

Einladung & Agenda

## 15. DEUTSCHES LS-DYNA FORUM

15. - 17. Oktober 2018, Bamberg

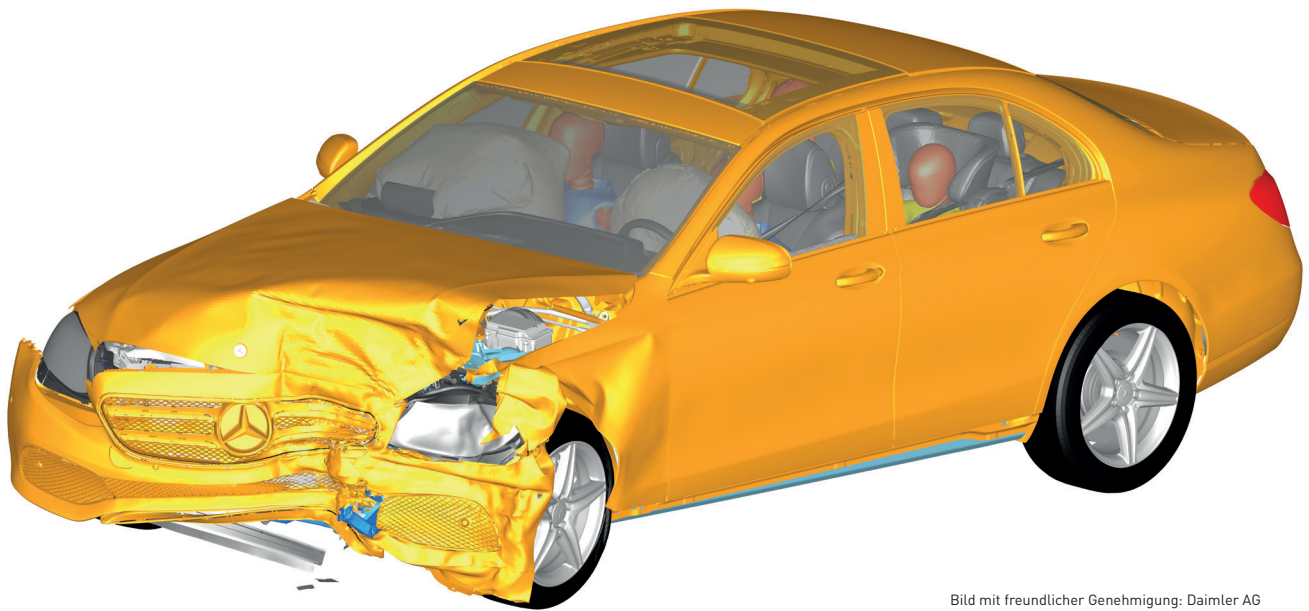


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PLATIN SPONSOREN

Liebe LS-DYNA Anwenderinnen und Anwender,

mit der Agenda des 15. Deutschen LS-DYNA Forums möchten wir Sie herzlich einladen, an der Konferenz in Bamberg teilzunehmen. Vom 15.-17. Oktober erwartet Sie wieder ein erstklassiges Vortragsprogramm rund um alle LS-DYNA Applikationen.

Mit über 100 Fachvorträgen ist das 15. Deutsche LS-DYNA Forum 2018 die perfekte Gelegenheit, um Wissen mit anderen Anwendern auszutauschen und neue Lösungsansätze zu diskutieren. Neben der hohen Qualität der Fachvorträge in vier parallelen Sessions zählen Keynote-Präsentationen von renommierten Sprecherinnen und Sprechern wie Dr. Silke Sommer (Fraunhofer IWM), Richard Sturt (Arup), Prof. Jörg Schröder (Univ. Duisburg-Essen), Prof. Pavel Hora (ETH Zürich), Dr. Markus Feucht (Daimler) und Dr. Frank Günther (Knorr-Bremse) zu den Höhepunkten der diesjährigen Konferenz.

Neben den Keynote-Vorträgen sind Beiträge von Entwicklern von LSTC und DYNAmore wichtiger Bestandteil der Veranstaltung. Außerdem stehen Ihnen die Mitarbeiter der DYNAmore GmbH für Fragen und mit Tipps und Tricks zur LS-DYNA Produktpalette zur Verfügung. Und auch die beliebten Workshops zu vielen unterschiedlichen Themen werden wieder angeboten. Die begleitende Soft- und Hardwareausstellung informiert ausführlich über aktuelle Entwicklungen in den Anwendungsfeldern von LS-DYNA und rundet das Programm der Konferenz ab.

Zudem bieten wir Ihnen konferenzbegleitende Seminare an, die von erfahrenen Dozenten gehalten werden und getrennt zu buchen sind. Konferenzteilnehmer erhalten 10% Ermäßigung auf die Schulungspreise. Mehr Informationen zu den Seminaren finden Sie am Ende dieser Agenda.

Wir hoffen, Ihr Interesse geweckt zu haben und freuen uns darauf, Sie in Bamberg zu begrüßen.

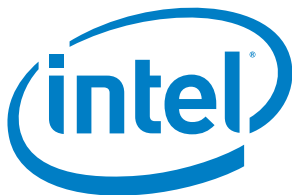
Ihre DYNAmore GmbH



Welcome Kongresshotel Bamberg

### SPONSOREN

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## Montag, 15. Oktober

	09:00 - 12:00 Uhr	Diskussion	Organisiert vom asc(s): Multi-Level-Optimization with FE-Substructures using LS-DYNA				
	ab 11:00 Uhr	Hotelfoyer	Registration				
Ausstellung	13:00 - 15:10 Uhr	Plenum	Keynote Presentations *				
	15:40 - 16:40 Uhr	Parallel	Crash Model Building	Occupant Safety I	Process - Metal Forming I	Cloud Computing and Services	
	17:10 - 18:10 Uhr	Parallel	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	Crash - Punctual Connections	Pedestrian Safety	Process - Metal Forming II	Simulation Data Management II	Workshop: Optimierung
	10:50 - 12:20 Uhr	Parallel	Crash - Materials, Processes, Failure	Topology and Form Optimization	Process - Welding Heat Treatment	Workshop: SDM	Workshop: VALIMAT/Impetus
	13:40 - 15:10 Uhr	Plenum	Keynote Presentations *				
	15:40 - 17:00 Uhr	Parallel	Crash - Railway Vehicles/Impact	Material Characterization	Process - Rolling and Bending	Simulation - Bolts and Delamination	Workshop: Primer
	17:30 - 18:30 Uhr	Parallel	Crash Road Safety	Optimization: Material, Statistics	Process - Forming and AM	Workshop: GNS Open Form	Workshop: Welding/Heat
	19:15 Uhr	Ausstellung	Sekttempfang in der Ausstellung				
	ab 20:00 Uhr	Hegelsaal	Abendveranstaltung im Hegelsaal				

