nanomanufacturing**
		Baoxing Xu, University of Virginia

Track 9: Instability and Failure of Materials

9.1 Instabilities in Solids and Structures		
Session: 6 Room: Hangzhou 6		
Session Chair(s): Rainer Groh, University of Bristol; Jingzhong Tong, Zhejiang University; Jiajia Shen, University of Exeter		
10:15 AM	10:40 AM	**(Invited) Mechanics of Multiphase Media under Hypergravity Conditions**
		Guannan Wang, Zhejiang University; Huang Yu, Zhejiang University; Weijian Wang, Zhejiang University
10:40 AM	11:00 AM	**Analyzing the Transfer Path between Bistable Configurations of Morphing Tensegrities Using the Eigenspace of Tangent Stiffness Matrix**

		Hao Hong, Zhejiang University; Hua Deng, Zhejiang University; Hongchuang Liu, Zhejiang University
11:00 AM	11:20 AM	**Lattice Instabilities and Amorphous Shear Band Formation in Intermetallic Alloys.**
		Prakarsh Pandey, University of Wisconsin-Madison; Nuohao Liu, University of Wisconsin-Madison; Izabela Szlufarska, University of Wisconsin-Madison; Shiva Rudraraju, University of Wisconsin-Madison
9.2 Multistability in Metamaterials, Structures and Robots		
Session: 8 Room: Athens		
Session Chair(s): Yang Li, Wuhan University		
15:30 PM	15:50 PM	**Programmable Energy Dissipation Using Multistable Architected Material**
		Xianhua Yao, South China University of Technology; Haiyang Zhao, South China University of Technology; Zhantu Gan, South China University of Technology; Nan Hu, South China University of Technology
15:50 PM	16:10 PM	**Programmable Multi-Stability of Curved-Crease Origami Structures with Travelling Folds**
		Sibo Chai, Tianjin University; Yan Chen, Tianjin University; Zhong You, University of Oxford; Jiayao Ma, Tianjin University
16:10 PM	16:30 PM	**Reprogrammable Mechanical Metamaterial Transitioning across a Rigid Structure, Floppy Mechanism, and Multistable Matter**
		Lei Wu, McGill University; Damiano Pasini, McGill University
9.3 Complex Failure Mechanics of Materials		
Session: 7 Room: New York 1		
Session Chair(s): Guozheng Kang, Southwest Jiaotong University		
13:30 PM	13:55 PM	**(Invited) Could Effective Fracture Toughness of Polycrystalline Aggregates Exceed Inner Grain Fracture Toughness by Adjusting Toughness of Grain Boundary?**
		Bin Liu, Tsinghua University; Junjie Zhou, Tsinghua University; Yanxi Chen, Tsinghua University; Huawei Feng, Tsinghua University; Huihan Chen, Tsinghua University; Xingzhe Yu,Tsinghua University
13:55 PM	14:20 PM	**(Invited) Enhancing Strength-Ductility Synergy in Nanocrystalline Metals through Grain Boundary Engineering, Texture Optimization, and Gradient Microstructure Design**
		Xin Yi, Peking University

14:20 PM	14:45 PM	**(Invited) Phase Field Modeling on the Fracture Behaviors of Elastomers with Deformation/Damage-Dependent Viscosity**
		Liying Jiang, The University of Western Ontario; Heng Feng, The University of Western Ontario
14:45 PM	15:05 PM	**A Finite Crack Growth Energy Release Rate for Ductile Fracture: Theory and Applications**
		Wu Xu, Shanghai Jiaotong University; Bin Liu, Tsinghua University; Mengxuan Wu, Shanghai Jiaotong University; Yanshen Ren, Shanghai Jiaotong University; Si Xiao, Southern University of Science and Technology
15:05 PM	15:25 PM	**Fracture Mechanics of Heterogeneous Soft Materials**
		Zhengjin Wang, Xi'an Jiaotong University; Xiang Wu, Xi'an Jiaotong University; Xiao Li, Xi'an Jiaotong University; Shuo Sun, Xi'an Jiaotong University
Session: 8 Room: New York 1		
Session Chair(s): Yuli Chen, Beihang University		
15:30 PM	15:55 PM	**(Invited) Deep Learning Based Semantic Segmentation of Fatigue Features in Fractography**
		Keke Tang, Tongji University; Peng Zhang, Tongji University
15:55 PM	16:15 PM	**Adjacency-Based Data Structure for Polyhedral Mesh Representation with Evolution of Geometric Discontinuity**
		Yi Yu, Yonsei University; Kyoungsoo Park, Yonsei University; Jongyeop Kim, Yonsei University
16:15 PM	16:35 PM	**Prediction of Ratchetting Behavior of Extruded Magnesium Alloys Based through Physics-Informed Neural Network**
		Xiaowen Deng, Southwest Jiaotong University
9.6 Structural Signature of Elasticity, Plasticity, and Fracture in Disordered Materials		
Session: 8 Room: Seoul		
Session Chair(s): Hongyi Xiao, University of Michigan; Ge Zhang, City University of Hong Kong		
15:30 PM	15:55 PM	**(Invited) Connecting Shear Localization with the Long-Range Correlated Polarized Stress Fields in Granular Materials**
		Yinqiao Wang, The University of Tokyo
15:55 PM	16:20 PM	**(Invited) Unveiling the Apparent Elastic Behavior of Amorphous Solids**
		Baoshuang Shang, Songshan Lake Materials Laboratory

16:20 PM	16:45 PM	**(Invited) Shear Hardening in Frictionless Amorphous Solids Near the Jamming Transition**
		Deng Pan, Chinese Academy of Sciences; Fanlong Meng, Chinese Academy of Sciences; Yuliang Jin, Chinese Academy of Sciences

Track 10: Mechanics of Materials and Structures

10.3 High-Entropy Alloys and Metallic Glasses: From Local Structures to Mechanical and Physical Properties		
Session: 5 Room: Shanghai		
Session Chair(s): Yun-Jiang Wang, Institute of Mechanics CAS; Jun-Qiang Wang, Ningbo Institute of Materials Science and Technology		
09:30 AM	09:55 AM	**(Invited) The L–G Phase Transition in Metallic Alloys**
		Qi An, Iowa State University; Yidi Shen, Iowa State University, California Institute of Technology; Konrad Samwer, California Institute of Technology, University of Goettingen; William A. Goddard III, California Institute of Technology; William L. Johnson, California Institute of Technology
09:55 AM	10:20 AM	**(Invited) Unified Scaling-Law of Relaxation Dissipation in Glass-Forming Liquids Recognized by Configuration Pattern-Matching**
		Hai-Bin Yu, Huazhong University of Science and Technology; Konrad Samwer, Universität Göttingen
10:20 AM	10:40 AM	**(Invited) From Prediction to Design: The Integral Role of Graph Neural Networks in Metallic Glasses**
		Qi Wang, China Academy of Engineering Physics
10:40 AM	11:05 AM	**(Invited) Glass Formation and Crystallization of Metallic Materials**
		Yuanchao Hu, Songshan Lake Materials Laboratory
11:05 AM	11:30 AM	**(Invited) Detection of Relaxation Unit in Glasses**
		Jun-Qiang Wang, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Science
11:30 AM	11:55 AM	**(Invited) Revealing the Mechanisms for the Strain-Dependent Transition of the Relaxation Dynamics in Metallic Glasses**
		Xiaoding Wei, Peking University
11:55 AM	12:20 PM	**Discrete Eshelby Inclusions in Amorphous Solids**

		Evan Willmarth, Yale University; Weiwei Jin, Yale University; Dong Wang, Yale University; Mark Shattuck, The City College of New York; Corey O'Hern, Yale University
Session: 7 Room: Shanghai		
Session Chair(s): Penghui Cao, University of California Irvine; Shijun Zhao, City University of Hong Kong		
13:30 PM	13:55 PM	**(Invited) High-Entropy Feature of Austenitic Stainless Steels in Terms of the Cluster-Plus-Glue-Atom Model**
		Chuang Dong, Dalian Jiaotong University; Shuang Zhang, Dalian Jiaotong University; Qing Wang, Dalian University of Technology
13:55 PM	14:20 PM	**(Invited) Short-Range Order Formation and Its Effects on Defect Properties in High-Entropy Alloys Based on Atomistic Simulations**
		Shijun Zhao, City University of Hong Kong
14:20 PM	14:45 PM	**(Invited) Tuning Point Defects Diffusions in Multi-Principal Element Alloys**
		Jun Ding, Xi'an Jiaotong University
14:45 PM	15:05 PM	**(Invited) A Data-Driven Multiscale Framework for Understanding Hardening and Irradiation Resistance of High-Entropy Alloys**
		Yinan Cui, Tsinghua University; Xin Liu, Tsinghua University; Fusheng Tan, Tsinghua University; Hyunsoo Lee, Clemson University; Enrique Martinez Saez, Clemson University; Giacomo Po, University of Miami
15:05 PM	15:30 PM	**Composition Genes for High-Entropy Alloys and Metallic Glasses: Cluster Formulas**
		Shuang Zhang, Dalian Jiaotong University; Chuang Dong, Dalian University of Technology; Cunlei Zou, Dalian Jiaotong University; Yajun Zhao, Dalian Jiaotong University
Session: 8 Room: Shanghai		
Session Chair(s): Wen Chen, University of Massachusetts Amherst		
15:30 PM	15:55 PM	**(Invited) Additive Manufacturing of Emerging Complex Alloys with Engineered Structures**
		Wen Chen, University of Massachusetts Amherst
15:55 PM	16:20 PM	**(Invited) Heterostructured High Entropy Alloy Catalysts**
		Yonggang Yao, Huazhong University of Science and Technology
16:20 PM	16:45 PM	**(Invited) Electrified Ultrahigh-Temperature Manufacturing of High Entropy Alloys**
		Xizheng Wang, UC Irvine

