Technical Program Information

Technical Sessions at a Glance

TS 1	Monday, July 24, 9:30-11:30am
TS 2	Monday, July 24, 2-4pm
TS 3	Monday, July 24, 4:30-6:30pm
TS 4	Tuesday, July 25, 9:30-11:30am
TS 5	Tuesday, July 25, 2-4pm
TS 6	Wednesday, July 26, 9:30-11:30am
TS 7	Wednesday, July 26, 2-4pm
TS 8	Wednesday, July 26, 4:30-6:30pm
TS 9	Thursday, July 27, 9:30-11:30am

MS	Title	Session(s)
101	Isogeometric Methods – A Symposium in Honor of Thomas J.R. Hughes	TS 1-2
102	Minisymposium in Memory of Professor Ilinca Stanciulescu: Computational Mechanics for Complex Material and Engineering Systems	TS 4-5
201	Advances in Computational Biomechanics and Mechaniobiology	TS 4-6
202	Cell Mechanics and Mechanobiology	TS 7-9
203	Data-Informed Computational Models and Methods for Predicting Tumor Growth and Treatment Response	TS 1-4
204	Machine Learning and Artificial Intelligence for Computational Mechanics in Medicine	TS 6-9
205	Multiphysics and Data-Driven Modeling for Cardiovascular Biomedicine	TS 5-7
207	Modeling Growth, Biological Networks Development, and Interfaces in Soft Matter	TS 8
208	Imaging-Based Methods in Computational Medicine	TS 1-3
301	Computational Methods and Design for Impact and Safety Problems	TS 4-5
302	Computational Modeling of Extreme Loading Environments	TS 4-6
304	Data Science for Fracture and Failure Mechanics of Materials	TS 1-3
305	Recent Advances in Computational Fracture Mechanics and Failure Analysis	TS 4-5
306	Advances in Modeling and Simulation of Material Damage and Failure	TS 1-8
307	Phase-Field Modeling and Computation	TS 1-6
308	Peridynamics and its Applications	TS 7-8
309	Computational Generalized Continua, Gradients, and Nonlocal Mechanics	TS 6-7
310	Beyond Crystal Plasticity Finite Element for Structure-Property Relationship	TS 7-9
311	Advances in Material Model Calibration for Computational Solid Mechanics	TS 8-9
312	Invariant-Domain Preserving Hydrodynamics: From Euler to Navier-Stokes	TS 1-3
313	Fluid-Structure Interaction in Interface and Moving Boundary Problems	TS 5-6
314	Fluid-Structure Interaction: Modern Modeling and Simulation Technologies	TS 8
315	Mixed Discretization Methods in Solid, Fluid and Coupled Simulations	TS 6-7
316	Computational Methods in Environmental Fluid Mechanics	TS 1-4

