

SHOWNEWS

16, 17, 18 June 2009 | New Messe Stuttgart | Stuttgart | Germany

The best ever free to attend conference

Vehicle Dynamics Expo 2009 will open its doors on 16 June. It offers a combination of industry-specialist companies showing their latest technologies relating to chassis, suspension, steering, braking, and ride and handling, coupled with the free-to-attend Open Technology Conference/Forum.

Highlights this year start with a presentation about the new Lancia Delta's high-tech real-time damping control system delivered by Philippe Krief, chassis and vehicle dynamics (engineering and design) at FGA, and Dr Michele Spina, product development director.

Commercial vehicle dynamics will come under the microscope when Massimo Caudano, dynamics engineer from Fiat/Iveco, discusses a ride-quality index, correlating objective measurements and subjective evaluations.

On Day Two the focus will be on simulation modelling and traction, as well as stability and braking. Peugeot Citroën's Benoit Parmentier will update the industry on recent advances in in-house software code. Next up will be Dr David Cole, a senior lecturer from Cambridge



University, who will explain how a new driver model is used to predict driver response to feedback arising from a fault in an angle-overlay steering system. See page 3 for more information.

There is also much new to see on the expo floor. Spanish consultancy IFR Automotive is making its debut, and is scheduled to bring an Aspid technology showcase car. Maplesoft will be demonstrating its new product line-up, and Continental will be discussing its new ideas concerning air suspension.

Vehicle Dynamics Expo is the crucial event in 2009. Read on to find out more...

Aspid technology showcase car from IFR

Compact EPAS actuation

Globe Motors has designed, developed and launched production of a fully integrated, compact EPAS actuation system. The POW-R STEER system is powered by a Globe Motors' low-cogging torque, permanent-magnet, brushless DC motor.

The Globe EPAS system features embedded electronics and software specifically designed to allow the user full programmability and diagnostics via CAN. Feature and function programming during the development process is easy with Globe's PC-based graphical user interface (GUI), which allows the user to programme various torque control

parameters such as: 'basic assist' as a function of vehicle speed; 'assist' as a function of steering speed; 'input-torque derivative' control; 'input-speed derivative' control and 'kickback damping control', allowing for improved ride comfort and safety.

The worm and gear design provides for smooth operation over the full range of torque assist and speed. Applications include: sport vehicles, material handling equipment and light passenger vehicles.

Ease of installation and simple interface allow the user to design and integrate the fully functional system quickly and efficiently.

Talking springs

With more than 30 years of air spring experience, Continental has contributed to the presence of air-suspension systems in luxury cars, premium SUVs and – increasingly – top-of-the-range standard-size vehicles, minivans and vans as well.

In addition to vehicle level control, the principle reason for their more widespread use is the considerable improvement achieved in ride comfort and driving dynamics at a relatively low cost. Additional customer benefits can very easily be realised with auxiliary functions such as adaptive loading and trailer functions.

The system's potential is far from having been exhausted. Continental staff will be on hand to discuss an air-suspension system with a switched auxiliary reservoir, which makes possible very comfortable driving and, at the push of a button, very sporty driving.

Right: Dr Andreas Rohde will be on hand to talk about damping



PAGE 2

Make a representation

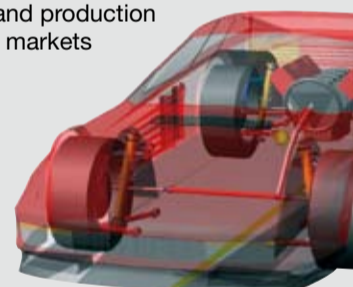
disynet will be discussing the news that it has been nominated as the official representative of Measurement Specialties



PAGE 3

Real-time model

MSC.Software will host a booth in cooperation with VI-grade, which offers simulation tools and services to the racing and production automotive markets



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VENUE INFO



Register online for the ECO badge now!

www.vehicledynamics-expo.com

Avoid up to 10-minute queues – register online to get your entry badge/pass by post!

VEHICLE DYNAMICS EXPO 2009
Peter Stronburg
electronics development
APS Advanced Vehicle
Germany

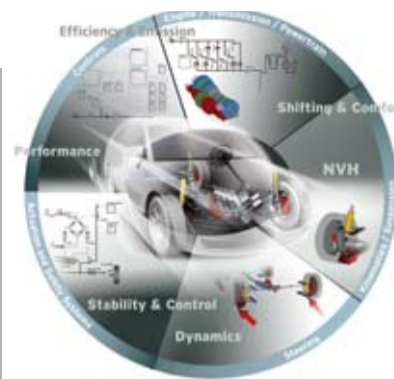
Technology consultancy

Spanish automotive technology specialist IFR Automotive is making its Vehicle Dynamics Expo debut at the 2009 show. The firm has hit the headlines with its eye-catching Aspid technology showcase vehicle, but it's as a consultancy not a car manufacturer that IFR will be exhibiting.

