

TECHNICAL PROGRAM INFORMATION

Technical Sessions at a Glance

TS 1	Monday, July 29, 10:00 am – Noon
TS 2	Monday, July 29, 2:00 – 4:00 pm
TS 3	Monday, July 29, 4:30 – 6:30 pm
TS 4	Tuesday, July 30, 10:00 am – Noon
TS 5	Tuesday, July 30, 2:00 – 4:00 pm
TS 6	Wednesday, July 31, 10:00 am – Noon
TS 7	Wednesday, July 31, 2:00 – 4:00 pm
TS 8	Wednesday, July 31, 4:30 – 6:30 pm
TS 9	Thursday, August 1, 10:00 am – Noon

Minisymposia Session Times

MS	Title	Session(s)
101	Computational Poro- and Geo-mechanics (in honor of Professor Mary F. Wheeler)	TS 5
102	Advances in Computational Methods for Subsurface Modeling: In Honor of Professor Mary F. Wheeler	TS 1 – TS 4
103	Computational Methods for Fracture in Porous Media, in honor of Prof. Mary Wheeler	TS 6 – TS 7
104	Innovative Higher Order Discretization Methods in Computational Science and Engineering, in honor of Professor Mary Wheeler	TS 6 – TS 9
105	Computational Geomechanics, in honor of Prof. Mary F. Wheeler	TS 7 – TS 9
201	Accelerating Uncertainty Quantification for High-Fidelity Simulations	TS 3 – TS 4
202	Dakota Software for Optimization, Uncertainty Quantification and Model Calibration	TS 1 – TS 3
203	Data-driven Modeling Using Uncertainty Quantification, Machine Learning and Optimizaiton	TS 1 – TS 6
204	Advances in Design Optimization under Uncertainty	TS 5 – TS 6
205	Multilevel/Multifidelity Strategies for Uncertainty Quantification	TS 7 – TS 8
207	Model Construction, Uncertainty Quantification, and Data Driven Modeling in Computational Mechanics	TS 1 – TS 2
208	Data Assimilation in Model Order Reduction Techniques for Computational Mechanics	TS 1 – TS 3
209	Stochastic Methods and Data-Driven Approaches in Computational Mechanics	TS 1 – TS 2
301	Advances and Applications in Meshfree and Particle Methods	TS 1 – TS 5
302	Particle-Based Methods (DEM; PFEM; SPH; MPM; MPSI and others)	TS 8 – TS 9
303	Peridynamics and its Applications	TS 1 – TS 5
304	Computing Growth, Dissolution, and Fracture	TS 6
305	Local-Nonlocal Coupling Methods for Nonlocal Models	TS 8 – TS 9
401	Advances in Computational Biomechanics	TS 6 – TS 9

