Agenda: Advanced Seminars

Day 1 | Tuesday, April 29, 2025   Register or learn more here

Time		
8:30 AM	*Registration, Coffee & Breakfast*	
9:00 AM	*Morning Sessions*	
12:15 PM	*Lunch*	
1:15 PM	*Afternoon Sessions*	

Room	Topic	Sessions & Descriptions *(Please note: Agendas are subject to change)*
GOLD 9:00-4:30	**Structures**	• Session 1: **Solving Nonlinear Finite Element Models in Abaqus** • Session 4: **Advantages of Preprocessing & Postprocessing in 3DEXPERIENCE** • Session 2: **Material Calibration for Abaqus** • Session 5: **Abaqus and the Migration to Python3** • Session 3: **A New Constitutive Material Model for Paperboard & Cardboard Packaging Simulations**
COPPER 9:00-5:30	**Electromagnetics**	• Session 1 & 2: **SIMULIA Partner Strategy Sessions** • Session 3: **Presentation 1: Keep Cool! Electronics Cooling Simulation Using CST Studio Suite** **Presentation 2: Keep It Quiet! NVH Considerations in Electric Motors from the Early Design Stages Using SIMULIA Manatee** • Session 4: **Electromagnetics Office Hours** - Sit Down with one of our experts and discuss your latest simulation challenges!
BRONZE 9:00-4:30	**Multibody System Dynamics / Motion**	• Session 1: **Multibody and Motion State of Technology & Motion Vertical Roles on the 3DEXPERIENCE Platform** • Session 3: **Simpack Abaqus Co-simulation** • Session 2: **Simpack Automotive Wizard Database & Realtime Technology Application** • Session 4: **Introducing Simpack Component for Isight**
SILVER 9:00-4:30	**Automation & Optimization**	Agenda to include: **What's New in Automation & Democratization**; **Industry Highlight: Virtual Twin Real-Time Fault Diagnosis and Predictive Maintenance for Aircraft – Boeing**; **What's New in Design Exploration**; **Use Case: Combining Parametric and Non-Parametric Design Exploration to Brake Squeal**; **Design Exploration in Practice – Optimec**; **Managing Virtual Test Plans with the New Test Manager Role**; **Industry Highlight: Requirements Cascading and CAE Test Management for a Vehicle BIW**
GRANITE 9:00-2:45	**Fluids**	• Session 1: **Optimizing Electric Cargo Scooter Design: Aerodynamics and Manufacturability Through MODSIM** • Session 4: **Machine Learning for CFD** • Session 2: **3DEXPERIENCE Platform CFD (FMK) New Release Features Demonstration** • Session 5: **Virtual Porous Media Lab Solution** • Session 3: **Accelerate Aerodynamics & Aeroacoustics with PowerFLOW on GPU**
PEARL 9:00-12:15	**Fatigue**	**Deep Dive on TCD (Theory of Critical Distance):** fe-safe provides various fatigue analysis methods, algorithms, and built-in material properties. We have introduced these different methods and algorithms in detail for many years. In 2024, we compared the characteristics and performances of all strain-based and stress-based algorithms implemented in fe-safe by comparing the results for the same problem. TCD (Theory of Critical Distance) and DTMF (Thermo-Mechanical Fatigue) were also introduced. This year, we will introduce TCD methods and algorithms available in fe-safe, mesh correlation, and TCD Best Practices through TCD Deep Dive. With this, we expect that users will be able to apply more sophisticated and practical fatigue life prediction to a component design by judging whether the generated crack propagates or not. TCD will provide an additional powerful tool to the existing crack initiation fatigue life prediction technique in fatigue analysis.
PEARL 1:15-4:30	**Manufacturing Process Simulation**	**Multiphysics Manufacturing Process Simulation:** Modern manufacturing processes are complex, with even minor variances capable of leading to significant challenges, costly delays, and excessive scrap. This seminar will showcase various workflows for simulating manufacturing across three key industries: Transportation & Mobility, Aerospace & Defense, and High-Tech Semiconductors. In Transportation & Mobility, we will present simulation techniques for metal processes such as forming, deep drawing, rolling, and welding, demonstrating how these can enhance efficiency and quality control. For Aerospace & Defense, the seminar will cover advanced simulations for composite processes, including molding, forming, braiding, and curing, ensuring innovation while meeting strict safety standards. Semiconductor manufacturing process is complex and capital-intensive, requiring high precision, efficiency, and adaptability at every stage. From wafer fabrication and photolithography to etching, deposition, chemical mechanical planarization (CMP), solder reflow, underfill filling, underfill curing, thermal interface material phase change in packages etc., each step presents unique challenges. Dassault Systèmes Multiphysics-Multiscale framework provides advanced simulation solutions tailored for this industry. This seminar will showcase cutting-edge simulation workflows for semiconductor manufacturing processes such as CMP, solder reflow, underfill material filling and curing, and wafer-to-wafer bonding for 3DHI.
CORAL 9:00-12:15	**Batteries**	In this three-part seminar, we will present our advanced multiscale simulation technologies to systematically address and overcome these challenges in battery development: • Session 1: **The Molecular Scale: Driving Innovation in Li-Ion Battery Material Development with Material Simulation and Laboratory Informatics** • Session 2: **The Engineering Scale: Driving Innovation in Li-Ion Battery Cell/Module/Pack Development with Multiphysics Simulation** • Session 3: **Bridging the scales: Driving innovation in Li-Ion battery materials at the microstructure level to enhance cell performance**

