



Agenda Fluid Dynamics

## AVL International Simulation Conference 2017

June 27 – 29, 2017

## CONFERENCE PROGRAM FLUID DYNAMICS – TUESDAY, JUNE 27, 2017

- 08:30 - 08:45      **Welcome Address**  
 H. List, Chairman and CEO, AVL List GmbH
- 08:45 – 09:15      **Virtualization Drives Powertrain Simulation Technologies**  
 G. Rainer, Vice President, Advanced Simulation Technologies, AVL List GmbH

### Keynotes

- 09:15 – 09:45      **Engine Development Driven by Simulation at John Deere**  
 P. Wynthein, Head of Design Analysis, John Deere Co.
- 09:45 – 10:00      **Coffee Break**
- 10:00 – 10:30      **Interconnection as Key to Digital Transformation**  
 W. Puntigam, Head of Department, AVL List GmbH
- 10:30 – 11:00      **Automotive Industry – The Future is Electric**  
 A. Neumann, Partner and Managing Director, Strategy Engineers GmbH & Co. KG
- 11:00 – 11:30      **Coffee Break & Poster Session**

### Internal Combustion Engine I

- 11:30 – 11:50      **Modelling of Flame-Wall Interactions Using a Level-Set Based Flamelet Approach**  
 D. Suckart, D. Linse, BMW M GmbH
- 11:50 – 12:10      **Knocking Prediction Using Flame Tracking Particle Method**  
 T. Nomura, K. Matsui, M. Kowada, H. Fujiwara, HONDA R&D Co. Ltd.
- 12:10 – 12:30      **The Essence of Cycle-to-Cycle Variations**  
 D. Tanaka, K. Takasu, Yamaha Motor Co. Ltd.
- 12:30 – 13:30      **Lunch**
- 13:30 – 13:50      **Exhibitor Presentations & Poster Session**

## Internal Combustion Engine II

- 13:50 – 14:10      **AVL TABKIN™ - Maximizing the Efficiency of Detailed Chemistry Simulations**  
 F. Tap, C. Meijer, D. Goryntsev, A. Starikov, AVL Dacolt BV; M. Tvrdovic, P. Priesching, AVL List GmbH
- 14:10 – 14:30      **Analyzing Wall Heat Transfer Modeling in Diesel Engines Supporting Numerical Investigations of Strategies for Increasing Thermal Efficiency**  
 D. Mayer, F. Köpple, M. Bargende, Robert Bosch GmbH
- 14:30 – 14:50      **Application of FAME POLY and PANS to Intake Port Flows**  
 O. Davodet, M. Chauvy, T. Staehle, PSA Groupe
- 14:50 – 15:10      **The Analysis of a Compression Ignition Engine Powered in the Dual-Fuel Mode with Syngas and Biodiesel**  
 M. Costa, D. Piazzullo, V. Rocco, CNR - Istituto Motori
- 15:10 – 15:30      **Modeling of Injection and Combustion Phenomena in Diesel Ignited Large Gas Engines**  
 L. Eder, M. Lackner, G. Pirker, A. Wimmer, LEC GmbH; P. Priesching, AVL List GmbH
- 15:30 – 16:00      **Coffee Break & Poster Session**

## Exhaust Gas Aftertreatment

- 16:00 – 16:20      **SCR CFD Correlation Experiences with FTIR Data Using Advanced Methods**  
 I. Sharma, B. Das Adhikary, D. Weiss, M. Gupta, C. Arnold, John Deere Co.
- 16:20 – 16:40      **Experiment and Kinetic Modelling of SCR Coated Filters**  
 L. Trandafilović, M. Stenfeldt, L. Olsson, Chalmers University of Technology
- 16:40 – 17:00      **The Influence of the Injection Frequency on the Urea Selective Catalytic Reduction Systems Performance**  
 R. Rogóż, P. Jaworski, L. Kapusta, A. Teodorczyk, Warsaw University of Technology
- 17:00 – 17:20      **Deactivation Model of Pd-Catalyst: Water Effect**  
 N. Sadokhina, G. Smedler, U. Nylén, M. Olofsson, L. Olsson, Chalmers University of Technology
- 17:20 – 17:40      **Analysis of O2 Sensor Positioning and Investigation of the Effect of the AFR Imbalance on the Performance of Tree Way Catalyst**  
 K. Chen, Y. Wang, PATAC Co. Ltd, F. Chen, AVL List Technical Center



- 17:40 **End of Speeches**
- 18:10 **Transfer to Social Evening (Tram 1)**
- 18:30 **Transfer to Social Evening (Tram 2)**
- 19:00 – 23:00 **Social Evening @Schlossbergrestaurant Graz**

## Social Evening

The AVL International Simulation Conference is all about making smart connections – both in the use of our products and in getting to know simulation experts from the field.

