LSTC Livermore Software Technology Corp.

DYNA MORE

UPDATE

Invitation & Agenda

14th GERMAN LS-DYNA FORUM

10 - 12 October 2016, Bamberg, Germany

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

PLATINUM SPONSORS

intel FUJITSU DELL

Dear LS-DYNA user,

We would like to cordially invite you to the 14th German LS-DYNA Forum from 10 – 12 October in Bamberg, Germany. The agenda offers more than 100 technical presentations by users from various industries who will share their experiences with LS-DYNA and LS-OPT. Furthermore, software developers from LSTC and DYNAmore provide insight into the potential applications of their latest implementations. The Forum is rounded off with six workshops covering popular topics.

Welcome Kongresshotel Bamberg

It is notable that the modeling of fiber reinforced plastics play again an important role this year. In particular, to close the gap between process and serviceability simulations, DYNAmore is developing the mapping tool "Envyo", which is already used in a number of presentations. Detailed information about the use of "Envyo" can be obtained in a dedicated workshop. Furthermore, the classic applications of short-duration dynamics are still of growing interest. Also well represented are the applications of function and component simulation that can be computed with the implicit features of LS-DYNA.

Following this, the 14th German LS-DYNA Forum offers an ideal platform to exchange your experiences and insights with other users across the LS-DYNA product range as well as the associated CAE process chains. But have a look for yourself. We are convinced that you will find one or the other interesting lecture from your application field.

As usual, there will also be an exhibition of selected hardware and software manufacturers offering an exquisite chance to gather information on the latest news and trends around LS-DYNA. Last but not least, several employees of the DYNAmore GmbH will be available for your disposal to answer your questions or simply provide tips and tricks on the LS-DYNA product range.

In addition to the Forum, we also offer 11 English-spoken seminars on LS-DYNA and LS-OPT, which are held by experienced instructors and need to be booked separately. Conference participants will receive a 10% discount on the seminar fees. In the morning before the Forum there will be a free-of-charge workshop on integrative simulation of fiber-reinforced plastics. More information about the accompanying seminars can be found at the end of this brochure.

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

Sincerely yours

DYNAmore

SPONSORS

Platinum

Gold

Silver

Monday, 10 October

	09:00 - 12:00	Pre-Conference Workshop	Integrative simulation of short-/long glass fiber reinforced plastics with LS-DYNA
	starting 11:00	Hotel foyer	Registration
Exhibition	13:30 - 15:40	Plenum	Keynote Presentations +
Exhibition	16:20 - 17:20	Parallel sessions	Crash / Safety (Airbag & Pressure) / Process (Metal Forming) / Workshop: LS-PrePost
Exhibition	17:50 - 18:50	Parallel sessions	Crash (Batteries) / Safety (Dummies) / Process (Metal Forming) / Performance on new Hardware
Exhibition	19:15 - 24:00	Exhibition	Food, drinks and live music in the exhibition hall

Tuesday, 11 October

	07:30	Running LS-DYNA	Bring your Running Shoes
Exhibition	09:00 - 10:20	Parallel sessions	Optimization / Robustness / Materials (Parameter Ident.) / Process (EFR Polymers) / Workshops: Blast Analysis Implicit
Exhibition	11:00 - 12:20	Parallel sessions	SDM / Compression / Materials (SFR Polymers) / Process (Welding / Cooling) / LS-DYNA in the Cloud
Exhibition	13:40 - 15:10	Plenum	Keynote Presentations +
Exhibition	15:50 - 17:10	Parallel sessions	Crash (Composites) / NVH / Process (Sheetmetal Forming) / Workshop: Welding Analysis
Exhibition	17:40 - 19:00	Parallel sessions	Arena 2036 / Materials / Simulation / Drop Test / Impact / Workshop: Data Management
Exhibition	19:15	Exhibition	Reception in the exhibition hall
Exhibition	20:00	Hegelsaal	Gala dinner in the "Hegelsaal"

Wednesday, 12 October

Exhibition	09:00 - 10:20	Parallel sessions	Implicit Simulations / Connection Modeling / Finite Element Technology / Workshop: LS-OPT Robustness
Exhibition	11:00 - 12:20	Parallel sessions	Simulation / Control / Multiphysics / Impact / Rapture Containment / Workshop: Mapping Tool Envyo
Exhibition	13:30 - 15:15	Plenum	Keynote Presentations
	15:15	Plenum	Closing remarks

+ Simultaneous translation into English.

AGENDA – MONDAY, 10 OCTOBER 2016

PLENUM

KEYNOTE PRESENTATIONS

13:30 **Welcome and Introduction**
U. Franz (DYNAmore)

13.40 **Recent Developments – Part I**
R. Grimes, J. Wang and other developers (LSTC)

14:10 **Modeling and Characterization of Continuous-Discontinuous Long Fiber-Reinforced Polymer Structures**
Prof. T. Böhlke, F. Henning, L. Kärger, Prof. T. Seelig, K. A. Weidenmann (Karlsruhe Institut of Technology)

14:40 **Status and Challenges of Safety CAE in Vehicle Development**
S. Frik (Adam Opel)

15:10 **Sponsorenvortrag:**
Enabling Effective and Easy to Access Simulation
S. Gillich (Intel); E. Schnepf (Fujitsu Technology Solutions)

15:25 **Sponsorenvortrag:**
DELL
D. Detweiler (Dell)

