ATZ live

chassis tech plus

9th International Munich Chassis Symposium 12 and 13 June 2018 | Munich | Germany



chassis.tech

steering.tech

brake.tech

tire.wheel.tech

NEW CHASSIS SYSTEMS

In the context of electrification and lightweight design

AUTONOMOUS VEHICLES

Challenges for Level 4 and 5

CHASSIS CONTROL SYSTEMS

Focus on dynamics and comfort

/// PLENARY LECTURES AUDI | ZF Friedrichshafen | Atreus | Robert Bosch Automotive Steering | Kempten University of Applied Sciences | Lexus | Continental | Hyundai

/// ONE FOR ALL Four congresses in one event



SCIENTIFIC ADVISORY BOARD



Prof. Dr. Peter E. Pfeffer Munich University of Applied Sciences (MUAS) Scientific Director of the Symposium Head of chassis.tech plus section



Dr. Veit HeldOpel Automobile GmbH
Head of
chassis.tech section



Alexander Gaedke Robert Bosch Automotive Steering GmbH Head of steering.tech section



Karl Friedrich Wörsdörfer Continental Teves AG & Co. oHG Head of brake.tech section



Victor Underberg AUDI AG Head of tire.wheel.tech section



Wolfgang Siebenpfeiffer Editor-in-Charge ATZ | MTZ | ATZelektronik | lightweight.design

Scientific Director of the Symposium

Prof. Dr. Peter E. Pfeffer, Munich University of Applied Sciences

chassis.tech section

Egbert Bakker, Volvo Car Group, Sweden
Prof. Dr. Lutz Eckstein, RWTH Aachen University
Friedrich Eichler, Volkswagen AG
Dr. Christoph Elbers, ZF Friedrichshafen AG
Dr. Veit Held, Opel Automobile GmbH
Axel Honisch, Hyundai Motor Europe Technical Center GmbH
Prof. Dr. Pim van der Jagt, Ford Forschungszentrum Aachen GmbH
Thomas Kutsche, ZF Friedrichshafen AG
Prof. Dr. Markus Lienkamp, TU Munich
Heinz Müllner, MAN Truck & Bus AG
Stefan Resch, TÜV SÜD AG
Prof. Bernhard Schick, Kempten University of Applied Sciences
Christoph Schulenburg, Daimler AG
Martin Schwarz, BMW Group

Prof. Makoto Yamakado, Kanagawa Institute of Technology, Japan

of the parallel sections

Plenary section chassis.tech plus

All members of the Scientific Advisory Boards

steering.tech section
Dr. Christoph Bittner, Dr. Ing. h. c. F. Porsche AG
Thilo Bitzer, ZF Group
Prof. Dr. Dr. Hans-Hermann Braess (Honorary Chairman)
Frank Esser, Ford-Werke GmbH
Alexander Gaedke, Robert Bosch Automotive Steering GmbH
Marcus Kliewer, Daimler AG
Frank Lubischer, Nexteer Automotive, USA
Hirofumi Matsuoka, JTEKT Corporation, Japan
Prof. Dr. Manfred Plöchl, TU Vienna, Austria
Kristof Polmans, thyssenkrupp Presta AG, Liechtenstein
Heiko Ruck, TAKATA AG
Dr. Matthias Schölzel, BMW Group

brake.tech section

Prof. Dr. Klaus Augsburg, TU Ilmenau
Prof. Dr. Karlheinz Bill, HTW Berlin
Prof. Dr. Eberhard Drechsel, formerly MUAS
Dr. Falk Hecker, Knorr-Bremse SfN GmbH
Frank Kästner, Robert Bosch GmbH
Tobias Linke, MAN Truck & Bus AG
Prof. Dr. Giampiero Mastinu, Politecnico di Milano, Italy
Prof. Dr. Ralph Mayer, Chemnitz University of Technology
Jan Münchhoff, AUDI AG
Donatus Neudeck, Dr. Ing. h. c. F. Porsche AG
Claus-Peter Weidner, Daimler AG
Karl Friedrich Wörsdörfer, Continental Teves AG & Co. oHG

tire.wheel.tech section

Stefan Bender, Hankook Tire Europe GmbH
Stephane Bertoldi, Michelin Reifenwerke AG & Co. KGaA
Stefan Dittmar, TÜV SÜD Product Service GmbH
Prof. Dr. Frank Gauterin, Karlsruhe Institute of Technology (KIT)
Dr. Patrick Gruber, University of Surrey, UK
Andreas Herbert, Fraunhofer LBF
Edwin Van der Stad, Bridgestone EMEA
Michael Staude, TÜV SÜD Product Service GmbH
Toshimichi Takahashi, Toyota Central R&D Laboratories, Japan
Dr. Stefan Torbrügge, Continental Reifen Deutschland GmbH
Victor Underberg, AUDI AG



chassis_tech







WELCOME

By forming the link between the road surface and the vehicle, the chassis plays a key role in enhancing vehicle dynamics and ride comfort. With its control systems, it provides the basis for the further development of driver assistance systems which support the driver in the task of driving the vehicle. This applies to an even greater extent to autonomous vehicles. Electromechanical steering and steerby-wire systems are one solution available. At the same time, the brake system as a safety component needs to be developed in such a way that it fulfills the requirements of powertrain hybridization and electrification.

