

Vortragsprogramm

15. DEUTSCHES LS-DYNA FORUM

15. - 17. Oktober 2018, Bamberg

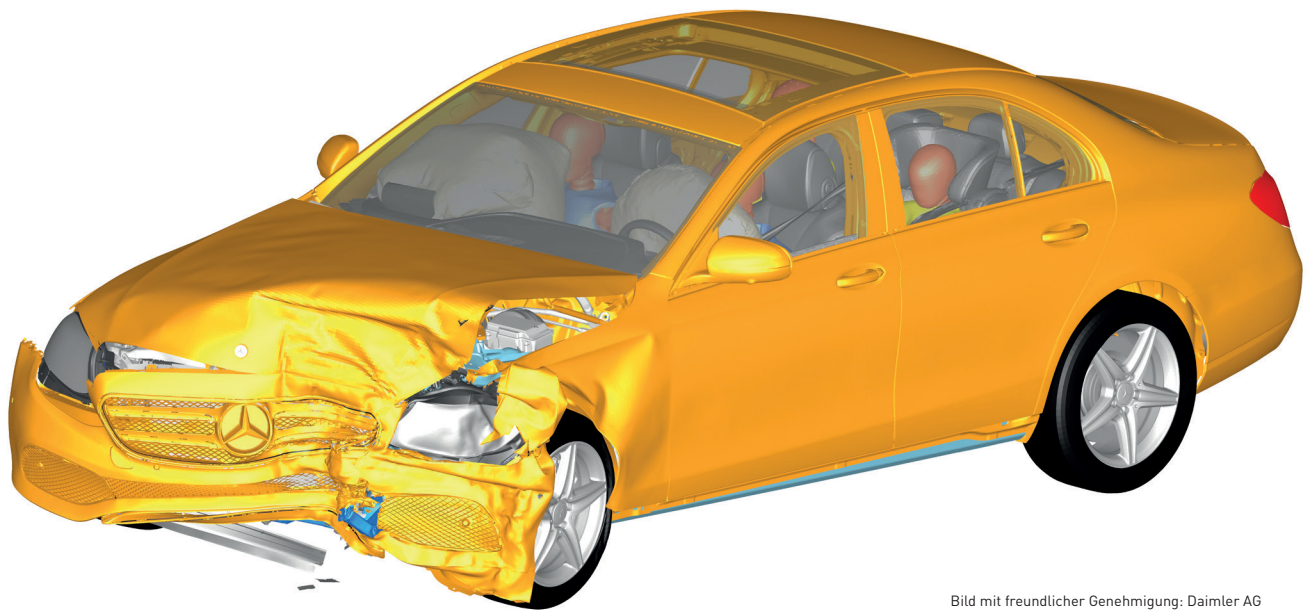


Bild mit freundlicher Genehmigung: Daimler AG

PLATIN SPONSOREN



Liebe LS-DYNA Anwenderinnen und Anwender,

wir freuen uns sehr, Sie beim LS-DYNA Forum 2018 begrüßen zu dürfen und heißen Sie herzlich willkommen in Bamberg.

Die Veranstaltung ist über die letzten Jahre kontinuierlich gewachsen und mittlerweile sind es über 100 Fachvorträge in fünf parallelen Sessions, die Sie in den nächsten zweieinhalb Tagen erwarten. Für den Einsatz und das Engagement der Vortragenden möchten wir uns an dieser Stelle recht herzlich bedanken.

Neben den Vorträgen stehen auch wieder die beliebten Workshops auf dem Programm. Hier haben Sie die Möglichkeit, sich intensiv mit einem Thema zu beschäftigen und gemeinsam mit anderen Anwendern Fragestellungen und Lösungsansätze zu diskutieren.



Welcome Kongresshotel Bamberg

In der begleitenden Hard- und Softwareausstellung können Sie sich wie immer über aktuelle Entwicklungen aus dem LS-DYNA Umfeld informieren, bestehende Kontakte pflegen und neue Kontakte knüpfen.

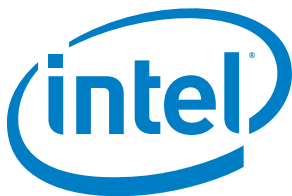
Wir wünschen Ihnen einen angenehmen Aufenthalt beim LS-DYNA Forum 2018.

Ihr DYNAmore Team



SPONSOREN

Platin



Gold



Silber



Montag, 15. Oktober

	09:00 - 12:00 Uhr	Diskussion	Organisiert vom asc(s): Multi-Level-Optimization with FE-Substructures using LS-DYNA (Raum K13)										
	ab 11:00 Uhr	Hotelfoyer	Registration										
Ausstellung	13:00 - 15:10 Uhr	Plenum	Plenum – Hegelsaal Keynote Presentations *										
	15:40 - 16:40 Uhr	Parallel	<table border="1"> <thead> <tr> <th>Raum 1</th> <th>Raum 2</th> <th>Raum 3</th> <th>Raum 4</th> <th>Raum 5</th> </tr> </thead> <tbody> <tr> <td>Crash Model Building</td> <td>Occupant Safety I</td> <td>Process - Metal Forming I</td> <td>Civil Engineering</td> <td>Workshop: Welding</td> </tr> </tbody> </table>	Raum 1	Raum 2	Raum 3	Raum 4	Raum 5	Crash Model Building	Occupant Safety I	Process - Metal Forming I	Civil Engineering	Workshop: Welding
	Raum 1	Raum 2	Raum 3	Raum 4	Raum 5								
	Crash Model Building	Occupant Safety I	Process - Metal Forming I	Civil Engineering	Workshop: Welding								
	17:10 - 18:30 Uhr	Parallel	<table border="1"> <tbody> <tr> <td>Crash - Light-weight Composites</td> <td>Occupant Safety II</td> <td>Process - Metal Forming II</td> <td>Simulation Data Management I</td> <td>Workshop: Material</td> </tr> </tbody> </table>	Crash - Light-weight Composites	Occupant Safety II	Process - Metal Forming II	Simulation Data Management I	Workshop: Material					
Crash - Light-weight Composites	Occupant Safety II	Process - Metal Forming II	Simulation Data Management I	Workshop: Material									
ab 19:15 Uhr	Ausstellung	Get-together in der Ausstellung											