## Mittwoch, 17. Oktober

Ausstellung	09:00 - 10:20 Uhr	Parallel	Fluid and Ice Structure Interact.	Materials - SFRP	Process - ARENA20136	Civil Engineering	Workshop: GISSMO
	11:00 - 12:20 Uhr	Parallel	Simulation - IGM/FE Techn.	Materials - Misc.	Fatigue and NVH	Biomedical	Workshop: Mapping Tool Envyo
	13:30 - 15:00 Uhr	Plenum	Keynote Presentations				
	15:00 Uhr	Plenum	Closing remarks				

\* Simultaneous translation into English.

# AGENDA – MONTAG, 15. OKTOBER 2018

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 **Sponsorenvortrag 1**
- 14:55 **Sponsorenvortrag 2**

15:10 **Pause**

PARALLEL

### CRASH MODEL BUILDING

### OCCUPANT SAFETY I

### 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. Bitsche (SCALE)
- 16:00 **The Role of LS-DYNA in the Design of the New London Electric Taxi**  
G. Newslands, J. Dennis, S. Hart (Arup)
- 16:20 **Enhanced Representation of the Complete Door Latch System in Side Impact Simulations**  
M. Graffe (Opel), O. Graf, D. Koch (DYNAmore)
- 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), 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)
- Einsatz von Umformsimulationen bei MAHLE Behr am Beispiel der Wellrippenherstellung  
A. Gehring, W. Kühnel (MAHLE Behr)
- Implizite Umformsimulation der wirkmedienbasierten Umformung ohne Formwerkzeug  
A. Metzger, D. C. Ruff, T. Ummerhofer (KIT)

16:40 **Pause**

PARALLEL

### CRASH LIGHTWEIGHT COMPOSITES

### OCCUPANT SAFETY II

### PROCESS METAL FORMING II

- 17:10 **Crashesimulation von Metall-Faserverbund-Sandwichmaterialien**  
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. – Holzverbundwerkstoffe für funktionale Fahrzeugstrukturen**  
T. Jost (Das virtuelle Fahrzeug), U. Müller (Univ. Wien), F. Feist (TU Graz), S. Hartmann (DYNAmore)
- Occupant Protection in Alternative Seating Positions  
Prof. M. Boin (Hochschule Ulm)
- A New Advanced THOR 5th Crash Test Dummy Finite Element (FE) LS-DYNA Model Development Representing Small Female Occupant  
F. Zhu, C. Shah (Humanetics)
- FLEX-PLI GTR Regulated Borderline LS-DYNA Finite Element (FE) Model Development  
F. Zhu, C. Shah (Humanetics)
- Modellierung und Optimierung von Ziehsicken mittels neuronaler Netze  
S. Leocata, T. Senner, H. Grass (BMW), Prof. A. Brosius (TU Dresden)
- Analyse der Spannungsmehrachsigkeit bei Experimenten zur Ermittlung des Formänderungsvermögens schergeschnittener Kanten von Stahlblechen  
M. Schneider, M. Teschner, S. Westhäuser (Salzgitter Mannesmann)
- Möglichkeiten, Herausforderungen und Risiken bei der Erstellung von Materialkarten für die Umformsimulation aktueller Stahlfeinbleche  
T. Beier, J. Gerlach, S. Sikora, L. Keßler (thyssenkrupp)

18:10 **Ende der Sessions**

19:15 **Get-together in der Ausstellung**



Pause

PARALLEL

**CLOUD COMPUTING AND SERVICES**

- 15:40 HPC in der Cloud – Moderne IT Architekturen effizient nutzen. Die Sicht eines unabhängigen Dienstleisters  
C. Woll (GNS Systems)
- 16:00 Pedestrian Protection App on Cloud  
n.n. (ESI Group)
- 16:20 Lizenz-Monitoring: Echtzeit-Analyse offenbart tatsächlichen Bedarf  
H. Köster (GNS Systems)

16:40 Pause

PARALLEL

**SIMULATION DATA MANAGEMENT I**

**WORKSHOP: MATERIAL**

- 17:10 Prospects of Integrating CAD and CAE in Simulation Data Management  
M. Thiele, D. Matthus, P. Friedrich (SCALE), C. Knebler (Audi)
  - 17:30 A Unified Environment for Collaborative CAE and Immersive Simulation Results' Processing  
A. Perifanis, S. Kleidarias (BETA CAE Systems)
  - 17:50 Solution for Evaluation, Assessment and Reporting of Simulation and Test Result Data  
G. Geißler, A. Kumar (SCALE)
- Implementierung einer Netzwerkschnittstelle in LS-DYNA zur gekoppelten Simulation  
S. Kriechenbauer (Fraunhofer IWU)

**Materialcharakterisierung**

The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts. The aim is to provide the attendees with insights, limits and merits of the topic. 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.

