


Vehicle Dynamics Expo North America is part of
Automotive Testing Expo North America 2008

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VEHICLE DYNAMICS

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Open Technology Forum

FREE TO ATTEND



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October 22, 23, 24 2008

THE ROCK FINANCIAL SHOWPLACE, DETROIT, MI, USA

www.vehicledynamics-expousa.com

FINAL PROGRAM

INTRODUCTION

Already established as the number one industry event in Europe, Vehicle Dynamics Expo North America, which was held for the first time in October 2007, was a stunning success. This leading trade show focuses solely on key aspects of suspension, chassis, steering, traction, stability & braking, ride & handling, simulation and modeling technologies and components.

Free to attend for visitors, the three day 'Open Technology Forum', again sponsored by Robert Bosch LLC this year, will offer a fantastic program of key vehicle dynamics speakers from the likes of Chrysler LLC, General Motors Company, Honda R & D Americas Inc., Peugeot Citroen, Ford-Otosan, Robert Bosch LLC, Delphi Corporation, Continental, TRW Automotive, AVL, ThyssenKrupp Bilstein, SKF Automotive, LMS, Sanluis Rassini, Prodrive and Corrsys-Datron Sensor Systems to name but a few.

Leading vehicle dynamics suppliers and consultancies will join the OEMs on the speaker's platform over the course of the three days. On day one Chrysler LLC, Delphi Corporation, Honda & Ricardo will be speaking on ride & handling and simulation & modelling. On day two Robert Bosch LLC, General Motors Company, AVL, Ford-Otosan & Thyssen Krupp Bilstein will focus on the subject of traction, stability & braking and suspension, while Prodrive, TRW Automotive, Bishop Steering Technology & Corrsys-Datron Sensosystems will be among those presenting papers on day three.

The Vehicle Dynamics Expo North America 2008 exhibition will give you an opportunity to see many of the latest innovations and technologies for enhancing vehicle dynamics, including software and engineering tools. You will also find an incredible number of testing equipment companies exhibiting technologies for vehicle dynamics testing, including complete rigs for chassis development, suspension testing systems, stress and durability testing, and technologies for tuning ride and handling.

Visitors to Vehicle Dynamics Expo North America 2008 will also have free access to Automotive Testing Expo North America 2008. We hope you enjoy a productive visit to the exhibitions and the forum.

OVER 200,000FT² OF EXHIBITS!



OCTOBER 22, 23, 24 2008

THE ROCK FINANCIAL SHOWPLACE, DETROIT, MI, USA

Moderator – Paul Nave, Product Manager, Testing Solutions, MTS

09.50



New approach to damper design and damping characteristics

JRZ Suspension Engineering – Jan Zuijdijk, special product development

This presentation will look at the function of gas hydraulic dampers in modern sports car suspensions. Introducing gas pressure supported hydraulic damping systems for high-performance road cars and adjustability of gas pressure and damping forces, which is a perfect solution for club racers.

10.15

Vehicle roll centers and roll axis examined again!

Chrysler LLC – Gene Lukianov, core dynamics manager

Vehicle roll centers and the roll axis are significant contributors to vehicle steering and handling characteristics. This paper examines the current knowledge behind roll centers and the roll axis and offers some fresh examinations of the issue.

10.40

Diversity of passive dampers performance characteristics in response to specific ride and handling requirements

Delphi Corporation – Slawomir Dzierzek, dampers engineering manager

This presentation will describe how modifications to damper performance characteristics can support suspension tuning philosophies, the impact on damper valve design and tuning features, and some developments to achieve specific behavior of the vehicle.

11.05

Correlation of objective handling data with subjective handling evaluation of passenger vehicles under quasi-static and dynamic conditions and its analysis for steering and suspension tuning

Maruti Suzuki India Ltd – Vivek Mittal, assistant manager

Analysis of objective data of under-steer gradient, steering force gradient and roll angle in quasi-static condition and roll angle/rate and front/rear slip angles in dynamic condition, and its application in the vehicle suspension tuning process.

11.30

Hardware-in-the-loop technology – improved simulation accuracy facilitates early component/system evaluation

MTS Systems Corporation – Thomas Stachel, senior development engineer

This discussion describes how IDIADA applied MTS mechanical hardware-in-the-loop technology to improve the sensitivity of real-time full-vehicle maneuver simulation and reduce the time associated with damper selection and tuning.

11.55

Ride improvement of a North American pick-up

Metalsa SA de CV – Ricardo Prado Gamez, research and development

An overview of a low-cost method employed to significantly improve secondary ride shake on a North American pick-up truck, using predominantly a reduction in excitation of the chassis, rather than modal separation. The case study will demonstrate the importance of cost and implementation considerations for mainstream production.