15:40 **Coffee break**

PARALLEL

CRASH

16:20 **Berücksichtigung des Bake Hardening Effekts bei umgeformten Blechteilen für die Crashsimulation**
D. Riemensperger (Adam Opel)

16:40 **Virtuelle Produktentwicklung und Crashauslegung von Stahl-Werkstoffverbundsystemen**
D. Pieronek, L. Kessler, H. Richter, S. Myslowicki (Thyssenkrupp Steel Europe)

17:00 **Influence of Submodel Size and Evaluated Functions on the Optimization Process of Crashworthiness Structures**
H. Singh, S. Link, Prof. A. Schumacher (Universität Wuppertal)

17:20 **Coffee break**

PARALLEL

CRASH (BATTERIES)

17:50 **Battery Abuse Analysis using LS-DYNA**
P. L'Eplattenier, I. Çaldichoury (LSTC); J. Marcicki, A. Bartlett, X. G. Yang, V. Mejia, M. Zhu, Y. Chen (Ford Research and Innovation Center)

18:10 **Einbindung der Einzelzellen von Lithium-Ionen-Traktionsspeichern in die Unfallsimulation**
M. Funcke (Forschungsgesellschaft Kraftfahrwesen Aachen); S. Lovski, L. Eckstein (RWTH Aachen)

18:30 **Entwicklung eines optimierten Seitencrashkonzepts für das batterieelektrische Fahrzeugkonzept Urban Modular Vehicle**
M. Schäffer, M. Münster, R. Sturm, H. Friedrich (DLR)

19:15 **Food, drinks and live music in the exhibition hall**

SAFETY (AIRBAGS AND PRESSURE TUBES)

Simulation von Kaltgasgeneratoren unter Berücksichtigung des Joule-Thompson-Effekts
T. Laufer, A. Heym (Takata)

Update on CPM for Airbag Modelling
J. Wang (LSTC)

***DEFINE_PRESSURE_TUBE:**
A Pressure Tube Sensor for Pedestrian Crash
J. Karlsson (DYNAmore Nordic)

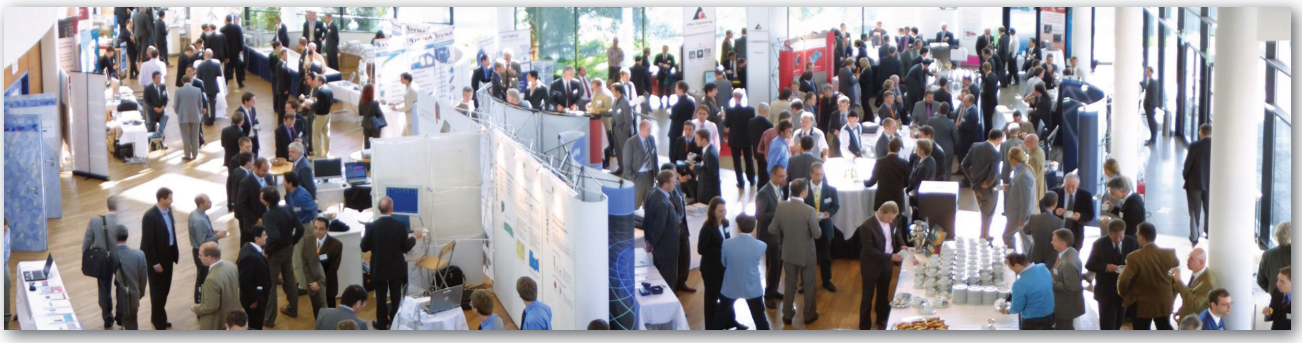
SAFETY (DUMMIES)

Correlation Studies for WorldSID-50 and Q10/Q6 Child Dummies in Latest Occupant Simulations
T. Kotucha (Adam Opel)

Dummy Models General Update
F. Schüssler (Humanetics)

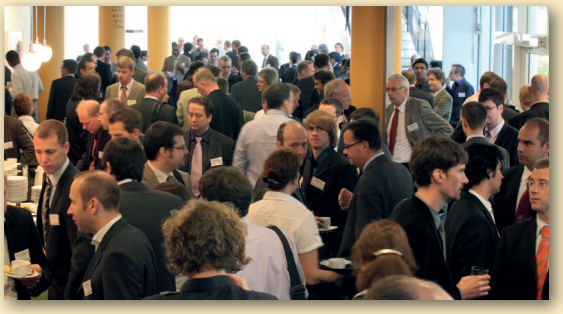
News about the THUMS Human Model
D. Fressmann, N. Lazarov (DYNAmore)

HARDWARE AND SOFTWARE EXHIBITORS



4a engineering
ARUP
ASC(S
CPU 24/7
DELL
DYNAmore
e-Xstream engineering
Fujitsu
GNS Systems
GNS
GOM - Gesellschaft für Optische Messtechnik
Gompute (Gridcore)
Ingenieurbüro Huß & Feickert
Ingenieurbüro Loose
Inprosim
Intel
Kompetenzzentrum Virtuelles Fahrzeug
Lasso Ingenieurgesellschaft
LSTC
Nafems
NEC Deutschland
Rescale
SCALE
Transtec
Universität Erlangen-Nürnberg
...

