LSTC Livermore Software Technology Corp.

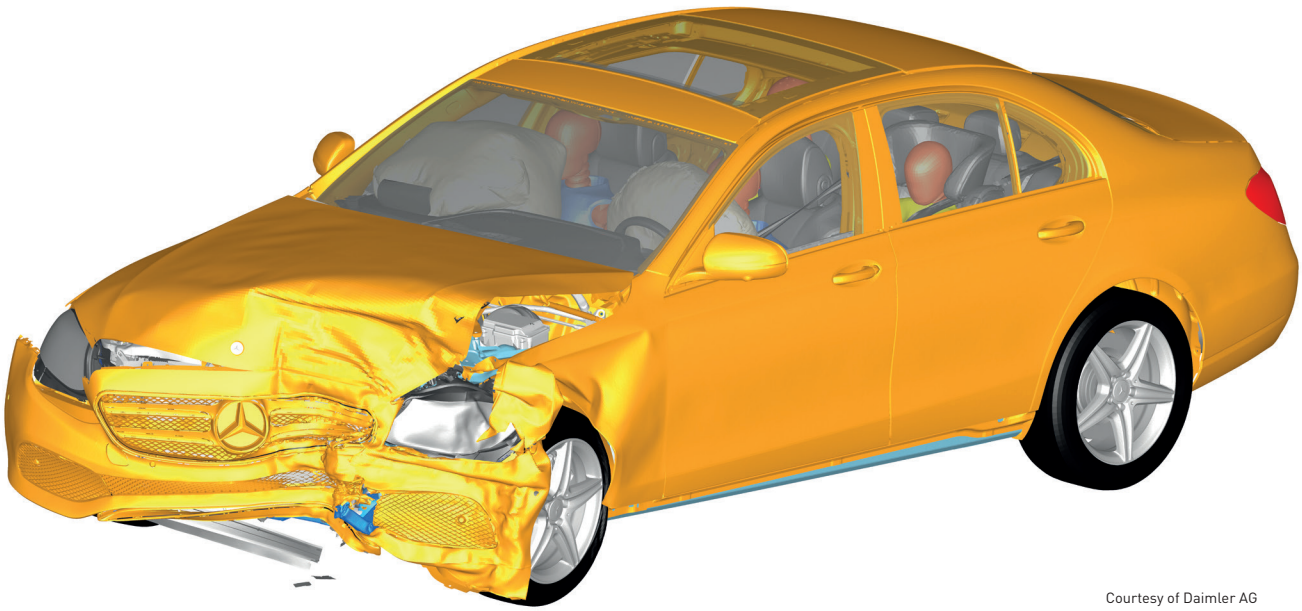
DYNA MORE

Presentations in German & English

Invitation & Agenda

15th GERMAN LS-DYNA FORUM

15 - 17 October 2018, Bamberg, Germany



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Dear LS-DYNA user community,

We would like to cordially invite you to the 15th German LS-DYNA Forum from 15 – 17 October in Bamberg, Germany. You can expect numerous top-class presentations from industry and academia, renowned keynote speakers and interesting workshops.

Thanks to the top-class program, the event is the ideal platform to share own experiences and insights around LS-DYNA, LS-OPT and the corresponding CAE process chains with other users. It's best to register right away. We look forward to your participation.

More than 100 presentations at the 15th German LS-DYNA Forum 2018 are the perfect opportunity to exchange knowledge with other users and discuss new solutions. In addition to excellent technical presentations in four parallel sessions, keynote-presentations by renowned speakers such as Dr. Silke Sommer (Fraunhofer IWM), Richard Sturt (Arup), Prof. Jörg Schröder (Duisburg-Essen University), Dr. Markus Feucht and Dr. Frank Günther (Knorr Bremse) are among the highlights of this year's event.

Welcome Kongresshotel Bamberg

Also contributions from developers from LSTC and DYNAmore will be an important part of the event. The employees of DYNAmore GmbH will be available to answer your questions and provide tips and tricks on the LS-DYNA product range. And also the popular workshops on many different topics will be offered again. The accompanying software and hardware exhibition informs in detail about current developments around LS-DYNA rounds off the program of the conference.