As a platform for the exchange of experience and constructive discussions, the 9th International Munich Chassis symposium chassis.tech plus will bring together numerous experts in chassis systems, steering, brakes, and tires/ wheels from all over the world on 12 and 13 June 2018.

High-profile keynote speakers will provide a comprehensive overview of new solutions to these challenges. Speakers from industry and research will discuss the very latest developments in four parallel strands: chassis systems, steering, brakes, and tires/wheels. The program will be rounded off by two plenary sessions at the beginning and end of the conference.

We look forward to welcoming you at the Hotel Bayerischer Hof in the centre of Munich and hope that you enjoy a stimulating conference.

Prof. Dr. Peter E. Pfeffer

Munich University of Applied Sciences Scientific Director of the Symposium

1st day

2nd day

Interdisciplinary section chassis.tech plus - in two parallel strands in the afternoon -

chassis.tech section

steering.tech section

brake.tech section

tire.wheel.tech section

Trade exhibition

chassis.tech steering.tech brake.tech tire.wheel.tech

Interdisciplinary section chassis.tech plus

>> CHASSIS.TECH PLUS SECTION

Festsaal

Moderator:

Prof. Dr. Peter E. Pfeffer, Automotive Engineering, Munich University of Applied Sciences

8:00 Registration

9:15 Welcome and opening

Dr. Alexander Heintzel, Editor-in-Chief ATZ | MTZ | ATZelektronik | lightweight.design; Prof. Dr. Peter E. Pfeffer, Automotive Engineering, Munich University of Applied Sciences

KEYNOTE LECTURES I

9:30 Chassis 2025 -

strategic key competence or commodity? Thomas Müller, Vice President Chassis Development, M. C. Paefgen, AUDI AG

10:00 Connected, electrified, autonomous – the intelligent chassis of the future Dr. Holger Klein, Head of Chassis Technology Division, ZF Friedrichshafen AG

10:30 Disruptive changes and their impact on the supplier industry Stefan Randak, Director & Head of Business Unit Automotive, Atreus GmbH

11:00 **Opening of the accompanying trade exhibition** and refreshment break in the exhibition area

KEYNOTE LECTURES II

11:30 Steer-by-wire – next-generation steering system for future mobility

Roland Greul, Director Advanced Engineering, B. Hauser, A. Gaedke, Robert Bosch Automotive Steering GmbH

12:00 Driving experience vs. mental stress with automated lateral guidance from the customer's point of view

Prof. Bernhard Schick, C. Seidler, Y.-J. Kuo, Research ADAS/AD, Kempten University of Applied Sciences; S. Aydogdu, MdynamiX AG

12:30 Lunch in the exhibition area

>> PARALLEL STRAND I

Festsaal

>> PARALLEL STRAND II

Palaishalle

Moderator:

Stefan Resch, Corporate Strategy & Innovation, TÜV SÜD AG

NEW CHASSIS SYSTEMS

14:00 Chassis development for a fully electric vehicle with quattro drivetrain

Oswin Röder, Team Manager Application Chassis Characteristics Driving Dynamics/-Comfort, Dr. Michael Wein, Project Manager All-Wheel Drive Control Systems, AUDI AG

14:30 Chassis system design of the aCar – a light commercial vehicle for Sub-Saharan Africa

Michael Schmidt, Research Assistant, T. Zehelein, Prof. Dr. M. Lienkamp, Chair of Automotive Technology, TU Munich

15:00 Development of a disruptive lightweight truck at MAN Truck & Bus

Urs Gunzert, Senior Department Manager Vehicle Concepts, Steve Sattler, Project Manager Lightweight Tractor. J. Hintereder. MAN Truck & Bus AG

15:30 Refreshment break in the exhibition area

AUTONOMOUS VEHICLES

16:00 What can we learn from autonomous level-5 motorsport?