"We're there to present technologies to potential clients, enhance our positioning as a leading lightweight technology company, build the awareness of our company among OEMs and Tier 1s," explains IFR's Ana Sánchez. "Hopefully that will lead to some new projects." Sánchez adds that a number of projects are already being started in partnership with OEMs.

The firm hopes to squeeze both an Aspid and its technology platform – chassis, brake system, suspension, electronics – onto the stand, where company founder Ignacio Fernandez will be among the representatives ready to greet visitors.

The expo represents just one of many highlights for IFR in 2009, with lots of negotiations reportedly under way and more good news to come.



Real-time vehicle HIL environment

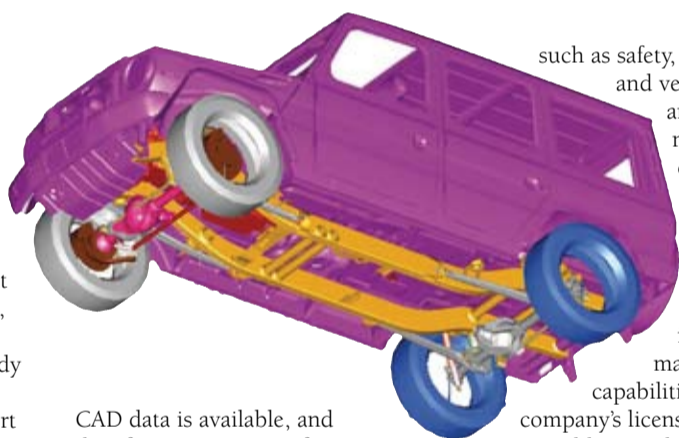
Once again ITI will be at this year's Vehicle Dynamics Expo in Stuttgart, featuring solutions in the field of hybrid and electric drives. Alongside the new SimulationX release, the company will be presenting the results of the latest developments in the field of electric and mechanical power transmission, as well as an automobile-specific hardware-in-the-loop (HIL) test environment for visitors to try. Using practical applications, ITI's engineers will demonstrate the workflow of SimulationX to the real-time model.

HyperWorks 10.0 to be unveiled

Altair is a global provider of technology and services that empower client innovation and decision making. This year it will present its latest version of the CAE Suite HyperWorks.

HyperWorks includes best-in-class modelling, analysis, visualisation and data management solutions for linear and non-linear, structural optimisation, fluid-structure interaction, and multibody dynamics applications.

"CAE has become an integral part of the automotive development process," says Dr Michael Hoffmann, Vice President European Operations, Altair Engineering. "While in former times simulation has been used to evaluate design alternatives, the focus is now on frontloading the use of CAE within the development chain to drive the design even before



such as safety, durability, NVH and vehicle dynamics, and also allow multi-attribute optimisation.

The new Directors includes several new features, including built-in data-management capabilities, based on the company's licensing scheme.

CAD data is available, and therefore maximise performance and quality and minimise the related costs."

In order to meet these requirements, Altair Engineering is supplementing its Engineering Framework HyperWorks with a set of 'Directors', which streamline and automate virtual testing for attributes

In addition, Fluidon, a member of Altair's HWEP programme, will be exhibiting DSHplus – a software environment for the design of fluid-power applications. DSHplus is complementary to Altair's MotionSolve and available under Altair's flexible HWEP licensing system.

Heavy truck packages

Returning to Stuttgart in 2009 is Swedish simulation expert Dynasim. The big news this year is that the company, together with the development partner Modelon, will be promoting the announcement of modelling and simulation solutions for heavy vehicles and trucks, drivelines and active safety systems.

As well as manning the Dynasim stand, on Day 2 of the show Modelon GmbH's CEO, Johannes Gerl, will be giving a presentation entitled: Model-based development of active safety systems with Dymola. Jon Conroy, Dynasim's sales manager, will also be on the company's stand to greet potential clients and showcase the latest products.