We are glad to offer conference-accompanying seminars, which are held by experienced lecturers and can be booked separately. Conference attendees receive a 10% discount on training prices. Please find the topics in our seminar calendar. The conference languages are German and English. Keynote presentations on Monday and Tuesday will be simultaneously translated into English language. Most slides of the presentation will be in English.

We hope to have aroused your interest and look forward to welcoming you in Bamberg.

Sincerely yours

DYNAmore GmbH

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Monday, 15 October

	09:00 - 12:00	Pre-conference	asc(s Workshop: Multi-Level-Optimization with FE-Substructures using LS-DYNA
	starting 11:00	Hotel foyer	Registration
Exhibition	13:00 - 15:10	Plenary	Keynote Presentations *
Exhibition	15:40 - 16:40	Parallel	Crash Model Building / Occupant Safety I / Process - Metal Forming I / Cloud Computing and Services
Exhibition	17:10 - 18:10	Parallel	Crash - Leight-weight Composites / Occupant Safety II / Process - Metal Forming II / Simulation Data Management I / Workshop: Materials
Exhibition	starting 19:15	Exhibition	Get-together in the exhibition

Tuesday, 16 October

	starting 07:30	Running LS-DYNA	Bring your Running Shoes
Exhibition	09:00 - 10:20	Parallel	Crash - Punctual Connections / Pedestrian Safety / Process - Metal Forming II / Simulation Data Management I / Workshop: Optimization
Exhibition	10:50 - 12:20	Parallel	Crash - Materials, Processes, Failure / Topology and Form Optimization / Process - Welding Heat Treatment / Workshop: SDM / Workshop: VALIMAT/Impetus
Exhibition	13:40 - 15:10	Plenary	Keynote Presentations *
Exhibition	15:40 - 17:00	Parallel	Crash - Railway Vehicles/Impact / Material Characterization / Process - Rolling and Bending / Simulation - Bolts and Delamination / Workshop: Primer
Exhibition	17:30 - 18:30	Parallel	Crash Road Safety / Optimization: Material, Statistics / Process - Forming and AM / Workshop: GNS Open Form / Workshop: Welding/Heat
Exhibition	19:15	Exhibition	Reception in the exhibition hall
Exhibition	starting 20:00	Hegelsaal	Gala dinner in the Hegelsaal

Wednesday, 17 October

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

* Simultaneous translation into English.

AGENDA – MONDAY, 15 OCTOBER 2018

PLENUM

KEYNOTE PRESENTATIONS

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 Crashsimulation***
M. Feucht (Daimler)

14:40 **Sponsor presentation 1**

14:55 **Sponsor presentation 2**

15:10 Coffee break

PARALLEL

	CRASH MODEL BUILDING	OCUPANT SAFETY I	PROCESS METAL FORMING I
15:40	**Facing Future Challenges in Crash Simulation Engineering – Model Organization, Quality and Management at Porsche** M. Koch (Porsche), S. Mattern (DYNAmore), R. Bitsche (SCALE)	**Recent Airbag CPM Enhancement** J. Wang (LSTC)	**Aspekte bei der Modellierung mehrstufiger Umformprozesse mit expliziten und impliziten Methoden** M. Fleischer, I. Heinle, H. Grass, J. Meinhardt, J. M. Saubiez (BMW)
16:00	**The Role of LS-DYNA in the Design of the New London Electric Taxi** G. Newslands, J. Dennis, S. Hart (Arup)	**Scalability Study of Airbag Particle Method with Dynamic Load Balancing** H. Teng (LSTC)	**Einsatz von Umformsimulationen bei MAHLE Behr am Beispiel der Wellrippenherstellung** A. Gehring, W. Kühnel (MAHLE Behr)
16:20	**Enhanced Representation of the Complete Door Latch System in Side Impact Simulations** M. Graffe (Opel), O. Graf, D. Koch (DYNAmore)	**IIHS Side Impact Evaluations** S. Arnold-Keifer, Prof. S. Weihe, F. Panzer (Univ. of Stuttgart), S. Kan, Prof. R. Reichert (George Mason Univ.)	**Implizite Umformsimulation der wirkmedienbasierten Umformung ohne Formwerkzeug** A. Metzger, D. C. Ruff, T. Ummenhofer (KIT)