Johannes Betz, Research Associate, A. Heilmeier, Prof. Dr. M. Lienkamp, Chair of Automotive Technology, TU Munich

16:30 Assisted and autonomous driving on driving simulators

Mattia Bruschetta, Automation Engineer, Research Fellow, Department of Information Engineering, University of Padua, Italy; D. Minen, VI-grade s.r.l., Italy

17:00 Lateral dynamics on the vehicle test bed – a steering module as a validation tool for autonomous driving functions

Martin Förster, Research Assistant, Prof. Dr. P. E. Pfeffer, Automotive Engineering, Munich University of Applied Sciences; R. Hettel, Dr. C. Schyr, AVL Deutschland GmbH

17:30 Vehicle motion control layer – a modular abstraction layer to decouple ADAS from chassis actuators

from

Dr. Eckehard Münch, Development Engineer Mechatronic Chassis Systems, H. Bestmann, Dr. C. Lovell, S. Pollmeyer, M. Salari Khaniki, D. Schulte, ZF Friedrichshafen AG

Moderator:

Dr. Veit Held, Senior Manager Advanced Engineering Chassis and Chassis Control Systems, Opel Automobile GmbH

RIDE COMFORT

14:00 Continental Air Supply – scalable, closed loop system for energy-efficient air spring solutions
Dr. Uwe Folchert, Head of Competence Center Air

Supply Units & Project Leader CAirS, Continental Chassis & Safety, Continental Teves AG & Co. oHG

14:30 Model predictive control for active suspensions with a focus on real-time capability

Johan Theunissen, Principal Research Engineer, M. Dhaens, K. Reybrouck, C. Lauwerys, B. Vandersmissen, M. Al Sakka, K. Motte, Tenneco Automotive Europe bvba, Belgium; Prof. A. Sorniotti, Dr. P. Gruber, Dr. S. Fallah, University of Surrey, UK

15:00 Improvement of ride comfort by triple Skyhook control

Etsuo Katsuyama, Project Manager, Toyota Motor Corporation, Japan

15:30 Refreshment break in the exhibition area

CHASSIS CONTROL SYSTEMS

16:00 Development of GVC Moment Plus Control for mass production

Daisuke Umetsu, Staff Manager, Y. Takahara, O. Sunahara, F. Kato, Mazda Motor Corporation, Japan; Prof. M. Abe, Prof. M. Yamakado, Y. Kano, Kanagawa Institute of Technology, Japan; J. Takahashi, Hitachi Ltd., Japan

16:30 Development of a real-time friction estimation procedure

Dr. Gerd Müller, Senior Engineer, Prof. Dr. S. Müller, Department of Vehicle Engineering, TU Berlin

17:00 MTC – model-based feed forward traction control
Dr. Lars König, Senior Expert Vehicle Dynamics Control,
D. Merlein, J. Bechtloff, F. Schindele, M. Tiator,
Bosch Engineering GmbH

17:30 Analysis of the potentials of a new control approach for traction control considering a P2-Hybrid drivetrain

Alexander Zech, PhD Candidate, Dr. T. Eberl, C. Marx, BMW Group; Prof. Dr. S. Müller, Department of Vehicle Engineering, TU Berlin

Evening reception in Munich Ratskeller

18:30 Enjoy interesting conversations with colleagues and speakers in a pleasant atmosphere.

>> CHASSIS.TECH SECTION

Palaishalle

>> STEERING.TECH SECTION

Festsaal

Moderator:

Axel Honisch, Head of Vehicle Test and Development Dept., Hyundai Motor Europe Technical Center GmbH

DEVELOPMENT METHODS

8:30 Concept study: networking requirements for test benches that support the product release process of autonomous driving functions on the system level

Thomas Maur, EPS System Integration & System Qualification, Dr. M. Moczala, ZF Group

- 9:00 Top-down development of controllers for highly automated driving functions using solution spaces Jan-Dominik Korus, Motion Control, P. Garcia Ramos, C. Schütz, BMW Group; Prof. Dr. M. Zimmermann, Chair of Product Development, TU Munich; Prof. Dr. S. Müller, Department of Vehicle Engineering, TU Berlin
- 9:30 Virtual chassis validation of commercial vehicles at MAN Truck & Bus Manuel Armbrüster, Computation Engineer Engineering Rolling Chassis Structural Simulation, MAN Truck & Bus AG
- 10:00 Refreshment break in the exhibition area

Moderator:

Dr. Christoph Elbers, Vice President Car Chassis Technology Development, ZF Friedrichshafen AG

ELASTOMERIC BEARINGS AND WHEEL SUSPENSION

- 10:30 Potential of elastodynamic analysis for robust suspension design in the early development stage Stefan Büchner, PhD Candidate, N. Deixler, Dr. R. Stroph, BMW Group; Prof. Dr. M. Lienkamp, Chair of Automotive Technology, TU Munich
- 11:00 The behavior of elastomer components in chassis systems under operating and special loads in real operating conditions and in the computational determination of sectional loads

Frieder Riedel, PhD Student Durability Chassis, Daimler AG

11:30 Enhanced experimental suspension examination Maximilian Georg Reisner, PhD Candidate Development Rear Axle, Prof. Dr. G. Prokop, Chair of Automotive Engineering, TU Dresden; H. Krome, AUDI AG

