VEHICLE DYNAMICS EXPO 2009

FINAL PROGRAM

FREE-TO-ATTEND
OPEN TECHNOLOGY FORUM

16, 17, 18 JUNE 2009

MESSE STUTTGART, STUTTGART, GERMANY

FREE-TO-ATTEND

OPEN TECHNOLOGY FORUM

INTRODUCTION

Vehicle Dynamics Expo is the world's only **free-to-attend** international exhibition and forum for vehicle dynamics and chassis engineering. At this event you will find a complete exhibition full of the latest-generation technologies and components; suspension; handling; brakes; steering systems; stability programs; the latest intelligent and interactive chassis and vehicle dynamics systems PLUS all the latest software and vehicle dynamics engineering tools. And in addition to the exhibits, you will have the chance to participate in our **free-to-attend Open Technology Forum**, with leading experts from OEMs and Tier 1 companies discussing the latest concepts and future trends.

Sessions covering:

- Ride & Handling
- Suspension
- Simulation & Modeling
- Traction, Stability & Braking
- Dynamics Testing & Measurement
- Chassis

It's a seated forum…

but it's regularly standing room only!

"I'm thrilled with the new exhibition facilities. It's wonderfully convenient being located next to Stuttgart Airport"

Eduardo Aguiar, sales and marketing director, Globe Motors

DAY 1 MORNING SESSION

RIDE & HANDLING

Moderator – Magnus Roland, chairman & CEO, **S2AB**

10.30: Reactive Suspension System - The electronic damping performs for the new Lancia Delta

Fiat Automobiles Group & Magneti Marelli - Philippe Krief, chassis & vehicle dynamics responsible – engineering & design -FGA & Dr.Michele Spina, product development director

One of the most recent outgrowths in the field of the electronic damping control is represented by the new Lancia Delta's Reactive Suspension System. The well-proved base chassis of this medium size executive car has been empowered with a high tech real time damping control.

10.55: Research on a transparent damper – a deeper look into the secrets of dampers and shock absorber fluids

Fuchs Europe Schmierstoffe – Arno Wentz, product management - OEM

This presentation will discuss the optical observations of dynamic effects under realistic pressure and temperature conditions. Plus, facilitating investigations of oil and gas interactions in a twin-tube damper, with the resulting influence on the whole suspension system.

11.20: Ride quality objective evaluation of heavy commercial vehicles

Centro Ricerche Fiat/ IVECO – Massimo Caudano, vehicle dynamics engineer

A ride quality index for HCV has been developed, correlating objective measurements and subjective evaluations. This method allows users to determine the perceived vibration quality of a vehicle. It is applied in the development of new Iveco models.

11.45: Active yaw systems – re-experience front-wheel drive with Schnellster and Twinster+

Getrag Driveline Systems – Heinz-Peter Obergünner, vehicle dynamics engineer

This investigation will look at the Influence of two different active yaw systems on vehicle dynamics in comparison to the standard open differential of a front-wheel drive vehicle (Mini Cooper S).

12.10: The customization of vehicle dynamics by means of innovative human and machine interface

Magneti Marelli – Dr Giordano Greco, control engineer

An introduction to the Personal Interface Device, Magneti Marelli's software application which allows drivers to customize, tune and monitor the proprietary semi-active suspensions system. The architecture, functionalities and main results are discussed.

12.35: Multiplatform instrumentation for ride analysis

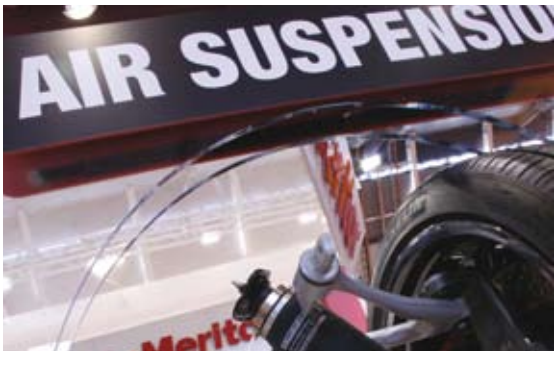
UPV – Dr Liborio Bortoni-Anzures, professor

This review will discuss several maneuvers tracked by using mem tri-axle inclinometer, tri-axle accelerometer, plus a GPS receiver and a CAN-network interface.

13.00: Lunch

DAY 1 AFTERNOON SESSION

SUSPENSION



Moderator – Magnus Roland, chairman & CEO, **S2AB**

13.30: Steel springs or air springs, hydropneumatic or active – Which suspension-damper system is best?