We invite you to continue networking at the Schlossbergrestaurant.



## CONFERENCE PROGRAM FLUID DYNAMICS – WEDNESDAY, JUNE 28, 2017

### Keynotes

- 08:30 – 09:00      **Knowledge-Based Models and Data-Driven Approaches**  
S. Lindstaedt, Managing Director, Know-Center GmbH
- 09:00 – 09:30      **Vehicle Attribute Development & Validation by Digital Methods**  
P. Schöggel, Skill Area Manager, AVL List GmbH
- 09:30 – 10:00      **AVL's Model Based Calibration – a Complete Process Supporting Toolchain from Model Generation up to Calibration**  
F. Dorfer, Product Manager AVL MoBEO™, G. Vitale, Global Business Segment Manager, AVL List GmbH
- 10:00 – 10:30      **Coffee Break & Poster Session**

### Engine Research at Universities

- 10:30 – 10:50      **Optimization of the Spray Pattern of GDI Engines using a Genetic Algorithm**  
A. Siliato, C. Forte, NAIS s.r.l.; G. M. Bianchi, University of Bologna
- 10:50 – 11:10      **3D CFD Tools from the Nozzle Flow to the Combustion Chamber**  
G. Chiatti, O. Chiavola, F. Palmieri, Università degli Studi "Roma TRE"
- 11:10 – 11:30      **Simulation of Local Heat Transfer in SI Aircraft Piston Engine**  
R. Kavtaradze, A. Zelentsov, D. Onishchenko, Baumann Moscow State Technical University
- 11:30 – 11:50      **Methanol-Gasoline Fuel with Different Injection Timings in an HCCI Engine**  
G. Coskun, M. Altinkurt, A. Turkcan, Sakarya University
- 11:50 – 12:10      **Modeling of Reactive Spray Processes in DI Diesel Engines**  
Z. Petranović, M. Vujanović, N. Duić, University of Zagreb; W. Edelbauer, P. Priesching, R. Tatschl, AVL GmbH Graz
- 12:10 – 13:30      **Lunch**

## 1D Thermodynamics

- 13:30 – 13:50      **Optimal Design of Valve Timing for 1.5L Diesel Engine for Better Low end Torque Using AVL BOOST™**  
A. R., P. Ramadandi., M. Saravanan, Mahindra & Mahindra Ltd.
- 13:50 – 14:10      **A Reduced Order Turbocharged Engine Model for Controller Design and Optimal Energy Management**  
K. Togai, N. Fujinaga, Osaka Sangyo University
- 14:10 – 14:30      **A 3D Linear Acoustic Network Representation of Mufflers with Perforated Elements and Sound Absorptive Material**  
R. Fairbrother, AVL List GmbH; R. Veloso, Y. Elnemr, Virtual Vehicle
- 14:30 – 14:50      **New Quasi-D Combustion Model Based on Flame Tracking Approach**  
M. Sjerić, D. Kozarac, H. Schuemie, University of Zagreb
- 14:50 – 15:20      **Coffee Break & Poster Session**

## Powertrain Components, Vehicle and General Purpose CFD

- 15:20 – 15:40      **3D CFD Model of Automotive Turbocharger Radial Turbine**  
O. Vitek, R. Tichanek, J. Macek, P. Hatschbach, Czech Technical University in Prague
- 15:40 – 16:00      **A Practical Tool to Estimate Vehicle Side Window and Side Mirror Soiling Using AVL FIRE™**  
D. Tsepov, M. Afanasyev, A. Chernyavsky, R&D AVTOVAZ Togliatti Russia
- 16:00 – 16:20      **Water Path Prediction in the Automotive Industry Using SPH**  
D. Wickert, TU Dresden
- 16:20 – 16:40      **Modeling an Industrial-Scale Fluidized Bed Wurster Coating Process Using CFD DEM**  
D. Jajcevic, P. Böhling, RCPE GmbH; C. Davies, A. Carmody, P. Doshi, M. am Ende, A. Sarkar, Pfizer Inc.; J. Khinast, TU Graz
- 16:40                **End of Speeches**
- 17:00                **Best Paper Award and Farewell**

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