

# The 5<sup>th</sup> Shanghai-Stuttgart-Symposium on Automotive and Powertrain Technology

October 21-22, 2021 | Tongji University Jiading, Shanghai

# Plenary Session

## 101 Lecture Hall

### 2021/10/21 Plenary Session

- 09:00-09:10 **Welcome Speech: Tongji University**  
Tong Xiaohua, Vice President of Tongji University
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- 09:10-09:20 **Welcome Speech: University of Stuttgart**  
Dr. Wolfgang Holtkamp, Senior Adviser for Foreign Affairs in the President's Office
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- 09:20-09:30 **Welcome Speech: Shanghai Municipal Government**  
Zheng Guanghong, second-level inspector of the Science and Technology Commission (deputy director level) and director of the Social Development Division
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- 09:30-09:40 **Welcome Speech: State Government of Baden-Württemberg**  
Mr. Michael Kleiner, Ministerial Director, Ministry of Economics, State of Baden-Württemberg
- 
- 09:40-10:10 **The Development Trend and Strategy of China's Automobile Industry and Technology in the New Era**  
Keynote Speech: Prof. Dr. Zhang Lijun, School of Automotives Studies, Tongji University
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- 10:10-11:50 **Coffee Break**
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- 10:50-10:20 **How Do Vehicle Attributes Change in Future Cars?**  
Keynote Speech: Prof. Dr.-Ing. Andreas Wagner, IFS/FKFS
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- 11:20-11:50 **Digital Transformation Towards The Future**  
Keynote Speech: Dr. Christian Salzmann, BMW R&D China
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- 12:00-13:20 **Lunch break & Photograph**
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- 13:20-15:50  
(other rooms)  
Session 1.1: Aerodynamics I  
Session 2.1: Intelligent Vehicle Control  
Session 3.1: Hydrogen and Fuel Cell  
Session 4.1: Electric Vehicle Battery Technology
- 
- 15:50-16:20 **How to Boost Sustainability Action and Gain Competitiveness**  
Keynote Speech: Prof. Dr.-Ing. Peter F. Tropschuh, Technical University of Munich and AUDI AG (2011 - 2020)
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- 16:20-16:50 **Germany as a Location for Automotive R&D – Why does Geely as a Chinese OEM Count on this Location?**  
Keynote Speech: Mr. rank Klaas, Geely Germany
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- 16:50-17:20 **Infineon Power Semi Continuously Drives China's Automotive Electrification**  
Mr. Gary Zhong, Infineon Technologies Greater China
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- 17:20-17:30 **Closing Remarks**

### 2021/10/22 Plenary Session

- 09:00-11:40  
(other rooms)  
Session 1.2: Aerodynamics II  
Session 2.2: Validation and Testing for IVs  
Session 3.2: Hydrogen Storage and Transportation  
Session 4.2: Electric Drive Systems
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- 11:40-13:00 **Lunch break**
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- 13:00-15:30  
(other rooms)  
Session 1.3: Light Weight Design  
Session 2.3: Validation and Data for IVs  
Session 3.3: Automotive ICE Engines for Hydrogen and Green Fuels  
Session 4.3: Hybrid Powertrain
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- 15:30-16:00 **Inspired by China, Innovating in China– 15 Years of Local Research and Development in China**  
Keynote Speech: Prof. Dr. Hans Georg Engel, Daimler Greater China
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- 16:00-16:30 **European CO2 Reduction Strategies for Light-Duty and Heavy-Duty Vehicles**  
Keynote Speech: Prof. Dr.-Ing. Michael Bargende, IFS/ FKFS
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- 16:30-17:30 **Panel Discussion: Global Challenges for Developing Future Vehicles**  
Host: Dr. Xiong Lu, Tongji University  
Prof. Dr.-Ing. Andreas Wagner, IFS/ FKFS  
Prof. Dr.-Ing. Michael Bargende, IFS/ FKFS  
Prof. Zhang Lijun, Tongji University  
Mr. Gary Zhong, Infineon Technologies Greater China  
Prof. Dr. Hans Georg Engel, Daimler Greater China
- 
- 17:30-17:40 **Closing Ceremony Speech**

# The 5<sup>th</sup> Shanghai-Stuttgart-Symposium on Automotive and Powertrain Technology

Session Chair: Prof. Yang Zhigang (Tongji University)

Prof. Dr.-Ing. Jochen Wiedemann (University of Stuttgart)

Co-chair: Dr. He Yinshi, Prof. Yu Haiyan (Tongji University)

# A

## Aerodynamics 101 Lecture Hall

### 2021/10/21

### Session 1.1: Aerodynamics I

13:20-13:50

**How Wind Tunnel Automation Systems Help You to Meet Regulatory Standards and Enable New and Creative R&D Processes**  
Thomas Rönpage, Werum Software & Systems AG

13:50-14:20

**NIO ET7 Aerodynamic Development and Performance**  
Maximilian Ludwig Ganis, NIO Industry Development

14:20-14:50

**Aerodynamic Influences on the Road Load Determination with Respect to Vehicle Parameters**  
Zhang Chenyi, Volkswagen AG

14:50-15:20

**Application of A Newly Implemented Numerical Tool for Aeroacoustic Vehicle Development**  
Carlo Alberto Perugini, FKFS & Lamborghini S.p.A.