16:40 Coffee break

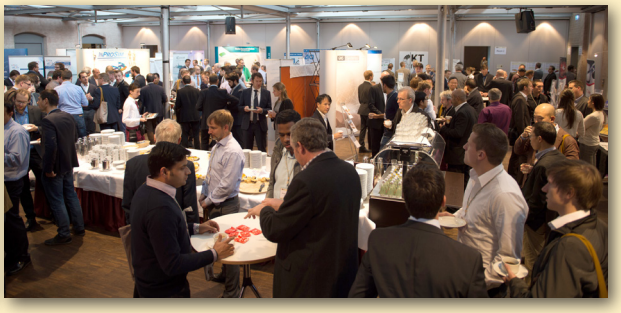
PARALLEL

	CRASH LEIGHTWEIGHT COMPOSITES	OCUPANT SAFETY II	PROCESS METAL FORMING II
17:10	**Crashsimulation von Metall-Faserverbund-Sandwichmaterialien** T. Schulte, L. Eckstein (RWTH Aachen), K. Seidel (fka)	**Occupant Protection in Alternative Seating Positions** Prof. M. Boin (Hochschule Ulm)	**Modellierung und Optimierung von Ziehsicken mittels neuronaler Netze** S. Leocata, T. Senner, H. Grass (BMW), Prof. A. Brosius (TU Dresden)
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)	**A New Advanced THOR 5th Crash Test Dummy Finite Element (FE) LS-DYNA Model Development Representing Small Female Occupant** F. Zhu, C. Shah (Humanetics)	**Analyse der Spannungsmehrachsigkeit bei Experimenten zur Ermittlung des Formänderungsvermögens schergeschnittener Kanten von Stahlblechen** M. Schneider, M. Teschner, S. Westhäuser (Salzgitter Mannesmann)
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)	**FLEX-PLI GTR Regulated Borderline LS-DYNA Finite Element (FE) Model Development** F. Zhu, C. Shah (Humanetics)	**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 End of sessions

19:15 Get-together in the exhibition (food, drinks and live music)

Program subjected to alterations * subjected to approval



Coffee break

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 Coffee break

PARALLEL

SIMULATION DATA MANAGEMENT I

17:10 **Prospects of Integrating CAD and CAE in Simulation Data Management**
M. Thiele, D. Matthus, P. Friedrich (SCALE), C. Knehler (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)

WORKSHOP: MATERIALS

Material Characterization

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.

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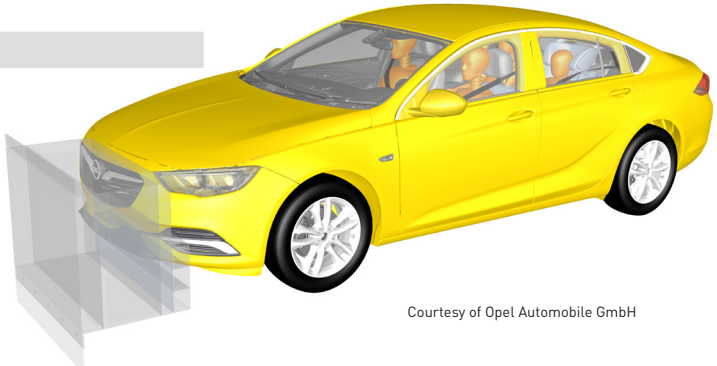
18:10 End of sessions

19:15 Get-together in the exhibition (food, drinks and live music)



Courtesy of Opel Automobile GmbH

PARALLEL	CRASH PUNCTUAL CONNECTIONS	PEDESTRIAN SAFETY	PROCESS METAL FORMING III
09:00	**Daten- und prognosebasierte Generierung von Modellparametern für die Crashsimulation mechanisch gefügter Verbindungen** P. Rochel, S. Sommer (Fraunhofer IWM), A. Iwainsky, 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** A. Tang, C. 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. Schneidt, 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	Coffee break		

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 Toplogie- 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	Lunch		

Program subjected to alterations

PARALLEL

SIMULATION DATA MANAGEMENT I

09:00 **Advanced Results Databases Compression Techniques to Allow their Efficient Use in Results Data Management Systems**
A. Perifanis, D. Siskos (BETA CAE Systems)

09:20 **Pushing Storage and Bandwidth Requirements of SDM Towards Reasonable Levels**
M. Büchse, M. Thiele (SCALE)

09:40 **Automatic Detection of Unexpected Crash Behaviour Parallel to Design Improvement Phases**
C. Thole, L. Jansen, D. Borsotto (SIDACT)

10:00 **Analyzing Simulations with Machine Learning**
C. Diez (Lasso)

WORKSHOP: OPTIMIZATION

Optimization with LS-DYNA and LS-OPT

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.