In product news, the Dymola toolchain for vehicle dynamics and automotive-mechatronics systems engineering has been expanded to offer modelling and simulation

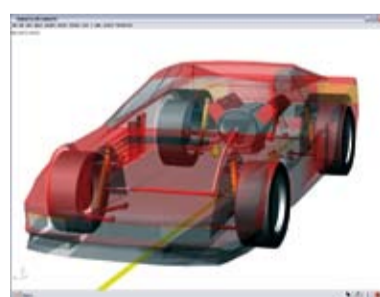
solutions for heavy vehicles and trucks, drivelines and active safety systems. The heavy vehicles features range from all common configurations to non-standard vehicles, construction equipment and new concepts. The new Dymola drivelines solutions provide full flexibility in working with new and existing concepts for hybrid-electric propulsion and control. The active safety systems solutions include standard chassis-control systems, traffic scenes, sensors and actuators.



Real-time model

'Boost your simulation to real time' is this year's theme selected by MSC.Software and its business partner VI-grade. MSC.Software will host a booth in cooperation with VI-grade, which offers simulation tools and services to the racing and production automotive markets. The highlight of the booth will be the demonstration of how a real-time capable vehicle model can be derived from Adams/Car and, with the same accuracy, used as a foundation for hardware-in-the-loop and driving simulator applications.

The real-time vehicle model will be interfaced with a real-time system provided by Concurrent Computer Corporation. It will be possible for visitors to test this system using an



interactive cockpit, and to drive the virtual vehicle in a realistic way.

Moreover, Michael Collingridge, director of Adams development at MSC.Software, will contribute to the Open Technology Forum. His presentation is named: Advances in modelling and characterisation of

nonlinear isolation components for reducing vibration and improving ride comfort. It deals with improved general model formulation and parameter identification of nonlinear isolation components for vehicle ride and vibration studies using multibody dynamics as well as with the comparison of model simulation results to measurement data.

VI-grade decided to participate in the 2009 event together with Audi, presenting a paper titled Virtual car models for handling and ride – bridging off- and online simulations. Presenting authors will be Dr Harald Wilhelm, vehicle dynamics simulation, Audi AG and Diego Minen, technical director at VI-grade GmbH.

Make a new representation

disynet will be discussing the news that it has been nominated as the official representative of Measurement Specialties (MEAS) for test and measurement products.

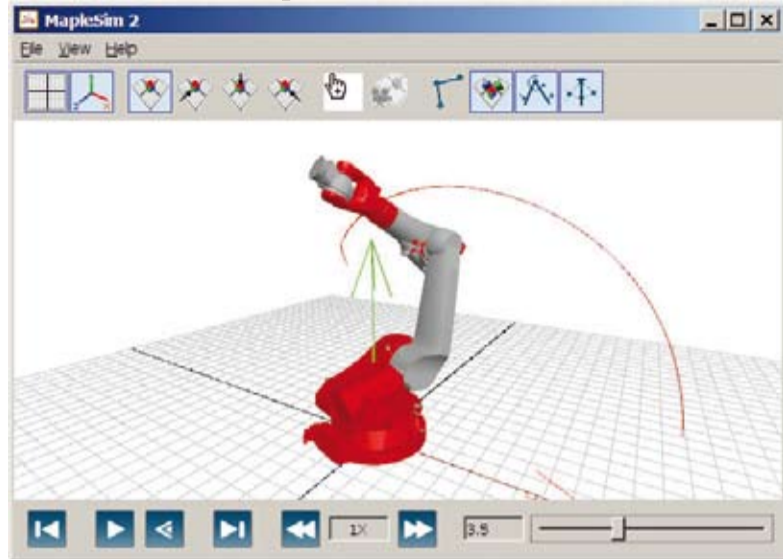
In the past, MEAS has acquired sensor manufacturers such as Entran, ICSensors and Atex, known for its high-end accelerometers and miniature sensors. Due to the current acquisition of FGP, disynet now also offers sensors of all these legacy brands.

The disynet team is very excited about these new MEAS products and is committed to providing existing users of legacy brands such as Entran, ICSensors and Atex with professional support.

Ernest Schönberger will be talking about the new deal



New Maple releases



Maplesoft has just announced new releases of its core products – MapleSim, the high-performance, multidomain modelling and simulation tool, and Maple, the technical computing software. These products are based on Maplesoft's core technologies, which include an advanced symbolic computation engine and revolutionary physical-modelling techniques. Together they provide cutting-edge tools for design, modelling and high-performance simulation that can lower costs and reduce product-cycle time.

MapleSim 2 combines an intuitive physical modelling environment with powerful symbolic techniques to drastically reduce the time required to create efficient models. The new release introduces 3D visualisation and animation tools, which easily transform multibody models into animations, providing greater insight into the system behaviour.