18:10 Ende der Sessions

19:15 Get-together in der Ausstellung

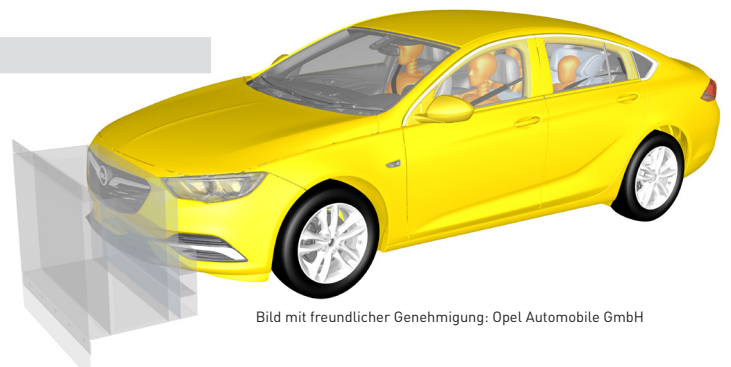


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# AGENDA – DIENSTAG, 16. OKTOBER 2018 – VORMITTAG

PARALLEL	CRASH PUNCTUAL CONNECTIONS	PEDESTRIAN SAFETY	PROCESS METAL FORMING III
09:00	Daten- und prognosebasierte Generierung von Modellparametern für die Crashesimulation mechanisch gefügter Verbindungen P. Rochel, S. Sommer (Fraunhofer IWM), A. Iwainy, D. Herfert, M. Günther (Gesellschaft zur Förderung angewandter Informatik), G. Meschut, D. Hein, P. Giese (Univ. Paderborn)	Herausforderungen der frühen virtuellen funktionalen Entwicklungsphase von Kunststoff- bauteilen in Low-Speed- und Fußgängerschutzlastfällen C. Kurzböck, M. Koplenig (Das virtuelle Fahrzeug), M. Groß (BMW), B. Fellner, H. Kassegger (Magna Steyr), T. Paier (ZKW Lichtsysteme)	DYNAFORM 6.0 High Lights J.-. Chen (ETA)
09:20	Numerische Analyse eines Blindnietmutter-Schraub-Systems mit Hilfe von LS-DYNA T. Nehls, N. Fuchs, M. Felsberg (Fraunhofer IGP), I. Lepenies (SCALE)	Recent Developments 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 A. Camberg, T. Tröster (Univ. Paderborn), A. Schneid, N. Sotirov, J. Tölle (Benteler)
09:40	Modeling of Joints with Plug Out Separation Modes by Utilizing Cohesive Shells for Full Vehicle Safety Models N. Pasligh (Ford), E. Ertugus (RWTH Aachen), T. Erhart (DYNAmore)	Comparison of Failure Stress Distributions in Automotive Windscreens by Experiment and Simulation C. Brokmann, Prof. S. Kolling (TH Mittelhessen)	Ermittlung und Optimierung von temperaturabhängigen Versagenskurven für hochfeste Aluminiumlegierungen im Hotforming-Prozess J. Schlosser, S. Mouchtar, R. Schneider, W. Rimkus (Hochschule Aalen), D. Harrison, M. Macdonald (Glasgow Univ.)
10:00	Ein „Non-Local“ Modellansatz für die Rissinitiierung an punktförmiger Fügetechnik ohne lokaler Netzanpassung T. Heubrandtner, K. Kunter, M. Koplenig (Das virtuelle Fahrzeug), T. Porsch (Volkswagen), B. Fellner (Magna Steyr), J.-D. Martinez (Audi)	Analyses on the Strain-Rate Dependent Fracture Behaviour of PMMA for Stochastic Simulations M. Berlinger, P. Schrader, Prof. S. Kolling (TH Mittelhessen)	Numerical Modeling of Single-Step Thermoforming of a Hybrid Metal/FRP Lightweight Structure J. Ziegs, D. Weck, M. Gude, M. Kästner (TU Dresden)
10:20	Pause		
PARALLEL	CRASH MATERIALS, PROCESS CHAIN, FAILURE	TOPOLOGY AND FORM OPTIMIZATION	PROCESS WELDING AND HEAT TREATMENT
10:50	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)	LS-TaSC Product Status/LS-TaSC 4: Designing for the Combination of Impact, Statics and NVH K. Witowski (DYNAmore), W. Roux (LSTC)	Recent Updates to the Structural Conjugate Heat Transfer Solver T. Kloeppel, P. Vogel (DYNAmore)
11:20	Linking Process & Product Simulation for Considering Local Material Properties in Crash Simulation B. Eck, G. Le Lan, R. Schaefer (Faurecia)	Efficient Analysis of Topological Sensitivities for Crash Problems using LS-DYNA Implicit K. Weider, Prof. A. Schumacher (Univ. Wuppertal)	Coupling of Material-, Heat Treatment- and Welding Processes as a Simulation Chain for Industrial Applications T. Loose, J. Prehm, J. Rohbrecht (DynaWeld), U. Diekmann, (Matplus)
11:40	News About the Add-on Failure and Damage Models in LS-DYNA T. Erhart (DYNAmore)	Aktuelle Schlüssel Herausforderungen in Topologie- und parametrischer Optimierung angehen : 1. wandeln Topologieoptimierung organisch anmutende Ergebnisse in 3D Flächengeometrie Modell um, 2. verwenden Substructuring 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“ J. Rohbrecht (DynaWeld)
12:00	Rissausbreitung im Crash – ein neuer Ansatz ohne lokale Feinvernetzung K. Kunter, T. Heubrandtner, M. Koplenig (Das virtuelle Fahrzeug), B. Fellner (Magna Steyr), J.-D. Martinez (Audi)	Shape Optimization of a Ground Vehicle for CFD Analysis using LS-OPT, ANSA and LS-DYNA ICFD K. Witowski (DYNAmore), F. Del Pin (LSTC)	Current LS-DYNA Developments in Thermal Radiation G. Blankenhorn, R. Grimes, F. Rouet (LSTC)
12:20	Mittagessen		