12:00 Lunch in the exhibition area

Moderator:

Alexander Gaedke, Vice President Engineering System and Advance, Robert Bosch Automotive Steering GmbH

STEERING FEEL AND HUMAN-MACHINE INTERFACE (HMI)

- 8:30 Steering features of the new Ford Focus
 Dr. Thorsten Hestermeyer, Supervisor Global Core
 Steering and Suspension Controls, W. Bongarth,
 J. Dornhege, Ford-Werke GmbH
- 9:00 Objectification of the feedback behavior of the suspension and steering system
 Dario Düsterloh, PhD Student in the Steering Development, Dr. A. Uselmann, J. Scherhaufer, Dr. C. Bittner, Dr. Ing. h.c. F. Porsche AG; Prof. Dr. Dr. D. Schramm, Chair of Mechatronics, University of Duisburg-Essen
- 9:30 **Does the steering wheel have a future? A UX study**Dr. Alisa Lindner, User Experience Designer,
 Systems Engineering, R. Greul, Robert Bosch
 Automotive Steering GmbH
- 10:00 Refreshment break in the exhibition area

Moderator:

Thilo Bitzer, Senior Vice President Steering Engineering, ZF Group

NEW STEERING CONCEPTS

- 10:30 Steering on demand for dual-mode vehicles
 Joe Klesing, Executive Director Autonomous
 Steering & Comfort, J. Zuraski,
 Nexteer Automotive Corp., USA
- 11:00 **OEM** perspective on decoupled steering systems
 Riccardo Ficca, Vehicle Dynamics and Decoupled
 Steering Perception Lead, Jaguar Land Rover
 Limited, UK
- 11:30 Cockpit 2025 an HMI concept for autonomous and manual driving Dr. Thomas W. Heitz, Head of Advanced Engineering Steering Column, Dr. A. Schacht, D. Kreutz, T. Bayer, thyssenkrupp Presta AG, Liechtenstein
- 12:00 Lunch in the exhibition area

>> BRAKE.TECH SECTION

Königssaal

>> TIRE.WHEEL.TECH SECTION

ACORUS, France

Fürstensalon

Moderator:

Donatus Neudeck, Director Development Brake Systems, Hydraulics and Actuations, Dr. Ing. h.c. F. Porsche AG

FUTURE BRAKE SYSTEMS

- 8:30 **Brake systems 2025 future trends**Christian Vey, Test Engineer Test Advanced
 Engineering, Continental Teves AG & Co. oHG
- 9:00 Distributed brake-by-wire system for next-generation road vehicles Beniamin Szewczyk, Innovation Projects Manager, A. Ciotti, L. Cappelletti, BREMBO S.p.A., Italy
- 9:30 Brake-control-based holistic truck motion control concept for automated driving
 Dr. Falk Hecker, VP Technology Driver Assistance and Automated Driving, F. Stambrau, A. Mustapha, Knorr-Bremse Systeme für Nutzfahrzeuge GmbH
- 10:00 Refreshment break in the exhibition area

Moderator:

Jan Münchhoff, Head of Project Management Chassis A6/A7/A8, AUDI AG

BRAKE DUST

- Brake particle emissions a global challenge
 Dr. Sebastian Gramstat, NVH Project Engineer,
 R. Waninger, AUDI AG; Dr. D. Lugovyy,
 M. Schröder, Horiba Europe GmbH;
 T. Grigoratos, Joint Research Centre (JRC),
 European Commission (EC), Italy
- 11:00 Real driving emissions measurement of brake dust particles David Hesse, Scientific Staff, T. Feißel, F. Wenzel,

Prof. Dr. K. Augsburg, Department of Automotive Engineering, TU Ilmenau

11:30 Low emission braking –
can the friction brake be saved?
Donatus Neudeck, Director Development
Brake Systems, Hydraulics and Actuations,
Dr. Ing. h.c. F. Porsche AG

12:00 Lunch in the exhibition area

Moderator:

Stefan Dittmar, Team Leader Wheels, Business Unit Tires/Wheels, TÜV SÜD Product Service GmbH

WHEEL TECHNOLOGIES AND TRENDS

- 8:30 The flexible wheel: breakthrough technology for comfort, safety, and bigger wheels
 Ralf Duning, Vice President Global Engineering,
 Maxion Wheels EAAP Holding GmbH; Daniel Walser,
 Technical Design Manager for Acorus Technology,
 Michelin Recherche et Technique SA, Switzerland;
 P.-E. Sorel, MICHELIN Incubateurs Europe —
- 9:00 Guidelines for the testing and inspection of plastic wheels for passenger cars and motorcycles Klaus Baltruschat, Senior Account Manager,
 S. Dittmar, T. Tallafuß,
 TÜV SÜD Product Service GmbH
- 9:30 **Porsche 911 Turbo Carbon Wheel**Gerd Burk, Manager Development Wheels,
 K. Hendrickx, J. Boës,
 Dr. Ing. h.c. F. Porsche AG
- 10:00 Refreshment break in the exhibition area

