

USNCTAM 2022 Technical Program At-A-Glance

Monday, June 20

Room	8:30-9:45 am	10:15am-12 (TS1)	1:45-3:30 pm (TS2)	3:45-5:30 pm (TS3)	6-7:30 pm
204	Plenary: Nancy Sottos, Additive and Freeform Manufacturing of Thermo-setting Polymers				Reception
Salon D		315-1: New Metamaterial Concepts	315-2: New Metamaterial Concepts	315-3: New Metamaterial Concepts	
Salon E		201-1: Electrokinetic and Electrohydrodynamic Flow	201-2: Electrokinetic and Electrohydrodynamic Flow	207-1: Microswimming in Newtonian and Complex Fluid Environments	
301		103-1: Data-driven Approaches for Multiscale and/or Multiphysics Systems	103-2: Data-driven Approaches for Multiscale and/or Multiphysics Systems	103-3: Data-driven Approaches for Multiscale and/or Multiphysics Systems	
201		335-1: Instabilities in Solids and Structures	335-2: Instabilities in Solids and Structures	335-3: Instabilities in Solids and Structures	
202		205-1: Biofluid Mechanics in Thrombosis and Hemostasis	205-2: Biofluid Mechanics in Thrombosis and Hemostasis		
203		214-1: Electrokinetics for Nano and Micro-fluidics	214-2: Electrokinetics for Nano and Micro-fluidics	214-3: Electrokinetics for Nano and Micro-fluidics	
204		104-1: Meshfree, Peridynamics, and Particle Methods	104-2: Meshfree, Peridynamics, and Particle Methods	104-3: Meshfree, Peridynamics, and Particle Methods	
101		324-1: Mechanics of Soft Matter: From Living Systems to Functional Composites	324-2: Mechanics of Soft Matter: From Living Systems to Functional Composites	324-3: Mechanics of Soft Matter: From Living Systems to Functional Composites	
105		318-1: Physics -Based and Data -Driven Multiscale Modeling of Nano -Materials	318-2: Physics -Based and Data -Driven Multiscale Modeling of Nano -Materials	318-3: Physics -Based and Data -Driven Multiscale Modeling of Nano -Materials	
106		106-1: Theory and Applications of Functional	106-2: Theory and Applications of Functional	106-3: Theory and Applications of Functional	

		Interpolation to Optimization and Control	Interpolation to Optimization and Control	Interpolation to Optimization and Control	
116			NSF Talk-Wendy Crone: Funding Opportunities for Mechanics at NSF		
RRH 3.208		204-1: Recent Advances in Cardiovascular Fluid Mechanics	204-2: Recent Advances in Cardiovascular Fluid Mechanics		
RRH 3.216		314-1: Mechanics and Physics of Advanced Manufacturing Processes	314-2: Mechanics and Physics of Advanced Manufacturing Processes	314-3: Mechanics and Physics of Advanced Manufacturing Processes	
RRH 3.304		210-1: Complex Fluids and Soft Matter	210-2: Complex Fluids and Soft Matter	210-3: Complex Fluids and Soft Matter	
RRH 3.406		224-1: High-Speed Boundary Layer Transition	224-2: High-Speed Boundary Layer Transition	224-3: High-Speed Boundary Layer Transition	
RRH 3.414		330-1: Mechanics of the Human Skull and Brain	330-2: Mechanics of the Human Skull and Brain	222-1: Elastic and Elasto-Inertial Turbulence	
RRH 4.308		325-1: Mechanics of Liquid Crystal Elastomers	325-2: Mechanics of Liquid Crystal Elastomers	325-3: Mechanics of Liquid Crystal Elastomers	