Dienstag, 16. Oktober

	07:30 Uhr	Running LS-DYNA	Bring your Running Shoes										
Ausstellung	09:00 - 10:20 Uhr	Parallel	<table border="1"> <thead> <tr> <th>Raum 1</th> <th>Raum 2</th> <th>Raum 3</th> <th>Raum 4</th> <th>Raum 5</th> </tr> </thead> <tbody> <tr> <td>Crash - Punctual Connections</td> <td>Pedestrian Safety</td> <td>Process - Metal Forming III</td> <td>Simulation Data Management II</td> <td>Workshop: Mat.Parameter</td> </tr> </tbody> </table>	Raum 1	Raum 2	Raum 3	Raum 4	Raum 5	Crash - Punctual Connections	Pedestrian Safety	Process - Metal Forming III	Simulation Data Management II	Workshop: Mat.Parameter
	Raum 1	Raum 2	Raum 3	Raum 4	Raum 5								
	Crash - Punctual Connections	Pedestrian Safety	Process - Metal Forming III	Simulation Data Management II	Workshop: Mat.Parameter								
	11:00 - 12:20 Uhr	Parallel	<table border="1"> <tbody> <tr> <td>Crash Materials, Failure</td> <td>Topology and Form Optimization</td> <td>Process - Welding Heat Treatment</td> <td>Workshop: SDM</td> <td>Workshop: VALIMAT</td> </tr> </tbody> </table>	Crash Materials, Failure	Topology and Form Optimization	Process - Welding Heat Treatment	Workshop: SDM	Workshop: VALIMAT					
	Crash Materials, Failure	Topology and Form Optimization	Process - Welding Heat Treatment	Workshop: SDM	Workshop: VALIMAT								
	13:40 - 15:10 Uhr	Plenum	Plenum – Hegelsaal Keynote Presentations *										
	15:40 - 17:00 Uhr	Parallel	<table border="1"> <thead> <tr> <th>Raum 1</th> <th>Raum 2</th> <th>Raum 3</th> <th>Raum 4</th> <th>Raum 5</th> </tr> </thead> <tbody> <tr> <td>Crash - Railway Vehicles/Impact</td> <td>Material Characterization</td> <td>Process - Rolling and Bending</td> <td>HPC, Cloud Comp./Services</td> <td>Workshop: Primer</td> </tr> </tbody> </table>	Raum 1	Raum 2	Raum 3	Raum 4	Raum 5	Crash - Railway Vehicles/Impact	Material Characterization	Process - Rolling and Bending	HPC, Cloud Comp./Services	Workshop: Primer
Raum 1	Raum 2	Raum 3	Raum 4	Raum 5									
Crash - Railway Vehicles/Impact	Material Characterization	Process - Rolling and Bending	HPC, Cloud Comp./Services	Workshop: Primer									
17:30 - 18:30 Uhr	Parallel	<table border="1"> <tbody> <tr> <td>Crash Road Safety</td> <td>Optimization: Material, Statistics</td> <td>Process - Forming and AM</td> <td>Optimization Processes</td> <td>Workshop: GNS Open Form</td> </tr> </tbody> </table>	Crash Road Safety	Optimization: Material, Statistics	Process - Forming and AM	Optimization Processes	Workshop: GNS Open Form						
Crash Road Safety	Optimization: Material, Statistics	Process - Forming and AM	Optimization Processes	Workshop: GNS Open Form									
19:15 Uhr	Ausstellung	Sektempfang in der Ausstellung											
ab 20:00 Uhr	Hegelsaal	Abendveranstaltung im Hegelsaal											

Mittwoch, 17. Oktober

Ausstellung	09:00 - 10:20 Uhr	Parallel	<table border="1"> <thead> <tr> <th>Raum 1</th> <th>Raum 2</th> <th>Raum 3</th> <th>Raum 4</th> <th>Raum 5</th> </tr> </thead> <tbody> <tr> <td>Fluid and Ice Structure Interact.</td> <td>Materials - SFRP</td> <td>Process - ARENA2036</td> <td>Simulation - Bolts/Delamination</td> <td>Workshop: GISSMO</td> </tr> </tbody> </table>	Raum 1	Raum 2	Raum 3	Raum 4	Raum 5	Fluid and Ice Structure Interact.	Materials - SFRP	Process - ARENA2036	Simulation - Bolts/Delamination	Workshop: GISSMO
	Raum 1	Raum 2	Raum 3	Raum 4	Raum 5								
	Fluid and Ice Structure Interact.	Materials - SFRP	Process - ARENA2036	Simulation - Bolts/Delamination	Workshop: GISSMO								
	11:00 - 12:20 Uhr	Parallel	<table border="1"> <tbody> <tr> <td>Simulation - IGM/FE Techn.</td> <td>Materials - Misc.</td> <td>Fatigue and NVH</td> <td>Biomedical</td> <td>Workshop: Mapping Tool Envyo</td> </tr> </tbody> </table>	Simulation - IGM/FE Techn.	Materials - Misc.	Fatigue and NVH	Biomedical	Workshop: Mapping Tool Envyo					
Simulation - IGM/FE Techn.	Materials - Misc.	Fatigue and NVH	Biomedical	Workshop: Mapping Tool Envyo									
13:30 - 15:00 Uhr	Plenum	Plenum – Raum 1 + Raum 2 Keynote Presentations											
15:00 Uhr	Plenum	Verabschiedung											

* Simultaneous translation into English.

Plenum Hegelsaal (Kongresshalle)

PLENUM

KEYNOTE-VORTRÄGE

- 13:00 **Welcome and Introduction**
U. Franz (DYNAmore)
- 13:10 **Recent Developments – Part I**
J. Wang (LSTC)
- 13:40 **Reliable Simulation Techniques in Solid Mechanics.**
Development of Non-standard Discretization Methods, Mechanical and Mathematical Analysis
Prof. J. Schröder (Univ. Duisburg-Essen)
- 14:10 **Aspekte der Crashesimulation**
M. Feucht (Daimler)
- 14:40 **Kurzvortrag Intel & Fujitsu**
- 14:55 **Kurzvortrag AMD**

15:10

Pause

PARALLEL

Raum 1

CRASH MODEL BUILDING

Raum 2

OCCUPANT SAFETY I

Raum 3

PROCESS METAL FORMING I

- 15:40 **Model Organization, Quality and Management for Crash Simulation Engineering on Different Vehicle Body Lines at Porsche**
M. Koch (Porsche), S. Mattern (DYNAmore), R. D. Bitsche (SCALE)
- 16:00 **The Role of LS-DYNA in the Design of the New London Electric Taxi**
J. Dennis, S. Hart, G. Newlands (Arup)
- 16:20 **Crash Simulation of Short Glass Fiber Reinforced Polypropylene with Analysis of the Failure Probability**
N. Sygusch, B. Lauterbach (Opel), Prof. S. Kolling (TU Mittelhessen); J. Schneider (TU Darmstadt)
- Recent Airbag CPM Enhancement
J. Wang (LSTC)
- Scalability Study of Airbag Particle Method with Dynamic Load Balancing
H. Teng (LSTC)
- IIHS Side Impact Evaluations
S. Arnold-Keifer, Prof. S. Weihe, F. Panzer (Univ. of Stuttgart), Prof. S. Kan, Prof. R. Reichert (George Mason Univ.)
- Aspekte bei der Modellierung mehrstufiger Umformprozesse mit expliziten und impliziten Methoden
M. Fleischer, I. Heinle, H. Grass, J. Meinhardt, J. M. Saubiez (BMW)
- Forming Simulation at MAHLE by the Example of the Cooling Fin Production
A. Gehring, W. Kühnel (MAHLE)
- Implizite Umformsimulation der wirkmedienbasierten Umformung ohne Formwerkzeug
A. Metzger, D. C. Ruff, T. Ummenhofer (KIT)

