MULTIPHYSICS Conference 2026
27 - 29 October | Detroit, MI, USA

PRELIMINARY AGENDA

DoubleTree Suites by Hilton, Detroit Downtown – Fort Shelby

525 West Lafayette Blvd, Detroit, MI 48226, USA

Day 1 Tuesday 27 October 2026

11:30	**Lunch**		
12:30	**KEYNOTE Keynote**		
13:30	**Transition**		
Session 1	**1A – General Multiphysics**	**1B – AI**	**1C – Electromagnetic Simulation**
13:45	**Automation in Modeling Complex Multiphysics Simulations using AI/ML with Modelica Language** Behnam Afsharpoya, Dassault Systemes	**Best Practices for Surrogate ML Model Creation and Deployment** Rajasekaran Mohan, DEP	**MRI Heating in Virtual Human Anatomies with Surgically Repaired Hips To Support Safe Implant Design** Josh Thomas, AltaSIM Technologies
14:15	**Multi-Physics Simulation Solution For Fusion Applications - The Neutronics Thermal- Structural Analysis Of A Breeding Blanket Module** Eric Vernon, Dassault Systemes	**Side Door Crush Resistance Force Prediction As Per Static FMVSS 214s Regulation** Sanjay Patil, Stellantis	**Machining Chip Cleaning Emulator: Modeling Fully Coupled Rigid-Body Chip Transport in Water Flushing Systems** Song He, General Motors
14:45	**Multiphysics of Oxidation and Fatigue in Elastomer Automotive Applications** Jesse Suter, Endurica	**Physics AI Surrogates for Coupled CFD-FEA: Enabling Fast Multidisciplinary Design Exploration** Dheeraj Vemula, Luminary	**Multiphysics Simulation for Induction Shrink for Fit EV Motor Housings** Tareq Eddir, SimuTechGroup
15:15	**Break**		
Session 2	**2A – General Multiphysics**	**2B – AI**	**2C – Battery Simulations**
15:30	**The Evolving Role of the CAE Engineer: Preparing for the Next Decade** Mario Felice, virsolTech	**PhysMAP: A Causal, Materiality-Weighted In-Calibration Check for AI Surrogates in Multiphysics Simulation** Vishnu Vettrivel, GWU	**AI-Assisted Geometry Generation and Simulation-Driven Optimization for Battery Cooling Design** Shiv Kumar, Ansys
16:00	**Evaluation of AI Models for Accelerated Structural Response Prediction of Automotive Exhaust System Configurations** Ram Suraj Ramkumar, Isuzu	**Intelligent Injection Gate Design Through AI-Accelerated Learning and Design Space Exploration with Nonlinear Multiphysics Simulation** Cenk Feridunoglu, Empower Operations	**C-BECAF: A Crashworthiness Assessment Framework for Composite Battery Enclosures** Sachin Ratnaparkhi
16:30	**Technologies to Support Multiphysics Simulations for the Fusion Energy Industry** Mark Shephard, Rensselaer Polytechnic Institute	**Predicting The Physics of a Tennis Ball Serve Using Time-coupled Reduced-Order Modeling-based Prediction of the Ball Deformation State and the Air Flow Around the Ball** Adarsh Viji Elango, ESTECO	**PINN-LSTM Framework for Adaptive Analysis of Battery Parameters, Including Unified SOC and SOH Estimation, RUL Prediction and Context-Aware Auto-Tuning Across Terrain, Temperature, and Driver Modes** Jaywant Mahajan, eShocan
17:00	**Reception**		