Tuesday, June 21

Room	8:30-9:45 am	10:15am-12 (TS4)	1:45-3:30 pm (TS5)	3:45-5:30 pm (TS6)
204	Plenary: Ellen Kuhl, Data-driven Modeling and Physics-based Learning in the Biomedical Sciences			
Salon D		315-4: New Metamaterial Concepts	315-5: New Metamaterial Concepts	
Salon E		207-2: Microswimming in Newtonian and Complex Fluid Environments	207-3: Microswimming in Newtonian and Complex Fluid Environments	203-1: External Biofluid Mechanics
301		103-4: Data-driven Approaches for Multiscale and/or Multiphysics Systems	103-5: Data-driven Approaches for Multiscale and/or Multiphysics Systems	301-1: Mechanics of Electrochemical Materials and Systems
201		335-4: Instabilities in Solids and Structures	335-5: Instabilities in Solids and Structures	225-1: Turbulence in Compressible Flows: Recent Advances and Open Questions
202		205-3: Biofluid Mechanics in Thrombosis and Hemostasis	205-4: Biofluid Mechanics in Thrombosis and Hemostasis	216-1: Reacting Flows
203		214-4: Electrokinetics for Nano and Micro-fluidics	214-5: Electrokinetics for Nano and Micro-fluidics	214-6: Electrokinetics for Nano and Micro-fluidics
204			316-1: Mechanics of Architected Materials	316-2: Mechanics of Architected Materials
101		324-4: Mechanics of Soft Matter: From Living Systems to Functional Composites	324-5: Mechanics of Soft Matter: From Living Systems to Functional Composites	324-6: Mechanics of Soft Matter: From Living Systems to Functional Composites
105		221-1: Methods for Data-Driven Modeling of Unsteady Fluid Flows	221-2: Methods for Data-Driven Modeling of Unsteady Fluid Flows	221-3: Methods for Data-Driven Modeling of Unsteady Fluid Flows
106		334-1: Trustworthy Augmented Intelligence and Data-driven Material Modeling	334-2: Trustworthy Augmented Intelligence and Data-driven Material Modeling	334-3: Trustworthy Augmented Intelligence and Data-driven Material Modeling
116		308-2: Computational Fracture, Fatigue and Damage Modeling	211-1: Rheology and Interfaces in Complex Fluids	211-2: Rheology and Interfaces in Complex Fluids
RRH 3.208		309-1: Recent Developments in Peridynamics Modeling	309-2: Recent Developments in Peridynamics Modeling	

RRH 3.216		314-4: Mechanics and Physics of Advanced Manufacturing Processes	314-5: Mechanics and Physics of Advanced Manufacturing Processes	333-1: Cell Mechanics and Mechanobiology
RRH 3.304		222-2: Elastic and Elasto-Inertial Turbulence	327-1: Mechanics of Polymeric Gels	327-2: Mechanics of Polymeric Gels
RRH 3.406		224-4: High-Speed Boundary Layer Transition		
RRH 3.414		312-1: Micro-Projectile Impact Testing of Emerging Materials	312-2: Micro-Projectile Impact Testing of Emerging Materials	
RRH 4.308		328-1: Mechanics of Flexible, Stretchable and Bio-integrated Electronics	328-2: Mechanics of Flexible, Stretchable and Bio-integrated Electronics	328-3: Mechanics of Flexible, Stretchable and Bio-integrated Electronics

