Simulation in the Automotive Industry: Driving Convergence to Electrification, Autonomous and Connectivity

Preliminary Agenda

8:30-8:40	**Welcome & Introduction** (Mr. Mario Felice – NAFEMS Council & virsolTech Engineering Consulting, LLC)
8:40-8:45	**Platinum Sponsor Session** (AVL)
8:45-9:30	**Keynote: Electrification Thermal Development: Opportunities and Challenges** (Dr. Yangbing Zeng - Technical Fellow, Electrochemistry & Battery Thermal - General Motors Corp.)

9:30-10:00   **Networking Break in Exhibition Sponsored by**

	Electrification / EV Battery	Electrification / E-Motors	Autonomous Vehicles & ADAS Simulation Technologies
10:00-10:20	**Multi-Scale Design of a Battery Thermal Management System** (Aziz Abdellahi - Siemens Digital Industries Software)	**Simulation-Based Electromagnetic Design and Thermal Analysis of Electric Machines** (Issah Ibrahim - MAYA HTT)	**High Fidelity Physics-Based Electromagnetics Simulation of Radar and Vehicle-to-Vehicle Connectivity Systems for Autonomous Vehicles** (Ushe Chipengo - Ansys, Inc.)
10:20-10:40	**Development of an Extended Single Particle Model of a Hi Power Lithium Ion Battery** (Phillip Aquino - Honda Development & Manufacturing of America)	**Optimization of a High-Power Electric Traction Machine** (Adarsh Elango - ESTECO North America, Inc.)	**ADAS Calibration Optimization by Deep Neural Networks** (Jaimin Bai - Ford Motor Co.)
10:40-11:00	**Conjugate Heat Transfer Analysis of a Cold Plate Cooled Battery Pack for Electric Vehicles Using CFD** (Xiaofeng Yang - General Motors Corp.)	**A Scalable System Modeling Approach for Electric Powertrains** (John Batteh - Modelon, Inc.)	**Edge Case Analysis in Adverse Weather Conditions Taking Into Account Sensor Degradation** (Simona Ottaiano - Siemens Industry Software NV)

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11:00-11:20	**Combining 1D and 3D Multi-Physics Modeling Methodologies for Thermal Runaway Propagation Analysis** (Joe Wimmer - Gamma Technologies)	**Digital Transformation of CAE Results Processing, Sharing, and Review in the Context of Automotive Electrification** (Prasad Mandava - Visual Collaboration Technologies, Inc.)	**Simulation of Real-World Events for ADAS - PCA Feature Validation** (Abhay Bhivare - Ford Motor Co.)

11:20-12:30	**Lunch in Dining Room**

12:30-1:15	**Keynote: Deploying World-Class Simulation across Ford Software-Defined Vehicles** (Dr. Justyna Zander - Director ADAS Simulation - Ford Motor Co.)

1:15-1:25	**Brief Transition**

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1:25-1:45	**Integrated 1D and 3D Workflow for EV Battery System Development** (Chin-Wei Chang - Dassault Systèmes SIMULIA Corp.)	**What's Special About EV's? Development of a Flexible Digital Thread for System Performance Simulation at Toyota Motor Europe** (Malcom Panthaki - ARAS Corporation)	**Virtual Validation of Intelligent Lighting Features with Help of Simulation** (Vijit Dubey - Ford Motor Co.)
1:45-2:05	**Thermal Runaway Simulation of EV Batteries with CFD and 1-D Systems Model Co-simulation** (Anup Paul - Hexagon Manufacturing Intelligence, Inc.)	**Electric Drive Engineering: An Exercise in Collaboration and Integration** (Steven Dom - Siemens Industry Software NV)	**Model-Based Assessment of Fuel Economy Impact of ADAS Functions on Class 8 Trucks** (Jonathan Zeman - Gamma Technologies)
2:05-2:25	**Optimization of an Electric Machine Cooling System** (Simon Gomboc - AVL Slovenia d.o.o.)	**e-PowerTrain Electric Motor Gear Analysis** (Tom Oetjens - Dimensional Control Systems, Inc.)	**V&V Best Practices and Solutions for Building Safe Autonomous Systems** (Kenny Hoang – Applied Intuition)
2:25-2:45	**A Fast and Intelligent Physics Informed Machine Learning Model for Optimizing the Locations of Sensors to Prevent Thermal Runaway in Lithium-Ion Batteries** (Juan Betts - Front End Analytics LLC)	**Methods for Structural Durability Simulations and Vibration Fatigue in Electric Vehicles** (Jon Aldred - HBM Prenscia nCode)	**CFD Simulation of Ram Air to Protect AV Sensor During Rain** (Navvab Khajehosseini - Ford Motor Co.)

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2:45-3:15	**Networking Break in Exhibition Sponsored By**

3:15-4:45	**Panel Discussion: Simulation Solutions: Opportunities and Challenges for the Effective Delivery of Automotive Electrification and Autonomous Technologies** (Mario Felice – NAFEMS Council & virsolTech Engineering Consulting, LLC)

4:45-6:00	**Networking Reception in Exhibition**

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