

# 2017 North American Simulation Conference

**DAY 1**



**Tuesday, September 19, 2017**

AGENDA AT A GLANCE

8:00 am	Registration & Coffee	
8:30 am	Welcome Address	
8:45 am	Virtualization Drives Powertrain Simulation Technologies <i>Dr. Gothard Rainer, VP Advanced Simulation Technologies, AVL</i>	
9:15 am	Engine Development Driven by Simulation at John Deere <i>Paul Wynthein, Head of Design Analysis, John Deere</i>	
9:45 am	Coffee Break	
10:00 am	Interconnection as Key to Digital Transformation <i>Christian Mayr, AVL</i>	
10:30 am	Overcoming Complexity in Powertrain Engineering <i>Paul Whitaker, AVL</i>	
11:00 am	Coffee Break	


**Grand Oaks I**

**STRENGTH & DURABILITY**

11:30 am	Co-Optimization of Crankshaft and Block for Light Weight and Durability <i>Martin Hamper, Toyota Motor NA Inc.</i>	
11:50 am	Recent Application of AVL EXCITE™ at Cummins <i>Jiawei (Derek) Liu, Cummins Inc.</i>	
12:10 pm	Equivalent Modeling of Torsional Vibration Dampers in Frequency and Time Domain <i>Oliver Knaus, AVL</i>	


**Grand Oaks II**

**SYSTEM SIMULATION**

	Integrated & Open Development Platform <i>Christian Mayr, AVL</i>	
	AVL Model.Connect™ – Customer Case Study <i>Christian Mayr, AVL</i>	
	Performing Driveability Trade-offs for Turbocharged Engines <i>Andrew Shabashevich, AVL</i>	


**Grand Oaks III**

**CFD: IC ENGINE MODELING**


	AVL TABKIN™ - Maximizing the Efficiency of Detailed Chemistry Simulation <i>Casper Meijer, AVL Dacolt</i>	
	Recent Application of AVL TABKIN™ at General Motors <i>Seunghwan Keum, General Motors</i>	
	Combustion Analysis Solving Detailed Reaction Chemistry <i>Maik Suffa, AVL</i>	

12:30 pm **Lunch Break**


**BEARING AND PISTON ANALYSIS**

1:30 pm	Using AVL EXCITE™ Engine Dynamics and Bearing EHD for Engine Design <i>Misha Ejakov, Ford Motor Company</i>	
1:50 pm	Local Deformation of Hollow Crankshafts under Transient Conditions and their Effect <i>Brian McCaskey, AVL</i>	
2:10 pm	New Thermal Model for AVL EXCITE™ - Elasto Hydro Dynamic (EHD+T) <i>Brett Sheets, AVL</i>	
2:30 pm	Piston TMF Analysis with Thermal Boundary from AVL EXCITE™ <i>Oliver Knaus, AVL</i>	

**SYSTEM SIMULATION**

	Realtime and System Simulation of Large Engines and Marine Applications <i>Harshit Couthino, AVL</i>	
	AVL CRUISE M™ - Detailed and Simplified VTMS Model for Office and HiL <i>Andrej Kodrin, AVL</i>	
	VTMS Customer Presentation <i>David Colavincenzo, Bendix</i>	
	Development of Predictive Energy Management, AVL DRIVE™ / ADAS Functions <i>Thomas Mueller-Werth and Bill Rotramel, AVL</i>	

**CFD: IC ENGINE MODELING**

	New Learning in Galleried Cooled Piston Simulation <i>Cliff Arnold, Sage Physics</i>	
	AVL Injector Wetting and its Impact on Emission Formation <i>Dr. David Greif, AVL</i>	
	In-Cylinder CNG, Diesel Pilot Ignited, Combustion Simulation <i>Venkatesh Venkadasamy, AVL</i>	
	AVL FIRE™ M for Thermo Load Analysis <i>Maik Suffa, AVL</i>	

2:50 pm **Coffee Break**

**NEWS AND OUTLOOK**

3:00 pm	AVL EXCITE™ PowerUnit v2017 - Integrated Valve Train <i>Brett Sheets, AVL</i>	
3:20 pm	3D Piston Ring Capabilities in AVL EXCITE™ Piston&Rings v2017 <i>Oliver Knaus, AVL</i>	
3:40 pm	AVL EXCITE™ Development Outlook <i>Oliver Knaus, AVL</i>	