PARALLEL	SIMULATION DATA MANAGEMENT II	WORKSHOP: OPTIMIERUNG
09:00	<p><b>Advanced Results Databases Compression Techniques to Allow their Efficient Use in Results Data Management Systems</b> A. Perifanis, D. Siskos (BETA CAE Systems)</p>	<p><b>Optimierung mit LS-DYNA und LS-OPT</b></p> <p>The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts. 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>
09:20	<p><b>Pushing Storage and Bandwidth Requirements of SDM Towards Reasonable Levels</b> M. Büchse, M. Thiele (SCALE)</p>	
09:40	<p><b>Automatic Detection of Unexpected Crash Behaviour Parallel to Design Improvement Phases</b> C. Thole, L. Jansen, D. Borsotto (SIDACT)</p>	
10:00	<p><b>Analyzing Simulations with Machine Learning</b> C. Diez (Lasso)</p>	
10:20	Pause	
PARALLEL	WORKSHOP: SDM	WORKSHOP: VALIMAT/IMPETUS
10:50	<p><b>Simulation Data Management</b></p> <p>The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts. The aim is to provide the attendees with insights, limits and merits of the topic.</p>	<p><b>VALIMAT/Impetus</b></p> <p>The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts. The aim is to provide the attendees with insights, limits and merits of the topic.</p>
11:20	<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>	<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>
11:40		
12:00		
12:20	Mittagessen	



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# AGENDA – DIENSTAG, 16. OKTOBER 2018 – NACHMITTAG

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

### CRASH RAILWAY VEHICLES AND IMPACT

### MATERIAL CHARACTERIZATION

### PROCESS ROLLING AND BENDING

- 15:40 Crashesimulation in der Schienenfahrzeugindustrie  
A. Piasetzki (Bombardier)
- 16:00 Kurzzeitdynamische Stauchuntersuchungen an Absorberkomponenten aus GFK  
M. Holzapfel, M. Vinot, D. Fricke, M. Kaden (DLR)
- 16:20 Beam Modeling of Hydraulic Energy Absorbers\*  
P. Heinzl, G. Gough, R. Graf (Siemens), C. Schmied (DYNAmore)
- 16:40 Experimentelle und numerische Untersuchung von schlagbelasteten Aramidgewebeverbunden  
M. Mehrkens, D. John (imk automotive)
- 17:00
- 17:00
- 17:00
- 17:30
- 17:50
- 17:50
- 18:10
- 19:15
- 20:00

Pause

PARALLEL

### CRASH ROAD SAFETY

### OPTIMIZATION: MATERIAL PARAMETERS & STATISTICAL CLASSIFIERS

### PROCESS - FORMING AND ADDITIVE MANUFACTURING

- 17:30 Crash-Simulation von Fahrzeugen an Schutzeinrichtungen der Straße  
B. Fröhlich (Bundesanstalt für Straßenwesen)
- 17:50 Robustheitsbewertung von unterschiedlicher Anprallsituation für einen Sicherheitsleitplanke an Straßen  
J. Drozda, R. Schlegel (Dynardo); T. Rotter (TU Prag)
- 17:50
- 18:10
- 19:15
- 20:00

Ende der Sessions

Sektempfang in der Ausstellung

Abendveranstaltung im Hegelsaal





PARALLEL

**SIMULATION - BOLT MODELING AND DELAMINATION**

- 15:40 **CAE Bolt Assessment in Car Seat Structures**  
S. Sinne, P. Partheymüller, J. Gehrlich (Brose)
  
- 16:00 **Modeling Bolts in LS-DYNA Using Explicit and Implicit Time Integration**  
N. Karajan, A. Gromer (DYNAmore), T. Borrvall (DYNAmore Nordic), K. Pydimarry (Honda)
  
- 16:20 **Demokratisierung komplexer CAE Methoden mit Hilfe von Power Apps**  
J. Friebe, D. Franke (ISKO engineers)
  
- 16:40 **Modelling of a Traditional Bow and Arrow - Material Modelling and Dynamic Simulation**  
G. Baumann, F. Feist, G. Schickhofer, S. Zimmer (TU Graz)