10.4 Mechanics of Materials in Extreme Environments		
Session: 8 Room: Cairo		
Session Chair(s): Liang Wang, Shanghai Jiaotong University		
15:30 PM	15:55 PM	**(Invited) A Coupled Peridynamic and Finite Element Approach for Fatigue Cracking**
		Liang Wang, Shanghai Jiaotong University; Jianrui Liu, Shanghai Jiaotong University
15:55 PM	16:20 PM	**(Invited) Trans-Scale Model for Impact Behavior of Fiber-Reinforced Composites**
		Chaonan Cong, China Agricultral University; Xiaoding Wei, Peking university
16:20 PM	16:40 PM	**Recent Advances in Coupled Laser Ablation Under Extreme High Temperature in IMECH**
		Hongwei Song, Chinese Academy of Sciences
10.5 EML 10th Anniversary Symposium (Invitation Only)		
Session: 6 Room: Hangzhou 2		
Session Chair(s): Yuhang Hu, Georgia Tech; Jianyu Li, McGill University		
10:15 AM	10:40 AM	**(Invited) Universal Neural Network Interatomic Potential**
		Ju Li, MIT; So Takamoto, Preferred Networks, Inc.; Daisuke Okanohara, Preferred Networks, Inc.; Qing-Jie Li, MIT
10:40 AM	11:05 AM	**(Invited) The Mechanics of Knots: From Shoelaces to Surgical Sutures**
		Pedro Reis, EPFL
11:05 AM	11:30 AM	**(Invited) Bulging and Poking of 2D Materials**
		Nanshu Lu, The University of Texas at Austin
11:30 AM	11:50 AM	**Multi-Functional Microlattice Mechanical Metamaterials**
		Yang Lu, University of Hong Kong
11:50 AM	12:10 PM	**Celebrating EML: Reflecting a Decade of Influence on My Journey**
		Kejie Zhao, Purdue University
Session: 7 Room: Hangzhou 2		
Session Chair(s): Jingda Tang, Xi'an Jiaotong University; Ruobing Bai, Northeastern University		
13:30 PM	13:50 PM	**Mechanical Intelligence in Metastructures and Beyond**
		Jie Yin, North Carolina State University
13:50 PM	14:10 PM	**Sequences of Fast and Slow Ruptures on a Frictional Interface in an Elasto-Plastic Solid: Application to Earthquake Modeling**

		Ahmed Elbanna, University of Illinois Urbana Champaign; M. S. Mia, University of Illinois Urbana Champaign, Beckman Institute of Advanced Science and Technology; A. Ibrahim, University of Illinois Urbana Champaign; M. Abdelmeguid, Beckman Institute of Advanced Science and Technology, GALCIT
14:10 PM	14:30 PM	**Experiments on Origami-Based Metamaterials and Structures**
		Diego Misseroni, University of Trento
14:30 PM	14:50 PM	**Non-Faradaic Junction Sensing**
		Yecheng Wang, Sun Yat-sen University
14:50 PM	15:10 PM	**Ultrasound: Beyond Possibility**
		Gun Kim, Ulsan National Institute of Science and Technology; Seungo Baek, Ulsan National Institute of Science and Technology; Hyoeun Kim, Ulsan National Institute of Science and Technology; Cindy Escalona, Ulsan National Institute of Science and Technology; Jeong Hoon Rhee, Ulsan National Institute of Science and Technology
10.6 Collective Machines, from Micro to Macro		
Session: 5 Room: Guangzhou		
Session Chair(s): Zhen Yin, Tongji University; Xudong Liang, Harbin Institute of Technology, Shenzhen		
09:30 AM	09:55 AM	**(Invited) Tracking and Navigation of Magnetic Microswarms for in Vivo Applications**
		Li Zhang, The Chinese University of Hong Kong
09:55 AM	10:20 AM	**(Invited) Swarm Robotics Inspired by Collective Cell Migration**
		Shuguang Li, Tsinghua University
10:20 AM	10:40 AM	**Microrobotic Swarms: Fundamentals, Control and Biomedicine**
		Jiangfan Yu, The Chinese University of Hong Kong, Shenzhen
10:40 AM	11:00 AM	**Collectives of Magnetic Spinning Disks**
		Wendong Wang, Shanghai Jiaotong University
11:00 AM	11:20 AM	**Multi-Robot Swarming: Cooperation and Competition**
		Shiyu Zhao, Westlake University
11:20 AM	11:40 AM	**Magnetic Torque-Actuated Programmable Bacterial Microrobots for Deep Penetration and Tumor Mechanics Regulation**
		Haotian Chen, Tongji University; Xinjian Fan, Soochow University; Zhen Yin, Tongji University; Yu Cheng, Tongji University
11:40 AM	12:00 PM	**Chemically Active Colloids: From One to Many**
		Wei Wang, Harbin Institute of Technology (Shenzhen)

Session: 7 Room: Guangzhou		
Session Chair(s): Wei Wang, Harbin Institute of Technology, Shenzhen		
13:30 PM	13:55 PM	**(Invited) Modelling Polymorphic Transformations and Debonding of Bacterial Flagellar Filaments**
		Jianshan Wang, Tianjin University; Li Xu, Tianjin University
13:55 PM	14:15 PM	**Liquid-Liquid Interface Dynamics Driven by Bacterial Swarm**
		Song Liu, Southern University of Science and Technology
14:15 PM	14:35 PM	**Rectified Rotational Dynamics of Mobile Inclusions in Two-Dimensional Active Nematics**
		Jie Zhang, University of Science and Technology of China
14:35 PM	14:55 PM	**Collective Machines by DNA and Protein Self-Assembly**
		Zhe Li, SUSTech
14:55 PM	15:15 PM	**Continuous Lateral Rolling of Soft-Bodied Animals Enabled by Collective Muscle Actuations**
		Yutang Zhou, Harbin Institute of Technology, Shenzhen; Xudong Liang, Harbin Institute of Technology, Shenzhen
Session: 8 Room: Guangzhou		
Session Chair(s): Shilei Xue, Westlake University		
15:30 PM	15:50 PM	**Collective Flexible Robotic Arms Enabled by Morphing Tensegrity Modules**
		Li-Yuan Zhang, University of Science and Technology Beijing
15:50 PM	16:10 PM	**Delocalization of Topological Modes by Non-Hermitian Skin Effect**
		Wei Wang, Harbin Institute of Technology(Shenzhen)
16:10 PM	16:30 PM	**Self-Propelled Tensegrity Structure**
		Zhijian Wang, Beihang University
10.8 Mechanics of Batteries		
Session: 5 Room: Bangkok		
Session Chair(s): Yujie Wei, Chinese Academy of Sciences; Chunguang Chen, Chinese Academy of Sciences		
09:30 AM	09:55 AM	**(Invited) Physics-Based Modeling and Machine Learning for Battery Optimization**
		Wei Lu, University of Michigan
09:55 AM	10:20 AM	**(Invited) Framework for Multi-Physics and Multi-Scale Modeling of Electrochemical-Mechanical Behavior of All-Solid-State Batteries Via Machine Learning Informed Image Segmentation**

		Zhan-Sheng Guo, Shanghai University; Pingyuan Huang, Shanghai University
10:20 AM	10:40 AM	**Deformation Behavior and Fracture Mechanisms of Nanostructured Energy Materials**
		Bin Ding, Beihang University
10:40 AM	11:00 AM	**Viscoelastic Contact Mechanics of Ceramics-in-Polymer Solid-State Batteries**
		Xin Zhang, University of Electronic Science and Technology of China; Ao Cheng, University of Electronic Science and technology
11:00 AM	11:20 AM	**Mechanics of Fiber Debonding in Negative Electrodes for Structural Batteries**
		Kai Guo, Institute of High Performance Computing; Sridhar Narayanaswamy, Institute of High Performance Computing; Keith Foo, Institute of High Performance Computing; Bharathi Srinivasan, Institute of High Performance Computing
11:20 AM	11:40 AM	**Phase Changes and Damage in Mechanics of Batteries**
		Tao Zhang, South China University of Technology
11:40 AM	12:00 PM	**Phase Field Simulation for Crack Propagation in High-Energy-Density Cathode Particles**
		Yuyang Lu, Westlake University; Lige Chang, Westlake University; Hanqing Jiang, Westlake University; Yong Ni, University of Science and Technology of China
Session: 7 Room: Bangkok		
Session Chair(s): Hao-Sen Chen, Beijing Institute of Technology; Le Yang, Beijing Institute of Technology		
13:30 PM	13:55 PM	**(Invited) The Electrochemical-Mechanical Coupling Problem and Full-Field Stress Distribution in Lithium-Ion Batteries**
		Yanan Wang, Shandong University; Ruke Ni, Shandong University; Xingbao Jiang, Shandong University
13:55 PM	14:20 PM	**(Invited) Chemomechanics of the Dynamic Evolution of Isolated Li Filaments in Solid-State Electrolytes**
		Rong Xu, Xi'an Jiaotong University
14:20 PM	14:40 PM	**Using In-Situ Synchrotron Laminography Indentation to Reveal the Mechanisms Behind Deformation-Induced Short-Circuit of a Li-ion Pouch Cell**