**SYSTEM SIMULATION**

	Development of Predictive Energy Management, AVL DRIVE™ / ADAS Functions <i>Fred Jacquelin and Bill Rotramel, AVL</i>	
	AVL's Model Based Calibration - a Complete Process Supporting Toolchain <i>Franz Dorfer and Nilufar Damji, AVL</i>	
	Capabilities of the Virtual Test Bed <i>Franz Dorfer and Nilufar Damji, AVL</i>	

**CFD: MULTIPHASE**

	Fuel Injection System Simulation <i>Karthik Ramisetty, Cummins, Inc.</i>	
	Quenching Analysis using AVL FIRE™ / FIRE™ M <i>Dr. David Greif, AVL</i>	
	AVL FIRE™ / FIRE™ M Outlook <i>Dr. David Greif, AVL</i>	


4:00 pm **Evening Social event at JD Racing Indoor Karting and Expo**  
Join us for food, drinks, electric kart racing, virtual testbed demonstrations, real-time driving simulator, and experience AVL DRIVE for ADAS during ride and drives.  
44225 W Twelve Mile Road, Novi, MI 48377



# DAY 2

## Wednesday, September 20, 2017

AGENDA AT A GLANCE

- 8:00 am Registration & Coffee
- 8:30 am Meshless CFD for Liquid Dominated Flow – Introducing PreonLab *Dr. David Greif, AVL* 
- 9:00 am Paper Presentations Highlights from the International Simulation Conference in Graz *Maik Suffa, Oliver Knaus and Andrej Kodrin, AVL*
- 10:00 am Coffee Break

### Grand Oaks I

#### ELECTRIFICATION

- 10:20 am E-Machine Thermal Analysis  
*Maik Suffa, AVL*
- 10:40 am E-Machine Acoustics - Experience in Accurate Simulation - Measurement Comparison  
*Oliver Knaus, AVL*
- 11:00 am Modeling a Full Electric Vehicle using AVL CRUISE™ and CRUISE™ M  
*Andrej Kodrin, AVL*
- 11:20 am Simulation of Batteries and Fuel Cells  
*Shanmugasundaram Chandrakesan, AVL*
- 11:40 am CAE Based Development of Fuel Cell Systems  
*Ken Kernyo, AVL*

### Grand Oaks II

#### EXHAUST GAS AFTERTREATMENT

- 10:20 am SCR CFD Correlation Experiences with FTIR Data Using Advanced Models  
*Bishwadipa Das Adhikary, John Deere* 
- 10:40 am Simulating Aftertreatment systems using AVL BOOST™  
*Siddarth Sitamraju, Johnson Matthey* 
- 11:00 am AVL BOOST™ & FIRE™ for SCR Development  
*Maik Suffa, AVL*
- 11:20 am AVL CRUISE™ M Aftertreatment Modeling  
*Maik Suffa, AVL*
- 11:40 am Experiments Supporting the Development of SCR Systems  
*Maik Suffa, AVL*

12:00 pm Lunch Break

#### TRANSMISSION AND TURBOCHARGER ANALYSIS

- 1:00 pm Gear Whine Noise Investigation of a Bus Rear Axle with AVL EXCITE™  
*Oliver Knaus, AVL*
- 1:20 pm Durability Analysis of Transmission Components  
*Oliver Knaus, AVL*
- 1:40 pm Flex Gear and Planetary Gear Set Modeling  
*Oliver Knaus, AVL*
- 2:00 pm Turbocharger Dynamic Simulation  
*Brett Sheets, AVL*

#### SYSTEM MODELING

- 1:00 pm Gear Ratio Optimization Workflow for a Hybrid Transmission with AVL CRUISE™ M and Design Explorer  
*Andrej Kodrin, AVL*
- 1:20 pm AVL CRUISE™ M Engine Automated Model Calibration - Hints and Tips  
*Andrej Kodrin, AVL*
- 1:40 pm Integrated Controls Software MiL Testing on PC using Virtual ECU's  
*Ambarish Desai, AVL*
- 2:00 pm AVL CRUISE™ Outlook  
*Andrej Kodrin, AVL*

2:20 pm Networking with AVL Experts and Coffee

### FOR FURTHER INFORMATION PLEASE CONTACT:

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