Moderator:

Edwin Van der Stad, Head of OEMs Advanced Technologies & Solutions, Bridgestone EMEA

TIRE TESTING AND SIMULATION

- 10:30 European and international harmonized tire regulations / Impact on vehicle development Lars Netsch, Deputy Head of Technical Service, TÜV SÜD Auto Service GmbH; J. Burghardt, AUDI AG
- 11:00 Efficient parameterization of a user-friendly tire model based on results from complex simulations Ronnie Dessort, Simulation Consultant, Dr. C. Chucholowski, TESIS DYNAware Technische Simulation Dynamischer Systeme GmbH
- 11:30 How to handle the increasing variety of potential tire/wheel sizes in the early vehicle development process
 Francesco Calabrese, Tire and Vehicle Simulation Engineer, Dr. M. Bäcker, A. Gallrein, Fraunhofer Institute for Industrial Mathematics (ITWM);
 L. Dusini, Maserati S.p.A., Italy
- 12:00 Lunch in the exhibition area

>> CHASSIS.TECH SECTION

Palaishalle

>> STEERING.TECH SECTION

Festsaal

Moderator:

Martin Schwarz, Process Responsible Driving Dynamics, BMW Group

INNOVATIVE MATERIALS AND METHODS

13:30 Carbon fiber reinforced plastic anti-roll bar and droplink

Eric Begenau, Development Chassis Roll Stabilization Systems, B. Schmidt, Dr. Ing. h.c. F. Porsche AG

14:00 Capability of glass fiber reinforced plastics for lightweight design control arms in wheel suspensions

Prof. Dr. Andreas Nevoigt, Prorector for Research and Technology Transfer, D. Butakov, Laboratory for Suspension Systems, South Westfalia University of Applied Sciences; Dr. Stefan Kurtenbach, Head R+D, G. Schöntauf, Automotive Center South Westfalia

14:30 Damper diagnosis by artificial intelligence

Thomas Zehelein, Research Assistant, Prof. Dr. M. Lienkamp, Chair of Automotive Technology, TU Munich

15:00 Refreshment break in the exhibition area

Moderator:

Dr. Christoph Bittner, Manager Development Steering Systems and Steering Column, Dr. Ing. h.c. F. Porsche AG

DEVELOPMENT METHODS

- 13:30 Advanced NVH data acquisition and analysis Yuriy Kandinov, Senior Manager Global NVH, L. Graeff, ZF Group, USA/Germany
- 14:00 Development of a steering characteristics optimization process and its implementation in vehicle projects

Xabier Carrera Akutain PhD, Technical Manager Vehicle Dynamics and Model Based Development, K. Ono, A. Ocariz, G. Tsitouridis, Toyota Motor Europe, Belgium; S. Iwamatsu, Toyota Motorsport GmbH

14:30 **EPS SW** integration test automation based on architectural design

Maciej Obszarny, Team Manager EPS SW & System Testing, W. Grygierek, W. Makuch, P. Niggemeier, ZF Group, Poland/Germany

15:00 Refreshment break in the exhibition area

>> CHASSIS.TECH PLUS SECTION

Festsaal

Moderator:

Prof. Dr. Peter E. Pfeffer, Automotive Engineering, Munich University of Applied Sciences

KEYNOTE LECTURES III

15:30 The chassis of the all-new LS/LC – Lexus luxury prestige Sedan/Coupé

Masaya Akita, Department General Manager Chassis Engineering, Lexus International (Toyota Motor Corporation), Japan

15:55 Driverless robocabs – challenges and solutions regarding chassis technology

Dr. Andree Hohm, Head of Self Driving Car Project, N. Balbierer, S. Pla, R. Syrnik, Continental Teves AG & Co. oHG

16:20 i30N – the first high-performance vehicle development from Hyundai

Albert Biermann, President, Head of Performance Development & High Performance Vehicle Division, Dr. J. Park, K. Köster, Hyundai Motor Group, South Korea

16:45 Closing remarks

Prof. Dr. Peter E. Pfeffer, Automotive Engineering, Munich University of Applied Sciences; Dr. Alexander Heintzel, Editor-in-Chief ATZ | MTZ | ATZelektronik | lightweight.design

>> BRAKE.TECH SECTION

Königssaal

>> TIRE.WHEEL.TECH SECTION

Fürstensalon

Moderator:

Dr. Falk Hecker, VP Technology – Driver Assistance and Automated Driving, Knorr-Bremse Systeme für Nutzfahrzeuge GmbH