12.20

Vehicle stability enhancement through active roll control

Altair Engineering – Edward Wettlaufer, engineering manager

Passive roll stabilizers have always been used to balance ground vehicle roll characteristics and influence overall vehicle stability. Active coupling devices afford the opportunity to change the vehicle's balance and improve directional stability.

12.45

Basic research on a transparent damper - A deeper look into the secrets of dampers and shock absorber fluids

Fuchs Europe Schmierstoffe - Arno Wentz, product management SAF

Optical observations of dynamic effects under realistic pressure and temperature conditions. Facilitates basic investigations of oil and gas interactions in a twin tube damper, with the resulting influence on the whole suspension system.

13.10

LUNCH

Moderator - Charles Millet, Director, Field Applications Engineering, Analog Devices

14.00



Solution to steering shimmy and brake judder – an approach based on chassis sensitivity study

Honda R&D Americas Inc – Dr Jinghong Yu, principal engineer

Chassis sensitivity of steering shimmy and brake judder is analyzed by unique nonlinear multibody simulation, laboratory validation and on-road test correlation. Influential chassis modes and factors are identified for enhancing vehicle performance.

14.25

Design of experiments (DOE) - Approach to driver modeling

Ricardo Inc – David Belo, project engineer

The topic refers to work carried out by Ricardo Inc on an optimized simulation run to turn a classical real-world subjective test into an objective virtual test. The run is done in MSC Adams whereas the optimization is done using iSIGHT/Matlab.

14.50

Hardware-in-the-loop testing of vehicle dynamics controllers – technology, models, and solutions

dSPACE GmbH – Dr Peter Waeltermann, lead engineer applications & Dr. Herbert Schuette, director applications, engineering

The presentation will give an overview of today's hardware-in-the-loop (HIL) technology to test VDC systems in a real-time environment. Real-time models, IO and processor hardware, specific devices and system solutions will be discussed in detail.

15.15

A library for vehicle dynamics functional analysis

LMS Imagine/ Peugeot Citroen Automobile - Julian Lagnier project engineer - vehicle system dynamics

This presentation will include some theoretical aspects of functional design. The library is fully integrated in the PSA V-cycle process and includes data workflow management. Since AMESim is multidisciplinary, this allows a platform approach.

15.40

Vehicle dynamics simulation – past, present and future

Pratt & Miller Engineering – Lynn Bishop, director of engineering

This review will give an in-depth look at the CAE tools and methods used in vehicle dynamics simulation. This walk through the past, present and future of vehicle dynamics simulation will provide an insight into the future of virtual vehicle development.

16.05

Next-generation modeling and simulation tools for stability control development

Maplesoft - Paul Goosens, product director

As federal regulations drive the need for electronic stability controllers on all new light vehicles by 2011, there is a growing interest in developing high-fidelity full-vehicle models that can be readily used within the control-design tool process.

16.30

Scenario development and automation for vehicle simulation

Mechanical Simulation Corporation – Mike Sayers, CEO and chief tech officer

CarSim software has always simulated standard tests in vehicle dynamics. New improvements in the CarSim GUI and run-time options support rapid scenario development and automation, to speed the evaluation of advanced systems and their interactions.



I believe that the Vehicle Dynamics Expo was an excellent success and will keep growing as time goes on. We have not had such a networking opportunity for vehicle dynamics experts ever before. Thanks for setting it up in the USA.



Gene Lukianov, Core Dynamics Manager, Chrysler LLC

Moderator – Charles Millet, Director, Field Applications Engineering, Analog Devices



Automotive radar and vision systems – ready for mass volume market

Robert Bosch LLC – Dieter Hoetzer, project manager

Increasing market penetration of driver assistance systems challenges suppliers with divergent requirements. Bosch offers radar and camera solutions that cover a wide range of designs from high-performance systems to low-cost sensor components.

10.15

An overview of the use of hardware-in-the-loop (HIL) simulation to support chassis controls systems development at General Motors

General Motors Company – Thomas Klingler, manager

Demand for reduced dependency on physical vehicles and testing has forced development of virtual engineering tools such as chassis controls HIL simulation, which is now used extensively to supplement vehicle dynamics testing within GM.

10.40

High-dynamic powertrain test bed – driving manoeuvres on a testbed as extension to roadway tests

AVL – Manfred Henrich, application manager

Optimization was in the past only possible in prototype vehicles. The high-dynamic powertrain testbed with a front-loading approach allows the evaluation of the vehicle longitudinal and lateral dynamics in earlier powertrain development phases.