16:40

Pause

PARALLEL

Raum 1

CRASH LIGHTWEIGHT COMPOSITES

Raum 2

OCCUPANT SAFETY II

Raum 3

PROCESS METAL FORMING II

- 17:10 **Crash Simulation of Fibre Metal Laminates**
T. Schulte, L. Eckstein (RWTH Aachen), K. Seidel (fka)
- 17:30 **Modelling the Interface of Hybrid Metal-FRP Components Joint by Form Closures**
M. Triebus, T. Tröster, A. A. Camberg (Univ. Paderborn), S. Bienia, K. Dröder (TU Braunschweig)
- 17:50 **WoodC.A.R. – Wood Composites for Functional Vehicle Structures**
C. Kurzböck, T. Jost (Das virtuelle Fahrzeug), U. Müller (Univ. Wien), F. Feist (TU Graz), S. Hartmann (DYNAmore)
- 18:10 **Umformsimulation für endlosfaserverstärkte Thermoplaste mittels *MAT_249**
E. Chowson, M. Wrensch (Brose Fahrzeugteile), T. Klöppel (DYNAmore), W. Körbel, T. Mattner (Univ. Erlangen)
- Occupant Protection in Alternative Seating Positions
Prof. M. Boin (Hochschule Ulm)
- Model Reduction Techniques for On-board and Parametric Crash and Safety Simulation
Prof. K. Kayvantash (CADLM)
- A New Advanced THOR 5th Crash Test Dummy Finite Element (FE) LS-DYNA Model Development Representing Small Female Occupant
F. Zhu, F. Schüssler (Humanetics Europe)
- FLEX-PLI GTR Regulated Borderline LS-DYNA Finite Element (FE) Model Development
F. Zhu, C. Shah, C. Brockhusen (Humanetics Europe)
- Modellierung und Optimierung von Ziehsicken mittels neuronaler Netze
S. Leocata, T. Senner, H. Grass (BMW), Prof. A. Brosius (TU Dresden)
- Analysis of Stress States during Experimental Determination of Cut-Edge Formability
M. Schneider, M. Teschner, S. Westhäuser (Salzgitter Mannesmann Forschung)
- Möglichkeiten, Herausforderungen und Risiken bei der Erstellung von Materialkarten für die Umformsimulation aktueller Stahlfeinbleche
T. Beier, J. Gerlach, S. Sikora, L. Keßler (thyssenkrupp)
- Model Set Up, Analysis and Results of the Inverse Forming Tool in ANSA
E. Iordanidou, G. Mokios, S. Porikis (BETA CAE Systems)

18:30

Ende der Sessions

19:15

GET-TOGETHER IN DER AUSSTELLUNG



15:10

Pause

PARALLEL

Raum 4

CIVIL ENGINEERING

Raum 5

WORKSHOP

15:40

How to make a Virtual Twin of a Complex Slender Structure like a High Voltage Transmission Tower?

Prof. T. Tryland (SINTEF Manufacturing, Raufoss)

Welding and Heat Treatment with DynaWeld
T. Loose (DynaWeld)

The workshop presents the state of the art of simulation capabilities and its benefits. Not only stand alone simulation but also multi stage simulations as well as process chain simulations are feasible. The example of preheating welding, quenching and tempering of an axle gear connection including prior material simulation will demonstrate this. The DynaWeld preprocessor guarants an facil setup of these simulation models including multi stage and assembly simulations. The meta-language technique enables the implementation in existing software solutions at the customer to close the gap of welding or heat treatment.

16:00

Finite Element Modeling of Long-Span Steel Suspension Bridges in Civil Engineering

Prof. S. A. Kilic (Bogazici Univ.), H. J. Raatschen (FH Aachen), B. Körfgen (Forschungszentrum Jülich)

16:20

Blast Response of Slabs in Reinforced Concrete Buildings

G. Yazici (Istanbul Kültür Univ.), Prof. S. A. Kilic (Bogazici Univ.)

16:40

Pause

PARALLEL

Raum 4

SIMULATION DATA MANAGEMENT I

Raum 5

WORKSHOP

17:10

Prospects of Integrating CAD and CAE in Simulation Data Management

C. Knebler (Audi), M. Thiele, D. Matthus, P. Friedrich (SCALE)

Material Characterization
M. Helbig, D. Koch (DYNAmore)

In order to obtain the most realistic simulation results possible, it is essential to describe the material behavior very accurately. In LS-DYNA more than 200 material models are implemented, of which usually only a much smaller selection is used in everyday work.

17:30

A Unified Environment for Collaborative CAE and Immersive Simulation Results' Processing

A. Perifanis, S. Kleidarias (BETA CAE Systems)

In this workshop, practical advice is given on how to create material cards. The most important models for metals and thermoplastics will be presented and the determining adjusting screws will be explained. In addition, practical examples will be used to show which tests are necessary to calibrate the material cards.

17:50

Solution for Evaluation, Assessment and Reporting of Simulation and Test Result Data