At the core of MapleSim lies Maple, the technical computing software that contains a highly advanced symbolic

computation engine, powerful numeric solvers and an intuitive technical document interface. Enhancements to Maple automatically benefit MapleSim users.

Maple 13 provides enhanced tools that support every stage of the solution development process, completely new 3D plotting facilities, and leading-edge solvers that push the frontiers of technical computation. It offers a convenient starting point for calculations with the Maple Portal for engineers, point-and-click access to powerful control systems analysis tools, and expanded CAD connectivity that adds NX to the list of supported CAD systems.

New plotting facilities include extensive annotation tools and fly-through animations, making 3D plots more meaningful and easier to interpret. Maple 13's solvers expand the problem-solving abilities of engineers. They include revolutionary techniques for finding solutions to differential equations that are beyond the scope of standard methods.

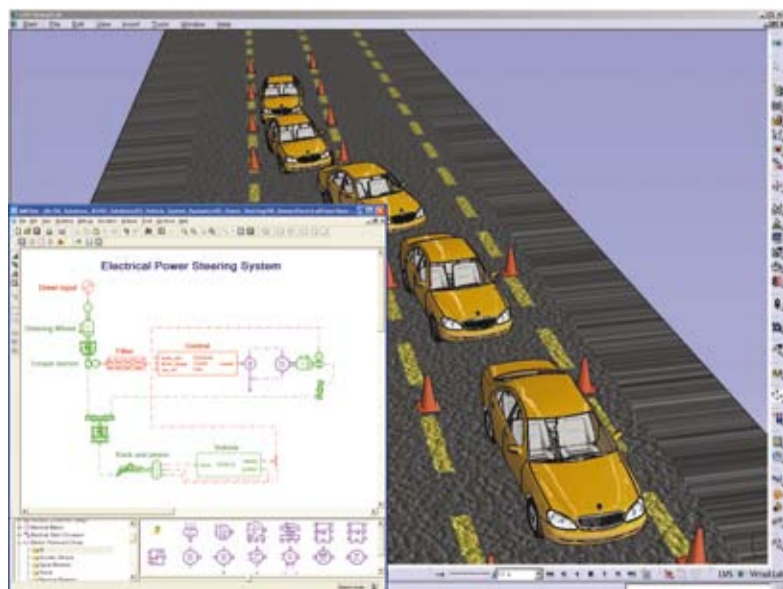
Dynamics and fuel efficiency from LMS

LMS International will be at this year's expo to showcase the intrinsic capability of its LMS Imagine.Lab AMESim platform, which is to simulate fuel efficiency and ride/handling at the same time.

The software offers solutions for the simulation of an ICE, gearbox, and the design of individual chassis-system components (brakes, suspension, steering, anti-roll system

and the vehicle itself) and integrates them into a single-system model to simulate and validate global chassis-control strategies.

LMS acquired Imagine in June 2007, since when bridges have been built between Imagine.Lab AMESim and LMS's Virtual.Lab. LMS says that one of these is the ability to create fast links between 1D (AMESim) and 3D (Virtual.Lab) simulations.



FREE-TO-ATTEND OPEN TECHNOLOGY FORUM

In addition to **FREE ENTRY** to the exhibition, visitors will be able to attend the Open Technology Forum, where 40 leading vehicle dynamics experts will outline their latest concepts, ideas and technologies.

Your Vehicle Dynamics Expo badge also gives you **FREE ENTRY** to Automotive Testing Expo, Engine Expo and European Automotive Components Expo – over 600 exhibitors in total. Register online to get your badge in advance.

DAY 1 TUESDAY 16 JUNE 2009

RIDE & HANDLING

- 10.30: Reactive Suspension System – the electronic damping control for the new Lancia Delta
- 10.55: Research on a transparent damper – a deeper look into the secrets of dampers and shock absorber fluids
- 11.20: Ride quality objective evaluation of heavy commercial vehicles
- 11.45: Active yaw systems – re-experience front-wheel drive with Schnellster and Twinster+
- 12.10: The customisation of vehicle dynamics by means of innovative human and machine interface
- 12.35: Multiplatform instrumentation for ride analysis