		Thomas Tancogne-Dejean, ETH Zurich; Vincent Grolleau, ETH Zurich; Thilo Morgeneyer, Mines Paris; Mathias Hurst, Karlsruhe Institute of Technology; Simon Bode, Karlsruhe Institute of Technology; Dirk Mohr, ETH Zurich
14:40 PM	15:00 PM	**Mechanical Structure Design and Multifunctional Applications of Flexible Lithium-Ion Batteries**
		Yinhua Bao, Shanghai University
15:00 PM	15:20 PM	**In-Situ Measurements of Electro-Chemo-Mechanical Coupling Properties of Composite Electrodes in Lithium Batteries**
		Dawei Li, University of Shanghai for Science and Technology; Hainan Jiang, University of Shanghai for Science And Technology; Yuejiu Zheng, University of Shanghai for Science And Technology; Jun Xu, University of Delaware; Junqian Zhang, Shanghai University
Session: 8 Room: Bangkok		
Session Chair(s): Yinhua Bao, Shanghai University		
15:30 PM	15:50 PM	**Multifunctional Design of Multi-Level Structures for Lithium-Ion Batteries: Flexible Thick Electrodes and Actively Protected Battery Modules**
		Bo Lu, Shanghai University
15:50 PM	16:10 PM	**The C-N Fatigue for Lithium-Ion Batteries**
		Chunguang Chen, China Academy of Sciences; Qingrong Zou, Beijing Information Science and Technology University; Jici Wen, CAS; Jin Liu, CAS; Peter Notten, Eindhoven University of Technology; Yujie Wei, CAS
16:10 PM	16:30 PM	**Study of Electrochemical-Mechanical Coupling Behavior for Electrode Materials in Lithium-Ion**
		Le Yang, Beijing Institute of Technology; Hao-Sen Chen, Beijing Institute of Technology
10.9 Mechanics and Materials in Interdisciplinary Science: Honoring the Contributions of Prof. Wei Yang (Invitation Only)		
Session: 5 Room: Tianjin		
Session Chair(s): Shaoxing Qu, Zhejiang University		
09:30 AM	09:55 AM	**(Invited) From X-Mechanics to Mechano-X: Endless Frontier of Mechanics in the Age of Cross-Disciplinary Research and Innovation**
		Huajian Gao, Tsinghua University
09:55 AM	10:20 AM	**(Invited) Electromechanics of Stretchable Hybrid Response Pressure Sensors based on Porous Nanocomposites**

		Nanshu Lu, The University of Texas at Austin
10:20 AM	10:45 AM	**(Invited) The Selecting Mechanism of Continuous or Discrete Interfaces in "Brick-Mortar" Staggered Composites to Achieve a Strength - Toughness Tradeoff**
		Shaohua Chen, Beijing Institute of Technology; Zheyuan Yu, Beijing Institute of Technology; Peiran Li, Beijing Institute of Technology; Zhilong Peng, Beijing Institute of Technology; Yin Yao, Beijing Institute of Technology
Session: 7 Room: Tianjin		
Session Chair(s): Tiefeng Li, Zhejiang University		
13:30 PM	13:55 PM	**(Invited) Mechanics of Earthquake Rupture: Insights from Recent Laboratory Earthquakes**
		Kaiwen Xia, China University of Geosciences (Beijing); Peng Dong, China University of Geosciences (Beijing); Ying Xu, Tianjing University
13:55 PM	14:20 PM	**(Invited) Toughness of Low-Dimensional Nanomaterials**
		Zhuhua Zhang, Nanjing University of Aeronautics and Astronautics; Maolin Yu, Nanjing University of Aeronautics and Astronautics; Zhiqiang Zhao, Nanjing University of Aeronautics and Astronautics; Wanlin Guo, Nanjing University of Aeronautics and Astronautics
14:20 PM	14:45 PM	**(Invited) A Finite Crack Growth Energy Release Rate for Elastic- Plastic Fracture**
		Bin Liu, Tsinghua University; Wu Xu, Shanghai Jiaotong University; Yanshen Ren, Shanghai Jiaotong University; Si Xiao, Southern University of Science and Technology
14:45 PM	15:10 PM	**(Invited) Experimental Investigation on Interface Mechanical Behaviors of Two-Dimensional Heterostructures on Soft Substrates Using in Situ Combined Multi-Spectral Methods**
		Huadan Xing, Tianjin University; Wei Qiu, Tianjin University; Xiaojie Wang, Tianjin University; Chaochen Xu, University of Calgary; Hongzhi Du, Tianjin University; Rubing Li, Tianjin University; Zihao Zhao, Tianjin University
15:10 PM	15:35 PM	**(Invited) Microstructure Design and Identification for Advanced Materials: From the Physical and Digital Sides of Intelligence**
		Yuli Chen, Beihang University; Fei Pan, Beihang University; Bin Ding, Beihang University
Session: 8 Room: Tianjin		
Session Chair(s): Zheng Jia, Zhejiang University		
15:30 PM	15:55 PM	**(Invited) Lightweight and Ultrastrong Pyrolytic Carbon Nanolattices**
		Xiaoyan Li, Tsinghua University

15:55 PM	16:20 PM	**(Invited) Continuum Mechanical Model of 2D Materials**
		Yilun Liu, Xi'an Jiaotong University
16:20 PM	16:45 PM	**(Invited) Pursing the Theoretical Material Strength**
		Xiaoding Wei, Peking University
10.11 Morphing Matters: Inspiration, Mechanics, Computation, Design, Fabrication, and Applications		
Session: 5 Room: Seoul		
Session Chair(s): Teng Zhang, Syracuse University; Yang Li, Wuhan University		
09:30 AM	09:50 AM	**Plant Inspired and Capillary Driven Morphing**
		Teng Zhang, Syracuse Univeristy; Yuying Zhang, Syracuse University; Gabriel Alkuino, Syracuse University
09:50 AM	10:10 AM	**Formation of Rolls and Helices from Liquid Crystal Elastomer Thin Sheets**
		Yuzhen Chen, Fudan University
10:10 AM	10:30 AM	**4D Printing of Shape Memory Ceramics**
		Guo Liu, University of Science and Technology of China
10:30 AM	10:50 AM	**A Solid-Shell Model of Hard-Magnetic Soft Materials**
		Yifan Yang, Fudan University; Fan Xu, Fudan University
10:50 AM	11:10 AM	**A Geometric Symmetry-Based Design Method for Multistable Structures**
		Borui Jin, Wuhan University; Chong Huang, Wuhan University; Lin Ai, Wuhan University;Yang Li, Wuhan University
11:10 AM	11:30 AM	**Metastructures based on Graded Tube Inversion and its Application**
		Kexin Tan, Wuhan University; Yang Li, Wuhan University; Wenshi Xue, Wuhan University; Qingyang Chen, Wuhan University
11:30 AM	11:50 AM	**Anisotropic Morphing and Geometric Frustration in Bistable Kirigami via Symmetry Breaking**
		Chuan Qiao, Sichuan University; Filippo Agnelli, McGill University; Deepak Pokkalla, McGill University; Nicholas D'Ambrosio, McGill University; Damiano Pasini, McGill University
Session: 7 Room: Seoul		
Session Chair(s): Yang Li, Wuhan University; Charles Dorn, ETH Zurich		
13:30 PM	13:50 PM	**Multi-Compatibility Design Method for Multi-Stable Morphing Structures**

		Yang Li, Wuhan University; Lin Ai, Wuhan University; Tong Zhou, Wuhan University; Wenshi Xue, Wuhan University; Heming Wang, National University of Singapore; Zhuangzhi Miao, Wuhan University; Zihua Lin, Wuhan University;NuoChen, Wuhan University; Zhizhen Wei, Wuhan University; Chong Huang, Wuhan University
13:50 PM	14:10 PM	**Geometrically Frustrated Rose Petals**
		Yafei Zhang, Hebrew University; Michael Moshe, Hebrew University; Eran Sharon, Hebrew University; Omri Y. Cohen, Hebrew University
14:10 PM	14:30 PM	**Dehydration-Induced Corrugated Folding in Shape-Morphing Leaves**
		Kexin Guo, Nanyang Technological University; Mingchao Liu, University of Birmingham; Dominic Vella, University of Oxford; Jimmy Hsia, Nanyang Technological University; Subra Suresh, Massachusetts Institute of Technology
14:30 PM	14:50 PM	**Morphing Plastic Films via Peeling-Induced Strain Programming**
		Dong Li, Nanyang Technological University; Huajian Gao, Tsinghua University; Feilong Zhang, Chinese Academy of Sciences; Xiaodong Chen, Nanyang Technological University; Shutao Wang, Chinese Academy of Sciences