As of Sept. 2016



PLENUM

13:30

13.40

14:10

14:40

15:10

15:25

15:40

PROCESS (SHEET METAL FORMING)

Umformsimulationen, Schnittstellen und Prozesse
M. Fleischer (BMW)

Berücksichtigung von schergeschnittenen Blechkanten zur Auslegung von Formgebungsprozessen höherfester Stahlwerkstoffe in der FEM-Umformsimulation mit LS-DYNA
T. Beier, S. Wöstmann (Thyssenkrupp Steel Europe);
M. Reissner, H. Gese (Matfem Partnerschaft Dr. Gese & Oberhofer)

Sheet Metal Forming of Niobium RF Crab Cavities at CERN
A. Amorim Carvalho, M. Garlasche, M. Narduzzi (CERN)

WORKSHOP

PARALLEL

Working with LS-PrePost

16:20

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

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16:40

17:00

17:20

PROCESS (SHEET METAL FORMING)

Untersuchungen zur Parameteridentifikation zweier Phänomenologischer Schädigungsmodelle sowie deren Anwendung in der Blechumformsimulation
S. Heibel, W. Nester (Daimler); T. Clausmeyer, Prof. E. Tekkaya (TU Dortmund)

Analyse der zu einer verzögerten Rissbildung führenden umformtechnischen Randbedingungen
M. Teschner (Salzgitter Mannesmann Forschung)

Implementierung einer Netzwerkschnittstelle in LS-DYNA zur gekoppelten Simulation
S. Kriechenbauer (Fraunhofer IWU)

PERFORMANCE OF LS-DYNA ON NEW HARDWARE

PARALLEL

Erkenntnisse aus aktuellen Performance-Messungen mit LS-DYNA
E. Schnepf (Fujitsu Technology Solutions)

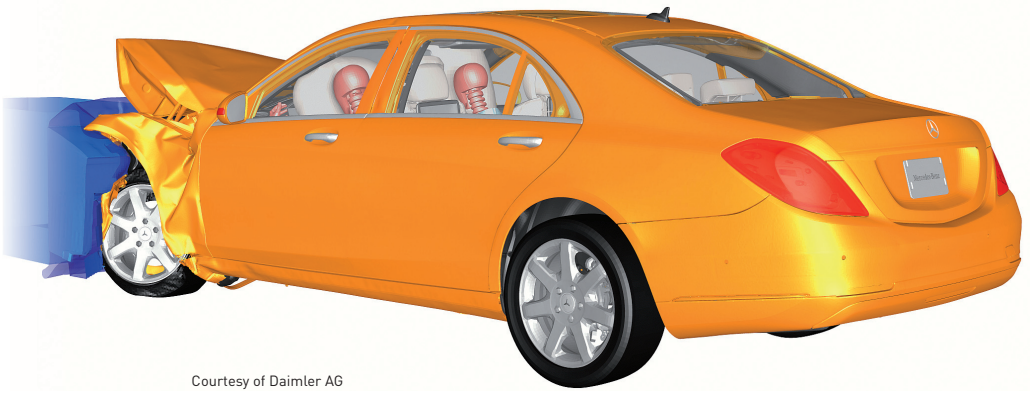
17:50

LS-DYNA Performance auf NEC LX-Systemen
F. Unger (NEC)

18:10

Panel Discussion

18:30



Courtesy of Daimler AG

Program subjected to alterations * subjected to approval

AGENDA – TUESDAY, 11 OCTOBER 2016

PARALLEL

OPTIMIZATION AND ROBUSTNESS

09:00 **LS-TaSC Product Status**
K. Witowski (DYNAmore); W. Roux (LSTC)

09:20 **Finding the Best Thickness Run Parameterization for Optimization of Tailor Rolled Blanks**
N. Klinke (Mubea Tailor Rolled Blanks);
Prof. A. Schumacher (Universität Wuppertal)

09:40 **Automatic Generation of Robustness Knowledge for Selected Crash Structures**
C. Diez, C. Wieser, L. Harzheim (Adam Opel);
Prof. A. Schumacher (Universität Wuppertal)

10:00 **Process to Improve Optimization with Combined Robustness Analysis Results**
D. Borsotto, L. Jansen, C. Thole (Sidact)

MATERIALS (PARAMETER IDENTIFICATION)

Experimental and Numerical Investigations on Deformation and Damage Behavior of a Thermoplastic Component
J. Irslinger (Daimler); C. Ilg, M. Helbig, D. Koch (DYNAmore)

Calibration and Appliance of the Wilkins Damage Model for Aluminium Cast Alloys
C. Mühlstätter (Leichtmetallkompetenzzentrum Ranshofen)

Dynamische Materialcharakterisierung von Kunststoffen – Entwicklung in den letzten 10 Jahren
A. Fertschej, B. Jilka, P. Reithofer, M. Rollant (4a engineering)

4a impetus Neuerungen – Prüfmethoden, SAMP, Anisotropie, Composites, ...
A. Fertschej, B. Jilka, P. Reithofer, M. Rollant (4a engineering)

10:20 **Coffee break**

PARALLEL

SIMULATION DATA MANAGEMENT AND COMPRESSION

11:00 **LoCo - Multistage Assembly with a Wheel Generation Process Example**
A. Saharnean, M. Thiele, D. Rentsch (SCALE)

11:20 **Reducing Storage Footprint and Bandwidth Requirements to a Minimum: Compressing Sets of Simulation Results**
S. Mertler, S. Müller (Sidact)

