# Registration Fax **+49-6023-964070**

☐ Yes, I will attend the **Automotive CAE Grand Challenge 2013** on April 10+11, 2013. The registration fee is **EUR 700,-** (until March 13, 2013, thereafter EUR 900,- ).

SURNAME, NAME:

DEPARTMENT:

PHONE:

eMAIL:

COMPANY:

POSTCODE / CITY:

ADDRESS:

INVOICE TO:

DATE/ SIGNATURE:

## Terms & Conditions

VAT will be added to the registration fee if applicable. The conference fee includes detailed conference proceedings, lunches, refreshments and the evening reception. The registration fee is due 10 days after invoicing. Free cancellation is possible until March 12, 2013. Participants who cancel between March 13, 2013 and March 27, 2013 are liable for 50% of the registration fee. Participants who cancel after March 27, 2013, or who do not attend, are liable for the entire registration fee. The number of participants is limited. carhs.training gmbh reserves the right to vary or cancel the event in the light of bookings and to vary the duration and content without prior notice. In the event of cancellation, carhs.training gmbh will refund all monies paid to carhs.training gmbh with respect to the event. The program is subject to change without notice. **Universities and public research institutes receive a 40% discount on the registration fees.**

This event is organized by
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Congress Venue:
Congress Park Hanau
Schlossplatz 1
63450 Hanau, GERMANY
www.cph-hanau.de

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**The automotive CAE Grand Challenge 2013 -
The event in automotive CAE you should not miss:**

▶ Learn all about the current challenges of automotive CAE

▶ The only CAE conference for which the conference topics are determined by a survey among the stakeholders of automotive CAE

▶ Hear all about the efforts in research and software development to overcome the challenges of automotive CAE

▶ Meet and exchange with researchers, software developers and industrial users of automotive CAE during the conference, in the exhibition and at the evening reception

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## The Expert Dialog

In the last 20 years computer simulation has become an indispensable tool in automotive development. Tremendous progress in software and computer technology make it possible today to assess product and process performance before physical prototypes have been built. Applications of computer simulation cover nearly all aspects of product and process design form crashworthiness to manufacturability.
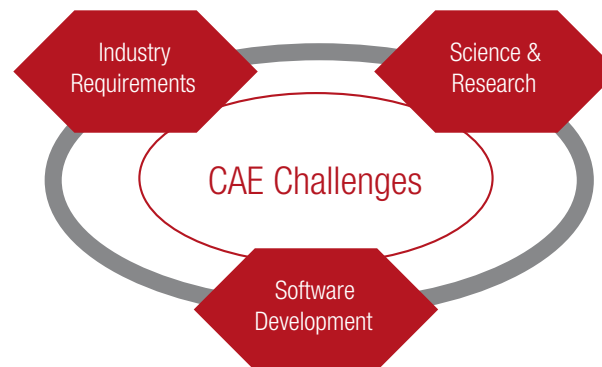
## Challenges in virtual vehicle development

Despite of significant progress in simulation technology and impressive results in industrial application there remains a number of problems (challenges) which prevent a "100% digital prototyping".

## Grand Challenge as a platform for dialog

The automotive CAE Grand Challenge stimulates the dialog between users, scientists and software developers in order to solve these challenges. The challenges for 2013 were determined in October 2012 through a survey among the CAE specialists of the international automotive industry. The following "Grand Challenges" have been identified:

▶ **Crash:** Material and failure models for laminated glass
▶ **Crash:** Modeling the crash behavior of batteries
▶ **Durability:** Connections (line & spot welds etc.)
▶ **NVH:** Modeling of Components (trimmed body, chassis, powertrain)
▶ **CAE General:** Material Testing & Material Data Management
▶ **CAE General:** Topology Optimization

In the conference one session will be dedicated to each "Grand Challenge". In each session a simulation expert from the automotive industry will first explain the importance of the individual challenge. Next a researcher will highlight the state of research on the subject. This will be followed by presentations from the software companies involved in the discipline on their efforts to solve the individual challenge.