BRAKE CONTROL SYSTEMS AND VIBRATION

- 13:30 Modal analysis of brake discs –
 effect of wear on the frequency spectrum
 Lutz Pander, Academic & Research Staff,
 Prof. Dr. R. Mayer, Vehicle System Design,
 TU Chemnitz
- 14:00 Virtualization of the brake noise development process to guarantee robust start quality
 Dr. Martin Treimer, Development Driving Dynamics Simulation Longitudinal Dynamics, BMW AG
- 14:30 Explicit non-linear model predictive control for vehicle stability control Mathias Metzler, PhD Candidate in Advanced Vehicle Engineering, D. Tavernini, Prof. A. Sorniotti, Dr. P. Gruber, Centre for Automotive Engineering, University of Surrey, UK
- 15:00 Refreshment break in the exhibition area

Moderator:

Victor Underberg, Head of Application Chassis Characteristics, Driving Dynamics/-Comfort, AUDI AG

TIRE PERFORMANCE AND TIRE SLIP ANALYSES

- 13:30 Real-time high-resolution road condition map for the EU
 Per Magnusson, Project Manager, G. Kristiansson, NIRA Dynamics AB, Sweden
- 14:00 Longitudinal tire slip curve identification from vehicle road tests
 Stefano Murgia, Specialist Engineer,
 A. G. Bissoli, Vehicle Dynamics Performance Competence Center, FCA Italy S.p.A.;
 L. Ceccarini, C.S.I. S.p.A., Italy
- 14:30 Something from (almost) nothing: an overview of tire modeling in F1 using minimal data sets
 Dr. Vasilis Tsinias, Senior Tire Performance Engineer, Renault Sport Racing Limited, UK
- 15:00 Refreshment break in the exhibition area



9TH INTERNATIONAL MUNICH CHASSIS SYMPOSIUM

One for All - Four Congresses in One Event

The International Munich Chassis Symposium is the key international meeting place for the chassis community in the fields of the chassis, steering, brakes and wheels/tires.

The **1st day** will be taken up by the interdisciplinary section **chassis.tech plus** with two parallel sessions of lectures in the afternoon. The symposium will focus on overriding issues relating to chassis systems and vehicle dynamics before dividing up

on the **2nd day** into the following four parallel sections concentrating on the chassis, steering, brakes and wheels/tires:

chassis.tech steering.tech brake.tech tire.wheel.tech

In the afternoon, the parallel sections will merge together again for the interdisciplinary section **chassis.tech plus**.

This year, the content focuses on current trends, developments and solutions for automated and highly automated driving. Of course, the latest developments and methods of chassis design will also be presented.

Participants can move freely between the four parallel sections at any time. The individual parallel sections scheduled for the second day – **chassis.tech**, **steering.tech**, **brake.tech**, **tire.wheel.tech** – can be booked separately at a reduced registration fee.

For the whole duration of the event, the **accompanying trade exhibition** will allow you to gather information on innovative products and services offered in the field of chassis development.

PARTICIPANTS

- · Manufacturers of passenger cars and commercial vehicles and their suppliers
- · Development service providers
- · Universities and research institutes
- · Manufacturers of measuring, testing and simulation systems
- · Authorities, associations and testing institutes

EVENING RECEPTION IN MUNICH RATSKELLER

Tuesday 12 June 2018 | from 18:30 in Munich Ratskeller Marienplatz 8 | 80331 Munich

Experience a cosy evening in the traditional Ratskeller. We are happy to invite you to attend an evening of stimulating conversation with colleagues and to offer you the chance to enjoy Bavarian culinary delicacies.

The foundation stone of the Ratskeller was laid on 25 August 1867. However, the first landlord and landlady did not move into the premises of the new town hall until 1 August 1874, the date when the city council started its activities there.

In accordance with the Romantic spirit of the age, Georg von Hauberisser designed the edifice as well as the furnishings of the Ratskeller in the 16th-century Gothic style. Munich painters such as Heinrich Schlitt and Josef Rösl designed the various vaults.

The Ratskeller, established ever since then as a place of civic hospitality, extends a hearty welcome with its typical Bavarian charm.

www.ratskeller.com





THE ORGANIZER

ATZlive // Spotlight on Powertrain and Vehicle Engineering //

ATZlive organizes its high-caliber conferences for vehicle and engine specialists together with key representatives from research and industry to ensure that they are tailor-made to the needs of the participants and address the very latest issues. Our close collaboration with the editorial teams of our specialist magazines ATZ and MTZ keeps us fully up-to-date on the latest topics and trends on the market.

Springer with its automotive technology brands of the ATZ and MTZ Group is part of Springer Nature, one of the leading publishing groups worldwide for scientific, educational and specialist literature.



www.ATZlive.com

THE COOPERATING PARTNER

TÜV SÜD Generating competitive edge through smart use of knowledge.