11.05

Cs-labcar – verification and validation of ABS and stability control ECU software

ETAS Inc – Koos Zwaanenburg, product marketing manager

Cs-labcar is a new hardware-in-the-loop (HIL) tester developed specifically for the verification and validation of embedded software in advanced ABS and stability control ECUs. This presentation will also show actual customer use cases.



Enhancement of trailer sway mitigation by using the trailer brakes

Robert Bosch LLC – Dr Kevin Wu, technical expert

In 1999, Bosch's Trailer Sway Mitigation was debuted in BMW X5. Since then, several improvements have been made in response to market demands. This presentation will focus on the evolution of the trailer oscillation damping methods. At the end of the presentation, a Trucksim animation featuring trailer brake control will be shown.

11.55

Establishing adaptive engagement criteria for electronic stability control systems

Automotive Safety Research – Murat Okcuoglu, scientist/researcher

This presentation will discuss adaptive engagement strategies and techniques for electronic stability control system software to maximize efficiency and effectiveness of such systems.

12.20

Laboratory testing of automotive dynamic safety sensors

Ideal Aerosmith – Robert W. Mitchell, manager advanced systems

Various dynamic safety sensors are installed on the newer automobiles due to government regulations, competition, and safety concerns. These sensors are used in anti-skid braking systems, rollover protection, automatic braking, and ride control.

12.45

LUNCH



13.35

Active body control of a Ford Transit Connect using semi-active suspensions

Ford-Otosan – Seref Server Ersolmaz, chassis/suspension engineer

This presentation is about the development of a transient active body control system for the Ford Transit Connect light commercial vehicle using semi-active suspensions. The control objective is to improve the ride comfort and road holding together.

14.00

Electronic suspension systems

Continental – Adam Girardin, project manager

Electronic controlled air spring systems and their components for modern vehicle applications. The focus will be a description of air supply systems and air spring technologies and why they are a good idea for automotive platforms.

14.25

QuadRaTech rear suspension for pick-up trucks

Sanluis Rassini – James Juriga, vice-president advanced engineering

Rear suspension design that separates the first stage from the second stage and allows increased axle control, reduced unsprung mass, added pinion angle control while softening or eliminating second stage transition. This can vary second rate without added part numbers.

14.50

Advantages of incorporating air springs into traditional Hotchkiss-style suspension to improve ride characteristics and maintain load capability

Firestone Industrial Products – Brad Hayes, light duty engineering manager

Firestone and SanLuis Rassini have developed a unique air-over-leaf spring suspension. Using Quadrat-ech technology this greatly improves the ride quality on heavy-duty pickup trucks and chassis-cab vehicles.

15.15

Lightweight solutions in the area of springs and shock absorbers

ThyssenKrupp Bilstein – Holger Hennen, project manager

This presentation shows lightweight solutions by using innovative materials and production processes. The focus is the application of these technologies to suspension components such as shock absorbers, springs, stabilizer bars and struts.

15.40

Low-weight solutions for the automotive industry – the SKF Hub Knuckle module

SKF Automotive – Cengiz Shevket, engineering director

The SKF Hub Knuckle module helps eliminate problems associated with aluminum knuckles combined with generation 1 hub bearings. This cost-effective solution allows the outer ring of the hub-bearing unit to be permanently roll formed on the knuckle.

16.05

Suspension analysis through reverse engineering in the vehicle development concept phase

LMS International - Marco Gubitosa, Research Engineer in vehicle dynamics solutions

This presentation shows how to combine suspension K&C data of multi-body (3D) models with conceptual (1D) models. The final goal is to optimize front and rear suspension characteristics and define architecture variants in the vehicle concept development phase.

16.30

Increased performance and lower costs are key to reach the market – a new high-power compressor helps to realize high-performance air supply for air suspension systems

WABCO Car Systems – Helge Westerkamp, sales and marketing leader

Air suspension offers various advantages. Nevertheless, costs are key to reach the markets. WABCO's new high compressor offers advantages in performance and price that help the OEM to realize air suspension at a price level the end user can afford.

16.55

Finish

FRIDAY OCTOBER 24, 2008 DAY 3 MORNING SESSION

Moderator - Adrian Carnie, Senior Manager - Chassis Systems, PI Shurlok LLC

CHASSIS



Vehicle motion and safety (VMS)

Robert Bosch LLC – Dr Kay Stepper, marketing manager

Bosch offers a wide range of products that builds off the electronic stability control system to improve the driving dynamics and agility of the vehicle. These products give the driver optimal control of the vehicle by improving the performance of standard vehicle systems such as steering, drivetrain and suspension.