G. Geißler, A. Kumar (SCALE)

18:10

18:30

Ende der Sessions

19:15

GET-TOGETHER IN DER AUSSTELLUNG

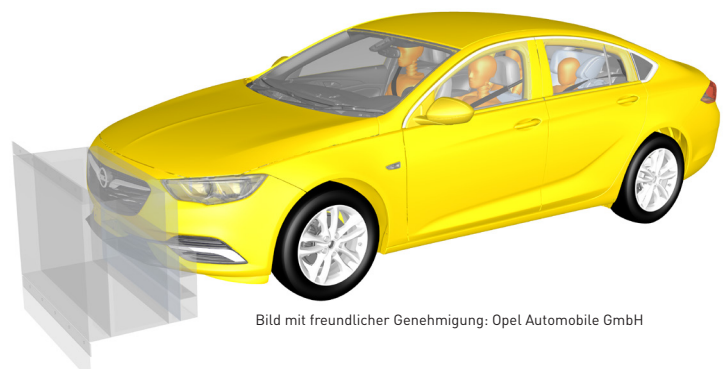


Bild mit freundlicher Genehmigung: Opel Automobile GmbH

AGENDA – DIENSTAG, 16. OKTOBER 2018 – VORMITTAG

	Raum 1	Raum 2	Raum 3
PARALLEL	CRASH PUNCTUAL CONNECTIONS	PEDESTRIAN SAFETY	PROCESS METAL FORMING III
09:00	Daten- und prognosebasierte Generierung von Modellparametern für die Crashesimulation mechanisch gefügter Verbindungen <u>P. Rochel</u> , S. Sommer (Fraunhofer IWM), M. Guenther, D. Herfert, (Gesellschaft zur Förderung angewandter Informatik), G. Meschut, P. Giese (Univ. Paderborn)	Challenges of the Early Virtual Development Phase of Plastic Components in Low-Speed Test and Pedestrian Protection Load Cases <u>C. Kurzböck</u> (Das virtuelle Fahrzeug), M. Groß (BMW), B. Fellner, H. Kassegger (Magna Steyr Fahrzeugtechnik), T. Paier (ZKW Lichtsysteme)	DYNAFORM 6.0 Highlights J. Chen (Engineering Technology Associates)
09:20	Numerical Investigation of a Blind Rivet Nut Screw System in LS-DYNA N. Fuchs, <u>T. Nehls</u> (Fraunhofer IGP), M. Felsberg (GESIPA Blindniettechnik), I. Lepenies (SCALE)	Recent Developments in *DEFINE_PRESSURE_TUBE for Simulating Pressure Tube Sensors in Pedestrian Crash J. Karlsson (DYNAmore Nordic)	The Influence of Damage Accumulation on Failure Prediction: A Comparative Assessment of *MAT_224 and *MAT_024 + GISSMO for the Application in Non-Isothermal Sheet Metal Forming <u>A. Camberg</u> , T. Tröster (Univ. Paderborn), A. Schneidt, N. Sotirov, J. Tölle (Benteler Automobiltechnik)
09:40	Modeling of Joints with Plug Out Separation Modes by Utilizing Cohesive Shells for Full Vehicle Safety Models N. Pasligh (Ford), <u>E. Ertugus</u> (RWTH Aachen), T. Erhart (DYNAmore)	Comparison of Failure Stress Distributions in Automotive Windscreens by Experiment and Simulation <u>C. Brokmann</u> , C. Alter, Prof. S. Kolling (TH Mittelhessen)	Ermittlung und Optimierung von temperaturabhängigen Versagenskurven für hochfeste Aluminiumlegierungen im Hotforming-Prozess <u>J. Schlosser</u> (Hochschule Aalen/ Glasgow Univ.), R. Schneider, W. Rimkus (Hochschule Aalen), S. Mouchtar, D. Harrison, M. MacDonald, M. Kulatunga (Glasgow Univ.)
10:00	Ein „Non-Local“ Modellansatz für die Rissinitiierung an punktförmiger Füge­technik ohne lokaler Netzanpassung <u>T. Heubrandtner</u> , K. Kunter, M. Kopenig (Das virtuelle Fahrzeug), T. Porsch (Volkswagen), B. Fellner (Magna Steyr Fahrzeugtechnik), J.-D. Martinez (Audi)	Benefits of Cloud-based Apps for Simulation: Pedestrian Safety <u>M. Seshadri</u> , A. Gittens (ESI)	Numerical Modeling of Single-Step Thermoforming of a Hybrid Metal/FRP Lightweight Structure <u>J. Ziegs</u> , D. Weck, M. Gude, M. Kästner (TU Dresden)
10:20	Pause		
PARALLEL	CRASH MATERIALS, FAILURE	TOPOLOGY AND FORM OPTIMIZATION	PROCESS WELDING AND HEAT TREATMENT
11:00	Linking Process & Product Simulation for Considering Local Material Properties in Crash Simulation <u>B. Eck</u> , G. Le Lan, R. Schaefer (Faurecia Composite Technologies)	LS-TaSC Product Status/LS-TaSC 4: Designing for the Combination of Impact, Statics and NVH <u>K. Witowski</u> (DYNAmore), W. Roux, G. Yi, I. Gandikota (LSTC)	Recent Updates to the Structural Conjugate Heat Transfer Solver of LS-DYNA T. Klöppel (DYNAmore)
11:20	News About the Add-on Failure and Damage Models in LS-DYNA T. Erhart (DYNAmore)	Efficient Analysis of Topological Sensitivities for Crash Problems using LS-DYNA Implicit <u>K. Weider</u> , Prof. A. Schumacher (Univ. Wuppertal)	Simulation Chain of Material Simulation, Heat Treatment Simulation and Welding Simulation for Industrial Application <u>T. Loose</u> , J. Prehm, J. Rohbrecht (DynaWeld), U. Diekmann, (Matplus)
11:40	Rissausbreitung im Crash – ein neuer Ansatz ohne lokale Feinvernetzung <u>K. Kunter</u> , T. Heubrandtner, M. Kopenig (Das virtuelle Fahrzeug), B. Fellner (Magna Steyr Fahrzeugtechnik), J.-D. Martinez (Audi)	Aktuelle Schlüssel Herausforderungen in Topologie- und parametrischer Optimierung angehen: 1. wandeln Topologie Optimierung organisch anmutende Ergebnisse in 3D Flächengeometrie Modell um, 2. verwenden Substrukturierung Methode für die Optimierung der Subsysteme eines vollständigen Modells, in einer prozessgeführten Umgebung A. Kaloudis (BETA CAE Systems)	Welding Structure Simulation – Extended Beyond the Borders of Academic Testcases - Exemplarily Demonstrated by Simulating the Assembly of Welded Car Body Components. Introduction of the „Free Motion-Filler-Technology“ <u>J. Rohbrecht</u> , T. Loose (DynaWeld)
12:00	Analyses on the Strain-Rate Dependent Fracture Behaviour of PMMA for Stochastic Simulations <u>M. Berlinger</u> , P. Schrader, Prof. S. Kolling (TH Mittelhessen)	Shape Optimization for CFD Analysis using LS-OPT, ANSA and LS-DYNA ICFD <u>K. Witowski</u> (DYNAmore), F. Del Pin, I. Çaldichoury, R. R. Paz, C.-J. Huang (LSTC)	LS-DYNA Developments in Thermal Radiation – *BOUNDARY_RADIATION_ENCLOSURE <u>G. Blankenhorn</u> , R. Grimes, F. Rouet (LSTC)
12:20	Mittagessen		