**WORKSHOP: PRIMER**

**Preprocessor Primer**

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17:00 **Pause**

PARALLEL

**WORKSHOP: OPEN FORM**

**GNS Open Form**

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**WORKSHOP: WELDING/HEAT**

**Welding & Heat Treatment**

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18:10 **Ende der Sessions**

19:15 **Sektempfang in der Ausstellung**

20:00 **Abendveranstaltung im Hegelsaal**

# AGENDA – MITTWOCH, 17. OKTOBER 2018

PARALLEL	FLUID-STRUCTURE AND ICE-STRUCTURE INTERACTION	MATERIALS - SHORT FIBER REINFORCED POLYMERS	PROCESS ARENA 2036
09:00	<b>Washing Machine Outlet Hose Analysis in Full Water Condition using SPH Elements</b> C. Desai, S. Vishwakarma (Whirlpool of India)	<b>Multi-Scale Material Modeling Applied from Specimen to Full Car Level</b> S. Calmels, P. Hebert (e-Xstream Engineering)	<b>ARENA2036 &amp; the Digital Prototype: Introduction and Overview</b> C. Liebold (DYNAmore)
09:20	<b>FSI Hood Flutter</b> L. Rovira Crespo, J. Dilworth, P. Young (Arup)	<b>Influence Parameters on the Behaviour of Short Fibre Reinforced Polyamide with Focus on Humidity and Integrative Simulation</b> S. Seichter, R. Steinberger, S. Ilincic (Hirtenberger), W. Hahn (Hilti), M. Morak (PCCL), P. Reithofer (4a engineering)	<b>Textile Process Simulation for the Digital Simulation Chain</b> H. Finckh (DITF)
09:40	<b>Advanced Numerical Model for Viscous Friction of Rough Rubber and Smooth Ice</b> R. Leonardi, A. Scattina (Politecnico di Torino), S. Scalera (DYNAmore Italy)	<b>*MAT_4A_MICROMECH: Generating Material Card and Considering Fiber Orientation</b> P. Reithofer, A. Fertschej, B. Jilka (4a engineering)	<b>Infiltration Simulation and Virtual Permeability Determination for the Digital Prototype</b> J. Dittmann (Univ. Stuttgart)
10:00	<b>Simulation der Struktur-Eis-Interaktion mit CZM-Elementen</b> H. Herrnring, L. Kellner, J. M. Kubiczek, S. Ehlers (TU Hamburg)	<b>Der Einfluss auf LS-DYNA-Resultate durch die Kopplung mit der Spritzgussimulation</b> T. Schäfer, C. Hinse (SimpaTec)	<b>A Multiscale Strategy for the Simulation of Braided Composites with Envyo</b> M. Vinot, M. Holzapfel (DLR)
10:20	Pause		
PARALLEL	SIMULATION - ISOGEOMETRIC AND FE TECHNOLOGY	MATERIALS - ORTHOTROPIC PLASTICITY, DAMAGE, FAILURE	FATIGUE AND NVH
11:00	<b>Explicit Isogeometric Crash Analysis on Trimmed NURBS-Based Multi-Patch CAD Models in LS-DYNA</b> L. Leidinger (BMW Group and TU München), M. Breitenberger, A. M. Bauer, R. Wüchner, Prof. K. U. Bletzinger, Prof. F. Duddeck (TU München), S. Hartmann (DYNAmore), L. Song (BMW)	<b>A Hosford-Based Orthotropic Plasticity Model in LS-DYNA</b> F. Andrade (DYNAmore), T. Borrvall (DYNAmore Nordic), P. DuBois (Consultant), M. Feucht (Daimler)	<b>Updated Fatigue Analysis with LS-DYNA</b> Y. Huang, Z. Cui (LSTC)
11:20	<b>Sheet Metal Forming Simulation with IGA in LS-DYNA</b> S. Hartmann (DYNAmore)	<b>On the Development of a New Generalized Orthotropic Damage and Fracture</b> n.n. (DYNAmore)	<b>Analyse der Korrelation zwischen dem Ermüdungsverhalten Remote-Laser-geschnittener Faserkunststoffverbunde und der Prozessführung</b> B. Schmidt, Prof. M. Kästner (TU Dresden), M. Rose, Prof. M. Zimmermann (Fraunhofer IWS)
11:40	<b>A Study on the New Higher-Order Solid Elements in LS-DYNA</b> C. Schmied, T. Erhart (DYNAmore)	<b>Nonlocal Damage and Failure Options in LS-DYNA</b> G. Blankenhorn, J. Wang, L. Bindeman (LSTC), T. Erhart (DYNAmore)	<b>Direct Steady State Dynamic (SSD) Analysis with LS-DYNA</b> Y. Huang, Z. Cui, F.-H. Rouet, C. Ashcraft (LSTC)
12:00	<b>Optimierung der Newmark-Euler-Zeit-integrationsparameter für eine stabile und effiziente implizite Simulation rotierender elastischer Strukturen</b> M. Kober, A. Kühhorn (BTU Cottbus-Senftenberg), A. Keskin (Rolls-Royce)	<b>A Modified In-Plane Constitutive Model for Paperboard</b> M. Pfeiffer, Prof. S. Kolling (TH Mittelhessen), P. Stein, W. Franke (TU Darmstadt)	
12:20	Mittagessen		
PLENUM	KEYNOTE-VORTRÄGE		
13:30	<b>Simulation for Gaudi's Sagrada Familia Basilica, Barcelona</b> R. Sturt (Arup)		
14:00	<b>LS-OPT: Status and Outlook</b> N. Stander (LSTC)		
14:30	<b>Recent Developments - Part II</b> J. Wang (LSTC)		
15:00	<b>Closing remarks</b> T. Münz (DYNAmore)		

PARALLEL	CIVIL ENGINEERING	WORKSHOP: GISSMO
09:00		<b>GISSMO Versagensmodelle</b>
09:20	<b>How to make a Virtual Twin of a Complex Slender Structure like a High Voltage Transmission Tower?</b> Prof. T. Tryland (SINTEF Raufoss)	The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts. The aim is to provide the attendees with insights, limits and merits of the topic. 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.
09:40	<b>Finite Element Modeling of Long-Span Steel Suspension Bridges in Civil Engineering</b> Prof. S. A. Kilic (Bogazici Univ.), H. J. Raatschen (FH Aachen), B. Körfgen (Jülich Supercomputing Centre)	
10:00	<b>Blast Response of Slabs in Reinforced Concrete Buildings</b> G. Yazici (Istanbul Kultur Univ.), Prof. S. A. Kilic (Bogazici Univ.)	
10:20	Pause	
PARALLEL	BIOMEDICAL	WORKSHOP: ENVYO
11:00	<b>FEM-Simulation von Stoßbelastungen am menschlichen Körper: Methodik zur Entwicklung von Gewebemodellen</b> Z. Wang, R. Behrens, N. Elkmann (Fraunhofer IFF)	<b>Mapping Tool Envyo</b>
11:20	<b>Model Reduction Techniques for On-board and Parametric Crash and Safety Simulations</b> Prof. K. Kayvantash (CADLM)	The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts. The aim is to provide the attendees with insights, limits and merits of the topic. 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.
11:40	<b>Numerical Analysis of Stent Delivery Systems during Pre- and Intraoperative Processes</b> M. Geith, Prof. G. Holzapfel (TU Graz), K. Swidergal, T. Schratzenstaller, Prof. M. Wagner (OTH Regensburg)	
12:00		
12:20	Mittagessen	



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

## BEGLEITENDE SEMINARE (ENGLISCHSPRACHIG)

### Introduction to Welding Simulation

Date: 18 October  
 Course fee: 525,- €\*  
 Location: Bamberg  
 Lecturers: Dr. Thomas Klöppel (DYNAmore)  
 Website: [www.dynamore.de/welding](http://www.dynamore.de/welding)

Due to recent developments in LS-DYNA, the complete welding process can be captured. In this regard, the numerical simulation can be performed in several stages where, for instance, the cooling process as well as the associated warping of the structural components can be computed after each welding stage. Moreover, the choice of a suitable material law also allows considering microstructural transformations in the welding zone itself or in the heat-affected zone.