Industry Requirements — Science & Research — CAE Challenges — Software Development

Register now at

## www.carhs.de/grand-challenge

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# automotive CAE GRAND CHALLENGE 2013

## Congress Park Hanau
April 10-11, 2013

# FINAL PROGRAM &
# REGISTRATION

**Special** Session

Simulation of batteries for electric and hybrid vehicles

## Plenary Session | 9:00 - 12:30 | Brueder Grimm Saal
## CAE General: Material Testing+Material Data Management

### Industry Requirements

▶ Consistent and transparent material data management for simulation
*BMW Group - Dr.-Ing. Olaf Kolk*

### Research State of the Art

▶ Material testing and modeling – state of research
*Fraunhofer EMI - Thomas Haase*

### Software Solutions

▶ From sheet metal to material input for FEA – a systematic approach
*MATFEM Partnerschaft - Dr.-Ing. Helmut Gese, Guido Metzmacher*

▶ Challenges and implementation of a material information management strategy to support the CAE process in the automotive industry
*Granta Design - Thomas Weninger, Dan Williams*

▶ A Strategy for material testing and data management for the automotive industry
*DataPointLabs - Hubert Lobo*

▶ Testing for impact and creep simulation of PP-based polymeric materials for automotive: state of the art, developments and trends
*Basell Polyolefine Italia - Massimo Nutini, Mario Luigi Vitali*

### Special Session

#### Parallel Session | 14:00 - 17:00 | Brueder Grimm Saal
#### Simulation of batteries for electric and hybrid vehicles

▶ Safe Electromobility
*BMZ Batterien-Montage-Zentrum GmbH - Sven Bauer*

▶ Crash Safety of High-voltage Batteries - a Challenge for Simulation
*Daimler AG - Rainer Justen*

▶ Safe Batteries through Simulation of the Crash Behavior
*AVL List GmbH - C. Fink et al.*
*TU Graz - C. Breitfuss et al.*

▶ Modeling the crash behavior of batteries
*Virtual Vehicle Competence Center (ViF) - Dr. Gernot Trattnig, Dr. Alexander Thaler, Werner Leitgeb*

▶ Not only for electromobility: Physics based 3D simulations of Li-ion batteries
*Fraunhofer ITWM - Dr. Jochen Zausch, Dr. Sebastian Schmidt, Helmholtz-Institut - Prof. Dr. Arnulf Latz*

### Dr.-Ing. Olaf Kolk
**BMW Group Munich**
Dr.-Ing. Olaf Kolk studied Physical Engineering Science and Mechanical Engineering at the Technical University of Berlin and the University of Michigan in Ann Arbor, USA. His doctorate was in the area of vehicle dynamics of car body structures. In 1999 Dr. Kolk joined the research and innovation center of the BMW Group in Munich, to first work in body development. There he has been responsible for the functional design of the BMW Z4 roadster body with regard to vibrations, passive safety and durability. Since 2010, Dr. Kolk leads the material data management for simulation, which is concerned with material data and material inputs for simulation. In addition since 2009, Dr. Kolk is lecturing at the Institute of Mechanics at the Technical University of Berlin.

### Dr.-Ing. Prashant Khapane
**Jaguar & Land Rover, Gaydon**
Dr.-Ing. Prashant Khapane is Manager Durability & Reliability CAE at Jaguar Land Rover, Gaydon (UK). Dr. Khapane received his doctorate from the Technical University of Braunschweig (D). From 2000 to 2003 he was a researcher for vehicle dynamics at the DLR (Deutsches Zentrum für Luft- und Raumfahrt eV – German Aerospace Research Centre) in Oberpfaffenhofen (D) and from 2003 to 2006 at DLR in Goettingen (D). From 2007 to 2009 he has been working at SIMPACK AG. From 2009 to 2011 he was a group leader MBS at BMW.

#### Parallel Session | 14:00 - 17:00 | Conference Room 1-4
#### NVH: Modeling of Components

### Industry Requirements

▶ Optimization method for improving the correlation of experimental and numerical modal analysis, industrial requirements NVH analysis
*TECOSIM GmbH - Dr.-Ing. Martin H. Mueller-Bechtel*

### Research State of the Art

▶ Efficient modelling and characterisation techniques for vehicle interior noise
*Virtual Vehicle Competence Center (ViF) - Dr. Jan Rejlek*

### Software Solutions

▶ Streamlining NVH pre-processing of components through template-based and reduced modeling
*BETA CAE Systems S.A. - Anastasios Sarridis*

▶ Efficient modeling environment for full vehicle NVH
*Altair Engineering GmbH - Alexander Koch*

▶ The Current State of CAE Simulation for the Assessment and Optimization of E-Motors and their Integration into (H)EV's
*LMS Intl., a Siemens Business - Koen Vansant*

#### 19:00 | Congress Park Hanau
#### Evening Reception and Dinner

Enjoy an evening of networking & entertainment with local and international specialilties