10:20 Coffee break

PARALLEL

WORKSHOP: SDM

10:50 **Simulation Data Management**

The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts.

11:20

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11:40

12:00

WORKSHOP: VALIMAT/IMPETUS

VALIMAT/Impetus

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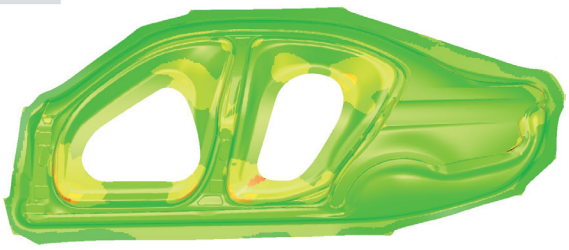
12:20 Lunch



Courtesy of BMW Group

AGENDA – TUESDAY, 16 OCTOBER 2018 – AFTERNOON

PLENUM

KEYNOTE PRESENTATIONS

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 Coffee break

PARALLEL

CRASH RAILWAY VEHICLES AND IMPACT	MATERIAL CHARACTERIZATION	PROCESS ROLLING AND BENDING
15:40 **Crashsimulation in der Schienenfahrzeug-industrie** A. Piasetzki (Bombardier)	**Werkstoffcharakterisierung – Rateneffekte, Skaleneffekte, Schädigung, Instabilität und adiabatische Erwärmung** F. Huberth, D.-Z Sun, S. Klitschke, A. Trondl, J. Lienhard, S. Sommer, M. Hauber, D. Discher (Fraunhofer IWM)	**Weiterentwickeltes Warmwalzsimulations-modell von Aluminiumlegierungen für die Berücksichtigung des Bandprofils** P. Simon, G. Falkinger (AMAG), K. Zeman, T. Pumhössel (JKU Linz)
16:00 **Kurzzeitdynamische Stauchuntersuchungen an Absorberkomponenten aus GFK** M. Holzapfel, M. Vinot, D. Fricke, M. Kaden (DLR)	**Charakterisierung eines PU-Montage-klebstoffs und vergleichende Anpassung verschiedener Materialmodelle in LS-DYNA** M. Gall, S. Sommer (Fraunhofer IWM); F. Zerling, T. Wagner, R. Schlimper (Fraun-hofer IMWS)	**Optimization of Tooling Design for Hot Mandrel Bending of Pipe Elbows** J. Prehm (DynaWeld), U. Diekmann (Matplus), W. Homberg, D. Tabakajew, T. Rostek (Pader-born Univ.), Andreea Trasca (Metatech), N. Schönhoff, H. Uysal (Lindemann)
16:20 **Beam Modeling of Hydraulic Energy Absorbers*** P. Heinzl, G. Gough, R. Graf (Siemens), C. Schmied (DYNAmore)	**Testing and Modeling of Rubber Toughended Thermoplastics with LS-DYNA** M. Helbig, A. Haufe (DYNAmore)	**Freiformbiegen mit rollierendem Biege-kopf, Simulation des strukturmechanischen Prozesses** M. Gitterle (Hochschule München), C. Fritzsche (TU München), P. Schüle (Schüle)
16:40 **Experimentelle und numerische Unter-suchung von schlagbelasteten Aramid-gewebeverbunden** M. Mehrkens, D. John (imk automotive)	**Material Models for Thermoplastics in LS-DYNA from Deformation to Failure** P. Reithofer, A. Fertschej, B. Hirschmann, B. Jilka, M. Rollant (4a engineering)	**Charakterisierung der Grobblechumformung beim freien Biegen mit Hilfe von LS-DYNA** P. Froitzheim, N. Fuchs (Fraunhofer IGP)