Wednesday, June 22

Room	8:30-9:45 am	10:15am-12 (TS7)	1:45-3:30 pm (TS8)	3:45-5:30 pm (TS9)
204	Plenary: Jackie Chen, Mitigating Climate Change Through Ammonia-Hydrogen Premixed Turbulent Combustion			
Salon D		111-1: Statistical Physics Techniques in Computational Mechanics	111-2: Statistical Physics Techniques in Computational Mechanics	111-3: Statistical Physics Techniques in Computational Mechanics
Salon E		203-2: External Biofluid Mechanics	203-3: External Biofluid Mechanics	326-1: Fracture and Damage of Soft Materials
301		301-2: Mechanics of Electrochemical Materials and Systems	301-3: Mechanics of Electrochemical Materials and Systems	301-4: Mechanics of Electrochemical Materials and Systems
201		225-2: Turbulence in Compressible Flows: Recent Advances and Open Questions		311-1: Mechanics of Friction, Fracture and Damage in Materials Across Scales
202		216-2: Reacting Flows	217-1: Dynamics and Instabilities of Flows with Particles Across Length Scales	217-2: Dynamics and Instabilities of Flows with Particles Across Length Scales
203		218-1: Mechanics and Dynamics of Porous -particle Suspensions	310-1: Plasticity and Ductile Failure	310-2: Plasticity and Ductile Failure
204		316-3: Mechanics of Architected Materials	316-4: Mechanics of Architected Materials	316-5: Mechanics of Architected Materials
101		324-7: Mechanics of Soft Matter: From Living Systems to Functional Composites	213-1: Modeling and Simulation of Energetic Materials	213-2: Modeling and Simulation of Energetic Materials
105		221-4: Methods for Data-Driven Modeling of Unsteady Fluid Flows	221-5: Methods for Data-Driven Modeling of Unsteady Fluid Flows	
106		334-4: Trustworthy Augmented Intelligence and Data-driven Material Modeling	334-5: Trustworthy Augmented Intelligence and Data-driven Material Modeling	334-6: Trustworthy Augmented Intelligence and Data-driven Material Modeling
116		211-3: Rheology and Interfaces in Complex Fluids		
RRH 3.208		320-1: Mechanics and Physics of Active Materials	320-2: Mechanics and Physics of Active Materials	320-3: Mechanics and Physics of Active Materials

RRH 3.216		333-2: Cell Mechanics and Mechanobiology	333-3: Cell Mechanics and Mechanobiology	333-4: Cell Mechanics and Mechanobiology
RRH 3.304		323-1: Soft Matter Mechanics, Physics, and Devices	323-2: Soft Matter Mechanics, Physics, and Devices	323-3: Soft Matter Mechanics, Physics, and Devices
RRH 3.406				305-1: Mechanics -Guided Design, Material Processing and Applications of Composites
RRH 3.414		321-1: Dynamics of Soft Materials and Structures	321-2: Dynamics of Soft Materials and Structures	321-3: Dynamics of Soft Materials and Structures
RRH 4.308		328-4: Mechanics of Flexible, Stretchable and Bio-integrated Electronics	328-5: Mechanics of Flexible, Stretchable and Bio-integrated Electronics	

Thursday, June 23

Room	8:30-9:45 am	10:15am-12 (TS10)	1:45-3:30 pm (TS11)	3:45-5:30 pm (TS12)	6:30-8 pm
204	Plenary: John Dabiri, Bioinspired Ocean Exploration				Banquet
Salon D		208-1: Cavitation and Bubble Dynamics	208-2: Cavitation and Bubble Dynamics	208-3: Cavitation and Bubble Dynamics	
Salon E		326-2: Fracture and Damage of Soft Materials	326-3: Fracture and Damage of Soft Materials	326-4: Fracture and Damage of Soft Materials	
301		331-1: Programmable and Active Metamaterials	331-2: Programmable and Active Metamaterials	331-3: Programmable and Active Metamaterials	
201		311-2: Mechanics of Friction, Fracture and Damage in Materials Across Scales	311-3: Mechanics of Friction, Fracture and Damage in Materials Across Scales	311-4: Mechanics of Friction, Fracture and Damage in Materials Across Scales	
202		217-3: Dynamics and Instabilities of Flows with Particles Across Length Scales	217-4: Dynamics and Instabilities of Flows with Particles Across Length Scales	217-5: Dynamics and Instabilities of Flows with Particles Across Length Scales	
203		310-3: Plasticity and Ductile Failure	310-4: Plasticity and Ductile Failure	310-5: Plasticity and Ductile Failure	
204		316-6: Mechanics of Architected Materials	316-7: Mechanics of Architected Materials	316-8: Mechanics of Architected Materials	
101		212-1: Hydrodynamic Stability and Simulation of Complex Fluid Flows in Porous Media	212-2: Hydrodynamic Stability and Simulation of Complex Fluid Flows in Porous Media	220-1: Nonlinear Dynamics of Active Fluids and Transition to Active Turbulence	
105			108-1: Mechanics of Granular and Geo-Mechanical Systems	108-2: Mechanics of Granular and Geo-Mechanical Systems	
106		317-1: Mechanics of Multifunctional Low- Dimensional Materials	317-2: Mechanics of Multifunctional Low- Dimensional Materials	317-3: Mechanics of Multifunctional Low- Dimensional Materials	
116		302-1: Large Deformation and Failure of Lithium-ion batteries		322-1: Multiscale Methods and Mechanics of Soft Matter and Hierarchical Materials	