	Raum 4	Raum 5
PARALLEL	SIMULATION DATA MANAGEMENT II	WORKSHOP
09:00	<p>Advanced Results Databases Compression Techniques to Allow their Efficient Use in Results Data Management Systems A. Perifanis, D. Siskos (BETA CAE Systems)</p>	<p style="text-align: center;">Material Parameter Identification K. Witowski, C. Ilg (DYNAmore)</p> <p>In this workshop a short introduction to LS-OPT will be given, and the application of LS-OPT for calibration of material parameters will be presented.</p> <p>The new LS-OPT features for the usage of digital image correlation data for calibration of material parameters will be discussed by means of an application example.</p>
09:20	<p>Pushing Storage and Bandwidth Requirements of SDM Towards Reasonable Levels M. Büchse, M. Thiele (SCALE)</p>	
09:40	<p>Automatic Detection of Unexpected Crash Behaviour Parallel to Design Improvement Phases D. Borsotto, L. Jansen, C. Thole (SIDACT)</p>	
10:00	<p>Analyzing Simulations with Machine Learning C. Diez (Lasso Ingenieurgesellschaft)</p>	
10:20	Pause	
	Raum 4	Raum 5
PARALLEL	WORKSHOP	WORKSHOP
11:00	<p>SDM and CAE-Processes with SCALE Solutions The workshop gives an overview of the SCALE SDM products such as LoCo, CAViT and Status.E. There will be a discussion on how to benefit from SCALE solutions as a user or project manager.</p>	<p style="text-align: center;">VALIMAT</p> <p>The software solution VALIMAT enables the generation of validated material cards based on tests results (e.g. bending, tensile, ...) for static and especially dynamic applications.</p> <p>The necessary dynamic measurement data (bending, tensile, compression or puncture tests) can be generated easy and quickly by pendulum testing device IMPETUS. Based on well-defined workflows in VALIMAT material cards can be generated straight forward for LS-DYNA material models.</p> <p>Following topics will be covered:</p> <ul style="list-style-type: none"> • VALIMAT introduction & new features in v3.5 • Dynamic Tensile Tests with IMPETUS - a New Available Test Method • Usage of VALIMAT – Live
11:20	<p>The application of selected uses cases will be presented within live demos. Examples of typical CAE workflows and process automation using SCALE SDM applications are introduced.</p>	
11:40	<p>A lively discussion at the end of the workshop is very welcome to investigate a potential integration of SDM software in your environment.</p>	
12:00		
12:20	Mittagessen	



Bild mit freundlicher Genehmigung: BMW Group

AGENDA – DIENSTAG, 16. OKTOBER 2018 – NACHMITTAG

Plenum Hegelsaal (Kongresshalle)

PLENUM

KEYNOTE-VORTRÄGE

- 13:40 **Virtueller Versuch bei Knorr-Bremse**
F. Günther (Knorr-Bremse)
- 14:10 **Integration neuer graphischer Auswertemethoden zur verbesserten Erkennung von Blechversagen unter dem Einfluss nicht-linearer Dehnungspfade**
Prof. P. Hora (ETH Zürich)
- 14:40 **Charakterisierung und Modellierung des Crashverhaltens von verschiedenen Werkstoffen und Verbindungen**
S. Sommer (Fraunhofer IWM)

15:10

Pause

PARALLEL

Raum 1

CRASH RAILWAY VEHICLES AND IMPACT

Raum 2

MATERIAL CHARACTERIZATION

Raum 3

PROCESS ROLLING AND BENDING

- 15:40 **Crashsimulation in der Schienenfahrzeug-industrie**
A. Piasetzki (Bombardier)
- 16:00 **Kurzzeitdynamische Stauchuntersuchungen an Absorberkomponenten aus GFK**
M. Holzapfel, M. Vinot, M. Kaden, D. Fricke (DLR)
- 16:20 **Beam Modeling of Hydraulic Energy Absorbers**
P. Heinzl, R. Graf, G. Gough (Siemens Mobility), C. Schmied (DYNAmore)
- 16:40 **Experimentelle und numerische Untersuchung von schlagbelasteten Aramidgewebeverbunden**
M. Mehrkens, D. John (imk automotive)
- 15:40 **Werkstoffcharakterisierung – Rateneffekte, Skaleneffekte, Schädigung, Instabilität und adiabatische Erwärmung**
F. Huberth, D.-Z. Sun, S. Klitschke, A. Trondl, J. Lienhard, M. Hauber, D. Discher, S. Sommer (Fraunhofer IWM)
- 16:00 **Characterization of a Polyurethane Adhesive and Comparative Calibration of Different Material Models in LS-DYNA**
M. Gall, S. Sommer (Fraunhofer IWM); F. Zerling, T. Wagner, R. Schlimper (Fraunhofer IMWS)
- 16:20 **Testing and Modeling of Rubber Toughened Thermoplastics with LS-DYNA**
M. Helbig, A. Haufe (DYNAmore)
- 16:40 **Material Models for Thermoplastics in LS-DYNA from Deformation to Failure**
P. Reithofer, A. Fertschej, B. Hirschmann, B. Jilka, M. Rollant (4a engineering)
- 15:40 **Weiterentwickeltes Warmwalzsimulationsmodell von Aluminiumlegierungen für die Berücksichtigung des Bandprofils**
P. Simon, G. Falkinger (AMAG), K. Zeman, T. Pumhössel (JKU Linz)
- 16:00 **Optimization of Tooling Design for Hot Mandrel Bending of Pipe Elbows**
J. Prehm (DynaWeld), U. Diekmann (Matplus), W. Homberg, D. Tabakajew, T. Rostek (Paderborn Univ.), A. Trasca (Metatech), N. Schönhoff, H. Uysal (Lindemann)
- 16:20 **Freiformbiegen mit rollierendem Biegekopf, Simulation des strukturmechanischen Prozesses**
Prof. M. Gitterle (Hochschule München), C. Fritzsche (TU München), P. Schüle (Schüle)
- 16:40 **Characterization of the Metal Sheet Forming by Free Bending with LS-DYNA**
N. Fuchs, P. Froitzheim, Prof. W. Flügge (Fraunhofer IGP), Prof. C. Woernle (Univ. Rostock)