Continental AG - Dr. Andreas Rohde, director electronic suspension systems segment

Continental has contributed to the presence of air suspension systems in luxury cars, premium SUVs and – increasingly – in top standard-size vehicles, minivans and vans as well. Alongside vehicle level control, the principle reason for the more widespread use is the considerable improvement achieved in riding comfort and driving dynamics at a relatively low cost. Additional customer benefits can very easily be realized with auxiliary functions like adaptive loading sill or entry and trailer functions. Continental is developing an air suspension system with a switched auxiliary reservoir, making possible both very comfortable driving and, at the push of a button, very sporty driving.

14.00: Effective materials usage and materials properties utilization in automotive damper design

Delphi Poland SA – Dr Tomasz Pabin, ME expert

This presentation describes the most efficient usage of material types and grades, and optimum definition of components geometry in order to minimize weight and material utilization, and to maintain mechanical properties ensuring damper functionality.

DAY 1

14.25: Optimal ride height – an overview of leveling technologies, focusing on air suspension and Wabco's new compressor series

WABCO (BU Car Systems) – Helge Westerkamp, sales and marketing leader

The fitment rate of vehicle leveling systems is growing. This presentation will provide an overview of relevant vehicle characteristics, consumer preferences and how the various leveling technologies address those vehicle needs and consumer wants.

14.50: Suspension system for semi low-floor bus

Ashok Leyland – VijayKumar Viswanathan, manager - product development

The review describes the air suspension/suspension system design approach for this urban bus, including the verification and validation methodology adopted.

15.15: New advantages for use of taper wire in suspension springs for lightweight design and side load control

Ahle-Federn – Karsten Landwehr, key account manager

The advantages of taper wire springs are not only limited to the minimization of installation space or the prevention of coil-to-coil contact. The special design and manufacture of the taper wire spring also allows optimization for light weight and precise side load control.

15.40: TGD as topological geometrodynamics extended to tire-to-ground dynamics

S2AB – Magnus Roland, chairman & CEO

Topological geometrodynamics as a scientific approach in physics makes it possible to understand principles of suspensions as self-organizing systems transforming chaotic road impacts into ordered dynamic structures. A suspension concept based on these principles will be presented.

16.05: Tyre physical integrity and wear monitoring system

DUFOURNIER Technologies – Arnaud Dufournier, president and Damien Gerard, sales engineer

This review will detail embedded monitoring systems for tyre physical integrity and wear. Application to passenger car and truck.

16.30: Electrorheologic semi-active damper for racing motorcycles

Fludicon GmbH – Dr Joachim Funke, director automotive

In this presentation, the special challenges for motorcycle suspensions are pointed out. The design of an electrorheologic semi-active rear damper is presented; system layout and first test results will also be discussed.

16.55: Finish

DAY 2

DAY 2 MORNING SESSION

SIMULATION & MODELING

Moderator - Martin Zappe, managing director, **ICT Software Engineering Nord**

10.10: Vehicle functional design – from PSA in-house software to AMESim standard library with increased modularity

Peugeot Citroën Automobiles – Benoit Parmentier, engineer

After 10 years using an in-house code for vehicle functional design applications, PSA decided to industrialize it in AMESim. Result comparisons between the two softwares are shown using standard PSA models. The modularity has also been improved.

10.35: Steering feedback – modeling its effect on driver and vehicle

Cambridge University – Dr David Cole, senior lecturer

Steering feedback is an important aspect of vehicle dynamic response, but there has been little theoretical understanding. A new driver model is used to predict driver response to feedback arising from a fault in an angle overlay steering system.

11.00: Virtual car models for handling and ride – bridging off- and online simulations

Audi AG & VI-Grade – Dr Harald Wilhelm, simulation fahrverhalten & Diego Minen, technical director

This review describes how VI-grade technology can be used to make more efficient the process of on-road simulation, from concept to details, integrating SIL, MIL and HIL. A number of application examples developed at Audi will be shown.

11.25: Advances in modeling and characterization of nonlinear isolation components for reducing vibration and improving ride comfort

MSC Software – Michael Collingridge, director, Adams development

Improved general model formulation and parameter identification of nonlinear isolation components with Bouc/Wen hysteresis for vehicle ride and vibration studies using multibody dynamics. Comparison of model simulation results to measurement data.

11.50: Optimum course planning for lap time optimization

Virtual Vehicle – Dr Christian Prettenthaler, team leader

Lap time optimization in motorsport requires accurate simulation models of vehicle, track and driver. A method to calculate the vehicle- and track-dependent race line and speed profile via optimum control is presented.

12.15: Off-road high-performance vehicle running at high speed on a rough surface – multibody modeling and subsequent validation

Danisi Engineering Srl – Giacomo Danisi, CEO

The scope of the work is to validate the multibody model of a high-performance off-road vehicle to study the dynamic forces exchanged between the wheel and the ground, and optimize the spring and damper setup.