17:00 Coffee break

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)	**Applications and Future Scope of Statistical Classifiers in LS-OPT** A. Basudhar, I. Gandikota, N. Stander, D. Kirpicev (LSTC), K. Witowski (DYNAmore)	**Umformsimulation für endlosfaserverstärkte Thermoplaste mittels *MAT_249** E. Chowson, M. Wrensch (Brose), T. Klöppel (DYNAmore), W. Körbel, T. Mattner (Univ. Erlangen)
17:50 **Robustheitsbewertung von unterschiedlicher Anprallsituation für einen Sicherheitsleit-planke an Straßen** J. Drozda, R. Schlegel (Dynardo); T. Rotter (TU Prag)	**Full-Field Material Calibration using LS-OPT** N. Stander, A. Basudhar, S. Du Bois, D. Kir-picev, I. Gandikota (LSTC), K. Witowski, C. Ilg, A. Haufe (DYNAmore), A. Svedin, (DYNAmore Nordic)	**Simulation Strategies for Additive Manufacturing with LS-DYNA** C. Liebold (DYNAmore)
17:50	**Parameter Identification of the MAT_036 Ma-terial Model using Full-Field Calibration** C. Ilg, A. Haufe, D. Koch, K. Witowski (DYNAmore), N. Stander (LSTC), Prof. M. Liewald (Univ. Stuttgart)	**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)

18:10 End of sessions

19:15 Reception in the exhibition hall

20:00 Gala dinner in „Hegelsaal“

Program subjected to alterations * subjected to approval

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

The workshops feature both informative and how-to knowledge with demonstrations of the latest features from experts.

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17:00 Coffee break

PARALLEL

WORKSHOP: OPEN FORM

17:30 **GNS Open Form**

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WORKSHOP: WELDING/HEAT

Welding & Heat Treatment

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17:50

18:10 End of sessions

19:15 Reception in the exhibition hall

20:00 Gala dinner in „Hegelsaal“

AGENDA – WEDNESDAY, 17 OCTOBER 2018

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** C. Desai, S. Vishwakarma (Whirlpool of India)	**Multi-Scale Material Modeling Applied from Specimen to Full Car Level** S. Calmels, P. Hebert (e-Xstream Engineering)	**ARENA2036 & the Digital Prototype: Introduction and Overview** C. Liebold (DYNAmore)
09:20	**FSI Hood Flutter** L. Rovira Crespo, J. Dilworth, P. Young (Arup)	**Influence Parameters on the Behaviour of Short Fibre Reinforced Polyamide with Focus on Humidity and Integrative Simulation** S. Seichter, R. Steinberger, S. Ilincic (Hirtenberger), W. Hahn (Hilti), M. Morak (PCCL), P. Reithofer (4a engineering)	**Textile Process Simulation for the Digital Simulation Chain** H. Finckh (DITF)
09:40	**Advanced Numerical Model for Viscous Friction of Rough Rubber and Smooth Ice** R. Leonardi, A. Scattina (Politecnico di Torino), S. Scalera (DYNAmore Italy)	***MAT_4A_MICROMEC: Generating Material Card and Considering Fiber Orientation** P. Reithofer, A. Fertschej, B. Jilka (4a engineering)	**Infiltration Simulation and Virtual Permeability Determination for the Digital Prototype** J. Dittmann (Univ. Stuttgart)
10:00	**Simulation der Struktur-Eis-Interaktion mit CZM-Elementen** H. Herrnring, L. Kellner, J. M. Kubiczek, S. Ehlers (TU Hamburg)	**Der Einfluss auf LS-DYNA-Resultate durch die Kopplung mit der Spritzgusssimulation** T. Schäfer, C. Hinse (SimpaTec)	**A Multiscale Strategy for the Simulation of Braided Composites with Envyo** M. Vinot, M. Holzapfel (DLR)
10:20	Coffee break		