The aim of this seminar is to give the participants a brief introduction to the thermomechanical coupled simulation with LS-DYNA. Herein, the required forms of heat sources and transfer for a successful welding simulation will be discussed and their definition in LS-DYNA is shown.

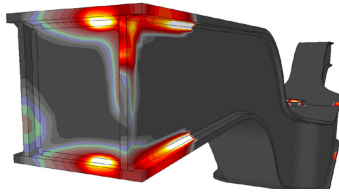
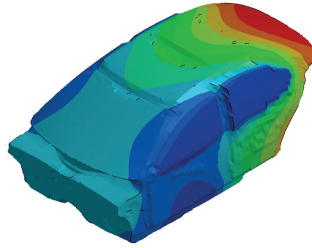


Bild mit freundlicher Genehmigung: DynaWeld

### NVH and Frequency Domain Analysis with LS-DYNA

Date: 18 October  
 Course fee: 550,- €\*  
 Location: Bamberg  
 Lecturer: Dr. Yun Huang (LSTC)  
 Website: [www.dynamore.de/nvh-e](http://www.dynamore.de/nvh-e)

In this seminar, an overview is given on the acoustic and frequency domain vibration features of LS-DYNA. It will particularly focus on the application of these features in vehicle NVH simulation.



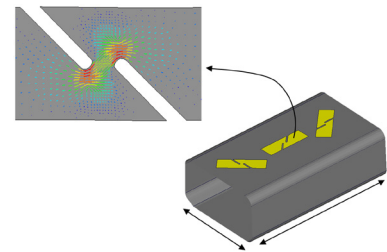
The seminar addresses engineers and researchers who are working in the area of vehicle NVH, aircraft/spacecraft vibro-acoustics, engine noise simulation, machine vibration testing and simulation, etc. All required knowledge to run these simulation problems with LS-DYNA will be presented in detail.

### Advanced Damage Modeling: Orthotropic Materials

Date: 18 October  
 Course fee: 525,- €\*  
 Location: Bamberg  
 Lecturers: Dr. Filipe Andrade (DYNAmore)  
 Website: [www.dynamore.de/ortho-e](http://www.dynamore.de/ortho-e)

This one-day course is intended for engineers and researchers who already have relevant experience in the area of material damage and failure. The main goal of this class is therefore to present the current modeling capabilities of LS-DYNA regarding the simulation of complex degradation phenomena typically observed in materials that are used in industrial applications.

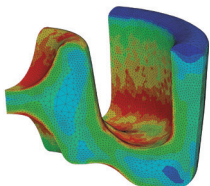
In this class some important concepts regarding orthotropic and anisotropic damage are reviewed as well as typical modeling approaches found in the literature. Advanced damage models implemented in LS-DYNA are then presented in detail. In particular, attention is devoted to the modular damage/failure model in \*MAT\_ADD\_GENERALIZED\_DAMAGE for which some simple application examples are shown.



### Introduction to SPG Method for Manufacturing and Material Failure Analysis

Date: 18 October  
 Course fee: 550,- €\*  
 Location: Bamberg  
 Lecturer: Youcai Wu (LSTC)  
 Website: [www.dynamore.de/spg-method](http://www.dynamore.de/spg-method)

This one-day class will introduce the smoothed particle Galerkin (SPG) method and its application in manufacturing and material failure analysis. The SPG method is developed for modeling large deformation and material failure in semi-brittle and ductile materials in three-dimensional solid structures, in which a bond-based failure mechanism is utilized to model material failure.



This method can be used to bridge the Lagrangian FEM and is exclusively available in LS-DYNA. The class will provide the fundamental background, LS-DYNA keywords, practical applications (in analyzing relatively low speed manufacturing processes such as metal cutting, FDS, SPR and high velocity impact penetration on concrete and metal targets) with some experimental validations and latest developments.

### Methods for Simulating Short Duration Events

Date: 18 - 19 October  
 Course fee: 1.200,- €\*  
 Location: Bamberg  
 Lecturers: Paul Du Bois (Consultant);  
 Dr. Len Schwer (Schwer Consulting)  
 Website: [www.dynamore.de/sde](http://www.dynamore.de/sde)

This two day class provides instruction on the selection and use of the LS-DYNA solvers used for analyzing blast and penetration related problems. It addresses experienced LS-DYNA analysts of typical Lagrange analyses.

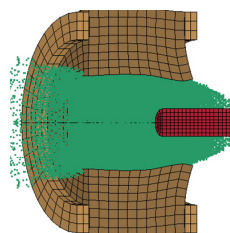


Bild mit freundlicher Genehmigung: Schwer Engineering

The training class will provide understanding required to make appropriate LS-DYNA modeling decisions and convey the level of confidence in predictive simulation results. Insights into modeling and simulation are illustrated through simple examples and numerous modeling 'tricks' and options are discussed. An emphasis is placed on modeling techniques, guidelines for which technique(s) to select, which techniques work well and when, and possible pitfalls in modeling choice selections.

### Blast Modeling with LS-DYNA

Date: 22 - 23 October  
 Course fee: 1.200,- €\*  
 Location: Stuttgart  
 Lecturers: Paul Du Bois (Consultant);  
 Dr. Len Schwer (Schwer Consulting)  
 Website: [www.dynamore.de/blast-e](http://www.dynamore.de/blast-e)

LS-DYNA is unique in offering analysts the choice of Lagrange, Eulerian (ALE) and Simple Engineering solvers, and a combination of these solvers. One example is simulating high energy events such as blast loading. In addition to air blast, the traditional focus of blast modeling has recently become important.



Bild mit freundlicher Genehmigung: Schwer Engineering

This class focuses on the application of LS-DYNA for the simulation of high energy events. Methods of analysis and modeling with LS-DYNA are illustrated through simple case studies. However, this training class is not a substitute for the in-depth treatments presented in the associated LS-DYNA training class, i.e. "ALE/Eulerian and Fluid Structure Interaction".