Day 2 — Wednesday 28 October 2026

08:30	**KEYNOTE** Keynote		
09:15	**Break**		
Session 3	**3A – General Multiphysics**	**3B – AI**	**3C – Battery Simulations**
09:30	**Integrated Fatigue Life Prediction for Large Nonlinear Structural Simulations – Eliminating the Workflow Bottleneck in Large-Scale Fatigue Simulation** Mike Sheh, Intes North America	**Shift-Truck: A Large Physics Model for Pickup-Truck Aerodynamics, Bootstrapped by Transfer Learning From Shift-SUV** Yin Yu, Luminary AI	**Intelligent Multiphysics Simulation Automation: Bridging Safety Analysis and Fault Simulation for Automotive Electronic Systems Using LLM and RAG** Jaywant Mahajan, eShocan
10:00	**A Coupled Thermo-Mechanical Finite Element Framework for Assessment of Performance for Rotary Fiberizing Spinners** Rauf Shah, Owens Corning	**On the Hydrodynamics of Foiling Craft** Martin Matthew, TU Dresden	**Analyzing Vehicle Performance as a Function of Battery Cell Behavior During Charging and Discharging** Behnam Afsharpoya, Dassault Systemes
10:30	**Simulation of a Hose with a Complex Reinforcing Outer Layer** Nelson Woo, Enginesoft USA	**Visualizing Multi-Physics Modeling on a Turbo Charger System, Sub-System, and Component: Utilizing AI Assistance** Dan Donovan, Visual Collaboration Tech	**Multiscale Modeling of Lithium-Ion Batteries: Heterogeneous P4D Analysis of Structurally Inhomogeneous Cells Models Generated by Mixing Simulation of Stochastically Generated Active Particles** Sandeep Kulathu, Dassault Systemes
11:00	**Lunch**		
12:00	**PANEL** Discussion Panel Bringing together leading experts from industry and academia to explore how multiphysics simulation is evolving to address industry challenges.		
13:30	**Break**		
Session 4	**4A – General Multiphysics**	**4B – AI**	**4C – Battery Simulations**
14:00	**Coupled Electrical–Thermal–Flow Modeling of a Cold Top Electric Melting Furnace** Nikita Khozin, Owens Corning	**Organizational Knowledge Driven Autonomous Welding Process Simulation** Omar Ibrahim, Teknicae	**Numerical Study of Electrolyte Flow Under Charging and Discharging Process of 2D Lithium-Ion Battery Model** Sandeep Kulathu, Dassault Systemes
14:30	**Closing the Multiphysics AI Data and Trust Gap: Rapid Results Review for Validation and Design Inference** Prasad Mandava, Visual Collaboration Tech	**A Physics-Based CFD and Reduced-Order Modeling Framework for Airflow in an Insulation Forming Hood** Rauf Shah, Owens Corning	**Investigations of EV Battery Pack Structural Integrity During Thermal Runaway Venting Events Using a Coupled CFD-FEA Framework** Kislaya Srivastava, Convergent Science
15:00	**Mechanistic Origin of Cohesive Bridge Formation in Starve-Fed Twin-Screw Extruder** Swan Htet, CSIRO	**Shifting ML Based Fatigue Life Prediction In Automotive Product Development** Abhijeet Kumbhare, Cadence Design Systems	**Reduced-Order Electrochemical–Thermal Modeling of Lithium-Ion Battery Cells Using Machine Learning for Pack-level Analysis** Sandeep Kulathu, Dassault Systemes
15:30	**Break**		
Session 5	**5A – General Multiphysics**	**5B** ***Track to be confirmed***	**5C** ***Track to be confirmed***
16:00	**An Advanced SPH-Based Virtual Machining Chip Cleaning Emulator: Modeling Fully Coupled Rigid-Body Chip Transport in Water Flushing Systems** James Jan, Ford Motor Company	*Presentation to be confirmed*	*Presentation to be confirmed*
16:30	**The Simulation You Ran Last Year Still Matters: Knowledge Generation And Preservation In The Era Of Physics AI** Kaushik Das, SIMR	*Presentation to be confirmed*	*Presentation to be confirmed*
17:00	**Reception**		

Day 3 — Thursday 29 October 2026

08:30	**KEYNOTE** Keynote		
09:30	**Break**		
Session 6	**6A – General Multiphysics**	**6B – NVH and Aeronautics**	**6C – ADAS**
10:00	**A Hybrid Experimental–Numerical Methodology for Thermomechanical Assessment of a Stainless-Steel Automotive Exhaust System** Ram Suraj Ramkumar, Isuzu	**A Simulation-Led Approach to Stator Rotor Slot Combination Selection for Improved NVH Performance of Induction Motors** Vijaya Ambarisha, Dauch Corporation	**Optical Performance of ADAS Camera Under Thermal-Induced Structural Deformation of Windshield** Akshay Patke, Synopsys
10:30	**Mesh-Particle Multiphysics: Coupling SPH, FEM, and FVM Across Various Industrial Applications** Johannes Gutekunst, Dive Solutions	**Understanding In-Cabin Noise of Aircraft to Improve Occupant Acoustic Experience** Iyabo Lawal, Cal Poly Pomona	**Full-Vehicle Multiphysics ADAS Co-Simulation for Euro NCAP Active Safety Protocol Validation with Vehicle Dynamics and 3D Animation** Jaywant Mahajan, eShocan
11:00	**Large Scale Modeling of Wind Loads on Solar Arrays** Saeid Emami, Array Tech	**Vision-Based Deep Learning for Automated Classification of Automotive Body Mode Shapes in NVH Development** Yugandhar Gopisetty, Cadence Design Systems	**Agentic AI and Multiphysics Simulation for Full-Vehicle EMI/EMC: From Automated Model Construction to Physics-AI Accelerated Prediction** Tim McDonald, EMA
11:30 – 12:30	**Lunch**		

Confirmed Keynote Speakers *(allocation to keynote slots to be announced)*

Darrel Meffert
Caterpillar Inc.
Enterprise Simulation Strategy Lead

David Kepczynski
Ford Motor Company
Global Chief Digital Transformation, Product Development

Michael Balchanos
ASDL
Senior Research Engineer

In association with the NAFEMS Multiphysics Working Group.
Full details, registration and the confirmed programme: www.nafems.org/multiphysics