17:00

Pause

PARALLEL

Raum 1

CRASH ROAD SAFETY

Raum 2

OPTIMIZATION: MATERIAL PARAMETERS & STATISTICAL CLASSIFIERS

Raum 3

PROCESS - FORMING AND ADDITIVE MANUFACTURING

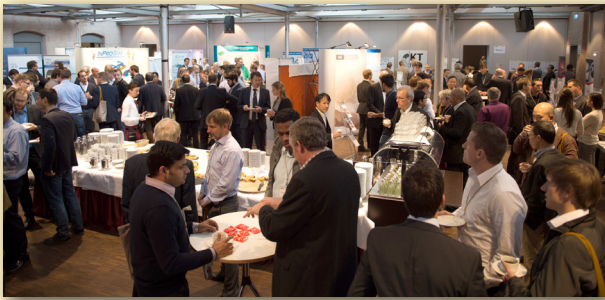
- 17:30 **Crash-Simulation von Fahrzeugen an Schutzeinrichtungen der Straße**
B. Fröhlich (Bundesanstalt für Straßenwesen)
- 17:50 **Robustness Evaluation of Different Impact Situations for Road Safety Guardrail**
J. Drozda, R. Schlegel (Dynardo); T. Rotter (TU Prague)
- 18:10 **Parameter Identification of the *MAT_036 Material Model using Full-Field Calibration**
C. Ilg, A. Haufe, D. Koch, K. Witowski (DYNAmore), A. Svedin (DYNAmore Nordic), N. Stander (LSTC), Prof. M. Liewald (Univ. Stuttgart)
- 17:30 **Applications and Potential of Statistical Classifiers in LS-OPT**
A. Basudhar, I. Gandikota, N. Stander, D. Kirpicev (LSTC), K. Witowski (DYNAmore)
- 17:50 **Full-Field Material Calibration using LS-OPT**
N. Stander, A. Basudhar, S. Bala, I. Gandikota, S. DuBois, D. Kirpicev (LSTC), H. Keshtkar, A. Patil, A. Sheshadri, P. DuBois (Fiat Chrysler Automobiles)
- 18:10 **Simulation of Different Path Strategies of Wire-Arc Additive Manufacturing with Lagrangian Finite Element Methods**
J. Buhl, R. Israr, L. Nguyen, M. Bambach (BTU Cottbus-Senftenberg)
- 17:30 **Thermoplastic Fiber Reinforced Plastics: Material Characterization and Draping Simulation**
C. Ilg, E. Sola, A. Haufe, N. Karajan (DYNAmore), K. Demnitz, Prof. M. Gude (TU Dresden)
- 17:50 **Simulation Strategies for Additive Manufacturing with LS-DYNA**
C. Liebold (DYNAmore)
- 18:30 **Ende der Sessions**

19:15

SEKTEMPFANG IN DER AUSSTELLUNG

20:00

ABENDVERANSTALTUNG IM HEGELSAAL



15:10	Pause	
	Raum 4	Raum 5
PARALLEL	HPC, CLOUD COMPUTING, SERVICES	WORKSHOP
15:40	<p>HPC in der Cloud – Moderne IT Architekturen effizient nutzen. Die Sicht eines unabhängigen Dienstleisters <u>C. Woll</u>, S. Riedel, M. Lachnit (GNS Systems)</p>	<p>Oasys Primer</p> <p>Oasys PRIMER is a leading pre-processor for LS-DYNA which is widely used by automotive OEM's and suppliers worldwide. Oasys PRIMER is the pre-processor designed to make preparation and modification of LS-DYNA models as quick and as simple as possible.</p> <p>This workshop will be informative for new as well as experienced users. We will cover the core functionality and benefits, including comprehensive model checking, LS-DYNA keyword support and model modification and investigation tools. We will also discuss more advanced tools, such as occupant positioning, seatbelt fitting, loadcase setup and scripting.</p> <p>Finally, we will look at how Oasys PRIMER is integrated with the Oasys post-processing tools to enable swift analysis of results and feedback to the input deck – to help produce quality, error-free LS-DYNA models.</p>
16:00	<p>Hybrid Cloud Cluster Solutions for HPC and IOT – Challenges, Impact and Industrial Use Cases A. Heine (CPU 24/7)</p>	
16:20	<p>Lizenz-Monitoring: Echtzeit-Analyse offenbart tatsächlichen Bedarf <u>F. Moegle-Hofacker</u>, H. W. Köster (GNS Systems)</p>	
16:40	<p>N.N. n.n. Rescale</p>	
17:00	Pause	
	Raum 4	Raum 5
PARALLEL	OPTIMIZATION PROCESSES	WORKSHOP
17:30	<p>ACP OpDesign Optimal Design Gateway Multimaterial Lightweighting Door System <u>A. Farahani</u>, D. Mittal, M. Zhang (Engineering Technology Associates)</p>	<p>GNS Open Form</p> <p>The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts.</p> <p>The aim is to provide the attendees with insights, limits and merits of the topic.</p> <p>It facilitates the understanding by showcasing simple examples that explain the methods. Besides the presentation there will be time for interactions between the presenters and the audience.</p>
17:50	<p>Packaging Optimization Driven by Parametric Morphing: Development of an Automatic Methodology A. Ortalda, <u>C. Martin</u> (EnginSoft)</p>	
18:10	<p>Automatic Shape Optimization of a Rivet – Coupling modeFRONTIER and LS-DYNA C. Martin, <u>A. Ortalda</u> (EnginSoft)</p>	
18:30	Ende der Sessions	
19:15	SEKTEMPFANG IN DER AUSSTELLUNG	
20:00	ABENDVERANSTALTUNG IM HEGELSAAL	