### 2021/10/22

### Session 1.2: Aerodynamic II

09:00-09:30

**Wind Noise Development in Guangzhou Automotive Group**  
Tang Huanqiu, GAC Motor R&D Center

09:30-10:00

**Research on Flow Structure Around Passenger Car and Its Flow Control**  
Zhang Yingchao, Jilin University

10:40-11:10

**Aerodynamics of Road Vehicles in Complex Road Conditions-Coupling Aero to Vehicle Dynamics**  
Wang Yiping, Wuhan University of Technology

11:10-11:40

**Time Series Analyses on Uncertainty of Cd Values Output from Unsteady CFD Simulation**  
Zhao Zhichao, Ford Motor Company

11:40-12:10

**Aerodynamics and Range of Light Electric Commercial Vehicles in Rural- Urban Areas**  
Andreas Daberkow, Herlbronn University

### 2021/10/22

### Session 1.3: Light Weight Design

13:00-13:30

**Application of Body Lightweighting Technology in SGMW**  
Wei Wei, SAIC-GM-Wuling Automobile Co., Ltd.

13:30-14:00

**Exploring A Carbon-Neutral Approach to Automotive Lightweighting**  
Li Jun, Chery Technology Center

14:30-15:00

**Automotive Design, Material Design, New trends**  
Claudia Khalil, Khalil Design

15:00-15:30

**Wet Compression Molding – a Holistic Approach to Vehicle Lightweighting**  
Frank Henning, KIT & Fraunhofer ICT

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**Session Chair:** Prof. Xiong Lu (Tongji University)

Prof. Dr.-Ing. Andreas Wagner (University of Stuttgart)

**Co-chair:** Dr. Chen Guang, Dr. Huang Yanjun (Tongji University)

# B

## Technology of IV 107 VIP Room

### 2021/10/21 Session 2.1: Intelligent Vehicle Control

- 13:20-13:50 **Usage of Evaluation-Independent Stimulations in the Area of Vehicle Body Domain**  
Julian Fuchs, The FZI Research Center for Information Technology
- 13:50-14:20 **New Mobility at the Campus: Virtual Validation of Mobility Concepts at the University of Stuttgart Using Tronis**  
Dan Keilhoff, University of Stuttgart & Karl Schreiner, TWT GmbH
- 14:20-14:50 **Constraint Handler and Model Predictive Trajectory Planning**  
Qiao Chenglei, ZF (China) Investment Co., Ltd.
- 14:50-15:20 **A Machine Learning Approach for Ultrasonic Noise Classification and Suppression**  
Heinrich Gotzig, Valeo

### 2021/10/22 Session 2.2: Validation and Testing for IVs

- 09:00-09:30 **Research on the Fusion of Decision-making and Power Control of Autonomous Vehicles**  
Huang Jin, School of Vehicle and Mobility, Tsinghua University
- 09:30-10:00 **A Method for Measuring Data Acquisition of Model-Based Off-Board Diagnostic Function**  
Andreas Heinz, FKFS
- 10:40-11:10 **Preliminary Study on Unmanned Driving Technology for Smart Mines**  
Wang Yafei, Shanghai Jiao Tong University
- 11:10-11:40 **Nature Imitation – Environmental Simulation Test Solutions**  
Edwin Heimberg, SBI - Schreiber, Brand und Partner Ingenieurgesellschaft GmbH

### 2021/10/22 Session 2.3: Validation and Data for IVs

- 13:00-13:30 **Inference and Derivation of Safety-Critical Scenarios for Autonomous Vehicles**  
Zhang Xinjie, Jilin University
- 13:30-14:00 **Research on the Dynamics of Intelligent Networked Vehicle Formation Systems and Their Stability Control**  
Zhang Ning, Southeast University
- 14:30-15:00 **Analysis of Fleet Data Using Machine Learning Methods**  
André Ebel, FKFS
- 15:00-15:30 **Data Mining as an Enabler for Customer Data-Driven Vehicle Development**  
Jan Wegener, Audi AG (HIN Cooperation PhD student of IFS)

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**Session Chair:** Prof. Zhang Cunman (Tongji University)  
Prof. Dr.-Ing. Michael Bargende (University of Stuttgart)  
**Co-chair:** Dr. Li Bing, Dr. Lv Hong (Tongji University)



Hydrogen Energy  
and Fuel Cell  
**108 VIP Room**

## 2021/10/21 Session 3.1: Hydrogen and Fuel Cell

- 13:20-13:50** **Extending the Dilution Limit for Stable, Knock-Free Combustion of Hydrogen in Off-Road and Heavy Duty Engines**  
Michael Bunce, Mahle, Liebhfer
- 
- 13:50-14:20** **Advances in Proton Exchange Membrane Research for Automotive Applications**  
Zhang Yongming, Shanghai Jiao Tong University
- 
- 14:20-14:50** **Bosch Automotive Fuel Cell Solution**  
Michael Grossmann, Bosch (China) Investment Ltd.
- 
- 14:50-15:20** **Optimized and Accelerated Setup for CO<sub>2</sub> Neutral and Fossil Free Powertrain Technologies Based on National / Regional Energy Footprint**  
Bernd Wiedemann, TU Berlin & Marc Sens, IAV GmbH