Conference Agenda

Day 2 | Wednesday, April 30, 2025

Register or learn more here

Time							
8:30 AM	*Registration, Coffee & Breakfast in Sponsor Exhibit Area and 3DEXPERIENCE Playground*						
9:15 AM	**Welcome & Opening Remarks:** *Shashank Aggarwal, Dassault Systèmes*						
9:30 AM	**SIMULIA Brand Insights,** *Sebastien Gautier, Dassault Systèmes*						
10:00 AM	**Keynote Presentation: What Side of V Flow Are You on? A Journey from Simulating Performance to Model-Based Decision Making,** *Charles Gagliano, Honda Development and Manufacturing of America, LLC*						
10:30 AM	*Morning Break in Sponsor Exhibit Area and 3DEXPERIENCE Playground*						
11:00 AM	**MODSIM: The Importance of Being Unified,** *Ramji Kamakoti, Dassault Systèmes*						
11:45 AM	**The Critical Role of the Analyst in the Evolution of FEA in Industry,** *Joe Formicola, GoEngineer, Platinum Sponsor*						
12:05 PM	*Group Photo, Lunch, Sponsor Exhibit Area & Playground Open – Sponsored by VIAS3D*						
	Track 1 – GOLD Sponsor Session	**Track 2 – SILVER Sponsor Session**	**Track 3 – COPPER Sponsor Session**				
1:20 PM	Firefighter Helmet of the Future! Combining Lattice Design and Simulation with **3D**EXPERIENCE, *Matthew Sherak & Steven Darcey, GoEngineer*	Coupled Workflows for Thermomechanical and Oxidative Aging Analysis in Elastomers *Will Mars, Endurica*	Manage Multi-Disciplinary Load Cases in SDM: Model Setup and Evaluation of Results, *Andreas Lohbrunner, SCALEsdm U.S.*				
1:40 PM	Modeling and Simulation in the Age of Digital Transformation *Sumanth Kumar, VIAS3D*	Accelerating the Speed and Clarity of Simulation/SIMULIA Results to Support Large-Scale Variation Analysis *Prasad Mandava, VCollab*	Accelerating SIMULIA Simulation Software Portfolio with NVIDIA GPUs and Lenovo ThinkSystem Servers, *Ian Pegler & Kevin Dean, NVIDIA/Lenovo*				
	Track 1 – GOLD Structures I: Transportation & Mobility	**Track 2 – SILVER Structures II: Infrastructure, Energy & Materials**	**Track 3 – COPPER Multibody System Dynamics**	**Track 4 – BRONZE Modeling & Simulation**	**Track 5 – PEARL Electromagnetics**	**Track 6 – AMETHYST Fluids**	**Track 7 – CORAL Vibro-Acoustics**
2:00 PM	Simulation of Z-Folding Process in Prismatic Lithium-Ion Battery Assembly Using Abaqus Explicit *Purushotham Kunduru, General Motors*	A Case Study Integrating Analytical Calculations and Finite Element Analysis for Predictive Performance Assessment of Body Lock Ring Systems, *Christopher Cookston, Baker Hughes*	Body Structure Influence on Vehicle Handling Performance *Hisham Sawan, Honda*	Utilizing Engineering Templates to Assist in Detailed Pocket Design *Kiera Rudden-Flanagan, Lockheed Martin*	3M New Materials and Technologies for 5G/mmWave Era *Jaewon Kim, 3M*	Advancing the Aerospace and Energy Industries with PowerFLOW *Matthew Langford, Techsburg*	Validation of wave6 Model of Vehicle Audio System Across Full Audible Frequency Range *Suresh Patra & Wenlong Yang, General Motors*