TÜV SÜD is a premium quality, safety, and sustainability solutions provider that specializes in testing, inspection, auditing, certification, training, and knowledge services. Since 1866, the company has remained committed to its founding principle of protecting people, property and the environment from technology-related risks. Headquartered in Munich, Germany, TÜV SÜD is represented in more than 800 locations worldwide. TÜV SÜD operates globally with a team of more than 24,000 multi-disciplinary experts recognized as specialists in their respective fields. By combining impartial expertise with invaluable insights, the company adds tangible value to businesses, consumers and the environment. The aim of TÜV SÜD is to support customers with a comprehensive suite of services worldwide to increase efficiency, reduce costs and manage risk. As an innovative service provider to the automotive industry, TÜV SÜD operates a global network of testing laboratories and facilities for exhaust gas testing, tire analysis and tire testing, electrical and functional safety tests, alternative powertrain systems, tanks and tank systems.



www.tuev-sued.de

THE SPONSORS

Saint-Gobain

ZF Friedrichshafen AG





www.makingabigdifference.com

www.zf.com

FURTHER PARTNER

IAVSE

The International Association for Vehicle System Dynamics founded in 1977 is an open non-commercial community of persons and organizations of different countries engaged in scientific research and development in the field of Vehicle Dynamics and related fields in order to promote the free and informal exchange of ideas and results. More at www.iavsd.org





EXHIBITION

Tuesday 12 June 2018 and Wednesday 13 June 2018

An accompanying trade exhibition will be taking place again in the foyers of the function rooms on Tuesday 12 June and Wednesday 13 June. In numerous booths, manufacturers and suppliers of the automotive industry will present the latest developments in chassis technology to the specialist audience.

List of exhibitors attending chassis.tech plus 2018

As of 01 March 2018

AVL List GmbH | Bertrandt AG | Bharat Forge Aluminium-technik GmbH | IAMT Engineering GmbH & Co. KG | IAV GmbH | IPG Automotive GmbH | Munich University of Applied Sciences | Saint-Gobain | SHOWA R&D Europe | Springer Professional | Springer Vieweg | TASS International | TBJ / Anthony Best Dynamics Ltd. (ABD) | Tenneco Inc. | TESIS DYNAware | TÜV SÜD AG | VI-grade GmbH | ZF Friedrichshafen AG

YOUR PRESENTATION PLATFORM

Take this opportunity to present your latest products and services to the specialist audience: as an exhibitor in our exclusive exhibition and/or as a sponsor with an attractive advertising presentation.

Make use of this meeting place to generate valuable business contacts!

For information on the various presentation options, please contact:
Elke van Lon
Phone +49 611 7878-320
elke.vanlon@springer.com

THE MEDIA PARTNERS

ATZ



www.ATZonline.com

ATZelektronik



www.ATZonline.com

DIGITAL, INTERNATIONAL, AND INTERACTIVE:

THE NEW EMAGAZINES ATZworldwide AND ATZelektronik worldwide

As a participant in this symposium, you have the opportunity to read our new English-language eMagazines free of charge and without obligation. We offer you 30 days of free access.

When registering, please specify which eMagazine you would like to read.

ATZ WORLDWIDE



REGISTRATION FEE

Participation in the entire symposium chassis.tech plus 12 and 13 June 2018 € 1,495.– plus VAT

This includes the conference documents, food and drinks during the breaks and the evening event on 12 June 2018.

Participation on one day only

12 June 2018 I in the section **chassis.tech plus** or 13 June 2018 I in one of the four parallel sections **chassis.tech**, **steering.tech**, **brake.tech**, **tire.wheel.tech** € 945.– plus VAT

This includes the conference documents, food and drinks during the breaks and the evening event on 12 June 2018.

Participants can change between the parallel sections at any time. The registration fee also includes admission to the accompanying trade exhibition.

University members of the IAVSD receive a 50 % discount on the registration fee.

Mode of payment

By bank transfer after invoice or by credit card (MasterCard, Visa).

LANGUAGES USED IN THE PRESENTATIONS

German and English with simultaneous interpreting (German – English / English – German)

THE NEW EMAGAZINES ATZworldwide AND ATZelektronik worldwide

All participants in the symposium can read our new English-language eMagazines free of charge and without obligation. We offer you 30 days of free access.

VENUE

Hotel Bayerischer Hof Promenadeplatz 2–6 | 80333 Munich | Germany

Phone +49 89 2120-0 www.bayerischerhof.de

HOTFLS

The following hotels have room blocks at reduced prices for the participants. Please reserve by 30 April 2018 (Motel One) or 11 May 2018 (Novotel) and refer to "chassis.tech plus".