11:40 **Compression Methods for Simulation Models in SDM Systems**
J. Richter, W. Graf (TU Dresden); M. Büchse, M. Thiele, C. Löbner, M. Liebscher (SCALE)

12:00 **Managing a Global IT Infrastructure for CAE**
C. Woll (GNS Systems)

MATERIALS (SHORT FIBER-REINFORCED POLYMERS)

Einige Aspekte zur Charakterisierung und Modellierung unverstärkter und kurzfaserverstärkter Polymere in der Crashsimulation
M. Vogler, G. Oberhofer, H. Dell, H. Gese (Matfem Partnerschaft Dr. Gese & Oberhofer)

Potential of MAT_157 for Short-Fiber-Reinforced Injection Molded Plastic Components
W. Korte, M. Stojek, S. Pazour (Part Engineering)

Modeling of Fiber-Reinforced Plastics Taking into Account the Manufacturing Process
C. A. T. Reclusado (Fraunhofer EMI); S. Nagasawa (Fuji Heavy Industries)

***MAT_4a_micromec – Micro Mechanic Based Material Model**
A. Erhart, S. Hartmann (DYNAmore); B. Jilka, P. Reithofer (4a engineering)

12:20 **Lunch break**

PLENUM

KEYNOTE PRESENTATIONS

13:40 **Insassensimulation Kindersicherheit bei Mercedes-Benz**
H. Ipek, J. Fausel (Daimler)

14:10 **Historische Entwicklung Funktionssimulation bei der Porsche AG***
M. Geuther (Dr. Ing. h.c. F. Porsche)

14:40 **Einsatz der Umformsimulation in der Modellierung und Verfahrensentwicklung von Blechumformprozessen**
Prof. M. Liewald (Universität Stuttgart)

15:10 **Coffee break**

PARALLEL

CRASH (COMPOSITES)

15:50 **Closed Simulation Process Chain for Short Fiber Reinforced Plastic Components with LS-DYNA**
B. Lauterbach, M. Erzgräber (Adam Opel);
C. Liebold, M. Helbig, A. Haufe (DYNAmore)

16:10 **Interactive Fracture Criterion for SGF-PP: Validation on Lower Bumper Support**
M. Nutini, M. Vitali (LyondellBasell);
M. Erzgräber, B. Lauterbach (Adam Opel)

16:30 **Crashsimulation langfaserverstärkter thermoplaste mit Berücksichtigung von Schädigung und Versagen**
L. Schulenberg, J. Lienhard (Fraunhofer IWM)

16:50 **Modellierungsansätze für die Crashsimulation von endlosfaserverstärkten Polymeren**
M. Vogler, G. Oberhofer, H. Dell, H. Gese
(Matfem Partnerschaft Dr. Gese & Oberhofer)

NOISE, VIBRATION AND HARSHNESS

NVH Simulations for Car Seat
T. Kupczyk, L. Guerin (Faurecia Automotive Seating)

Model Set up and Analysis Tools for Squeak and Rattle in LS-DYNA
T. Fokolidis (Beta CAE Systems);
J. Weber, M. Moridnejad (Volvo Car Group)

Evaluation of Equivalent Radiated Power with LS-DYNA
Y. Huang (LSTC)

Eigensolution Technology in LS-DYNA
R. Grimes (LSTC)

17:10 **Coffee Break**

PARALLEL

ARENA 2036

17:40 **ARENA2036 – Above and Beyond**
J. Dittmann, P. Middendorf (Universität Stuttgart)

18:00 **A Multiscale Approach for the Mechanical Investigation of Textile-Based Composite Structures within a Closed Process Chain**
M. Holzapfel, M. Vinot (DLR); C. Liebold (DYNAmore)

18:20 **Textile Process Simulation for Composite Structures**
H. Finckh, F. Fritz (ITV Denkendorf)

18:40 **Closing the Simulation Process Chain using a Solver Independent Data Exchange Platform: The Digital Prototype**
C. Liebold, A. Haufe (DYNAmore)

MATERIALS AND SIMULATION

Simulations and Optimisation of Functionally Graded Auxetic Structures
N. Novak, Prof. M. Vesenjak, Prof. Z. Ren (University of Maribor)

Novel Approach to Model Laminated Glass
R. Böhm, A. Erhart, A. Haufe (DYNAmore)

Features in LS-DYNA R8.1 for Structural Mechanics – Part I
T. Erhart (DYNAmore)

Features in LS-DYNA R8.1 for Structural Mechanics – Part II
T. Erhart (DYNAmore)

19:15 **Reception in the exhibition hall**

20:00 **Gala dinner in the "Hegelsaal"**

PROCESS (CONTINUOUS FIBER-REINFORCED POLYMERS)

Finite Element Simulation of Delamination Processes when Side Milling the Edges of Cross-Ply Carbon Fiber Reinforced Polymer (CFRP) Boards
H. Vazquez Martinez, P. Esch, K. Patel (Fraunhofer IPA)

BMBF MAI qfast:
Endlosfaser-Bauteilauslegung und -validierung mit Ultrasim
S. Ebli, A. Wüst, S. Glaser (BASF)

Berücksichtigung der umformbedingten Faser-Reorientierung bei der Verzugssimulation von CFK-Bauteilen
C. Amann, S. Kreissl, H. Grass, J. Meinhardt (BMW); C. Liebold (DYNAmore); Prof. M. Merklein (Universität Erlangen-Nürnberg)