SUSPENSION

- 14.00: Effective materials usage and materials properties utilisation in automotive damper design
- 14.25: Optimal ride height – an overview of levelling technologies, focusing on air suspension and Wabco's new compressor series
- 14.50: Suspension system for semi low-floor bus
- 15.15: New advantages for use of taper wire in suspension springs for lightweight design and side load control
- 15.40: TGD as topological geometrodynamics extended to tyre-to-ground dynamics
- 16.05: Kinematics impact on tyre rolling resistance
- 16.30: Electrorheologic semi-active damper for racing motorcycles

DAY 2 WEDNESDAY 17 JUNE 2009

SIMULATION & MODELLING

- 09.30: Vehicle functional design – from PSA in-house software to AMESim standard library with increased modularity
- 09.55: Steering feedback – modelling its effect on driver and vehicle
- 10.20: Virtual car models for handling and ride – bridging off- and online simulations
- 10.45: Advances in modelling and characterisation of nonlinear isolation components for reducing vibration and improving ride comfort
- 11.10: Optimum course planning for lap time optimisation
- 11.35: Off-road high-performance vehicle running at high speed on a rough surface – multibody modelling and subsequent validation
- 12.00: A new approach to steady-state and quasi-steady state vehicle handling analysis
- 12.25: Model-based development of active safety system with Dymola
- 13.35: Innovations in vehicle simulation software add to ease of use
- 14.00: Mechatronic test concepts for vehicle dynamics controllers
- 14.25: A systems engineering approach for the design optimisation of a hydraulic active suspension
- 14.50: Next-generation modelling and simulation tools for stability control development

TRACTION, STABILITY & BRAKING

- 15.15: Gaining traction – scalable approaches to chassis system development and validation
- 15.40: New mechanism design for generating traction force on the rear wheel for movability in heavy traffic
- 16.05: Driving dynamics and hybrid combined in torque vectoring
- 16.30: Retrofit of electronic stability control systems – analysis of possibilities and benefits

DAY 3 THURSDAY 18 JUNE 2009

DYNAMICS TESTING & MEASUREMENT

- 10.00: Low-cost approach to benchmark K&C data through integration of the MTS 329 and RV3 sensor
- 10.25: New possibilities of analysis based on dynamic K&C data (0 to 30Hz)
- 10.50: Efficient use of professional sensors in tyre and car and tyre performance measurement and comparison

CHASSIS

- 11.15: New enabling technologies allowing simulation to be used as a complete development and tuning tool
- 11.40: Enhancing driving dynamics while halving emissions – electric dynamic control for MIRA's Hybrid 4WD Vehicle (H4V)
- 12.05: MEMS sensors in chassis and active safety applications
- 12.30: A sensor fusion approach to tyre pressure monitoring
- 12.55: Beyond TPMS – the challenge of measuring real-time data of tyres

PLEASE NOTE: ALL PRESENTATIONS WILL BE IN ENGLISH

Avoid up to 10-minute queues – register online to get your entry badge/pass by post!

Hotel Information

Hotels can be booked through the Stuttgart-Marketing GmbH website, www.stuttgart-tourist.de or by visiting www.vehicledynamics-expo.com. The reservations centre of Stuttgart-Marketing GmbH can also be contacted by phone, fax and email:

Phone: +49 (0) 711 22 28 233
Fax: +49 (0) 711 22 28 251
Email: hotels@stuttgart-tourist.de

Opening Times

Tuesday 16 June 10.00hrs – 17.00hrs
Wednesday 17 June 10.00hrs – 17.00hrs
Thursday 18 June 10.00hrs – 15.00hrs



Register online now for your 2009 free entry badge/pass, and we will only send you email updates when there is breaking news about the show; news about new technologies on show; and online conference programme updates.

By registering for email updates you will help reduce the amount of paper sent through the mail, and industry colleagues at the show will spot you as an ECO badge holder because you will be wearing our new green eco-friendly badge. Sign Up Now!

Register online for the ECO badge now!
www.vehicledynamics-expo.com

One ECO badge gets you into all shows – registration takes about 60 seconds.

The Green ECO-Ticket! Sign Up Now!

The venue

Our 2009 event will once again run at the new exhibition halls located just a few minutes' walk from Stuttgart International Airport. If you are flying in for the day this will be a real bonus in terms of time. By road you will find the journey to the Messe is well signed. If you follow the signs to Stuttgart

Airport you'll be heading in the right direction. The new state-of-the-art exhibition centre will provide you with a much better visitor experience whatever the weather, and a range of catering facilities will ensure that you are never far from a refreshment point and a place to relax.

Travel

Arrival by car

The new Stuttgart Trade Fair Centre is 13km away from Stuttgart city centre and is located directly next door to Stuttgart Airport. Please follow the signs towards Neue Messe Stuttgart/airport.