## 2021/10/22 Session 3.2: Hydrogen Storage and Transportation

- 09:00-09:30** **Research Progress of High Power PEMFC Stack**  
Guo Wei, Professor at Wuhan University of Technology
- 
- 09:30-10:00** **Advances in Passenger Car Fuel Cell Systems Research**  
Tony Cui, FTXT Energy Technology Co., Ltd., Great Wall Holding Group
- 
- 10:40-11:10** **Shandong Province Hydrogen Enters Households Development Plan and Progress**  
Pan Fengwen, National Fuel Cell Technology Innovation Center
- 
- 11:10-11:40** **Research Progress of High Efficiency Membrane Electrode**  
Li Bing, Tongji University
- 
- 11:40-12:10** **Composite Materials Engineering for Type 4 Hydrogen Pressure Vessels**  
Dr. Farbod Nezami, CIKONI GmbH

## 2021/10/22 Session 3.3: Automotive ICE Engines for Hydrogen and Green Fuels

- 13:00-13:30** **Additive Manufacturing of Highly Stressed Drive Components Using a Holistic Quality Assurance Process**  
Dr. Edson Costa Santos, Carl Zeiss Industrielle Messtechnik GmbH
- 
- 13:30-14:00** **Green Electricity + Green Hydrogen as a Powerful Weapon to Achieve Carbon Neutrality**  
Wu Yifan, Longi Hydrogen Technology Co., Ltd.
- 
- 14:30-15:00** **Experimental and Numerical Identification of Fuel Potentials for Combustion Optimization and Rise of Engine Efficiency**  
Jonas Villforth, FKFS & Porsche AG
- 
- 15:00-15:30** **Modelling Hydrogen Combustion for OD/ID Simulation**  
Yang Qirui, FKFS

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**Session Chair:** Prof. Gao Bingzhao (Tongji University)  
Prof. Dr.-Ing. Hans-Christian Reuss (University of Stuttgart)  
**Co-chair:** Dr. Dong Guangyu, Prof. Cai Liming (Tongji University)

# D

Powertrain and  
Electrical Propulsion  
**312 Lecture Hall**

### 2021/10/21 **Session 4.1: Electric Vehicle Battery Technology**

- 13:20-13:50** **An EMC analysis in main inverter system**  
Dr. Yang Linxiang, Infineon Technologies Center of Competence (Shanghai) Co.,Ltd.
- 13:50-14:20** **New Energy Automotive Driving Motor Technology Development**  
Chen Jing, Zhejiang Founder Motor Co., Ltd.
- 14:20-14:50** **Battery Management System Validation with HiL Simulators**  
Detlef Naundorf, MicroNova AG
- 14:50-15:20** **Validation of Smart Charging for Electric Vehicles**  
Michael Strugholz, dSPACE GmbH

### 2021/10/22 **Session 4.2: Electric Drive Systems**

- 09:00-09:30** **ePowertrain Market Analysis and Bosch CVT4EV Solution**  
Cai Zhijian, Robert Bosch Trading Shanghai
- 09:30-10:00** **Cost and Performance Benchmarking of Electrical Powertrains by KPIs**  
Dante Sulli, A2MAC1 Groupe (Shanghai) Co., Ltd.
- 10:40-11:10** **Introductions of Autonomous Drive Developments for New Energy Vehicles in Geely Commercial Vehicle Group**  
Wei Jianlin, Zhejiang Geely New Energy Commercial Vehicles Group Co., Ltd.
- 11:10-11:40** **Energy Management and Dynamics Control for Off-road Vehicle Powertrain**  
Ma Yue Beijing Institute of Technology
- 11:40-12:10** **The Diversity and Challenges of Electrification for Powertrains of Commercial Vehicle**  
Luo Benjin, Nanjing Yue Boo Power Systems Co.

### 2021/10/22 **Session 4.3: Hybrid Powertrain**

- 13:00-13:30** **Highly Sophisticated Powertrain Diagnostics System& Real-world to Lab – Robust Measurement Requirements for Future Vehicle Powertrains**  
Yu Chongwei & Min Jun , Kistler Innovative Technology China Ltd.
- 13:30-14:00** **Architecture Design of An in-Line DC Drive System with An Electro-Hybrid Model**  
Wang Yuhai, Qingdao Automotive Research Insitute, Jilin University
- 14:30-15:00** **E-Mobility: Challenges in Test & Qualification of Wide-Bandgap Materials**  
Frank Heidemann, SET GmbH
- 15:00-15:30** **The Electrified Transformation of the Automotive Industry**  
John Vincent Shutty, BorgWarner