AGENDA – MITTWOCH, 17. OKTOBER 2018

	Raum 1	Raum 2	Raum 3
PARALLEL	FLUID-STRUCTURE AND ICE-STRUCTURE INTERACTION	MATERIALS - SHORT FIBER REINFORCED POLYMERS	PROCESS ARENA 2036
09:00	Washing Machine Outlet Hose Analysis in Full Water Condition using SPH Elements <u>C. Desai</u> , S. Vishwakarma (Whirlpool of India)	Multi-Scale Material Modeling Applied from Specimen to Full Car Level with LS-DYNA S. Calmels (e-Xstream Engineering)	ARENA2036 & the Digital Prototype: Introduction and Overview P. Böhler, J. Dittman (Univ. Stuttgart), H. Finckh, F. Fritz (Deutsches Institut für Textil- und Faserforschung Denkendorf (DITF)), A. Haufe, <u>C. Liebold</u> (DYNAmore), M. Holzapfel, M. Vinot (DLR)
09:20	Fluid Structure Interaction Simulation of Hood Flutter <u>L. Rovira Crespo</u> , J. Dilworth, P. Young (Arup)	Influence Parameters on the Behavior of Short Fibre Reinforced Polyamide with Focus on Humidity and Integrative Simulation <u>S. Seichter</u> , R. Steinberger, S. Ilincic (Hirtenberger Automotive Safety), W. Hahn (Hilti), M. Morak (PCCL), P. Reithofer (4a engineering)	Textile Process Simulation for the Digital Simulation Chain <u>H. Finckh</u> , A. Dinkelmann, F. Fritz, M. Imbert, Prof. G. T. Gresser (Deutsches Institut für Textil- und Faserforschung Denkendorf (DITF))
09:40	Advanced Viscous Model for Viscous Friction Between Rough Rubber and Smooth Ice A. Scattina, <u>R. Leonardi</u> (Politecnico di Torino), S. Scalera (DYNAmore Italy)	*MAT_4A_MICROMECH: Generating Material Card and Considering Fiber Orientation <u>P. Reithofer</u> , A. Fertschej, B. Jilka (4a engineering)	Infiltration Simulation and Virtual Permeability Determination for the Digital Prototype <u>J. Dittmann</u> , P. Middendorf (Univ. Stuttgart)
10:00	Simulation of Ice-Structure Interaction with CZM-Elements <u>H. Herrnring</u> , L. Kellner, J. M. Kubiczek, S. Ehlers (TU Hamburg)	Influences of LS-DYNA Results by Coupling with Injection Molding Simulation <u>T. Schäfer</u> , C. Hinse (SimpaTec)	A Multiscale Strategy for the Simulation of Braided Composites with ENVYO <u>M. Vinot</u> , M. Holzapfel (DLR), C. Liebold (DYNAmore)
10:20	Pause		
PARALLEL	SIMULATION - ISOGEOMETRIC AND FE TECHNOLOGY	MATERIALS - ORTHOTROPIC PLASTICITY, DAMAGE, FAILURE	FATIGUE AND NVH
11:00	Explicit Isogeometric Crash Analysis on Trimmed NURBS-Based Multi-Patch CAD Models in LS-DYNA <u>L. Leidinger</u> (BMW Group/TU München), M. Breitenberger, A. M. Bauer, R. Wüchner, Prof. K.-U. Bletzinger, Prof. F. Duddeck (TU München), S. Hartmann (DYNAmore), L. Song (BMW Group)	A Hosford-Based Orthotropic Plasticity Model in LS-DYNA <u>F. Andrade</u> (DYNAmore), T. Borrvall (DYNAmore Nordic), P. DuBois (Consultant), M. Feucht (Daimler)	Updated Fatigue Analysis with LS-DYNA <u>Y. Huang</u> , Z. Cui (LSTC)
11:20	Sheet Metal Forming Simulation with IGA in LS-DYNA <u>S. Hartmann</u> (DYNAmore), D. J. Benson, L. Li, A. P. Nagy (LSTC)	On the Development of a New Generalized Orthotropic Damage and Fracture Model <u>D. Koch</u> , F. Andrade, A. Haufe (DYNAmore), P. DuBois (Consultant), M. Feucht (Daimler)	Analysis of the Correlation Between the Fatigue Behavior of Remote-Laser Cut Fiber-Reinforced Polymers and Process Parameters <u>B. Schmidt</u> , M. Rose, Prof. M. Zimmermann, Prof. M. Kästner (TU Dresden)
11:40	A Study on the New Higher-Order Solid Elements in LS-DYNA <u>C. Schmied</u> , T. Erhart (DYNAmore)	Nonlocal Damage and Failure Options in LS-DYNA <u>G. Blankenhorn</u> , J. Wang, L. Bindeman (LSTC), T. Erhart (DYNAmore)	Direct Steady State Dynamic (SSD) Analysis with LS-DYNA <u>Y. Huang</u> , Z. Cui, F.-H. Rouet, C. Ashcraft, R. Grimes (LSTC)
12:00	Optimization of Newmark-Euler Time-Integration Parameters for a Stable and Efficient Implicit Simulation of Rotating Elastic Structures <u>M. Kober</u> , A. Kühhorn (BTU Cottbus-Senftenberg), A. Keskin (Rolls-Royce)	A Modified In-Plane Constitutive Model for Paperboard <u>M. Pfeiffer</u> , Prof. S. Kolling (TH Mittelhessen), P. Stein, W. Franke (TU Darmstadt)	
12:20	Mittagessen		
	Plenum Kongresshotel (Raum 1 + Raum 2)		
PLENUM	KEYNOTE-VORTRÄGE		
13:30	Simulation for Gaudi's Sagrada Familia Basilica, Barcelona R. Sturt (Arup)		
14:00	LS-OPT: Status and Outlook N. Stander (LSTC)		
14:30	Recent Developments - Part II J. Wang, Y. Huang (LSTC), T. Erhart (DYNAmore)		
15:00	Closing remarks T. Münz (DYNAmore)		
15:15	Ende des Forums		

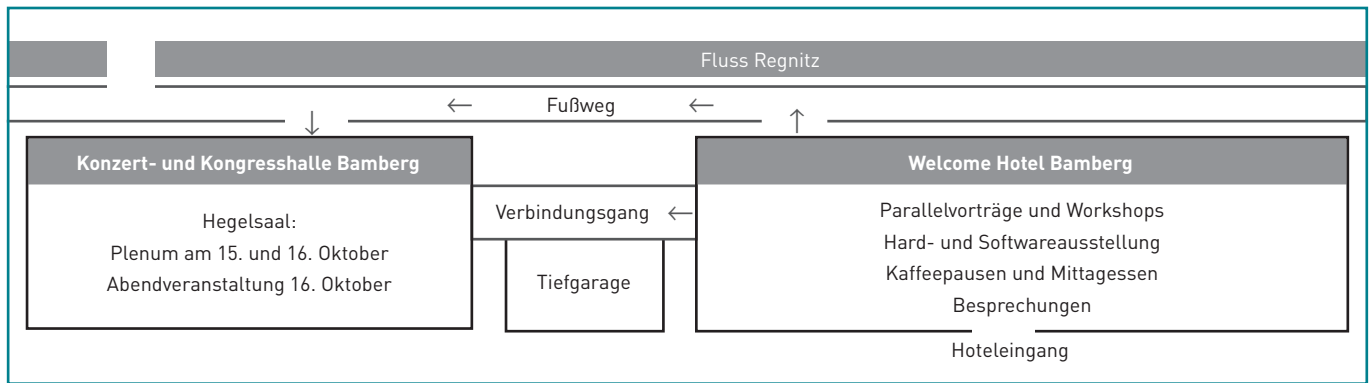
	Raum 4	Raum 5
PARALLEL	SIMULATION - BOLTS AND DELAMINATION	WORKSHOP
09:00	CAE Bolt Assessment in Car Seat Structures S. Sinne, J. Gehrlich, P. Partheymüller (Brose Fahrzeugteile)	<p>Failure Prediction in Crash Simulations with the GISSMO Model F. Andrade (DYNAmore)</p> <p>This workshop is indicated to all LS-DYNA users who want to make the first steps regarding failure modeling in crash simulations.</p> <p>The subject will be addressed during the workshop where relevant aspects concerning failure prediction will be reviewed and the application of the GISSMO model for such simulations will be demonstrated.</p>
09:20	Modeling Bolts in LS-DYNA Using Explicit and Implicit Time Integration N. Karajan, A. Gromer, M. Schenke (DYNAmore), T. Borrvall (DYNAmore Nordic), K. Pydimarry (Honda)	
09:40	Power Apps – Make Access to Your CAE Simpler, More Efficient and More Economic J. Friebe (ISKO engineers)	
10:00	Modelling of a Traditional Bow and Arrow – Material Modelling and Dynamic Simulation G. Baumann, G. Schickhofer, S. Zimmer, F. Feist (TU Graz)	
10:20	Pause	
	Raum 4	Raum 5
PARALLEL	BIOMEDICAL	WORKSHOP
11:00	FE-Simulation of Impact Loads on the Human Body: Methodology for the Development of Tissue Models Z. Wang, R. Behrens, N. Elkmann (Fraunhofer IFF)	<p>Mapping Tool Envyo C. Liebold (DYNAmore)</p> <p>Envyo is a multi-purpose mapping tool which was introduced to the public in 2016 during the German LS-DYNA Forum.</p> <p>The goal of this workshop, is to present the already implemented mapping capabilities and to demonstrate their usage. The general need to map simulation results is shown with the aid of dedicated examples.</p> <p>The workshop is closed with an open discussion where you can place your own ideas for future mapping developments.</p>
11:20	Numerical Analysis of Stent Delivery Systems during Pre- and Intraoperative Processes M. Geith (OTH Regensburg/TU Graz), Prof. G. Holzapfel (TU Graz/ Norwegian University of Science and Technology), K. Swidergal, T. Schratzenstaller, Prof. M. Wagner (OTH Regensburg)	
11:40	Characterization of Friction for Human Impact Simulation in Vehicle Crash Applications S. Dong (Ohio State University), A. Sheldon (Honda R&D Americas)	
12:00		
12:20	Mittagessen	



