

**NAFEMS**  
americas events



The International Association for the Engineering  
Modeling, Analysis and Simulation Community

**CONFERENCE PROGRAM & AGENDA**

# Engineering Analysis & Simulation in the Automotive Industry

Creating the Next Generation Vehicle

November 8th, 2018 | Troy, MI

[nafems.org/americas](http://nafems.org/americas)

**Keynotes** from the Ford Motor Company on "*The aDRIVE Simulation Framework: Automated Driving Refined in Virtual Environments*" & The Ohio State University Simulation Innovation and Modeling Center on "*Curriculum Innovation to Meet the Growing Demand for Simulation Talent*"

**Three Tracks** with presentations from industry, software providers, researchers, and academia

**Panel Discussion led by Ford Motor Company** on "*Technology Gaps in Delivering Full Automotive Virtual Validation*"



## Contact Information

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*The automotive engineering community is now confronting the largest technology transformation since its inception. This includes the electrification of powertrains for more efficient consumption and cleaner emissions, the reinvention of the battery with fast wireless charging capabilities and finally the advent of a fully autonomous vehicle. Compounding to these technology changes, the automotive companies design verification process is moving away from a major reliance on physical testing to almost a full virtual simulation product verification process.*

*Hence, the challenges to the automotive engineers are enormous and require a significant increase in the upfront use of numerical simulation capabilities, methods and processes such they're able to efficiently design, manufacture and deliver these very innovative technologies to the market in greater speeds than ever before.*

### Conference Overview

NAFEMS and participating speakers will cover these topics, and more, at, "Engineering Analysis & Simulation in the Automotive Industry: Creating the Next Generation Vehicle." Located at the MEC in Troy, MI, attendees from the major automotive manufacturers and suppliers will gather at this annual event, in a pre-competitive manner, to exchange ideas, identify best practices, and drive the near-future direction of technology.

This event aims to deliver information and insights on critical topic areas in a manner that maximizes the "take-away" value for attendees. An event agenda and concept championed by several leading figures in the automotive industry will provide the opportunity to learn about the latest technologies and practices, which attendees can later share and apply within their own organizations.

### Sponsors

*We would like to extend a special thanks to the sponsors of the 2018 NAFEMS Americas Conference on "Engineering Analysis & Simulation in the Automotive Industry: Creating the Next Generation Vehicle." Please be sure to visit and speak with each of our sponsors during the conference to see and hear about the latest advancements in their technologies.*