317	Recent Advances in FE Methods for Coupled Problems in Incompressible Fluid Dynamics	TS 4-5
318	Towards Robust and Efficient High-Order Methods for Unsteady Nonlinear Partial Differential Equations	TS 1-3
319	Computational Interface and Contact Mechanics	TS 1-4
320	Multiscale Interfacial Mechanics	TS 7-9
321	MeshTrends 2023: Symposium on Trends in Unstructured Mesh Generation	TS 1-3
322	Novel Strategies for Nonlinear Simulation of Threaded Fastener Joints and Structures: Modeling, Calibration, Failure, and Uncertainty Quantification	TS 8-9
323	Active Materials and Structures	TS 5-6
324	Recent Advances in Discretization Techniques, Element Technology, and Mesh Adaptivity for Inelasticity, Localization, and Failure	TS 6-7
401	Physics-Based Data-Driven Modeling and Uncertainty Quantification in Computational Materials Science and Engineering	TS 5-7
402	Physical Knowledge in Machine Learning Based Uncertainty Quantification: Applications in Solid Mechanics	TS 7-8
403	Uncertainty Quantification for Learning and Data-Driven Predictive Modeling of Complex Systems	TS 1-4
404	ML-Aided Uncertainty Quantification for Complex Systems Analysis	TS 5
405	Scientific Deep Learning	TS 1-2
406	Advances in Transferring and Adapting Knowledge Between Domains in Deep Neural Networks	TS 1
407	Data-Driven and Probabilistic Methods for Model-Form Error	TS 6-7
408	Model Order Reduction for Parameterized Continuum Mechanics	TS 1-5
409	Machine Learning and Model-Based Dimension Reduction for Exploration and Interpretation of Dynamical and Industrial Systems	TS 1-2
410	Surrogate Models for Expediting Many-Query Applications in Computationally Demanding Dynamical Systems	TS 3
413	Data-Driven Computational Solid and Geological Mechanics	TS 5-7
414	Inverse Problems and Reduced Order Modeling for Wave Propagation Problems	TS 5-6
415	Computational Methods for Inverse Problems and Optimal Experimental Design	TS 1-4
416	Recent Developments in Operator Networks	TS 7-9
417	UQ-TTA Student Paper Competition in Uncertainty Quantification	TS 8
418	Data-Enhanced Modeling and Uncertainty Quantification of Systems with Multiple Fidelities	TS 7-9
419	Multi-Fidelity Information Fusion with Data-Driven Models in Computational Applications	TS 7-8
420	Probabilistic Learning and Constrained Generative Models	TS 4-6
421	Software Tools for Uncertainty Quantification and Machine Learning with Applications to Computational Science	TS 8-9
422	Advances in Data-Driven Model Development	TS 8-9
423	Recent Advances in Data-Intensive Physics-Informed Machine Learning for Accelerating Computational Science	TS 1-3
424	Scientific Machine Learning for Computational Mechanics (SciML4CM)	TS 1-3

501	Higher Order and Minimum Residual Methods	TS 7-8
502	Recent Developments in Peridynamics Modeling	TS1
503	Current Trends and Advances in Coupled Simulations and Enriched Finite Element Methods	TS 5-6
504	Interface Reconstruction and Constrained Mesh Data Transfer	TS 4-5
505	Interface Problems in Nonlocal Modeling: Advances in Local-to-Nonlocal and Nonlocal-to-Nonlocal Coupling Methods	TS 3
506	Innovative Discretization Methods for Partial Differential Equations on Polytopal Meshes	TS 1-3
507	Industrial Applications of IGA	TS 6-7
509	Geometric Mechanics Formulations and Structure-Preserving Discretizations for Continuum Mechanics	TS 3-4
510	Performance-Portable Linear Solver Implementations for Unstructured Mesh Applications	TS 8-9
511	Advances in Novel Property-Preserving Numerical Methods for Hyperbolic Problems	TS 6-7
512	Immersed/Unfitted Discretizations in Computational Mechanics: Mathematics, Algorithms, and Applications	TS 1-2
513	Advances and Applications in Meshfree and Particle Methods	TS 1-6
515	Stabilized, Multiscale, and Multiphysics Methods	TS 4-6
516	Waves: Advanced Numerical Methods and Applications	TS 7-9
517	Advances in Numerical Methods for Solution of PDEs	TS 4-5
601	Emerging Topology and Shape Optimization Techniques in Computational Design of Materials and Structures	TS 7-9
602	New Trends in Topology Optimization	TS 1-5
603	Recent Advances in Large-Scale Optimal Engineering Design	TS 7-8
604	Modeling and Simulation for Additive Manufacturing	TS 1-8
607	Multiscale Methods for Advanced Manufactured Materials	TS 7-9
608	Beyond Fingerprinting: AI Approaches to Unearthing Process-Structure-Property Correlations in Additive Manufacturing	TS 1
609	Machine Learning for Predicting Material Properties, Design, and Discovery of New Materials	TS 1-2,4
610	Architected Materials and Structures	TS 5-8
611	Data-Driven and Multiscale Modeling of Energy and Quantum Materials	TS 3-5
612	Damage Mechanics Across Scales	TS 6-8
616	Multi-Scale and Multi-Physics Computations in Fluids and Solids	TS 1-3
702	Machine Learning and Quantum Computing for Earth Sciences	TS 2-4
703	Approximation of Fluid Models of Plasma for Fusion Development	TS 3-4
705	Geomechanics of the Cryosphere	TS 7-8
706	Dakota Software for Optimization, Uncertainty Quantification and Model Calibration	TS 1