Motel One München Deutsches Museum

Rablstraße 2 | 81669 Munich Phone +49 89 4445558-0 Fax +49 89 4445558-10

muenchen-deutschesmuseum@motel-one.com www.motel-one.com/en/hotels/munich/ muenchen-deutsches-museum/ Single room with breakfast € 88.50 Double room with breakfast € 113.–

Novotel München City

Hochstraße 11 | 81669 Munich
Phone +49 89 66107-0
Fax +49 89 66107-999
H3280@accor.com
www.novotel.com/de/hotel-3280-novotel-muenchen-city/
index.shtml
Single room with breakfast € 154.—
Double room with breakfast € 175.—

You can book other hotels in Munich via:

www.muenchen-tourist.de

CONDITIONS

No cancellation charge is due if registration is cancelled by 21 May 2018. For cancellations made after that date, the full registration fee is payable. Cancellations must be made in writing. The date of the postmark will determine whether the deadline has been met. If you are unable to attend, we will be happy to accept a substitute participant.

Should a speaker be unable to attend at short notice by reason of force majeure, illness, accident or other circumstances for which ATZlive cannot be held responsible, another qualified person will be appointed to the exclusion of any claim for compensation. Should the event be cancelled altogether, we will of course refund the registration

No conference documentation may be reproduced or transferred to third parties without the express written consent of ATZlive. Photographing the presentation slides and taking audio and video recordings of the event are not permitted.

The General Terms and Conditions of ATZlive apply as published on the website www.ATZlive.de/AGB

Your personal details will be stored electronically in compliance with the German Data Protection Act. We will not disclose your address to third parties for advertising purposes. If you do not wish to receive information about our publishing products, please send an e-mail with your address details to widerspruch.springerfachmedien-wiesbaden@springer.com.

Please send the registration form by post or fax to:

ATZlive | Springer Vieweg
Springer Fachmedien Wiesbaden GmbH
Elisabeth Moser
Abraham-Lincoln-Straße 46 | 65189 Wiesbaden | Germany
Phone +49 611 7878-118
Fax +49 611 7878-452
ATZlive@springer.com
www.ATZlive.com

Springer Vieweg

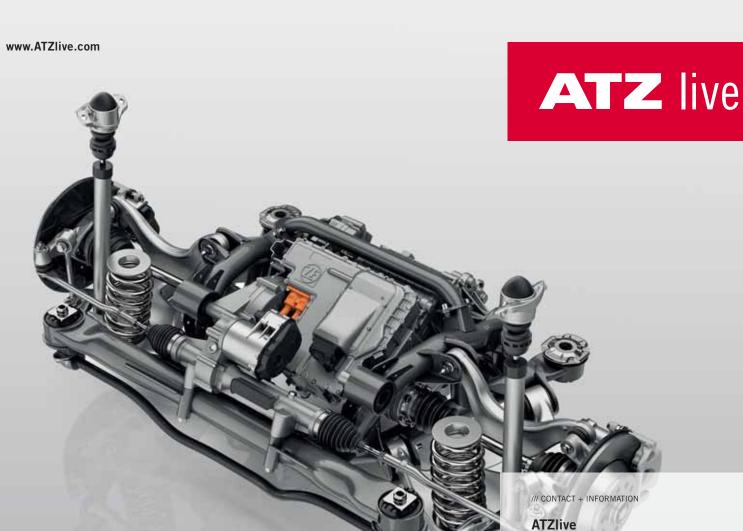
9th International Munich Chassis Symposium

12 AND 13 JUNE 2018 | MUNICH | GERMANY

chassis_tech_{plus}

chassis.tech + steering.tech + brake.tech + tire.wheel.tech

REGISTRATION	
Register either by sending the registration form to Fax +49 611 7878-452, ATZlive@springer.com or online at www.ATZlive.com. You will receive confirmation of participation upon re of your registration and be invoiced three weeks before symposium. You will receive your conference document when registering at the venue. Please register one person per form only. Registration data Family name	ore the ☐ 13 June 2018 – chassis.tech plus 2nd day: € 945.–*
First name	Mode of payment Bank transfer after invoice □ Credit card □ MasterCard □ Visa
Acad. title	
Company / Institute	Card number
Department	Card holder
Function	Valid until
Street / P.O. box	
Postal code / City	
Country	Please send me my free trial access to ATZworldwide or ATZelektronik worldwide to the following e-mail address:
Phone, Fax	
E-mail	Family name
Invoice address (if different from above address)	First name
VAT No.	E-mail 6001228
	EAV TO . 40 C11 7070 450 OD
Date, Signature	FAX TO +49 611 7878-452 OR E-MAIL TO ATZLIVE@SPRINGER.COM



Springer Vieweg Springer Fachmedien Wiesbaden GmbH Abraham-Lincoln-Straße 46 65189 Wiesbaden | Germany

Elisabeth Moser Phone +49 611 7878-118 Fax +49 611 7878-452 ATZlive@springer.com www.ATZlive.com

© ZF Friedrichshafen AG

/// KINDLY SUPPORTED BY