<b>Plenary Session: Auditorium</b>			
9:00	<b>Welcome &amp; Introduction</b> A. Wood, Americas Regional Manager, NAFEMS <b>The aDRIVE Simulation Framework: Automated Driving Refined in Virtual Environments</b> A. Micks, Ford Motor Company <b>Curriculum Innovation to Meet the Growing Demand for Simulation Talent</b> S. Midlam-Mohler, The Ohio State University		
10:40	Break in Foyer		
	Auditorium	Room 101	Room 102
11:10	<b>CASE STUDIES (SESSION 1)</b> Chair: E. Ladzinski, SMS_ThinkTank <b>Addressing the Challenges of Vehicle Electrification</b> S. Bahuguna, Dassault Systemes SIMULIA Corp. <b>Top Five Mistakes Companies Make When Adopting Cloud Computing for CAE</b> R. Mach, TotalCAE <b>Topology Optimization for Additive Manufacturing Considering Overhang Angle</b> R. Hoglund, Altair Engineering, Inc.	<b>TRACK 1</b> Chair: C. Lee, Ford Motor Company <b>Intelligent Simulation Automation is Foundational to a Widening Technology Landscape</b> M. Panthaki, ARAS Corporation <b>Modularization of FEA Models as Key Enabler for Simulation Data Management</b> C. Wang, General Motors Corporation <b>Appropriate Level of Simulation in Tumble Port Evaluation</b> A. Megel, Southwest Research Institute	<b>TRACK 2</b> Chair: R. Ramkumar, Dana Holding Corp. <b>Systems Engineering – Challenges for Management in the Automotive Industry</b> F. Popielas, SMS_ThinkTank <b>Advanced Physics Based Sensor Simulation Approaches for Testing Automated and Connected Vehicles</b> T. Gioutsos, Tass International <b>How High-Performance Computing in the Cloud Is Accelerating Advanced Driver Assistance Systems Simulations</b> B. Mendez, Rescale
12:40	Lunch in Dining Room		
1:30	<b>CASE STUDIES (SESSION 2)</b> Chair: A. Megel, Southwest Research Institute <b>Enabling Democratization By Engineers, For Engineers</b> J. Aldred, HBM Prencia <b>Multi-Objective Optimization for Cost and NVH Performance</b> A. Barnard, ESTECO North America, Inc. <b>BMW Case Study: MBD – Nonlinear FEA Cosimulation for Analyzing Extreme Load Cases</b> Y. Fan, MSC Software	<b>TRACK 1</b> Chair: D. Detwiler, Honda R & D, Americas, Inc. <b>Generative Design for Automotive – Benchmark and Challenge Problems</b> K. Meintjes, CIMdata, Inc. <b>Automating Parametric Redesign of Structural Thinwalled Frames from Topology Optimization Results</b> L. Wang, The Ohio State University <b>Parametric Optimization of CFRP Composite Material Model Properties for Accurate Energy Absorption Prediction in Crashworthiness Simulations</b> A. Sheldon, Honda R & D, Americas, Inc.	<b>TRACK 2</b> Chair: K. Zouani, Ford Motor Company <b>Electric Drive Noise and Vibration Analysis</b> W. Röver, Dassault Systemes SIMULIA Corp. <b>Multidisciplinary Simulations Provide a Pathway to Lightweight Automotive Systems</b> T. Palmer, MSC Software <b>Application Of Taguchi's DFSS Approach to the Study of Differential Gear Noise</b> N. Roy, American Axle Manufacturing
3:00	Break in Foyer		
3:30	<b>CASE STUDIES (SESSION 3)</b> Chair: M. Ladzinski, NAFEMS <b>Innovative and Practical CAE/CAD Methodologies for Concept Stages of New Vehicle Development</b> R. Chaney, Detroit Engineered Products <b>Predictive Modeling for INDYCAR's Driver-in-the-Loop Aerodynamic Simulators</b> M. Shaxted, ParallelWorks (R Systems)	<b>TRACK 1</b> Chair: K. Meintjes, CIMdata, Inc. <b>Design and Optimization for Engine Mount Stiffness Using MBD Approach</b> G. Pahwa, Mahindra Automotive North America <b>Multiphysics Optimization Process for Design of Electric Motors</b> N. Mazgaonkar, Altair Engineering, Inc.	<b>TRACK 2</b> Chair: F. Popielas, SMS_ThinkTank <b>Motor and Gear NVH CAE Analysis for a Hybrid Transmission Development</b> M. Saadat, Ford Motor Company <b>System Simulation for Electric Vehicle Development</b> P. Musunuru, ESI North America
4:30	<b>PANEL DISCUSSION: Auditorium</b> <b>- Technology Gaps in Delivering Full Automotive Virtual Validation</b> Led by M. Felice, Ford Motor Company		
5:30	<b>Networking Reception in Foyer</b>		