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** 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)	**A Hosford-Based Orthotropic Plasticity Model in LS-DYNA** F. Andrade (DYNAmore), T. Borrvall (DYNAmore Nordic), P. DuBois (Consultant), M. Feucht (Daimler)	**Updated Fatigue Analysis with LS-DYNA** Y. Huang, Z. Cui (LSTC)
11:20	**Sheet Metal Forming Simulation with IGA in LS-DYNA** S. Hartmann (DYNAmore)	**On the Development of a New Generalized Orthotropic Damage and Fracture** n.n. (DYNAmore)	**Analyse der Korrelation zwischen dem Ermüdungsverhalten Remote-Laser-geschnittener Faserkunststoffverbunde und der Prozessführung** B. Schmidt, Prof. M. Kästner (TU Dresden), M. Rose, Prof. M. Zimmermann (Fraunhofer IWS)
11:40	**A Study on the New Higher-Order Solid Elements in LS-DYNA** C. Schmied, T. Erhart (DYNAmore)	**Nonlocal Damage and Failure Options in LS-DYNA** G. Blankenhorn, J. Wang, L. Bindeman (LSTC), T. Erhart (DYNAmore)	**Direct Steady State Dynamic (SSD) Analysis with LS-DYNA** Y. Huang, Z. Cui, F.-H. Rouet, C. Ashcraft (LSTC)
12:00	**Optimierung der Newmark-Euler-Zeit-integrationsparameter für eine stabile und effiziente implizite Simulation rotierender elastischer Strukturen** M. Kober, A. Kühhorn (BTU Cottbus-Senftenberg), A. Keskin (Rolls-Royce)	**A Modifed In-Plane Constitutive Model for Paperboard** M. Pfeifer, Prof. S. Kolling (TH Mittelhessen), P. Stein, W. Franke (TU Darmstadt)	
12:20	Lunch		

PLENUM	KEYNOTE PRESENTATIONS
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 (LSTC)
15:00	**Closing remarks** T. Münz (DYNAmore)

Program subjected to alterations

PARALLEL

CIVIL ENGINEERING

WORKSHOP: GISSMO

09:00

GISSMO Failure Models

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.

09:20 **How to make a Virtual Twin of a Complex Slender Structure like a High Voltage Transmission Tower?**
Prof. T. Tryland (SINTEF Raufoss)

09:40 **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 (Jülich Supercomputing Centre)

10:00 **Blast Response of Slabs in Reinforced Concrete Buildings**
G. Yazici (Istanbul Kultur Univ.),
Prof. S. A. Kilic (Bogazici Univ.)

10:20 Coffee break

PARALLEL

BIOMEDICAL

WORKSHOP: ENVYO

11:00 **FEM-Simulation von Stoßbelastungen am menschlichen Körper: Methodik zur Entwicklung von Gewebemodellen**
Z. Wang, R. Behrens, N. Elkmann
(Fraunhofer IFF)

Mapping Tool Envyo

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.

11:20 **Reduced Models of Human Bodies for Complex Time Dependent and Multi-Physics Analysis**
Prof. K. Kayvantash (CADLM)

11:40 **Numerical Analysis of Stent Delivery Systems during Pre- and Intraoperative Processes**
M. Geith, Prof. G. Holzapfel (TU Graz),
K. Swidergal, T. Schratzenstaller,
Prof. M. Wagner (OTH Regensburg)

12:00

12:20 Lunch

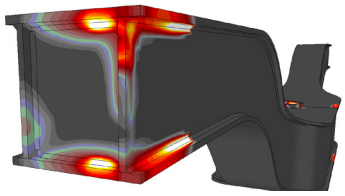
Courtesy of Dr. Ing. h.c. F. Porsche AG

Introduction to Welding Simulation

Date: 18 October
Course fee: 525,- €*
Location: Bamberg
Lecturers: Dr. Thomas Klöppel (DYNAmore)
Website: 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.

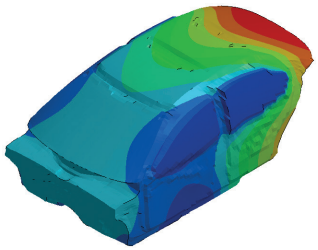


Courtesy of DynaWeld

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

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



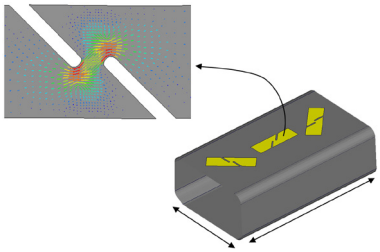
The seminar addresses engineers and researchers who are working in the area of vehicle NVH, aircraft/spacecraft vibro-acoustics, engine noise simulation, machine vibration testing and simulation, etc. All required knowledge to run these simulation problems with LS-DYNA will be presented in detail.