## LS-OPT – Introduction and Optimization

Date: 22 - 24 October  
 Course fee: 1.575,- €\*  
 Location: Stuttgart  
 Lecturer: Katharina Witowski (DYNAmore)  
 Website: [www.dynamore.de/lsopt-e](http://www.dynamore.de/lsopt-e)

LS-OPT is an independent, comprehensive optimization program from LSTC. It is ideal for solving strongly non-linear optimization problems and is highly suitable for use in combination with LS-DYNA or any other solver. LS-OPT functions on the basis of a special, highly effective response surface method.

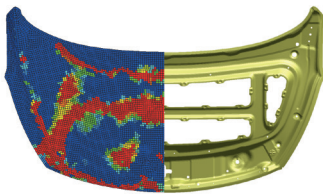


Bild mit freundlicher Genehmigung:  
Hyundai Motor Company

The program also includes stochastic methods for assessing the robustness of FE models and illustrating dependencies between optimization variables and desired values. Input from the user is supported by a comfortable graphical user interface. The seminar gives an introduction to the program LS-OPT. General theoretical aspects of the Response Surface Method are discussed and the possibilities of applying this method in LS-OPT are especially explained.

## Penetration Modeling with LS-DYNA

Date: 24 - 25 October  
 Course fee: 1.200,- €\*  
 Location: Stuttgart  
 Lecturers: Paul Du Bois (Consultant);  
 Dr. Len Schwer (Schwer Consulting)  
 Website: [www.dynamore.de/penetration-e](http://www.dynamore.de/penetration-e)

In addition to high energy events, penetration events are typically associated with large deformations, damage, and failure both on the material and structural level. During the past decade successful modeling of such damage and failure has moved steadily from a "Black Art" to a widely accepted engineering practice.

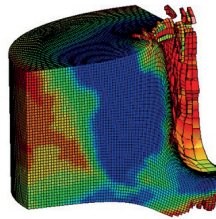


Bild mit freundlicher Genehmigung:  
French-German Research Institute of Saint-Louis (ISL)

This class focuses on the application of LS-DYNA and provides analysis methods and modeling techniques, which are illustrated through simple case studies. However, this training class is not a substitute for the in-depth treatments presented in the associated LS-DYNA training classes, i.e. "ALE/Eulerian and Fluid Structure Interaction" and "Smoothed Particle Hydrodynamics (SPH) in LS-DYNA", respectively.

## Explosives Modeling for Engineers

Date: 26 October  
 Course fee: 600,- €\*  
 Location: Stuttgart  
 Lecturers: Paul Du Bois (Consultant);  
 Dr. Len Schwer (Schwer Consulting)  
 Website: [www.dynamore.de/explosives-e](http://www.dynamore.de/explosives-e)

LS-DYNA simulations involving explosives can be modeled on several engineering levels from simple application of equivalent pressure histories via \*LOAD\_BLAST\_ENHANCED, explicit inclusion of explosive charges using Equations-of-State and detonation via \*INITIAL\_DETONATION, detonation of explosive due to impact using \*EOS\_IGNITION\_AND\_GROWTH\_OF\_REACTION\_IN\_HE.

This training class is intended for the experienced LS-DYNA analyst associated with typical Lagrange and Multi-Material Arbitrary Lagrange Eulerian (MM-ALE) analysis. The training class will provide the analyst with the understanding required to model explosives for a range of applications in LS-DYNA.

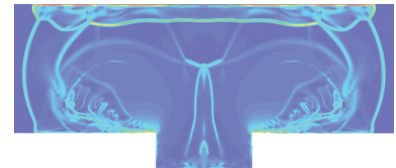


Bild mit freundlicher Genehmigung:  
Rheinmetall Landsysteme GmbH

\* 10% Ermäßigung für Forumteilnehmer.

Alle Preise zzgl. ges. MwSt.

In den Teilnahmegebühren inbegriffen sind Kursunterlagen, Mittagessen und Pausengetränke.

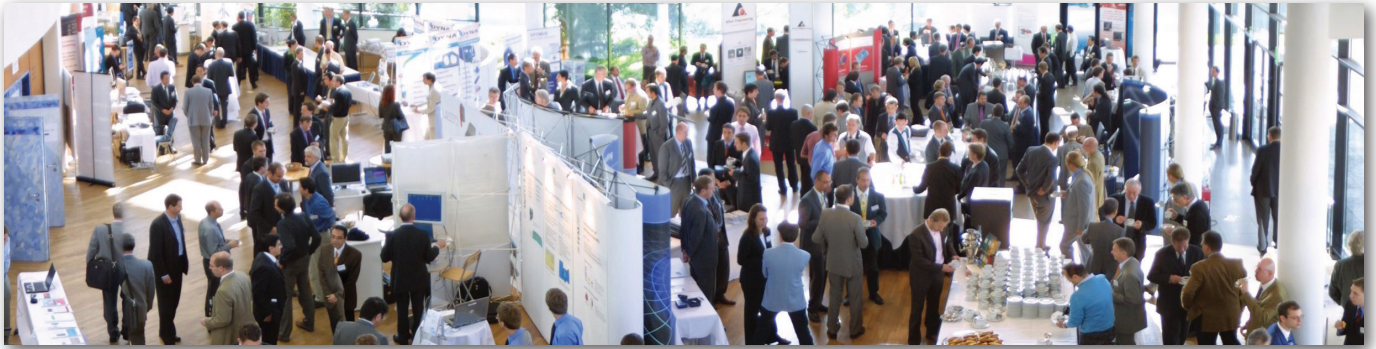
Online-Anmeldung:

[www.dynamore.de/seminare](http://www.dynamore.de/seminare)



Panorama Bamberg (Quelle: Siegol)

## Hard- und Softwareausstellung



4a engineering	Enginsoft	GOM	Schneider Digital
Arup	Fujitsu/Intel	Inprosim	Sidact
CASCATE	gfai tech	Lasso	T-Systems
DynaWeld	GNS	SCALE	Universität Erlangen-Nürnberg
e-Xstream	GNS Systems	Shanghai Enhu Information Technology	...