Forming Simulations in LS-DYNA using the Material Law 249
B. Eck, G. Chambon (Faurecia Automotive Exteriors)

PROCESS (WELDING AND COOLING)

High Performance Computing Welding Analysis with DynaWeld and Parallelized LS-DYNA Solvers
T. Loose (Ing.büro T. Loose); M. Bernreuther, J. Herzer (Universität Stuttgart); Prof. U. Göhner (DYNAmore)

Simulation of Pulsed Water Cooling for Continuous Casting with LS-DYNA
S. Scheiblhofer, J. Kronsteiner, S. Ucsnik (Leichtmetallkompetenzzentrum Ranshofen)

Durability Asessment of Welded Structures Based on Welding Simulation with LS-DYNA
A. Krasovskyy (DYNAmore Swiss)

Recent Developments for Welding Simulation in LS-DYNA and LS-PrePost
M. Schill (DYNAmore Nordic)

PROCESS (SHEETMETAL FORMING)

Hot Forming Process with Thermal and CFD Coupled Simulation in LS-DYNA
M. Kintsch, W. Rimkus (Hochschule Aalen); S. Szabo (voestalpine Polynorm)

Update on Forming Specific Features in LS-DYNA
X. Zhu (LSTC)

Strategies to Improve the Efficiency of Sheet Metal Forming Simulations with LS-DYNA
W. Rimkus, M. Fritz (Hochschule Aalen); P. Vogel (DYNAmore)

Updates in eta/DYNAFORM V.5.9.3
P. Vogel (DYNAmore); J. Du Bois (Engineering Technology Associates)

DROP TEST AND IMPACT

Simulation des Flugzeuganpralls auf Stahlbetonstrukturen
M. Grosse, R. Schlegel (Dynardo); H. Friedl (BKW)

Comparing Predicted and Measured Accelerations from a Simple Drop Test Experiment
R. Boag (International Nuclear Services)

Validation of a FEA model of a Nuclear Transportation Package under Impact Conditions
C. Berry (International Nuclear Services)

WORKSHOPS (PARALLEL)

Blast Analysis with LS-DYNA

Tips and Tricks in LS-DYNA Implicit

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.

LS-DYNA IN THE CLOUD

How Cloud HPC enables the Digital Transformation in Product Development
Z. Smocha (Rescale)

Hybrid Cloud HPC Cluster Solutions – Challenges, Impact and Industrial Use Cases
J. Tamm, A. Heine (CPU 24/7)

HPC in the Cloud: Gompute Support for LS-DYNA Simulations
R. Díaz (Gridcore)

LSTC and DYNAmore Cloud Services
Prof. U. Göhner (DYNAmore)

WORKSHOP

Welding Analysis with LS-DYNA and SimWeld

During the workshop, two simulation models will be constructed using DYNAWELD which address the heat treatment of a tooth-wheel (quench) and the MIG-welding a T-joint, respectively.

Step by step, all major simulation aspects will be discussed, including the preparation of material data, simplified or detailed model construction, differences between aluminum and steel materials, process data and quenching conditions during heat-treatment, welding paths and welding sequences, heat sources and heat input control during welding as well as the acquisition of contacts, clamps and clamping forces.

WORKSHOP

Data Management Solutions from SCALE

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

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	PARALLEL
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	PARALLEL
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	PARALLEL
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	PARALLEL
17:40	
18:00	
18:20	
18:40	

Program subjected to alterations * subjected to approval

AGENDA – WEDNESDAY, 12 OCTOBER 2016

PARALLEL

IMPLICIT SIMULATIONS

09:00 **Implizite Simulationen einzelner Komponenten eines Großpressenwerkzeugs mit LS-DYNA**
P. Thumann, Prof. M. Wagner (OTH Regensburg)

09:20 **Funktionssimulation: Deckelsimulation mit LS-DYNA***
M. Geuther (Dr. Ing. h.c. F. Porsche); H. Abboud (GNS)

09:40 **Funktionssimulation: Spoilersimulation mit LS-DYNA***
M. Geuther (Dr. Ing. h.c. F. Porsche); B. Gajewski (Bertrandt)

10:00 **Funktionssimulation: Dichtungssimulation mit LS-DYNA***
M. Geuther (Dr. Ing. h.c. F. Porsche); I. Jurrmann (Bertrandt)

CONNECTION MODELING

Temperature Dependent TAPO Model for Failure Analysis of Adhesively Bonded Joints due to Temperature Induced Service Loading
P. Kühlmeyer, Prof. A. Matzenmiller (Universität Kassel)

Charakterisierungsversuche und Parameterbestimmung für die Kohäsivzonenmodellierung von Polyurethan-Klebverbindungen
M. Brodbeck, S. Sikora (DLR)

Self Pierce Riveting of Materials with Limited Ductility Investigated with the Bai-Wierzbicki Damage Model in GISSMO
M. Hofmann, R. Anderssohn, Prof. T. Wallmersperger (TU Dresden)

Prozess- und Zerreis-Simulationen von punktförmigen Verbindungen im Automobilbau unter Berücksichtigung unscharfer Prozess-Parameter
I. Lepenies, A. Saharnean, P. Friedrich (SCALE)

10:20 **Coffee break**

PARALLEL

SIMULATION AND CONTROL

11:00 **FE-Orientierter virtueller Test von Schließsystemen**
C. Gembus, G. Büdding, W. Rieger (Brose Schließsysteme)