09.55

Chassis demands of the modern consumer

Prodrive – Matthew Taylor, principal engineer - vehicle dynamics

Modern vehicles are typically more capable than the demands of their owners. Attribute and chassis performance improvement is no longer a saleable commodity; instead, the constraints of legislation and the need to reduce costs is the key driving force behind design innovations.

10.20

Containing the cost of active chassis control

PI Shurlok LLC - Julian Styles, vice president & David Stamm, principal engineer

The diversity and complexity of active chassis systems is growing, driving the demand for more and more complex (and expensive) control systems. This paper looks at the use of smart engineering to keep development and piece costs under control.

10.45

Using cutting-edge technology to aid vehicle dynamics testing

SignalX Technologies – Robert Hoffman, program engineer

Recent advances in technology have the potential to revolutionize software and hardware capabilities for vehicle dynamics testing, prototyping, and analysis. This presentation will highlight those technologies which have a potential impact, including wireless communications, high-speed buses and protocols, and the use of FPGA's.

STEERING

11.10

Synthetic handwheel torque feedback to improve driving quality

TRW Automotive – Dr Dan Williams, chief engineer

A synthetic or artificial torque applied to the steering column can alter the driver's perception of the steering system. Early results from heavy vehicle application have shown that this technique can improve apparent vehicle handling properties.

11.35

Achieving active steering functionality with ActivRak VR

Bishop Steering Technology – Andrew Heathershaw, manager of product engineering - Bishop Innovation

Active steering systems have led to demanding steering response targets. Tuning of an ActivRak VR steering rack to achieve active steering type response without having to add the cost and complexity of an active steering system will be explained.

12.00

Smart HPS outperforms EPS – the power of hydraulics

ixetic Bad Homburg GmbH – Bernd Brunsch, manager Competence Center

HPS (hydraulic power steering) is widely known as a cost-effective solution with high power density and low weight. It is often cited as fuel consuming without the possibility of additional smart features such as park assist. We will show the possibilities.

DYNAMICS TESTING AND MEASUREMENT

12.25

Validation of tire parameters with measurements on vehicle and tire test stand

Corrsys-Datron Sensosystems – Klaus Weimert, manager of automotive sensors, directing manager and Michael McPike, technical sales manager of North America.

The presentation will cover the measurement and sensor technologies used to measure dynamic camber, slip angle, and wheel forces. Camber will be measured relative to the ground. This collection of data can be used with indoor tire test machines.

12.50

3D optical methods for vehicle dynamics measurements

Trillion Quality Systems – John Tyson, president

Optical methods have recently become extremely powerful for measurements of materials and structures. These full-field measurements are then easily synchronized with computer modeling. Higher-speed cameras allow for simple NVH measurements in 3D.

*This program may be subject to change

13.15

Finish

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YOUR ARRANGEMENTS

OPENING HOURS

22 October 09.00 – 17.00hrs

23 October 09.00 – 17.00hrs

24 October 09.00 – 17.00hrs

HOTEL INFORMATION

To book your hotel room for Vehicle Dynamics Expo North America 2008, please visit www.vehicledynamics-expousa.com/hotel.html

VISITING

Visitors to Vehicle Dynamics Expo North America 2008 will be able to see around 150 exhibiting companies involved in the design and production of components and systems that all affect a vehicle's ride, handling, suspension systems, traction controls, braking systems, and so on.

Venue:

The Rock Financial Showplace
46100 Grand River,
Novi, Detroit,
MI 48374, USA

Rock financial
SHOWPLACE

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BOSCH

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The Bosch Group is a leading global supplier of technology and services. In the areas of automotive and industrial technology, consumer goods, and building technology, some 260,000 associates generated sales of Euro 43.7 billion in fiscal year 2006. The Bosch Group comprises Robert Bosch GmbH and its roughly 300 subsidiary and regional companies in over 50 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. Bosch spends more than three billion euros each year for research and development, and in 2006 applied for over 3,000 patents worldwide. The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering".

In North America, the Bosch Group manufactures and markets automotive original equipment and aftermarket products, industrial automation and mobile products, power tools and accessories, security technology, thermo-technology, packaging equipment and household appliances. Bosch employs 24,750 associates in more than 80 primary and 20 associated facilities throughout the region with reported sales of US\$8.8 billion in 2006.

FOR FURTHER DETAILS

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