Friday, August 23, 2024

Track 1: Medalist Symposia

1.3 Engineering Science Medal Symposium		
Session: 9 Room: Beijing 2		
Session Chair(s): Yang Liu, University of Oxford		
09:30 AM	09:55 AM	**A Model of Fibrous Elastic Surfaces Incorporating Geodesic Fiber Bending Energy**
		J. Steigmann David, University of California at Berkeley
09:55 AM	10:20 AM	**Bioinspired Soft Robotic Arms**
		Renee Zhao, Stanford University
10:20 AM	10:45 AM	**The Revival of Cauchy Elasticity**
		Arash Yavari, Georgia Institute of Technology
10:45 AM	11:10 AM	**Wrinkling of a Film/Substrate Bilayer with Periodic Material Properties: an Assessment of the Winkler Foundation Model**
		Yibin Fu, Keele University; Yuesheng Wang, Tianjin University; Yuxin Fu, Tianjin University

1.4 SES Honorary Symposium		
Session: 9 Room: International Hall 2		
Session Chair(s): Hanqing Jiang, Westlake University; Dixia Fan, Westlake University		
09:30 AM	10:00 AM	**Heterogeneous Integration by Using Soft Interface: from Liquid to Viscoelastic Stamp**
		Xue Feng, Tsinghua University
10:00 AM	10:40 AM	**Mechanics-Guided 3D Assembly of Electronic Devices and Microsystems**
		Yihui Zhang, Tsinghua University
10:40 AM	11:10 AM	**AI- Enabled Architected Materials Design and Manufacturing**
		Grace Gu, University of California, Berkeley

Track 2: Fluid Mechanics and Granular Media

2.1 Multi-Physical Processes in Granular Media: Experiments, Theory, and Modeling
Session: 9 Room: International Hall 1
Session Chair(s): Guangyang Hong, Northeastern University; Songkai Ren, Hangzhou Dianzi University

09:30 AM	09:55 AM	**(Invited) Semi-Implicit MPM with Fractional-Step Method for Saturated and Unsaturated Soil**
		Kenjiro Terada, Tohoku University; Souma Hidano, Tohoku University; Reika Nomura, Tohoku University; Shuji Moriguchi, Tohoku University
09:55 AM	10:15 AM	**A Hybrid Metaball Discrete Element Material Point Method for Modeling Fluid-Particle Interactions with Free Surface and General Particle Shape**
		Ren Songkai, Hangzhou Dianzi University; Pei Zhang, Hangzhou Dianzi University; Yifeng Zhao, Westlake University; Xiaoqing Tian, Hangzhou Dianzi University; S.A. Galindo-Torres, Westlake University
10:15 AM	10:35 AM	**A General Framework to Population Balance-Monte Carlo Simulations for Particle Breakage, Coagulation, and Nucleation**
		Yongjie Chen, Shanghai Jiaotong University; Muhao Chen, Texas A & M University; James C. Hermanson, University of Washington; Xi Xia, Shanghai Jiaotong University; Fei Qi, Shanghai Jiaotong University
10:35 AM	10:55 AM	**A Dynamic River Ice Model Based on Coupled Discrete Element Method and Hydrodynamics**
		Biyao Zhai, Nanjing Hydraulic Research Institute
10:55 AM	11:15 AM	**Machine Learning for Multiscale Modelling of Granular Media**
		Tongming Qu, Hong Kong University of Science and Technology; Jidong Zhao, Hong Kong University of Science and Technology
11:15 AM	11:35 AM	**Visualization Experimental Study on the Initiation and Progression of Suffusion Induced by Unsteady Flow**
		Ruiqi Wang, Hohai University; Yang Xiao, Hohai University; Yulong Luo, Hohai University; Jiaming Liu, Hohai University; Jieqing Liu, Hohai University; Pei Zhang, Westlake University
2.2 AI for Fluid Dynamics		
Session: 9 Room: New York 2		
Session Chair(s): Hui Xiang, Scien42 Tech		
09:30 AM	09:50 AM	**Better Neural PDE Solvers Through Data-Free Mesh Movers**
		Peiyan Hu, Chinese Academy of Sciences
09:50 AM	10:10 AM	**Residual-Guided Adaptive Unstructured Mesh Refinement for Solving Compressible and Incompressible Flows Using Physics-Informed Neural Networks**
		Yongzheng Zhu, Zhejiang University; Shiji Zhao, Zhejiang University, Hangzhou Dianzi University; Xin Bian, Zhejiang University

10:10 AM	10:30 AM	**Accelerating Data Assimilation of Transonic Flows Using Reduced-Order Models**
		Zhen Tang, Northwestern Polytechnical University; Jiaqing Kou, Northwestern Polytechnical University
2.3 Bio-Fluid and Bio-Inspired Fluid Mechanics		
Session: 10 Room: Hangzhou 6		
Session Chair(s): Ankang Gao, University of Science and Technology of China; Xingwen Zheng, Zhejiang University		
10:15 AM	10:35 AM	**Droplet Motion Control with Bioinspired Topological Ultra-Slippery Surfaces**
		Kai Zhuang, Hongkong University of Science and Technology (Guangzhou); Mei Zhou, The Hong Kong University of Science and Technology (Guangzhou); Zeji Chen, The Hong Kong University of Science and Technology (Guangzhou); Naerkezha Nuermuhanmode, The Hong Kong University of Science and Technology (Guangzhou); Xiaolong Yang, Nanjing University of Aeronautics and Astronautics; Mojun Chen, The Hong Kong University of Science and Technology (Guangzhou)
10:35 AM	10:55 AM	**Patient-Specific Modeling of Blood Flow in Microcirculation**
		Keqin Han, Zhejiang University; Xuejin Li, Zhejiang University
10:55 AM	11:15 AM	**Influence of Wettability on Water Droplet Impact Forces**
		Bin Zhang, Chinese Academy of Sciences; Chen Ma, Tsinghua University; Huanlei Zhao, Tsinghua University; Yinggang Zhao, Tsinghua University; Pengfei Hao, Tsinghua University; Xi-Qiao Feng, Tsinghua University; Cunjing Lv, Tsinghua University
11:15 AM	11:35 AM	**Bioinspired Interfacial Phenomenon: From Microscale Mechanisms to Meter-Scale Applications**
		Jing Li, City University of Hong Kong
11:35 AM	11:55 AM	**A Phase-Field Blood Flow Model with RBCs Interacting through a 2D Lennard-Jones Type Potential**
		Ping Lin, University of Dundee
2.5 Fluid Mechanics for Wind Energy Harvesting		
Session: 9 Room: Chongqing		
Session Chair(s): Zhenzhou Zhao, Hohai University; Mingwei Ge, North China Electric Power University		
09:30 AM	09:55 AM	**(Invited) Toward Efficient High-Fidelity Predictions of Utility-Scale Wind Turbine Wakes Using Deep-Net**

		Ali Khosronejad, Stony Brook University; Christian Santoni, State University of New York at Stony Brook; Dichang Zhang, State University of New York at Stony Brook; Dimitris Samaras, State University of New York at Stony Brook; Fotis Sotiropoulos, Virginia Commonwealth University
09:55 AM	10:15 AM	**Dynamic Wake Steering Control for Wind Farm Power Maximization Based on a PGNN Dynamic Wake Model**
		Baoliang Li, North China Electric Power University; Mingwei Ge, North China Electric Power University; Yongqian Liu, North China Electric Power University
10:15 AM	10:35 AM	**Combined Wake Control of Wind Farms for Power Optimization Based on a 3D Wake Model Considering Secondary Wake Steering**
		Yige Liu, Hohai University; Zhenzhou Zhao, Hohai University; Yan Liu, Hohai University; Huiwen Liu, Hohai University; Shangshang Wei, Hohai University; Yuanzhuo Ma, Hohai University
10:35 AM	10:55 AM	**A Novel Analytical Model for Wind-Turbine Wakes Behind an Abrupt Rough-to-Smooth Surface Roughness Transition**
		Jingshan Zhu, North China Electric Power University; Mingwei Ge, North China Electric Power University; Bowen Du, North China Electric Power University
10:55 AM	11:15 AM	**Fast and Accurate Modelling of Wind Turbine Wakes**
		Vikrant Gupta, Southern University of Science and Technology; Dachuan Feng, TU Delft; Larry K.B. Li, Hong Kong University of Science and Technology; Ding Wang, Eastern Institute of Technology, Ningbo; Minping Wan, Southern University of Science and Technology
11:15 AM	11:35 AM	**Towards a Wake Meandering Model for Floating Wind Turbines**
		Zhaobin Li, Chinese Academy of Sciences; Xiaolei Yang, Chinese Academy of Sciences