11:20 **Simulation of Wear Processes in LS-DYNA**
T. Borrvall (DYNAmore Nordic)

11:40 **Messung und Simulation von Verschleiß in einem anwendungsnahen tribologischen Prüfstand**
A. Fertschej, B. Hirschmann, P. Reithofer (4a engineering)

12:00 **Control Systems**
I. Yeh (LSTC); C. Keisser (DYNAmore France)

MULTIPHYSICS

Latest Developments in Automotive Aerodynamics using LS-DYNA
I. Çaldichoury, F. DelPin, R. Paz (LSTC)

Recent Updates for the Structural Conjugate Heat Transfer Solver in LS-DYNA
T. Klöppel (DYNAmore)

Saving Calculation Time for Electromagnetic-Thermomechanical Coupled Simulations using the New EM 2D/3D Capabilities
I. Çaldichoury, P. L'Eplattenier (LSTC)

Towards a Multi-Physics Material Toolbox for LS-DYNA
M. Schenke, Prof. W. Ehlers (Universität Stuttgart)

12:20 **Lunch break**

PLENUM

KEYNOTE PRESENTATIONS

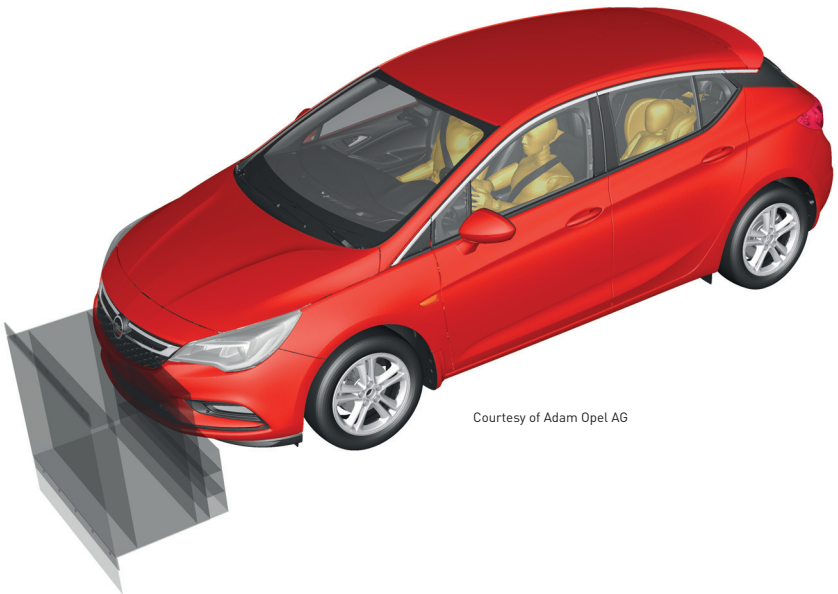
13:30 **Recent Developments – Part II**
R. Grimes, J. Wang and other developers (LSTC)

14:00 **LS-OPT: Status and Outlook**
N. Stander, A. Basudhar, I. Gandikota (LSTC); K. Witowski (DYNAmore); Å. Svedin, C. Belestam (DYNAmore Nordic)

14:15 **LS-DYNA in the Development Process of Occupant Restraint Systems**
K. Elsäßer (ZF TRW)

14:45 **A New Versatile Tool for Simulation of Failure in LS-DYNA, and the Application to Aluminum Extrusions**
P. Du Bois (Consultant); M. Feucht (Daimler); F. Andrade (DYNAmore)

15:15 **Closing remarks**
T. Münz (DYNAmore)



Courtesy of Adam Opel AG

FINITE ELEMENT TECHNOLOGY

Tests with a Sensitive Specimen Geometry Confirm Solid Elements when the Aspect Ratio is Below Four
T. Tryland (Sintef Raufoss Manufacturing)

Predictive Fracture Modeling in Crashworthiness: A Discussion of the Limits of Shell-Discretized Structures – Part I
A. Haufe (DYNAmore)

Predictive Fracture Modeling in Crashworthiness: A Discussion of the Limits of Shell-Discretized Structures – Part II
A. Haufe (DYNAmore)

Improvement of Low Order Solid and Solid-Shell Finite Elements with Incompatible Modes / Enhanced Assumed Strains for Explicit Time Integration
C. Schmied, Prof. K. Schweizerhof (Karlsruhe Institut of Technology); S. Mattern (DYNAmore)

WORKSHOP

PARALLEL

LS-OPT Robustness Analysis

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09:00

09:20

09:40

10:00

10:20

IMPACT, RUPTURE AND CONTAINMENT

Some Observations on Artificial Bulk Viscosity in LS-DYNA: What Noh Knew in 1978
L. Schwer (Schwer Engineering & Consulting Services)

Damping – Oscillation Elimination after the Rupture
M. Dobes, J. Navratil (Robert Bosch / Brno University of Technology)

Abbildung von Gußgehäusen und Schrauben in der Containment Simulation
S. Edelmann, C. Gross, H. Chladek (Inprosim)

Containmentsimulation am generischen Modell eines Großturboladers mit LS-DYNA
S. Hennig, A. Huß, H. Honermeier, M. Jagic, M. Schönborn (Ingenieurbüro Huß & Feickert)

WORKSHOP

PARALLEL

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.

11:00

11:20

11:40

12:00

12:20

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.