12.40: A new approach to steady-state and quasi-steady state vehicle handling analysis

OptimumG LLC – Claude Rouelle, president

This review will explain the use and exploitation of suspension kinematics in dynamic simulations, tire models and tire model visualization, aero maps and aero data utilization and calculation, and exploitation of yaw moment and weight transfer.

13.05: Model-based development of active safety system with Dymola

Modelon AB/Dynasim AB – Johannes Gerl, CEO

Active safety systems constitute core value and technology in new road vehicles. The rapid and efficient development of such system functions is therefore a key factor to stay competitive. Modeling and simulation-based methods are critical components.

13.30: Lunch

DAY 2 AFTERNOON SESSION

SIMULATION & MODELING (CONTINUED)

Moderator - Martin Zappe, director, **ICT Software Engineering**

14.00: Innovations in vehicle simulation software add to ease of use

Mechanical Simulation Corp – Dr Thomas Gillespie, director - product planning

The increasing complexity of high-fidelity simulation software does not have to equate with complexity at the user interface. Innovations with CarSim 8 illustrate how use of automation and simplification can maintain ease of use with new features.

14.25: Mechatronic test concepts for vehicle dynamics controllers

dSPACE GmbH – Thomas Gockeln, field application engineer

New vehicle dynamics controller concepts such as el. drives in steering systems or integrated sensors in ESP require new simulation methods in HIL applications. Mechatronic test benches for these applications are presented. Connection to RT-Model is shown.

14.50: A systems engineering approach for the design optimization of a hydraulic active suspension

LMS International – Marco Gubitosa, research engineer CAE

A procedure for the optimal design of an active suspension with skyhook control strategy is presented. Full vehicle and active damper system have been modeled in IL.AMESim, and the suspension design definition has been optimized with Noesis Optimus.

15.15: Next-generation modeling and simulation tools for stability control development

Maplesoft – Paul Goossens, product director

There is a growing interest in developing high-fidelity full-vehicle models that can be used within the stability control-design process. Maplesoft will introduce the latest release of MapleSim, which offers a new approach to vehicle systems modeling.

TRACTION, STABILITY & BRAKING

15.40: Gaining traction – scalable approaches to chassis system development and validation

ETAS GmbH – David Bailey, business development - Europe

This presentation will review the development and test program for the latest generation of distributed vehicle stability applications, with reference to the challenges faced for modeling, measurement and instrumentation and automation for the test process.

16.05: New mechanism design for generating traction force on the rear wheel for moveability in heavy traffic

Charkheshgar Co – Alireza Mangouri, technical expert

The presentation will discuss this project, which used the electric motor to provide the assist force for moveability in heavy traffic.

16.30: Driving dynamics and hybrid combined in torque vectoring

IAV GmbH – Dr Ruediger Freimann, manager - chassis mechatronic

A concept of an electrically driven “active differential” is introduced, which connects the functionality of a hybrid powertrain (electrical boost and recuperation) with the optimization of driving dynamics and safety (torque vectoring).

16.55: Finish

DAY 3 MORNING SESSION

DYNAMICS TESTING & MEASUREMENT

Moderator – Alexandre Catala, senior vehicle dynamics engineer, **IDIADA**

10.10: Low-cost approach to benchmark K&C data through integration of the MTS 329 and RV3 sensor

Maruti Suzuki India Ltd – Bhaskar Chaturvedi, deputy manager & Somashekhar Mathad, manager

In a competitive global market, car makers are experimenting with innovative technology on various development programs. This presentation shows one such experiment to benchmark K&C data through integration of the MTS329 and RV3 sensor in the absence of SPMM.

10.35: New possibilities of analysis based on dynamic K&C data (0 to 30Hz)

TÜV SÜD Automotive GmbH – Pascal Mast, manager DCS

The dynamic K&C analysis Dynamic Chassis Simulator fills the gaps in currently used static evaluation and validation processes. This review illustrates the new possibilities for vehicle simulation and tuning based on measured dynamic K&C data.

11.00: Efficient use of professional sensors in tire and car and tire performance measurement and comparison

OptimumG LLC – Claude Rouelle, president

This presentation explains the process of: sensor choice, their installation and calibration in a test car, the choice of dynamic tests and their execution, the collection of data and its analysis, and drawing conclusions related to car handling.

CHASSIS

11.25: New enabling technologies allowing simulation to be used as a complete development and tuning tool

IDIADA Automotive SA – Jonathan Webb, project engineer

This paper addresses the current limitations of simulation and presents new hybrid testing and analysis techniques that will bring solutions. Despite advances in software capability, few chassis managers rely on pure simulation to develop and tune a vehicle's suspension. Idiada is collaborating with customers to improve simulation potential so it can be used to guide chassis development.