2:30 PM	Fatigue Strength Assessment of Injection-Molded Plastic Components for Electric Vehicles *Sascha Pazour, PART Engineering, on behalf of Ascend*	Fracture Mechanics Analysis Comparison Using Abaqus Progressive Damage and 3-D Crack Meshes of a Downhole Tool *Greg Thorwald, Baker Hughes*	Simpack Application in Driveline Control Integration *Xing Xing, General Motors*	Journey into Parametric Design Study for Aerospace Applications *Marcus Lorenzo, Lockheed Martin*	Modeling BCI EMC Tests in CST *Matt Gee, Robert Bosch*	A Correlation of Soiling between Road Test and PowerFLOW Analysis for a Camera Monitor System *Wei He, Volvo Trucks*	Adding Detail to Interior Windnoise Models using wave6 Together with PowerFLOW, *Aaron Rinehimer & Chong Wang, General Motors*
3:00 PM	*Afternoon Break in Sponsor Exhibit Area and 3DEXPERIENCE Playground*						
3:30 PM	Challenges of Modelling Fatigue in Magnesium Casting Alloys *Yi Liu, General Motors*	Accelerating Product Development of Gore High-Temperature Capacitors Using Abaqus CAE *Venkateswaran Santhanam, W.L. Gore*	MBD-FEM Co-Simulation Approach to Assess Strength of Automotive Chassis Components *Fan Li, General Motors*	Advancing Mold Design with Multiphysics Simulation and Automation on the **3D**EXPERIENCE Platform *Benjamin Beckelynck, Optimec*	CST's TLM and Hybrid Solver Technology Help Tackle Electrically Large Problems, *Yushi Tan, VIAS3D, on behalf of Antenna Research*	Consistent Drag Prediction with CFD for a Vehicle with Bimodal Wake Cycling *Pooyan Razi, General Motors*	wave6 Simulation Aided Launch Vibration Mitigation of Lunar Trailblazer Spacecraft *Indranil Dandaroy, Dassault Systèmes, on behalf of Eric Jacobs & Michael Reindl, Lockheed Martin*
	SIMULIA Updates 1	**SIMULIA Updates II**	**SIMULIA Updates III**	**SIMULIA Updates IV**	**SIMULIA Updates V**	**SIMULIA Updates VI**	**SIMULIA Updates VII**
4:00 PM	Structures **Abaqus – Introduction, CAE, Cloud, & HPC,** *Ross McLendon, Dassault Systèmes* **Abaqus Nonlinear Mechanics,** *Kingshuk Bose, Dassault Systèmes* **Abaqus Contact & Constraints,** *Harry Harkness, Dassault Systèmes*	**3D**EXPERIENCE Process Automation and Design Exploration Update *Christina Feist, Dassault Systèmes* ⟶ **3D**EXPERIENCE Test Management Introduction *Raphael Bois, Dassault Systèmes*	Multibody Systems Dynamics • Simpack Update • Motion Update *Vinay Khemka and Binu Jose Kochucheruvil, Dassault Systèmes*	Leveraging Nonlinear Multiphysics MODSIM to Ensure Robust Designs *Sri Paranjothy, Dassault Systèmes* ⟶ Streamlining Aerospace & Defense Model-Based Certification Through MODSIM *Hunter Norrgard, Dassault Systèmes*	Electromagnetics • Electromagnetics 2025 Update • AMCAD & EOMYS: Two Recent Additions to the SIMULIA Portfolio *Frank Scharf & Tyler Dodge, Dassault Systèmes*	Fluids Portfolio *Kevin Carvalho & Justin Sacco, Dassault Systèmes*	Using wave6 and PowerFLOW to Predict Underbody Contributions to Vehicle Wind-Noise, *Dassault Systèmes on behalf of Philippe Mordillat, Mehdi Zerrad, Renault* Vibro-Acoustics *Phil Shorter, Dassault Systèmes*
5:00 PM	*Evening Reception in Sponsor Exhibit Area and 3DEXPERIENCE Playground – Sponsored by GoEngineer*						