Accomodation
A restricted number of reduced-price rooms have been reserved for Forum guests at the conference hotel under the keyword "LS-DYNA Forum". Please book your hotel room in the conference hotel via a link on our conference website www.dynamore.de/forum2016-e.
Further hotels in walking distance to the Kongresshotel which you may chose for yourself: Hotel Tandem, Hotel SandStern, Palais Schrottenberg, Alt-Ringlein, Hotel am Dom, Hotel Brudermühle, Hotel Wohnbar .

Participant fees
Industry: 580,- €
Academic: 410,- €
All prices per person plus VAT if applicable.
Fees include conference attendance, conference proceedings, participation at the evening events, lunches and coffee breaks.

Exhibiting and sonsoring
Please request further information, if you are intersted in exhibiting or sponsoring the event.

Conference language
German and English. The keynote presentations on Moday and Tuesday are simultaneously translated into English.

DYNAmore GmbH
The DYNAmore GmbH is your contact for consulting, training, support and distribution of the finite element software LS-DYNA and numerous finite element models for crash simulation.
You will find DYNAmore in Stuttgart, Dresden, Ingolstadt, Berlin, Langlingen, Zurich (CH), Linköping (S), Gothenburg (S) and Torino (I).

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Registration
Please use the the registration form and send via e-mail to forum@dynamore.de or register online at www.dynamore.de/forum2016-e. You will receive a confirmation of registration.

More information about the conference
www.dynamore.de/forum2016-e

Program subjected to alterations * subjected to approval

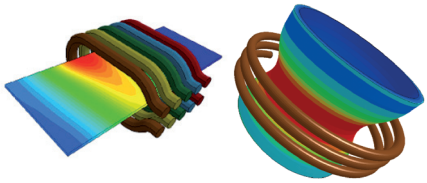
Electromagnetism in LS-DYNA

Date: 4 October
Course fee: 550,- €*
Location: Stuttgart
Lecturer: Iñaki Çaldichoury (LSTC)

The Electromagnetics (EM) module in LS-DYNA solves the Maxwell equations in the Eddy-Current approximation. The solver is coupled with the solid mechanics and thermal solvers of LS-DYNA allowing the simulation and solution of applications such as magnetic metal forming, welding, bending, induced heating, resistive heating and so forth.

The course includes a presentation of the solver's general principles, a complete description of the associated keywords as well as an introduction to the more advanced features (inductive heating problems, exterior magnetic field, magnetic materials).

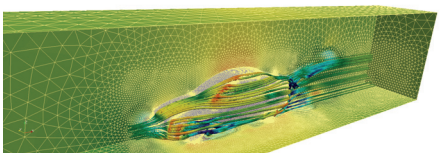
Key electromagnetic concepts are reviewed throughout the course. General knowledge about electromagnetics is appreciated, but not mandatory.



ICFD Incompressible Fluid Solver in LS-DYNA

Date: 5 - 6 October
Course fee: 1.100,- €*
Location: Stuttgart
Lecturer: Iñaki Çaldichoury (LSTC)

This course provides an introduction to the incompressible fluid solver (ICFD) in LS-DYNA. It focuses on the solution of CFD problems, where the incompressibility constraint may be applied, e. g. ground vehicle, aerodynamics, hemodynamics, free-surface problems, ship hydrodynamics, etc.



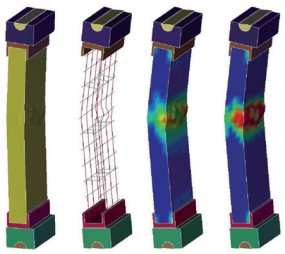
The first day of the course includes a presentation of the general principles and applications of the solver, a step by step guide to setting up a simple CFD problem, advanced feature introduction (FSI, conjugate heat transfer) and so forth. The second day will deal with the newly implemented features and advanced applications. No expert knwoledge is required as there will be a brief review of basic fluid mechanics and CFD concepts.

Concrete and Geomaterial Modeling

Date: 6 - 7 October
Course fee: 1.100,- €*
Location: Stuttgart
Lecturer: Dr. Len Schwer (Schwer Consulting)

The course starts from the common ground of introductory metal plasticity constitutive modeling and successively builds on this base adding the constitutive modeling features necessary to model concrete and geomaterials.

The LS-DYNA constitutive models covered are adequate for modeling most types of rock, all kind of concrete, and a large class of soils. The course is intended for those new to concrete and geomaterial constitutive modeling, but will also be useful to those seeking a more in-depth explanation of the LS-DYNA concrete and geomaterial constitutive models covered.



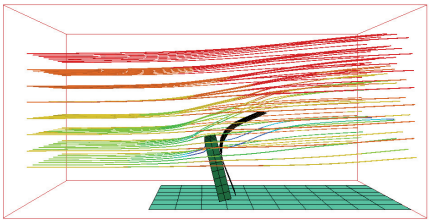
Mit freundlicher Genehmigung:
Schwer Engineering

CESE Compressible Fluid Solver in LS-DYNA

Date: 7 October
Course fee: 550,- €*
Location: Stuttgart
Lecturer: Iñaki Çaldichoury (LSTC)

The new compressible flow solver CESE in LS-DYNA is based on a novel method that includes a unified treatment of space and time by the introduction of a conservation element (CE) and a solution element (SE), which allows for more accurate solutions of the shock waves than normal second order schemes. Attendees of this seminar will be given an introduction to apply this method for their simulations.