RRH 3.208		320-4: Mechanics and Physics of Active Materials	320-5: Mechanics and Physics of Active Materials	320-6: Mechanics and Physics of Active Materials	
RRH 3.216		307-1: Thermodynamic Modeling of Void Evolution, Fatigue, and Tribo-Wear	307-2: Thermodynamic Modeling of Void Evolution, Fatigue, and Tribo-Wear	313-1: Deformation and Assembly of Materials and Structures at Solid-liquid Interfaces	
RRH 3.304		323-4: Soft Matter Mechanics, Physics, and Devices	329-1: Mechanics of Soft and Active Interfaces: Theory, Simulations, and Experiments	329-2: Mechanics of Soft and Active Interfaces: Theory, Simulations, and Experiments	
RRH 3.406		305-2: Mechanics-Guided Design, Material Processing and Applications of Composites	102-1: Contemporary Meshfree Methods in Computational Mechanics	102-2: Contemporary Meshfree Methods in Computational Mechanics	
RRH 3.414		332-1: Machine Learning in the Experimental Mechanics of Materials	332-2: Machine Learning in the Experimental Mechanics of Materials	332-3: Machine Learning in the Experimental Mechanics of Materials	
RRH 4.308					

Friday, June 24

Room	8:30-9:45 am	10:15am-12 (TS13)	1:45 am-3:30 pm (TS14)
204	Plenary: The Legacy of Theodore von Karman		
Salon D		208-4: Cavitation and Bubble Dynamics	
Salon E		303-1: Modeling and Design for Energy Devices	303-2: Modeling and Design for Energy Devices
301		110-1: 100 Years of International Collaboration in Mechanics: The Legacy of Theodore von Karman	
201		311-5: Mechanics of Friction, Fracture and Damage in Materials Across Scales	
202		217-6: Dynamics and Instabilities of Flows with Particles Across Length Scales	105-1: Physics-Based Simulation & Machine Learning Fusion for Sensor Network Design, Optimization, and Digital Twin Applications
203		310-6: Plasticity and Ductile Failure	310-7: Plasticity and Ductile Failure
204		316-9: Mechanics of Architected Materials	316-10: Mechanics of Architected Materials
101		220-2: Nonlinear Dynamics of Active Fluids and Transition to Active Turbulence	220-3: Nonlinear Dynamics of Active Fluids and Transition to Active Turbulence
105		108-3: Mechanics of Granular and Geo-Mechanical Systems	108-4: Mechanics of Granular and Geo-Mechanical Systems
106		317-4: Mechanics of Multifunctional Low-Dimensional Materials	317-5: Mechanics of Multifunctional Low-Dimensional Materials
116		322-2: Multiscale Methods and Mechanics of Soft Matter and Hierarchical Materials	322-3: Multiscale Methods and Mechanics of Soft Matter and Hierarchical Materials
RRH 3.208		320-7: Mechanics and Physics of Active Materials	319-1: Phase Field Study of Microstructures and Behaviors of Advanced Materials

RRH 3.216		313-2: Deformation and Assembly of Materials and Structures at Solid-liquid Interfaces	223-1: Mechanics and Rheology of Vitrimers
RRH 3.304		206-1: Bio-Inspired Propulsion	206-2: Bio-Inspired Propulsion
RRH 3.406		102-3: Contemporary Meshfree Methods in Computational Mechanics	
RRH 3.414			
RRH 4.308			