Track 3: Biomechanics and Biomaterials

3.1 Growth and Remodeling in Living Matter - Emergent Behavior and Mechanics		
Session: 9 Room: Dubai		
Session Chair(s): M Taher A Saif, UIUC; Xi-Qiao Feng, Tsinghua University		
09:30 AM	09:55 AM	**(Invited) On the Topology of Plant Organs**
		Zi-Long Zhao, Beihang University
09:55 AM	10:20 AM	**(Invited) A Theoretical Investigation of Multi-Cellular Swirling Dynamics**

		Xi Li, Zhejiang University; Bin Chen, Zhejiang University
10:20 AM	10:40 AM	**Roles of Leaf Trichomes in Diffusion Resistance and Gas-Exchange Characteristics Across Environmental Gradients**
		Gaku Amada, Forestry and Forest Products Research Institute; Yohsiko Kosugi, Kyoto University; Kanehiro Kitayama, Kyoto University; Yusuke Onoda, Kyoto University
10:40 AM	11:00 AM	**Surface Instability of Sheared Active Skeletal Muscle Tissue with Loss of Muscle Mass**
		Amit Singh, IIT Bombay
11:00 AM	11:20 AM	**Long-Distance Communications Among Human Cancer Cells: An Underappreciated Mechano-Regulated Process in Tumor Progression**
		Xin Tang, University of Florida; Chenyu Liang, University of Florida; Mai Tanaka, University of Florida; Dietmar W. Siemann, University of Florida; Bo Zeng, Southwest Medical University

Track 4: Machine Learning and Multiscale Simulations

4.2 Advances in Multiscale Modeling and Nanomechanics		
Session: 9 Room: London 1		
Session Chair(s): Fatemeh Ahmadpoor, New Jersey Institute of Technology; Chun Shen, Nanjing University of Aeronautics and Astronautics		
09:30 AM	09:55 AM	**(Invited) A Statistical-Chain-Based Theory for Dynamic Living Polymeric Gels with Concurrent Diffusion, Chain Remodeling Reactions and Deformation**
		Yuhang Hu, Georgia Institute of Technology; Haohui Zhang, Georgia Tech
09:55 AM	10:20 AM	**(Invited) The Dual Role of Hydrogen in the Hydrogen-dislocation Interactions**
		Dengke Chen, Shanghai Jiaotong University
10:20 AM	10:40 AM	**Mechanics of Membrane Targeting Antimicrobials-Pore Nucleation in Bacterial Membranes**
		Guijin Zou, Nanyang Technological University; Wooseong Kim, Ewha Womans University; Huajian Gao, Tsinghua University
10:40 AM	11:00 AM	**Fatigue Life Prediction of Hydrogen Embrittled Metals with the Unified Mechanics Theory**
		Cemal Basaran, University at Buffalo; Hsiao Wei Lee, Drexel University; Milos Djukic, University of Belgrade

11:00 AM	11:20 AM	**Molecular Dynamics Simulation of Interfacial Effects on Heat Transfer Properties in PEEK Nanocomposites**
		Siqin Liu, Beihang University; Shengru Wang, Beihang University; Xin Yan, Beihang University
4.5 Machine Learning and Multiscale Modeling for Complex Materials and Structures		
Session: 9 Room: Fuzhou		
Session Chair(s): Chen-Xu Liu, Tsinghua University		
09:30 AM	09:50 AM	**Potential Energy Prediction and Inverse Design of Kresling Origami Structures by Physics-Informed Machine Learning**
		Chen-Xu Liu, Tsinghua University; Zhanli Liu, Tsinghua University; Gui-Lan Yu, Beijing Jiaotong University
09:50 AM	10:10 AM	**A Digital Twin-Oriented Lightweight Modeling Approach for Gas Turbine Performance Degradation Monitoring**
		Yiyang Liu, Dalian University of Technology; Xiaomo Jiang, Dalian University of Technology
10:10 AM	10:30 AM	**Conditional Generation of 3D Realistic Particles in Specific Shape Features**
		Yifeng Zhao, Westlake University; Pei Zhang, Westlake University; Sergio Andres Torres, Westlake University

Track 5: Robotics

5.1 Dynamics and Control of Continuum and Soft Robots		
Session: 9 Room: Sydney		
Session Chair(s): Frédéric Boyer, IMT-Atlantique (LS2N)		
09:30 AM	09:55 AM	**(Invited) Dynamics and Control of a Drone with Flexible Arms**
		Yoav Biton, SCE, Shamoon College of Engineering; Danniel Stoller, Ben-Gurion University of the Negev; Shay Arogeti, Ben-Gurion University of the Negev
09:55 AM	10:20 AM	**(Invited) Dynamic Design and Control of Soft Machines**
		Kai Luo, Beijing Insitute of Technology
10:20 AM	10:45 AM	**(Invited) Origami-Inspired Vacuum-Actuated Foldable Soft Crawling Robot**

		Qiping Xu, Zhejiang Normal University
10:45 AM	11:05 AM	**Design and Experiment of a Soft Crawling Robot for Space Tubular Structures**
		Zilong Xie, Nanjing University of Aeronautics and Astronautics; Jialiang Sun, Nanjing University of Aeronautics and Astronautics
11:05 AM	11:25 AM	**Multi-Body Dynamical Modeling and Prediction of Flexible Origami/Kirigami Structures by Affine Transformation**
		Fan Jiang, Tongji University; Xiuting Sun, Tongji University; Jian Xu, Tongji University
11:25 AM	11:45 AM	**Dynamic Modeling, Optimization and Control of Hard-Magnetic Soft Beams**
		Yancong Wang, Beijing Institute of Technology; Kai Luo, Beijing Institute of Technology; Qian Tian, Beijing Institute of Technology; Haiyan Hu, Beijing Institute of Technology
5.3 Tactile Sensing and Feedback for Human-Machine Interactions		
Session: 9 Room: London 2		
Session Chair(s): Haimin Yao, The Hong Kong Polytechnic University		
09:30 AM	09:55 AM	**(Invited) Realizing High-Sensitivity and Wide-Linear-Range Pressure Sensing by Nonlinearity Synergy**
		Haimin Yao, The Hong Kong Polytechnic University
09:55 AM	10:20 AM	**(Invited) Flexible Human-Machine Interacting Sensors**
		Yanchao Mao, Zhengzhou University
10:20 AM	10:45 AM	**(Invited) Shared Control Scheme with Task-Oriented Functions for Tactile Prosthetic Hand**
		Bin Fang, Beijing University of Posts and Telecommunications; Ziming Chen, Wuhan University of Science and Technology

Track 6: Soft Matter and Electronics

6.6 Functional and Programmable Soft Composites-Design, Mechanics, and Manufacturing		
Session: 10 Room: Hangzhou 1		

Session Chair(s): Liang Yue, HKUST-GuangZhou		
10:15 AM	10:40 AM	**(Invited) Autonomous Magnetic Soft Millirobot with Integrated Actuation, Sensing, and Wireless Communication Capabilities**
		Qiji Ze, Xi'an Jiaotong University; Shuzhou Yang, Xi'an Jiaotong University; Ruike Renee Zhao, Stanford University
10:40 AM	11:00 AM	**Physics-Based Discrete Models for Magneto-Mechanical Metamaterials**
		Gabriel Alkuino, Syracuse University; Teng Zhang, Syracuse University
11:00 AM	11:20 AM	**Snap through Buckling of Hard-Magnetic Elastica: Controlling the Buckling Modes via Magnetization Interface**
		Yingchao Zhang, Nanyang Technological University; Jing Yu, Nanyang Technological University; Huajian Gao, Tsinghua University
11:20 AM	11:40 AM	**Snap-Through Instability Induced by Magnetic Field and its Application in New Magnetoelectric Materials**
		Kai Tan, Huazhong University of Science and Technology; Qian Deng, Huazhong University of Science and Technology; Lingling Chen, Shandong University;Shengyou Yang, Shandong University; PradeepSharma, University of Houston
11:40 AM	12:00 PM	**Additive Manufacturing of Glass Microstructures for Functional Applications**
		H. Jerry Qi, Georgia Institute of Technology; Mingzhe Li, Georgia Institute of Technology; Liang Yue, Georgia Institute of Technology

Track 7: Metamaterials and Architected Materials

7.6 Mechanical Metamaterials with Quasi-/Absolute Zero Stiffness		
Session: 9 Room: Berlin		
Session Chair(s): Lingling Wu, Xi'an Jiaotong University; Kun Wu, Tianjin University		
09:30 AM	09:55 AM	**(Invited) A Graph Based Design Methodology for Quasi Zero Stiffness Springs**
		Tanzeel ur Rehman, University of Michigan Shanghai Jiaotong University Joint Institute; Shane Johnson, University of Michigan Shanghai Jiaotong University Joint Institute
09:55 AM	10:15 AM	**Design and Bandgap Characterization of Multi-Dimensional Quasi-Zero-Stiffness Metamaterials**
		Xin Liu, Harbin Institute of Technology; Bing Wang, Harbin Institute of Technology; Xiaojun Tan, Northwestern Polytechnical University
10:15 AM	10:35 AM	**Machine Learning-Based Mechanical Metamaterials for Full-Band Vibration Isolation with Adaptable Payload**