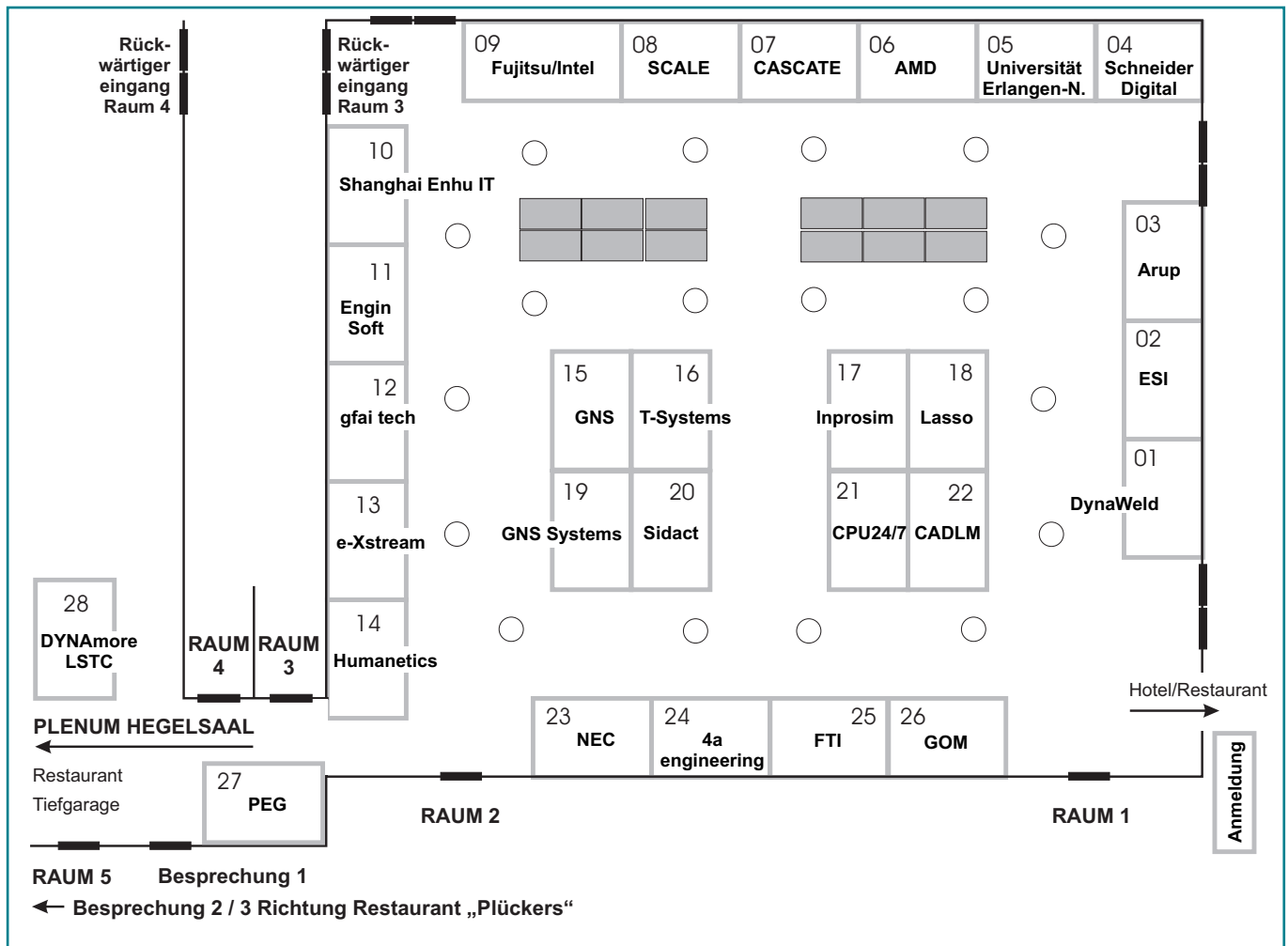
Bild mit freundlicher Genehmigung: Dr. Ing. h.c. F. Porsche AG

RAUMÜBERSICHT / HARD- UND SOFTWAREAUSSTELLUNG

Raumübersicht



Hard- und Softwareausstellung



Aussteller

Stand	Firma	Stand	Firma	Stand	Firma
24	4a engineering	11	Enginsoft	23	NEC
06	AMD	25	Forming Technologies	27	PEG
03	Arup	09	Fujitsu/Intel	08	SCALE
22	CADLM	12	gfai tech	10	Shanghai Enhu Information Technology
07	CASCATE	15	GNS	04	Schneider Digital
21	CPU 24/7	19	GNS Systems	20	Sidact
28	DYNAMore/LSTC	26	GOM	16	T-Systems
01	DynaWeld	14	Humanetics	05	Universität Erlangen-Nürnberg
02	ESI	17	Inprosim		
13	e-Xstream	18	Lasso		