402	Computational Biomechanics of Impact and Injury	TS 4 – TS 5
403	Computational Biomedical Engineering and Bioinformatics	TS 3 – TS 4
404	Computational Modeling of Cardiac Valve Function and Intervention	TS 5 – TS 6
406	Computational Multiphysics Modeling of Cardiovascular Systems	TS 1 – TS 4
407	Maturation and Remodeling in Native and Engineered Soft Collagenous Tissues	TS 7
408	Mechanobiology of Cells, Vesicles and Biomembranes	TS 1 – TS 3
409	Imaging-based Modeling in Biomechanics	TS 8 – TS 9
410	Trends in Patient Specific Modeling of Cardiovascular Systems	TS 1 – TS 2
411	Multiscale Modeling in Bio-Mechanical Systems	TS 3
412	Direct and Inverse Methods for Cardiovascular and Pulmonary Biomechanics	TS 6 – TS 8
501	Computational Fluid Mechanics with Free and Moving Boundaries: Methods and Applications	TS 4 – TS 5
502	Computational Fluid-Structure Interaction and Moving Boundaries and Interfaces	TS 1 – TS 5
503	Variational Stabilization, Structure- and Positivity-Preserving Techniques for Complex Flows	TS 3 – TS 5
504	Computational Methods for Environmental Fluid Mechanics	TS 6 – TS 8
505	Fluid-Structure Interaction Algorithms and Applications	TS 6 – TS 7
506	Immersed Methods for CFD and Fluid-Structure Interaction	TS 8 – TS 9
601	Computational Mechanics for Performance and Damage of Materials	TS 4 – TS 9
602	Numerical Modeling of Extreme Loading Environments	TS 6 – TS 9
603	Computational Methods and Design for Impact and Blast Problems	TS 7 – TS 8
604	Advances in Numerical Methods for Linear and Non-linear Dynamics and Wave Propagation	TS 7 – TS 9
605	Recent Advances in Computational Fracture Mechanics	TS 1 – TS 5
701	Isogeometric Methods	TS 3 – TS 5
702	Non-standard Formulations and Discretizations for Thin-walled Structures	TS 1 – TS 2
703	Unstructured Spline Techniques for Isogeometric Analysis with Applications	TS 6 – TS 7
704	Leveraging Extended CAE Technology for the Implementation of IoT, AI and 5G	TS 8
705	High Order Numerical Methods and High Order Mesh Generation	TS 1 – TS 2
801	Advances in Modeling of Additive Manufacturing: Process Modeling and Structural Performance Predictions	TS 9
802	Modeling and Simulation of Additive Manufacturing	TS 6 – TS 9
803	Modeling and Simulation of Additive Manufacturing Processes	TS 3 – TS 5

804	Structural and Multidisciplinary Optimization for Additive Manufacturing Emphasizing Nonlinear Problems	TS 1 – TS 2
901	Modeling at the Intersection of First Principles Methods, Mechanics and Mathematics	TS 3 – TS 5
902	Mathematical Models and Computations in Structural Mechanics in Conjunction with Classical and Non-Classical Continuum Mechanics	TS 1 – TS 5
903	The Summation-by-Parts Framework: Analysis and Design of Modern Numerical Methods	TS 6 – TS 7
904	Enabling Technologies and Simulation Practices for Advanced Scientific and Engineering Computation	TS 8 – TS 9
1001	Model Order Reduction for Computational Continuum Mechanics	TS 1 – TS 5
1002	Computational Modeling of Embedded or Contact Interfaces	TS 4
1101	Modeling Interface Driven Microstructure Evolution in Materials	TS 4
1102	Multi-scale and Multi-physics Computations in Fluids and Solids	TS 4 – TS 5
1103	Multiscale Models, Algorithms, and Analysis for Materials Science	TS 1 – TS 2
1104	Atomistic and Multiscale Modeling and Simulation of Nano- and Micro-structures of Materials and Their Failure Mechanisms	TS 7 – TS 9
1105	Process-induced Deformation and Defects Control Method for Structures	TS 3
1106	Computational Mechanics for Smart Materials: Modeling, Simulation and Experimental Validation	TS 6 – TS 7
1107	Soft, Multi-Functional and Architected Materials	TS 6 – TS 9
1109	Towards Optimization and Real-Time Simulation of Multiscale Material Behavior: Methods and Applications	TS 1 – TS 2
1111	Multiscale/Multiphysics Approaches on Complex Materials and Structures	TS 1 – TS 3
1201	Polygonal and Polyhedral Discretizations in Computational Mechanics	TS 1 – TS 2
1202	Symposium on Trends in Unstructured Mesh Generation	TS 6 – TS 8
1203	Unfitted Discretization Methods	TS 4 – TS 5
1204	Unstructured Mesh Adaptation for Computational Fluid Dynamics	TS 6 – TS 7
1205	New Trends in Topology Optimization	TS 1 – TS 6
1206	Emerging Topology and Shape Optimization Techniques in Computational Materials Design	TS 1 – TS 6
1301	Imaged-Based Simulation	TS 1 – TS 3
1302	Computational Methods in Image Analysis	TS 9
1501	Optimization of High BPF Applications for Hierarchical Parallel Architectures	TS 9
1601	Enriched Finite Element Methods and Non-Intrusive Coupling Algorithms	TS 3 – TS 5