		Song Xinyu, Xi'an Jiaotong University; Sen Yan, Tsinghua University; Dichen Li, Xi'an Jiaotong University; Lingling Wu, Xi'an Jiaotong University; Ji Zhou, Xi'an Jiaotong University; Hanqing Jiang, Westlake University; Haojie Zhang, Xi'an Jiaotong University; Tengfei Liu, Xi'an Jiaotong University; Xiaoyong Tian, Xi'an Jiaotong University; Jingbo Sun, Tsinghua University; Yong Wang, Zhejiang University

Track 8: Advances in Manufacturing

8.1 Unique Deformation and Failure Mechanics of 3D Printing Materials		
Session: 9 Room: Beijing 1		
Session Chair(s): Luoyu Xu, Ningbo University;Yang Liu, Ningbo University; Jialong Liu, Sun Yat-sen University		
09:30 AM	09:55 AM	**(Invited) Dynamic Compressive Properties and Deformation Mechanism of Additively Manufactured Titanium Alloy**
		Yang Liu, Ningbo University
09:55 AM	10:15 AM	**Construction of Excellent Strength and Toughness PLA/ATP Composite Parts by FFF Induced Orientation Effect**
		Yinxu Ni, Ningbo University; Fenghua Liu, Ningbo University
10:15 AM	10:40 AM	**(Invited) Effects of the Mesoscale Residual Stress Defects on the Failure Behavior of Photo-Cured Materials**
		Qiang Zhang, Nanjing University of Aeronautics and Astronautics; Yan Shi, Nanjing University of Aeronautics and Astronautics; Cunfa Gao, Nanjing University of Aeronautics and Astronautics
10:40 AM	11:00 AM	**Applications of Composite Strength Theory for Predicting the Failure Strengths of 3D Printing Polymers**
		Luoyu Xu, Ningbo University; Gonghe Zhang, Ningbo University
11:00 AM	11:25 AM	**(Invited) Strengthening and Toughening 3D Printed Parts Through Meso-Scale Layup Design**
		Jialong Liu, Sun Yat-sen University; Gang Yang, Sun Yat-Sen University; Zhipeng Deng, Sun Yat-sen University; Renjie Liu, Sun Yat-sen University; Jian Shen, Sun Yat-sen University; Dazhi Jiang, Sun Yat-sen University
11:25 AM	11:45 AM	**Mechanical Properties of PA6-Induced TLCP Molecular Highly Oriented Composites Using Fused Deposition Modeling**
		Qingqing Gao, Chinese Academy of Sciences; Fenghua Liu, Chinese Academy of Sciences

Track 9: Instability and Failure of Materials

9.2 Multistability in Metamaterials, Structures and Robots		
Session: 9 Room: Athens		
Session Chair(s): Wenfeng Liu, University of Amsterdam; Jiayao Ma, Tianjin University; Paul Ducarme, AMOLF		
09:30 AM	09:50 AM	**Bi-Stable Origami Deployable Structures**
		Wenshi Xue, Wuhan University; Yang Li, Wuhan University
09:50 AM	10:10 AM	**Multi-Stable Origami Structure with Thick Panels**
		Zhuangzhi Miao, Wuhan Univeresity; Heming Wang, Wuhan University; Ke Liu, Peking University; Haitao Ye, Southern University of Science and Technology; Yang Li, Wuhan University
10:10 AM	10:30 AM	**Exotic Properties Enabled by Counter-Snapping Instabilities**
		Paul Ducarme, AMOLF, ARCNL; Bart Weber, University of Amsterdam, ARCNL; Martin van Hecke, University of Leiden, AMOLF; Johannes T. B. Overvelde, Technical University of Eindhoven, AMOLF
10:30 AM	10:50 AM	**Easy-to-Actuate Multi-Stable Structure based on Prescribed Multi-Compatibility**
		Lin Ai, Wuhan University; Shukun Yin, California Institute of Technology; Weixia He, Wuhan University; Peidong Zhang, Wuhan University; Yang Li, Wuhan University
10:50 AM	11:10 AM	**Torque Transition of the "Bendy Straw" Structure**
		Xiaochen Yang, Tianjin University; Jaoyao Ma, Tianjin University; Yan Chen, Tianjin University
11:10 AM	11:30 AM	**Leverage Plasticity to Design Metamaterials with Sequential Deformations**
		Wenfeng Liu, University of Amsterdam; Shahram Janbaz, University of Amsterdam; David Dykstra, University of Amsterdam; Bernard Ennis, Tata Steel Nederland; Corentin Coulais, University of Amsterdam
9.3 Complex Failure Mechanics of Materials		
Session: 9 Room: New York 1		
Session Chair(s): Bin Liu, Tsinghua University		
09:30 AM	09:55 AM	**(Invited) Effect of Interphase on the Failure of Fiber Eeinforced Ceramic Matrix Composites**
		Yuli Chen, Beihang University; Yong Ma, Northwestern Polytechnical

		University; Xiaochuan Niu, Beihang University; Jiaxuan Yan, Beihang University
09:55 AM	10:20 AM	**(Invited) Fabrication and Mechanical Property of Honeycomb Sandwich Shell with Carbon Fiber Reinforced Composite**
		Jian Xiong, Harbin Institute of Technology; Zhibin Li, Harbin Institute of Technology
10:20 AM	10:45 AM	**(Invited) A Floquet-Based Bar-Spring Model for Complex Failure Simulations of Bioinspired Composites**
		Zuoqi Zhang, Wuhan University; Kun Geng, Wuhan University
10:45 AM	11:05 AM	**Investigation on Residual Stress Distribution of Rib-to-Bimetallic Steel Deck Welded Joints**
		Xiaowei Liao, Zhejiang University of Technology; Zhongyuan Zhang, Zhejiang University of Technology; Junjie Yu, Zhejiang University of Technology
11:05 AM	11:25 AM	**Crystal Plasticity Modelling of Microstructural Size Effect on Notch Fatigue Behavior of Ni-Based Superalloy GH4169**
		Jin-Chao He, University of Electrical Science and Technology of China; Xing Zhang, University of Electronic Science and Technology of China; Shun-Peng Zhu, University of Electronic Science and Technology of China; Chang-Qi Luo, University of Electronic Science and Technology of China; Qing-Yuan Wang, Sichuan University, Chengdu University
11:25 AM	11:45 AM	**Temperature-Dependent Damage of Magnesium Aloy with Ratchetting–Fatigue Interaction Effects: Experiments and Mesomechanical Theory**
		Ziyi Wang, Southwest Jiaotong University; Binghui Hu, Southwest Jiaotong University; Chao Yu, Southwest Jiaotong University; Shengchuan Wu, Southwest Jiaotong University; Xiqiao Feng, Tsinghua University; Guozheng Kang, Southwest Jiaotong University
9.6 Structural Signature of Elasticity, Plasticity, and Fracture in Disordered Materials		
Session: 9 Room: Seoul		
Session Chair(s): Liuchi Lee, Johns Hopkins University; Yiqiu Zhao, Hong Kong University of Science and Technology		
09:30 AM	09:50 AM	**Absorbing-State Transition and Quasi-Elastic Responses in Frictional Granular Materials**
		Yiqiu Zhao, The Hong Kong University of Science and Technology; Qin Xu, The Hong Kong University of Science and Technology

09:50 AM	10:10 AM	**Atomistic Mechanisms of the Nonlinear Elasticity and Fracture of Oxide Glasses**
		Zhen Zhang, Chengdu University of Technology; Simona Ispas, University of Montpellier and CNRS; Walter Kob, University of Montpellier and CNRS
10:10 AM	10:30 AM	**Identifying Microscopic Factors that Influence Ductility In Disordered Solids**
		Ge Zhang, City University of Hong Kong; Hongyi Xiao, University of Michigan; Entao Yang, Air Liquide; Robert Ivancic, National Institute of Standards and Technology; Sean Ridout, University of Pennsylvania; Robert Riggleman, University of Pennsylvania; Douglas Durian, University of Pennsylvania; Andrea Liu, University of Pennsylvania
10:30 AM	10:50 AM	**Shack-Hartmann Wavefront Sensing: A New Approach to Time-Resolved Measurement of the Stress Intensity Factor During Dynamic Fracture**
		Liuchi Li, Johns Hopkins University; Velat Kilic, The Johns Hopkins University; K.T. Ramesh, The Johns Hopkins University; Mark A. Foster, The Johns Hopkins University; Todd C. Hufnagel, The Johns Hopkins University
10:50 AM	11:10 AM	**Enhancing Toughness Through Controlling Disorder of a Lattice in Fracture Tests**
		Hongyi Xiao, University of Michigan; Sage Fulco, University of Pennsylvania; Douglas Durian, University of Pennsylvania; Kevin Turner, University of Pennsylvania
11:10 AM	11:35 AM	**(Invited) Colloidal Supraparticles under Compression**
		Junwei Wang, Max Planck Institute of Colloids and Interfaces; Andreas Ströbel, Universität Erlangen-Nürnberg; Patrick Feldner, Universität Erlangen-Nürnberg; Patrick Herre, Universität Erlangen-Nürnberg; Jan Schwenger, Universität Erlangen-Nürnberg; Stefan Romeis, Universität Erlangen-Nürnberg; Benoit Merle, Universität Erlangen-Nürnberg; Mathias Göken, Universität Erlangen-Nürnberg; Wolfgang Peukert, Universität Erlangen-Nürnberg; Nicolas Vogel, Universität Erlangen-Nürnberg
9.7 Friction, Fracture, and Damage of Quasi-Brittle Solids and Weak Interfaces		
Session: 9 Room: Dalian		
Session Chair(s): Ahmed Elbanna, University of Illinois Urbana Champaign		
09:30 AM	09:55 AM	**(Invited) A Graph-Based Finite Element Aprroach to Model Fracture in Bending of Plates**
		J. N. Reddy, Texas A&M University; Sachin Velayudhan, Texas A&M