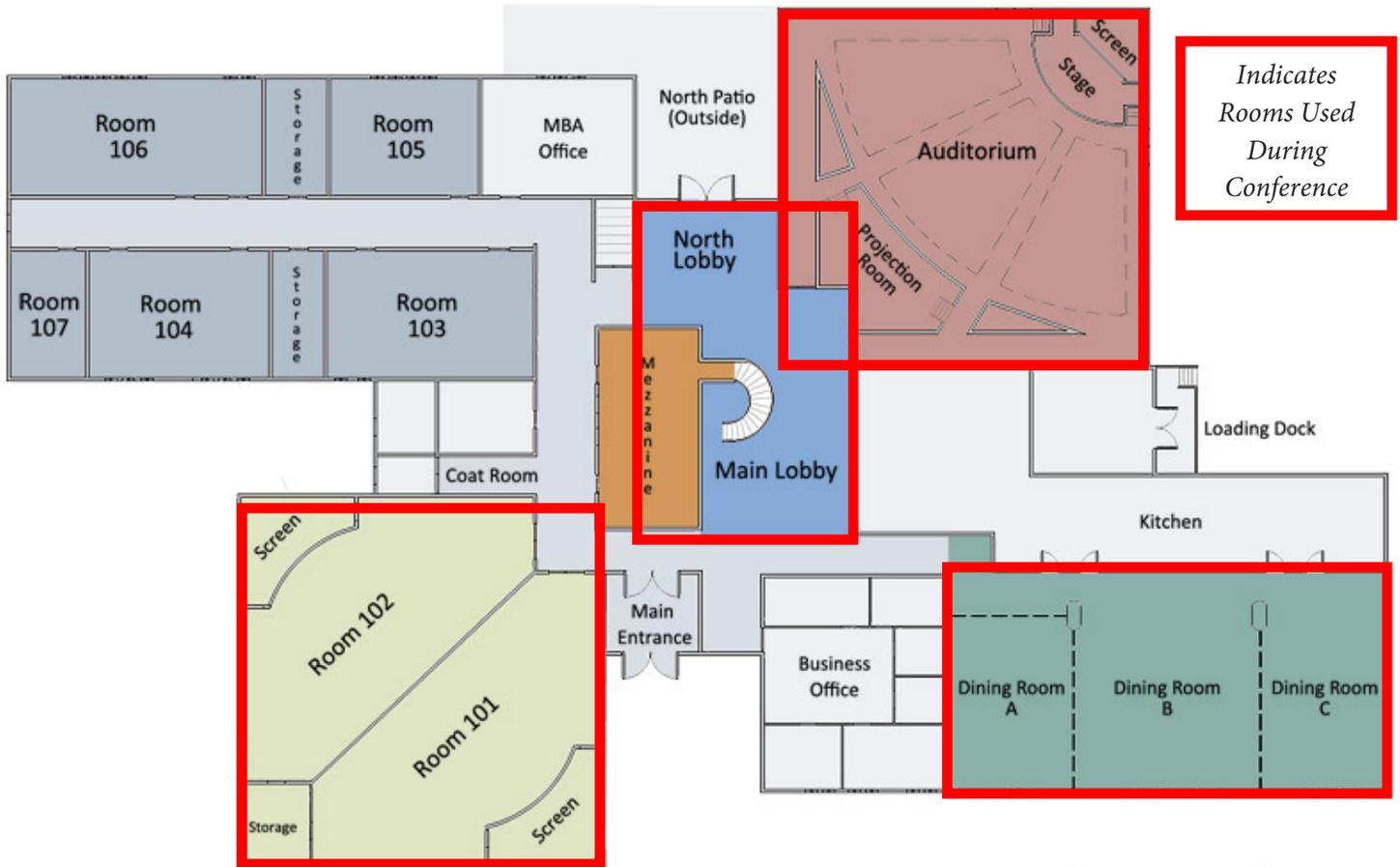
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## MEC Floor Plans



## Exhibit Hall (Lobby Areas)

Exhibitors will include,

- Dassault Systemes SIMULIA Corp.
- TotalCAE
- Altair Engineering
- ESTECO
- MSC Software
- Detroit Engineered Products (DEP)
- R Systems
- HBM Prencia
- ARAS Corporation
- OSU SIMCenter

## Conference Venue

Management Education Center  
811 W. Square Lake Road  
Troy, MI 48098



## NAFEMS

As the only non-profit international association dedicated to the analysis, simulation, and systems engineering community, NAFEMS has established itself as the leading advocate for establishing best practices in engineering simulation. Over 30 years later, industry end-users, software and hardware solutions providers, researchers, and academic institutions continue to recognize NAFEMS as a valued independent authority that operates with neutrality and integrity. NAFEMS Americas supports over 300 member companies located in the Americas region who are actively engaged in the analysis, simulation, and systems engineering community.

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