Advanced Damage Modeling: Orthotropic Materials

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

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.

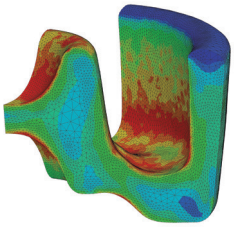
In this class some important concepts regarding orthotropic and anisotropic damage are reviewed as well as typical modeling approaches found in the literature. Advanced damage models implemented in LS-DYNA are then presented in detail. In particular, attention is devoted to the modular damage/failure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



Meshfree EFG, SPG, Advanced FE Methods

Date: 18 October
Course fee: 550,- €*
Location: Bamberg
Lecturer: Youcai Hu (LSTC)
Website: www.dynamore.de/efg-e

Attendees of this seminar will be introduced to the fundamental background of various Meshfree and advanced FEM methods. Particular attention is drawn to the application of the meshless method "Element-Free Galerkin" (EFG) as well as the newly developed method "Smoothed Particle Galerkin" (SPG).

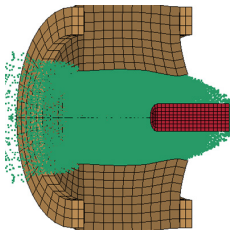


The seminar will thoroughly refer to the settings required in the LS-DYNA input deck to carry out a successful non linear meshfree or advanced FEM simulation. Common applications of these methods are materials made of rubber or foam that undergo large deformations. The adaptive EFG formulation is the method of choice for the efficient simulation of cutting, bulk forming and forging processes.

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

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.



Courtesy of 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

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.

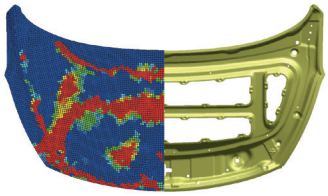
Courtesy of Schwer Engineering

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

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.



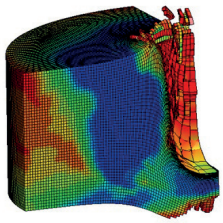
Courtesy of Hyundai Motor Company

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

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.



Courtesy of
French-German Research Institute of Saint-Louis (ISL)

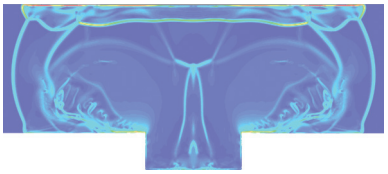
This class focuses on the application of LS-DYNA and provides analysis methods and modeling techniques, which are illustrated through simple case studies. However, this training class is not a substitute for the in-depth treatments presented in the associated LS-DYNA training classes, i.e. "ALE/Eulerian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

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.



Courtesy of
Rheinmetall Landsysteme GmbH

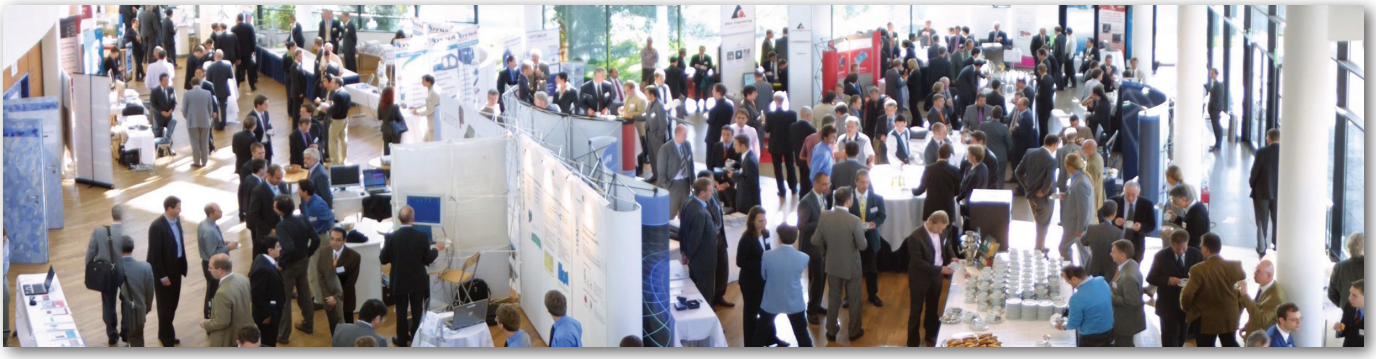
* 10% discount for participants of the LS-DYNA Forum.