		University; Arun Srinivasa, Texas A&M University
09:55 AM	10:20 AM	**(Invited) Local Propagation of Non-Planar Cracks in Brittle Hydrogels**
		Xinyue Wei, EPFL; John Kolinski, EPFL
10:20 AM	10:45 AM	**(Invited) Near Crack Tip Deformation Fields Reveal the Structure of the Fracture Process Zone in Brittle Hydrogels**
		Chenzhuo Li, EPFL; Xinyue Wei, EPFL; Meng Wang, The Hebrew University of Jerusalem; Mokhtar AddaBedia, ENS Lyon; John Kolinski, EPFL
10:45 AM	11:05 AM	**(Invited) Stress Intensity Factor Evaluation for Non-Planar Cracks Using Virtual Grid Stress Recovery and Interaction Integral Methods**
		Nastaran Movahedi, Yonsei University; Jong Yeop Kim, Yonsei University; Kyoungsoo Park, Yonsei University
11:05 AM	11:35 AM	**(Invited) Extremely Slow and Fast Frictional Ruptures Can Coexist in Laboratory Earthquakes**
		Songlin Shi, Hebrew University; Jay Fineberg, Hebrew University
11:35 AM	12:00 AM	**(Invited) Supershear Sracks in Tensile Fracture: How Fast Can Materials Break?**
		Meng Wang, Arts et Metiers Institute of Technology; Jay Fineberg, The Hebrew University of Jerusalem
9.8.Microstructural Mechanisms of Plasticity and Ductile Fracture		
Session: 9 Room: Guangzhou		
Session Chair(s): Christian Roth, ETH Zurich		
09:30 AM	09:55 AM	**(Invited) In-Situ Laminography Experiments on AA2198-T8R: Quantifying Ductile Fracture Mechanisms through Void Tracking from Shear to Biaxial Tension**
		Christian Roth, ETH Zurich; Thilo Morgeneyer, Mines Paris; Thomas Tancogne-Dejean, ETH Zurich; Dirk Mohr, ETH Zurich
09:55 AM	10:20 AM	**(Invited) Computer Simulations of Shear Failure Using HUNNY Theory**
		Amine Benzerga, Texas A&M University; R. Vigneshwaran, Texas A&M University
10:20 AM	10:40 AM	**A Microscopic Plasticity and Fracture Mechanism Activated by Defective Twin Boundary in Metallic Materials**
		Qi Zhu, Nanyang Technological University; Zhi Li, Institute of High Performance Computing (IHPC) Technology and Research (A*STAR); Haofei Zhou, Zhejiang University; Jiangwei Wang, Zhejiang University; Huajian Gao, Tsinghua University
10:40 AM	11:00 AM	**Escaig Stress Effects on Interaction Modes and Cross-Slip**

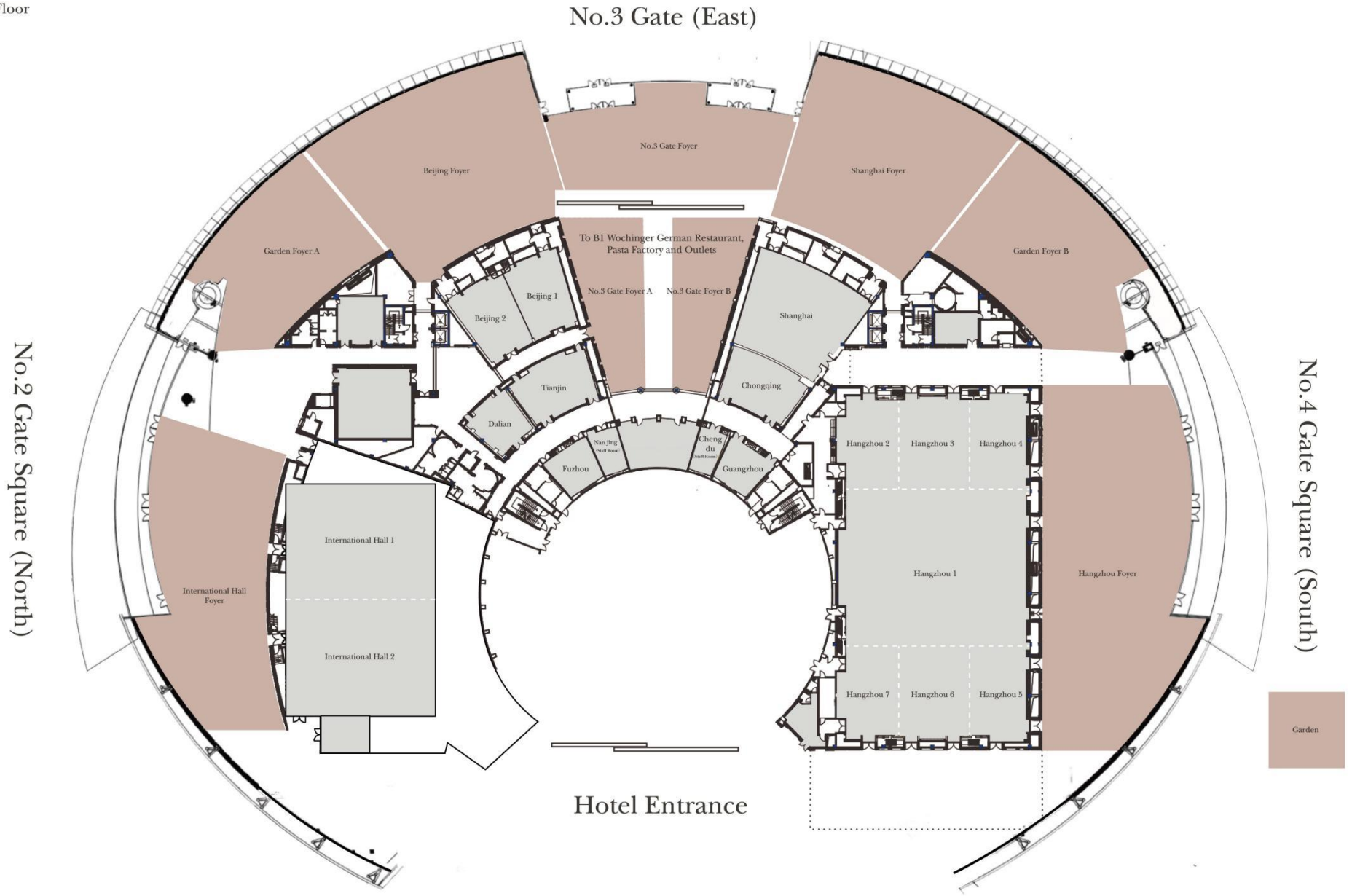
		Annihilation Distance of Screw Dislocation Interactions
		Liu Hadong, University of Science and Technology of China