Conference Agenda

Day 3 | Thursday, May 1, 2025   Register or learn more

9:15 AM	*Registration, Coffee & Breakfast in Sponsor Exhibit Area and 3DEXPERIENCE Playground*					
10:00 AM	**Welcome & Opening Remarks:** *Shashank Aggarwal, Dassault Systèmes*					
10:10 AM	**Smarter Testing – Virtual + Real Hybrid Testing,** *Tony Goff, Dassault Systèmes*					
10:40 AM	**Keynote Presentation: Interfaces and Fractures in Advanced Microelectronics Packaging,** *Ganesh Subbarayan, Purdue University*					
11:10 AM	**SIMULIA Fluids: Advanced Simulation for Real-World Impact,** *Alain Belanger & Rick Shock, Dassault Systèmes*					
11:40 AM	***SIMULIA Executive Roundtable & Wrap-up,*** Shashank Aggarwal, Mark Bohm, Sebastien Gautier, Chris Whiting, Dassault Systèmes					
12:00 PM	*Lunch in Sponsor Exhibit Area & 3DEXPERIENCE Playground Open*					

	Track 1 – GOLD **Structures I: Multi-Industry**	**Track 2 – SILVER** **Transportation & Mobility**	**Track 3 – COPPER** **Batteries**	**Track 4 – BRONZE** **Modeling & Simulation**	**Track 5 – PEARL** **Structures II: Industrial Equipment**	**Track 6 – AMETHYST** **Structures III: Life Sciences**
1:15 PM	Structural Validation of an Electric Drive Unit Inverter Cover and Correlation with Test Results *Naresh Oza, Rivian Automotive*	Optimized Notch Design to Minimize Electric Motor Cogging Noise *Song He, General Motors*	Simpack Continuous Integration Pipeline *Hunter Poole, General Motors*	Building a Material Library in the **3D**EXPERIENCE Material Calibration App *James Swayze & Blake Hasselbring, Ford Motor Co.*	Automating Pre-Processing Tasks in Abaqus/CAE: A Python Solution for Faster Geometry Import and Meshing *Jeevaratnam Myla, The Raymond Corporation*	In Silico Tools for Prediction and Rehabilitation of Knee Osteoarthritis *Amir Esrafilian, Stanford University*
1:45 PM	Translating Material Properties from Third-Party Explicit/FEA Codes to Abaqus/Explicit *Chunfu Lin, General Motors*	NVH Simulator Simpack Real-Time Functionality Development *Xing Xing, General Motors*	Coupled Thermal Electric Simulation of an Orthotropic Equivalent Battery Management System *Martin Bridge, Navitas Systems*	Considering Buckling in Topology Optimization for Aerospace Applications *Jason Action & Clay McElwain, Lockheed Martin*	Design Evaluation of Vehicle Cab Floor Under Extreme Loads using Advanced Simulations *Akshay Dandekar & Arindam Chakraborty, VIAS3D, presenting on behalf of Motiv*	Developing of an Organ- and Tissue-Level Calibrated Human Lung Model: Preliminary Findings & Future Directions *Arif Badrou, University of California*
2:15 PM	Accelerating Composite Material Design through Integration of Large Language Models with Multiscale Mechanics *Haodong Du, Purdue University*	Study & Recommendation for Simpack use on a VI-grade Autohawk Real-Time Linux High-Power Computer *John Burford & Mollie Minsel, VI-grade*	Design of Electric Single-Seater Type Electrathon America *Vignaud Granados Alejo, Alejandra Guzman & Frollan Marquez, Universidad Politecnica de Guanajuato*	OPTIMA: The Collaborative Development of OptiAssist Composite Optimization with Red Bull Advanced Technologies *Martin Gambling, TriMech Solutions, on behalf of Red Bull*		NiTiNol implementation and calibration in Abaqus/CAE and **3D**EXPERIENCE *Nuno Rebelo & Paul Jermihov, Nuno Rebelo Associates & Trimech*
	SIMULIA Updates I	**SIMULIA Updates II**	**SIMULIA Updates III**	**SIMULIA Updates IV**	**SIMULIA Updates V**	**SIMULIA Updates VI**
2:45 PM	Structures Abaqus Linear Dynamics & Equation Solvers *Mikhail Belyi, Dassault Systèmes*	**3D**EXPERIENCE Structures, *Adarsh Bavani Shankar, Dassault Systèmes*	MODSIM Powered Concept Design and Democratized Workflow *Anna Liang, Ashish Aggarwal & Balaji Ramanathan, Dassault Systèmes*	**3D**EXPERIENCE Multiphysics 2025 *Victor Oancea, Dassault Systèmes*	Automotive Body Systems NVH Analysis *John Huber, Dassault Systèmes*	An Implementation of Digital Continuity Within Concept Structures with Systems Engineering *Swati Umamaheshwaran, Dassault Systèmes*
3:30 PM	*Complete Your Survey for a Free Gift! See You Back in Novi for Next Year's SIMULIA Americas Users Conference on May 12-14, 2026!*					