All prices plus VAT. Event fees include course materials, lunch and beverages.

Online registration: www.dynamore.de/seminars

Panorama Bamberg (Source: Siego)

Hardware and Software Exhibition



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

Juli 2018

Organization

Venue
The congress venue with its impressive architecture between industrial and feel-good lifestyle is a well known host for conferences. Located right on the banks of the river Regnitz, the hotel is only a few walking minutes away from the historic city center of Bamberg.
Address:
Welcome Kongresshotel Bamberg
Mußstraße 7
96047 Bamberg, Germany

Bamberg
The beautiful German city with its historic center is listed as an UNESCO world heritage site since 1993. It is an outstanding example of a central European city that has grown and evolved around a core from the Middle Ages, which forms one of the largest intact old town centers in Europe.

Accommodation
In the Welcome Hotel and in the Hotel Residenzschloss we have booked a room block with reduced prices for conference participants. Please book your hotel room yourself by latest 2 September under the keyword „LS-DYNA" or by using the booking link on the conference website www.dynamore.de/forum2018-e.

Participant fees
Industry: 600,- €
Academic: 430,- €
All prices per person plus VAT. Fees include conference attendance, conference proceedings, participation at the evening events, conference flash drive, lunches and coffee breaks.

Cancellation fees
In case of cancellation by the participant
- until one month before the conference starts: free of charge
- up to two days before the conference starts: 50%
From two days and no shows: 100%
Replacement participants can be provided.

Hardware and software exhibition
If you want to contribute, please request additional exhibitor and sponsoring information.

Conference language
German and English. Keynote presentations on monday and tuesday will be simultaneously translated into English.

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Registration / confirmation
Please use the the registration form and send via e-mail to forum@dynamore.de.de or register online at www.dynamore.de/forum2018-e.
You will receive a confirmation of registration.

More information about the conference
www.dynamore.de/forum2018-e

REGISTRATION FORM

Please complete and fax to: +49 (0) 7 11 - 45 96 00 - 29
or copy and send to: DYNAmore GmbH, Industriestr. 2, D-70565 Stuttgart, Germany
or scan and e-mail to: forum@dynamore.de

Registration for the 15th German LS-DYNA Forum, 15 - 17 October 2018, Bamberg, Germany:

☐ Industry: 600 €
☐ Academic: 430 €

Pre-conference workshop:

☐ Registration for the free of charge asc(s pre-conference workshop on 15 October, 9:00 - 12:00, in Bamberg.

Registration for following seminars:

	Date	Fee (*)	Location
☐ Introduction to Welding Simulation	18 Oct.	525 €*	Bamberg
☐ NVH and Frequency Domain Analysis with LS-DYNA	18 Oct.	550 €*	Bamberg
☐ Advanced Damage Modeling: Orthotropic Materials	18 Oct.	525 €*	Bamberg
☐ Meshfree EFG, SPG, Advanced FE Methods	18 Oct.	550 €*	Bamberg
☐ Methods for Simulating Short Duration Events	18-19 Oct.	1.200 €*	Bamberg
☐ Blast Modeling with LS-DYNA	22-23 Oct.	1.200 €*	Stuttgart
☐ LS-OPT – Introduction and Optimization	22-24 Oct.	1.575 €*	Stuttgart
☐ Penetration Modeling with LS-DYNA	24-25 Oct.	1.200 €*	Stuttgart
☐ Explosives Modeling for Engineers	26 Oct.	600 €*	Stuttgart

☐ **You agree to the use and processing of your data for general event organization and promotional purposes. You may, at any time, revoke your consent by contacting DYNAmore GmbH via phone or in writing.**

* 10% discount for LS-DYNA Forum 2018 participants.

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Online registration at www.dynamore.de/forum2018-e

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With your registration you allow us the use and the processing of your data for the organization of this event.

All prices plus VAT.

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