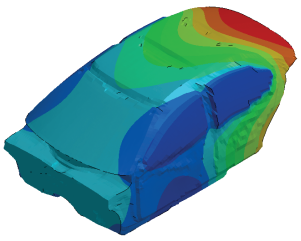
So far, CESE has been used to solve many different types of flow problems, such as detonation waves, shock/acoustic wave interaction, cavitating flows, and chemical reaction flows. In LS-DYNA, it has been extended to also solve fluid-structure interaction (FSI) problems with the embedded (immersed) boundary approach or moving (fitted) mesh approach.



NVH and Frequency Domain Analysis with LS-DYNA

Date: 13 - 14 October
Course fee: 1.100,- €*
Location: Stuttgart
Lecturer: Dr. Yun Huang (LSTC)

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.



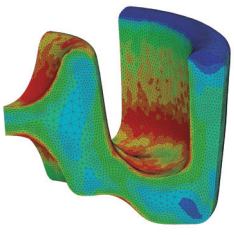
The seminar addresses engineers and researchers who are working in the area of vehicle NVH, aircraft/spacecraft vibro-acoustics, engine noise simulation, machine vibration testing and simulation, etc. All required knowledge to run these simulation problems with LS-DYNA will be presented in detail.

Meshfree EFG, SPG, Advanced FE Methods

Date: 13 - 14 October
Course fee: 1.100,- €*
Location: Stuttgart
Lecturer: Dr. Wei Hu (LSTC)

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).

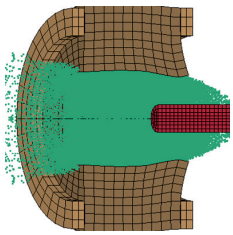
The seminar will thoroughly refer to the settings required in the LS-DYNA input deck to carry out a successful nonlinear meshfree or advanced FEM simulation. Common applications of these methods are materials made of rubber or foam that undergo large deformations. The adaptive EFG formulation is the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



Methods for Simulating Short Duration Events

Date: 13 - 14 October
Course fee: 1.100,- €*
Location: Stuttgart
Lecturers: Paul Du Bois (Consultant);
Dr. Len Schwer (Schwer Consulting)

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.



Mit freundlicher Genehmigung:
Schwer Engineering

The training class will provide additional tools and knowledge required to make appropriate modeling decisions and convey the level of confidence in predictive results. Insights into modeling and simulation are illustrated through 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: 17 - 18 October
Course fee: 1.100,- €*
Location: Stuttgart
Lecturers: Paul Du Bois (Consultant);
Dr. Len Schwer (Schwer Consulting)

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

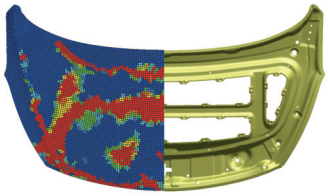
This class focuses on the application of LS-DYNA for the simulation of high energy events. Methods of analysis and modeling are illustrated through case studies. However, this training class is not a substitute for the in-depth treatments presented in the associated LS-DYNA training class, i.e. "ALE/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

Mit freundlicher Genehmigung:
Schwer Engineering

LS-OPT – Optimization and Robustness

Date: 18 - 20 October
Course fee: 1.425,- €*
Location: Stuttgart
Lecturer: Katharina Witowski (DYNAmore)

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.



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: 19 - 20 October
Course fee: 1.100,- €*
Location: Stuttgart
Lecturers: Paul Du Bois (Consultant);
Dr. Len Schwer (Schwer Consulting)

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.

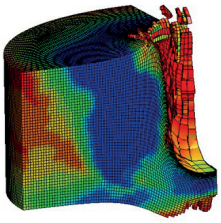


Bild mit freundlicher Genehmigung:
French-German Research Institute of Saint-Louis (ISL)

This class focuses on the application of LS-DYNA and provides analysis methods and modeling techniques, which are illustrated through 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: 21 October
Course fee: 550,- €*
Location: Stuttgart
Lecturers: Paul Du Bois (Consultant);
Dr. Len Schwer (Schwer Consulting)

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 additional tools and knowledge required to model explosives for a range of applications.

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

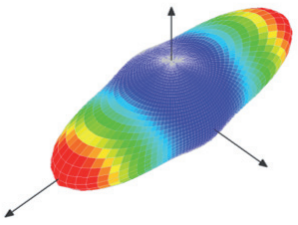
All prices plus VAT.
Event fees include course materials, lunch and beverages.

Online registration:
www.dynamore.de/16sem-e

Integrative simulation of short-/long glass fiber reinforced plastics with LS-DYNA

Date: 10 October (9:00 - 12:00)
Course fee: Free of charge
Location: Bamberg
Lecturer: 4a engineering / DYNAmore
Language: German

With fiber-reinforced plastics, the resulting fiber orientations in the molded component lead to many local anisotropies. To obtain accurate simulation results, these anisotropies should be incorporated in the structure simulation. One way to achieve this is by transferring the computed fiber orientations from a previous injection molding simulation to the structure simulation using a mapping program.



The goal of this workshop is to present this integrative simulation approach in detail, to explain its advantages and to demonstrate a procedure to include micromechanics with the aid of an example. Furthermore, the possibilities of such material modeling using 4a impetus are shown and the approaches and possibilities of *MAT_157 and *MAT_215 are discussed.

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