Stand: Juli 2018

## Organisation

### Veranstaltungsort

Das speziell für Kongresse und Tagungen konzipierte Welcome Kongresshotel Bamberg erwartet Sie mit eindrucksvoller Architektur. Dank der Lage direkt am Regnitzufer erreicht man die historische Altstadt von Bamberg in wenigen Gehminuten.

Adresse:

Welcome Kongresshotel Bamberg  
Mußstraße 7  
96047 Bamberg



### Bamberg

Seit 1993 steht die Bamberger Altstadt auf der Liste des UNESCO-Weltkulturerbes. Die Stadt wuchs kontinuierlich um einen mittelalterlichen Kern und weist heute einen der größten unversehrt erhaltenen Altstadtkerne Europas auf.

### Hotelzimmer

Ein Zimmerkontingent mit reduzierten Preisen ist für Sie unter dem Stichwort „LS-DYNA Forum“ im Tagungshotel bis zum 2. September reserviert. Bitte buchen Sie Ihr Zimmer online im Kongresshotel über unsere Konferenzwebseite [www.dynamore.de/forum2018](http://www.dynamore.de/forum2018).

### Teilnahmegebühren

Industrie: 600,- €

Hochschule: 430,- €

Preise zzgl. ges. MwSt. In den Teilnahmegebühren inbegriffen sind die Teilnahme an der Konferenz, der Konferenzband, der Konferenz USB-Stick, die Teilnahme an den Abendveranstaltungen, Mittagessen und Pausengetränke.

### Stornierungsbedingungen

Bei Absage des Teilnehmers

- bis einen Monat vor Konferenzbeginn: kostenfrei

- bis zwei Tage vor Konferenzbeginn: 50%

Ab zwei Tagen und bei Nichterscheinen: 100%

Ersatzteilnehmer können gestellt werden.

### Hard- und Softwareausstellung

Bitte fordern Sie weitere Informationen an, falls Sie Interesse haben, an der Ausstellung teilzunehmen.

### Konferenzsprache

Deutsch und Englisch. Die Plenarvorträge am Montag und Dienstag werden simultan ins Englische übersetzt.

### Kontakt und Anmeldung

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E-Mail: [forum@dynamore.de](mailto:forum@dynamore.de)

### Anmeldung / Bestätigung

Bitte melden Sie sich mit dem Anmeldeformular, per E-Mail an [forum@dynamore.de](mailto:forum@dynamore.de) oder online unter [www.dynamore.de/forum2018](http://www.dynamore.de/forum2018). Sie erhalten eine Anmeldebestätigung.

### Weitere Informationen zur Tagung

[www.dynamore.de/forum2018](http://www.dynamore.de/forum2018)

Bitte ausfüllen und faxen an: +49 (0) 7 11 - 45 96 00 - 29  
 oder kopieren und per Post an: DYNAMore GmbH, Industriestr. 2, D-70565 Stuttgart  
 oder scannen und per E-Mail an: forum@dynamore.de

**Anmeldung zum 15. Deutschen LS-DYNA Forum, 15. - 17. Oktober 2018, Bamberg:**

- Industrie: 600,- €  
 Hochschule: 430,- €

**Pre-Conference Workshop:**

- Anmeldung zum kostenlosen asc(s) Pre-Conference Workshop am 15. Oktober von 9:00 - 12:00 Uhr in Bamberg.

**Anmeldung zu folgenden Seminaren:**

	Datum	Gebühr (*)	Ort
<input type="checkbox"/> Introduction to Welding Simulation	18. Okt.	525,- €*	Bamberg
<input type="checkbox"/> NVH and Frequency Domain Analysis with LS-DYNA	18. Okt.	550,- €*	Bamberg
<input type="checkbox"/> Advanced Damage Modeling: Orthotropic Materials	18. Okt.	525,- €*	Bamberg
<input type="checkbox"/> Introduction to SPG Method for Failure Analysis	18. Okt.	550,- €*	Bamberg
<input type="checkbox"/> Methods for Simulating Short Duration Events	18.-19. Okt.	1.200,- €*	Bamberg
<input type="checkbox"/> Blast Modeling with LS-DYNA	22.-23. Okt.	1.200,- €*	Stuttgart
<input type="checkbox"/> LS-OPT – Introduction and Optimization	22.-24. Okt.	1.575,- €*	Stuttgart
<input type="checkbox"/> Penetration Modeling with LS-DYNA	24.-25. Okt.	1.200,- €*	Stuttgart
<input type="checkbox"/> Explosives Modeling for Engineers	26. Okt.	600,- €*	Stuttgart

- Ich bin damit einverstanden, dass DYNAMore mir Informationen rund um um LS-DYNA und zu kommenden Veranstaltungen zusendet. Die Zusage kann jederzeit schriftlich oder telefonisch bei der DYNAMore GmbH widerrufen werden.**

\* 10% Ermäßigung für Forumteilnehmer.

**Absender**

Firma/Hochschule: \_\_\_\_\_

Abteilung/Institut: \_\_\_\_\_

Titel, Vorname: \_\_\_\_\_

Nachname: \_\_\_\_\_

Straße: \_\_\_\_\_

PLZ, Ort: \_\_\_\_\_

Land: \_\_\_\_\_

Tel.: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Datum: \_\_\_\_\_ Unterschrift: \_\_\_\_\_

[Online-Anmeldung für Teilnehmer unter unter www.dynamore.de/forum2018](http://www.dynamore.de/forum2018)

Datenschutz und wettbewerbsrechtliche Einwilligungserklärung:  
 Mit Ihrer Anmeldung gestatten Sie uns die Nutzung und das Verarbeiten Ihrer Daten für die Konferenzorganisation.

Alle Preise zzgl. ges. MwSt.



DYNAMore Gesellschaft für FEM Ingenieurdienstleistungen mbH

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