## Parallel Session | 9:00 - 12:30 | Brueder Grimm Saal
## Crash: Material and failure models for laminated glass

### Industry Requirements

▶ Laminated safety glass under impact loading
*Ford-Werke GmbH - Dr. Robert Schilling*
*Ford Forschungszentrum Aachen GmbH - Dr.-Ing. Niels Pasligh*

### Research State of the Art

▶ Laminated safety glass under impact loading – an overview about the state of research
*TH Mittelhessen - Prof. Dr.-Ing. Stefan. Kolling, Christian Alter*

### Software Solutions

▶ Non-local' failure criterion for laminated glass under impact loading
*ESI GmbH - Prof. Dr.-Ing. T. Pyttel, Dr.-Ing. J. Cai*

▶ A potential modeling technique for pedestrian protection and 'Ejection Mitigation'
*DYNAmore GmbH - Dr.-Ing. Andre Haufe, Zafer Çelik, Christian Liebold*

▶ Latest developments to model glass with advanced rupture criteria in RADIOSS
*Altair Engineering - Marian Bulla, Jean-Pierre Bobineau*

▶ Modeling material and failure of a laminated glass plate with Abaqus
*Dassault Systemes Deutschland GmbH - Paul Specker*

### Plenary Session | 14:00 - 17:00 | Brueder Grimm Saal
### CAE General: Topology Optimization

### Industry Requirements

▶ Linear and non-linear Topology Optimization
*Adam Opel AG - Prof. Dr. Lothar Harzheim*

### Research State of the Art

▶ Topology optimization of crash-loaded structures
*Uni-Wuppertal - Prof. Dr.-Ing. Axel Schumacher*

### Software Solutions

▶ Topology Optimization driven by the ANSA-TOSCA automated process template
*BETA CAE Systems S.A. - Serafim Chatzimoisiadis*

▶ Optimization of nonlinear Systems
*Altair Engineering - Hans Gruber*

▶ Application of the equivalent static load method for impact problems with GENESIS and LS-DYNA
*DYNAmore GmbH - Dr.-Ing. Heiner Müllerschön, Dr.-Ing. Andrea Erhart*
*Magna Steyr Fahrzeugtechnik AG & Co. KG - Dr. Heribert Kassegger*

## Parallel Session | 09:00 - 12:30 | Conference Room 1-4
## Durability: Connections

### Industry Requirements

▶ Automated Vehicle Loads MBS DOE Process to Deliver Sensitivity Analysis and Aid RLD Correlation
*Jaguar Landrover - Dr.-Ing. Prashant Khapane, Andrew Blows*

### Research State of the Art

▶ Chained crack analysis and welding simulation using the eXtended Finite element method
*CENAERO - Dr. Eric Wyart, Arnaud François, Nicolas Poletz, GeonX - Dr. Laurent D'Alvise*

### Software Solutions

▶ Sensitivity analysis of welded joints regarding production influences on durability
*Magna Powertrain ECS - Helmut Dannbauer, Dipl.-Ing. Harald Fleischer*
*BMW Group, München - Dr. Ernst Lindtner, Dipl.-Ing. Istvan Soproni*
*Cosma Engineering AG - Welkersdorf*

▶ Fatigue analysis approach for adhesive joints
*HBM GmbH nCode Products - Dr. Stephan Vervoort*

▶ New developments for efficient and accurate fatigue analysis of seam welds
*LMS Deutschland GmbH - Dr. Michael Hack, Dr. Frank Zingsheim*

▶ Effects from virtual manufacturing and assembly on the virtual performance/durability
*ESI GmbH - Dragomir Deltchev, Michael Vogel, Willem van Hal*

### Dr. Robert Schilling
**Ford-Werke GmbH**
Dr. Robert Schilling studied and received his doctor's degree from the University of Dortmund. After that he joined Ford and worked as an analysis engineer for vehicle safety. Since 2000 he is a Technical specialist for FEA crash analysis and works on methods development for crash analysis focused on modeling of materials and connections. He is involved in various research projects of FAT (Research of the German Automotive Industry) and FOSTA (Research of the German Steel Industry).

### Prof. Dr. Lothar Harzheim
**Adam Opel GmbH**
After receiving his PhD and before joining the simulation department of Opel Prof. Dr. Harzheim worked in the Group of Professor Mattheck on the development of the optimization programs CAO and SKO. At Opel he is responsible for optimization, bio engineering and robustness. In this position he not only introduced and applied optimization methods but has also developed software for topology optimization. Prof. Dr. Harzheim regularly holds seminars for applied structural optimization and teaches at the Technical University of Darmstadt. He is the author of the book „Strukturoptimierung: Grundlagen und Anwendungen".