Track 10: Mechanics of Materials and Structures

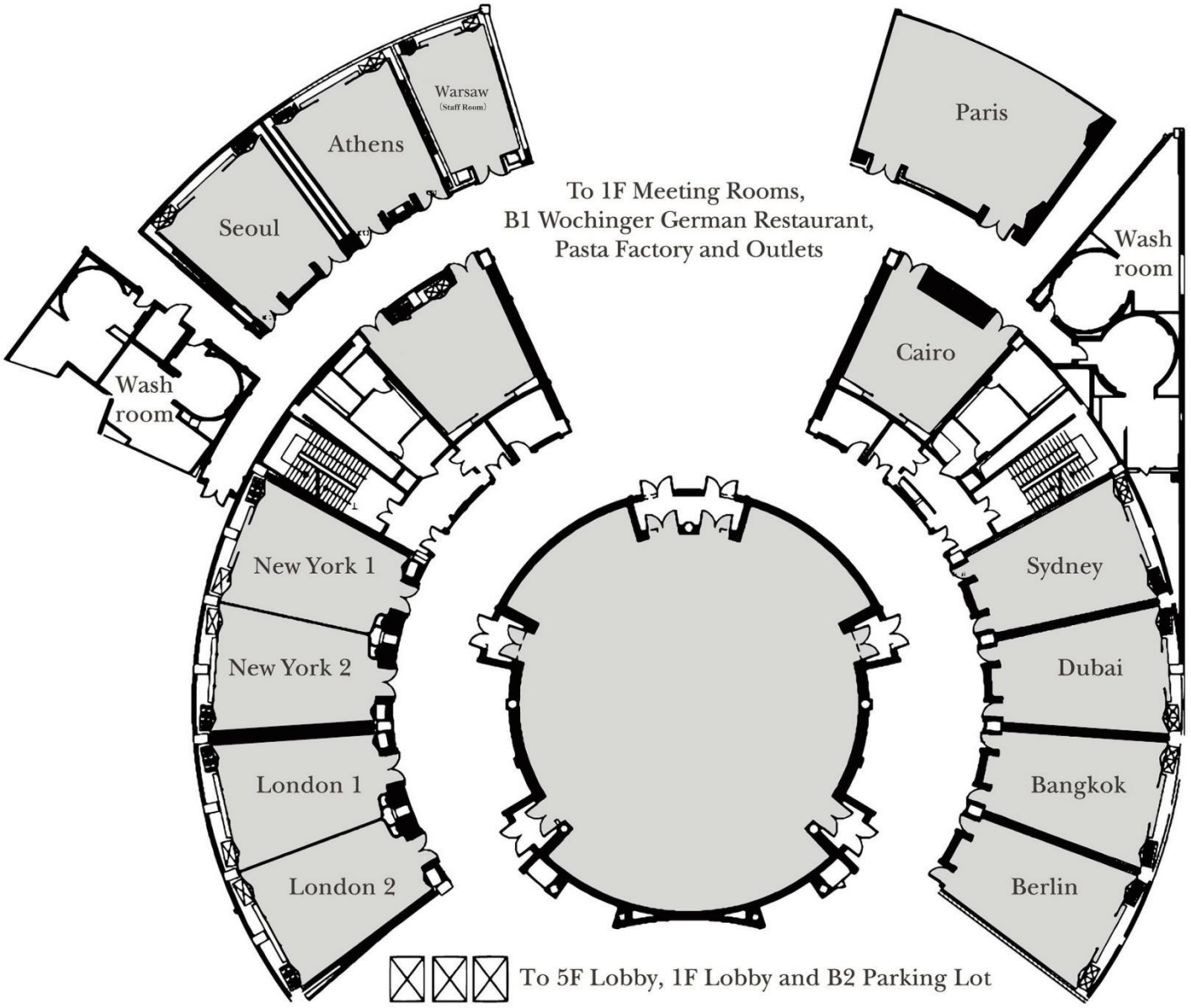
10.4 Mechanics of Materials in Extreme Environments		
Session: 9 Room: Cairo		
Session Chair(s): Binhan Sun, East China University of Science and Technology		
09:30 AM	09:55 AM	**(Invited) Hydrogen Embrittlement Mechanisms and Hydrogen-Tolerant Design in Medium Entropy Alloys**
		Binhan Sun, East China University of Science and Technology; Huijie Cheng, East China University of Science and Technology; Xu Lu, Norwegian University of Science and Technology; Tiwen Lu, East China University of Science and Technology; Xian-Cheng Zhang, East China University of Science and Technology; Shan-Tung Tu, East China University of Science and Technology
09:55 AM	10:20 AM	**(Invited) Mechanism and Prediction of Hydrogen Embrittlement in Fcc Stainless Steels and High Entropy Alloys**
		Xiao Zhou, Shanghai Jiaotong University; Ali Tehranchi, Max-Planck-Institute fur Eisenforschung GmbH; William A. Curtin, Laboratory for Multiscale Mechanics Modelling
10:20 AM	10:45 AM	**(Invited) Modelling and Simulation on Deformation Behaviour and Strengthening Mechanism of Multi-Principal Element Alloys**
		Jia Li, Hunan University; Yang Chen, Hunan University; Qihong Fang, Hunan University; Baobin Xie, Hunan University; Weizheng Lu, Hunan University
10:45 AM	11:10 AM	**(Invited) The Interfacial Stability of Single Crystal Superalloy Affected by the Phase Structure of the Ni-Al Coating**
		Xin Yan, Beihang University
11:10 AM	11:30 AM	**Exploring Plastic Deformation Behavior in Nanotwinned Metals under High Quasi-Hydrostatic Pressure: A Molecular Dynamics Insight**
		Ruoqi Dang, Nanyang Technological University; Melody Wang, Stanford University; Abhinav Parakh, Stanford University; Yong-Wei Zhang, A*Star; Huajian Gao, Tsinghua University; Wendy Gu, Stanford University
11:30 AM	11:50 AM	**Dislocation Plasticity at Elevated Temperature**
		Fengxian Liu, University of Twente
11:50 AM	12:10 PM	**An Enzymatic Carbon-Negative Structural Material**

		Nima Rahbar, WPI
10.5 EML 10th Anniversary Symposium (Invitation Only)		
Session: 10 Room: Hangzhou 2		
Session Chair(s): Jimmy Hsia, Nanyang Technological University		
10:15 AM	10:35 AM	**Strain-Rate Dependent Behavior in Jammed Granular Media**
		Mingchao Liu, University of Birmingham
10:35 AM	10:55 AM	**Anomalous Fracture Behavior of Soft Layered Materials**
		Zheng Jia, Zhejiang University
10:55 AM	11:15 AM	**Fatigue Resistant Materials and their Applications**
		Jingda Tang, Xi'an Jiaotong University
10.8 Mechanics of Batteries		
Session: 9 Room: Bangkok		
Session Chair(s): Jici Wen, Chinese Academy of Sciences		
09:30 AM	09:50 AM	**Electro-Chemo-Mechanical Degradation of Ncm Cathode Materials: From Polycrystal to Single Crystal**
		Hui Yang, Huazhong University of Science and Technology
09:50 AM	10:10 AM	**Data-Driven Multiscale Finite Element Simulation and its Applications in Lithium Ions Batteries**
		Jici Wen, Chinese Academy of Sciences; Qingrong Zou, Beijing Information Science and Technology University; Yujie Wei, Chinese Academy of Sciences
10:10 AM	10:30 AM	**The Effect of Stress on Chemo-Mechanical Coupled Behaviors of Nanosized Particles in Lithium-Ion Batteries**
		Xingyu Zhang, Nanjing University of Aeronautics and Astronautics
10:30 AM	10:50 AM	**Data-Driven State of Health Estimation for Lithium-Ion Batteries Based on Universal Feature Selection**
		Liting Gao, Shanghai University; Zhansheng Guo, Shanghai University; Yimeng Li, Shanghai University; Pingyuan Huang, Shanghai University; Chunwang Zhao, Shanghai University
10.9 Mechanics and Materials in Interdisciplinary Science: Honoring the Contributions of Prof. Wei Yang (Invitation Only)		
Session: 9 Room: Tianjin		
Session Chair(s): Haofei Zhou, Zhejiang University		
09:30 AM	09:55 AM	**(Invited) Mechanism of Crack Evolution and Strength Failure in**

		Chemo-Mechanical Induced Fracture
		Quanzi Yuan, Chinese Academy of Sciences
09:55 AM	10:20 AM	**(Invited) Deep Elastic Strain Engineering of Diamond for Semiconductor and Optoelectronics Applications**
		Yang Lu, The University of Hong Kong
10:20 AM	10:45 AM	**(Invited) Mechanics of Self-Catapulting of Freezing Water Droplets: From Trigger Conditions to Phase Map**
		Haimin Yao, The Hong Kong Polytechnic University


No.3 Gate (East)
No.2 Gate Square (North)
No.4 Gate Square (South)
Hotel Entrance
No.3 Gate Foyer
Beijing Foyer
Shanghai Foyer
Garden Foyer A
Garden Foyer B
To B1 Wochinger German Restaurant, Pasta Factory and Outlets
No.3 Gate Foyer A
No.3 Gate Foyer B
Beijing 1
Beijing 2
Tianjin
Dalian
Shanghai
Chongqing
Nan jing (Staff Room)
Fuzhou
Cheng du (Staff Room)
Guangzhou
International Hall 1
International Hall 2
International Hall Foyer
Hangzhou 1
Hangzhou 2
Hangzhou 3
Hangzhou 4
Hangzhou 5
Hangzhou 6
Hangzhou 7
Hangzhou Foyer
Garden

2st Floor


Warsaw
(Staff Room)
Athens
Seoul
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room
Paris
To 1F Meeting Rooms,
B1 Wochinger German Restaurant,
Pasta Factory and Outlets
Wash
room
Cairo
New York 1
New York 2
London 1
London 2
Sydney
Dubai
Bangkok
Berlin
To 5F Lobby, 1F Lobby and B2 Parking Lot