11.50: Enhancing driving dynamics while halving emissions – electric dynamic control for Mira's Hybrid 4WD Vehicle (H4V)

MIRA Ltd – Lorenzo Pinto, vehicle dynamics CAE specialist

The ongoing hybridization process also brings the potential for major enhancements in vehicle dynamics. An overview is given of the development of Mira's H4V demonstrator, employing twin rear electric motors, and its use in a program of enhanced vehicle handling and stability.

12.15: MEMS sensors in chassis and active safety applications

Freescale Halbleiter GmbH – Matthieu Reze, sensor marketing engineer

Safety market trends will be covered. FSL MEMS technologies and sensor products covering VDC and suspension will be presented, including future development.

12.40: A sensor fusion approach to tire pressure monitoring

Nira Dynamics AB – Dr Urban Forssell, president & CEO

This presentation will describe how a cost-effective and user-friendly solution for tire pressure monitoring can be realized using advanced sensor fusion and adaptive signal processing techniques.

13.05: Beyond TPMS – the challenge of measuring real-time data of tires

Schrader Electronics Ltd – Alfonso Di Pasquale, vice president

At SEL, we believe that the next frontier of tire data gathering must involve the extraction of data in a real-time manner. How to step up communication data rate and payload are the technical challenges that we believe can be solved.

13.30: Finish

This program may be subject to change

EXHIBITING COMPANIES

Regular updates available online at: www.vehicledynamics-expo.com

AB Elektronick GmbH | Add2 | Alfot Technologies Co Ltd | Altair Engineering GmbH | Amet | AMK Automotive GmbH & Co KG | Auto 4U Ltd | Bishop Steering Technology, GmbH | Continental AG | Danisi Engineering SrL | Delphi France SAS | disynet GmbH | dSpace GmbH | Dynasim | Dytran Instruments, Inc | ebm-papst St Georgen GmbH & Co KG | Firestone Industrial Products Inc | FKA | FKK Guney Oto Lastik Takoz | Fludicon GmbH | Fluidon GmbH | Gebruder Ahle GmbH | Globe Motors Europe | Goodyear Engineered Products | Heckler Aktiengesellschaft | IFR Automotive SL | Iskra Autoelektrika DD | ITI GmbH | Kaiser Aluminium Umformtechnik GmbH | Kompetenzzentrum - Das virtuelle Fahrzeug, Forschungsgesellschaft mbH | LMS International NV | Magneti Marelli SpA | Magnum GmbH | Maplesoft | Mechanical Simulation | MSC Software GmbH | Oiles Deutschland GmbH | rFactor Pro | Rogelein GmbH | Tesis Dynaware GmbH | Veyance Technologies | Vorwerk Autotec GmbH & Co KG…

Stuttgart events

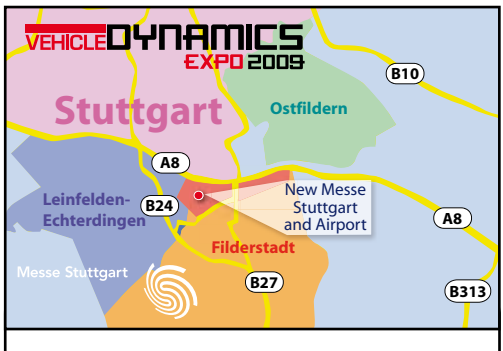
Vehicle Dynamics Expo is not open to the general public. Entrance to it and the adjoining Engine Expo, European Automotive Components Expo, Crash Test Expo and Automotive Testing Expo is FREE.

automotive testing expo 2009 europe

engineexpo2009

CRASHTESTEXPO EUROPE 2009

EUROPEAN AUTOMOTIVE COMPONENTS EXPO '09



Opening times

Tuesday 16 June 2009	9.00hrs-17.00hrs
Wednesday 17 June 2009	9.00hrs-17.00hrs
Thursday 18 June 2009	9.00hrs-16.00hrs

To avoid queuing at the registration area for your official entry badge, please register online now and your badge will be posted to you before the show.

MORE INFORMATION

UKIP Media & Events, Abinger House, Church Street, Dorking, Surrey, RH4 1DF, UK
Tel: **+44 (0)1306 743744** Fax: **+44 (0)1306 877411** Email: **nickmoller@ukintpress.com**
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Europe's only international exhibition for vehicle dynamics technology, components and systems!

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UKiP MEDIA EVENTS

CONTACT DETAILS

UKIP Media & Events, Abinger House, Church Street, Dorking, Surrey, RH4 1DF, UK
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