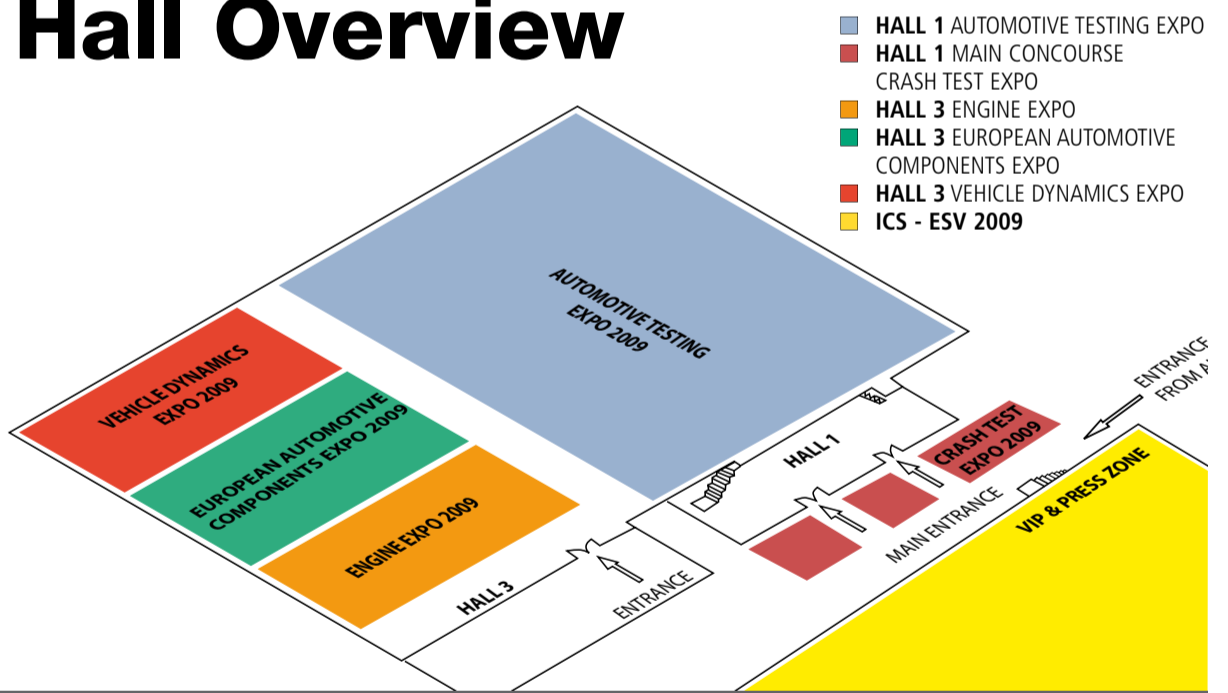
Arrival by plane

The airport terminals are approximately 200m from the trade fair site and can easily be reached on foot. At the airport you will also find the suburban trains (S-Bahn) S2 and S3 to Stuttgart main railway station. Travelling time: 27 minutes.

Arrival by train

Stuttgart is directly connected to 13 European capitals via the rail network (ICE, IC and InterRegio trains). From the main railway station to the new Stuttgart Trade Fair Centre, take the suburban trains S2 or S3, direction Stuttgart Flughafen/Neue Messe Stuttgart. Travelling time: 27 minutes.

Hall Overview



COMPANIES WHOSE TECHNOLOGIES WILL BE EXHIBITED AT VEHICLE DYNAMICS EXPO 2009

AB Elektronik GmbH | Add2 | Altair Engineering GmbH | AMET | AMK Automotive GmbH & Co KG | Auto 4U Ltd | Bishop Steering Technology, GmbH | Continental AG | Cruden B.V. | Crystal Instruments | Danisi Engineering Srl | Delphi France SAS | disynet GmbH | dSpace GmbH | Dynasim | Dytran | Dytran Instruments, Inc | ebm-papst St Georgen GmbH & Co KG | FKA | FLUDICON GmbH | Fluidon GmbH | Fulling & Ceiec Co Ltd | Gebruder Ahle GmbH | Globe Motors Europe | Heckler Aktiengesellschaft | IFR Automotive S.L. | Iotech | Iskra Autoelektrika DD | ITI GmbH | Johnson Electric Group | 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 | Otter Controls Ltd | Race Rubber S.r.l. | rFactor Pro | Rogelein GmbH | Scientific Computers GmbH | VI-grade GmbH

