LSTC
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Technology Corp.

DYNA
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UPDATE

Invitation and Agenda

11th EUROPEAN LS-DYNA CONFERENCE

9 - 11 May 2017 – Salzburg, Austria

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Dear LS-DYNA user community,

With this agenda we would like to cordially invite you to the beautiful city of Salzburg, Austria, to attend the 11th European LS-DYNA Conference from 9 - 11 May, which is again taking place on two and a half days.

This year you can expect more than 190 presentations and 9 workshops. It is remarkable to see how the user community has grown in the past years and a look into the agenda reveals, how wide spread the application fields are of LS-DYNA and LS-OPT.

The conference starts on Tuesday after lunch with keynote lectures which are followed by parallel sessions hosting user presentations of various branches of industry. On the first evening we will meet in the accompanying exhibition for dinner, drinks and live music. There will also be an official conference gala dinner taking place on the second evening.

Following this, the conference is an ideal place to exchange your experiences and findings with other users of LS-DYNA and the associated product range. Moreover, the workshops will provide an opportunity for a straightforward introduction to application areas of LS-DYNA, which you might have wanted to know about for a long time.

In addition to the conference we are pleased to offer you 10 advanced seminars on LS-DYNA, which need to be booked separately. Conference participants receive a 10% discount on the seminar fees. More information on this can be found at the end of this booklet.

We hope that we have stimulated your interest and are looking forward to welcoming you in Salzburg.

Sincerely yours

LSTC Livermore Software Technology Corp.

DYNA MORE

Tuesday, 9 May

10:00 Pre-Conference Workshop presented by ASC(S: Crash Analysis for Electric and Autonomous Cars

11:00 Registration

Exhibition

12:55 Welcome/Keynote Presentations

15:40	Crash Plastics Failure	Occup. Safety Dummies	Materials Fiber Reinforced	Process Metal Forming	Air Blast	HPC & Cloud Computing		
17:30	Crash Short Fiber	Occup. Safety Legs / Seats	Materials Plastics	Process Metal Forming	Air Blast	Cloud Computing	SDM / CAE Processes	Workshop Welding

18:45 Food, drinks and live music in the exhibition hall

Wednesday, 10 May

07:15 Running LS-DYNA (45 min. jogging)

08:00 Registration

Exhibition

08:30	Crash Metal Failure	Optimization General	Materials Continuous Fiber	Process Connections	Concrete Under Blast Loading	ICFD Solver / FSI	SDM / CAE Processes	Workshop 4a / Impetus
10:40	Crash Metal Failure	Optimization Topology	Materials Arena 2036	Process Hot Forming	Concrete Penetration	NVH	Workshop SDM / SCALE	Workshop ICFD Pre

12:20 Lunch

13:40 Keynote Presentations

15:40	Crash Bake Hardening	Optimization Topol. / Robust.	Experiments / Parameters	Process Welding	Metals Under Blast Loading	ICFD Solver / FSI	Model Order Reduction	Workshop eta/DYNAFORM
17:25	Crash Model Buiding	Occup. Safety CAE	Experiments / Parameters	Impact / Failure	Armor Penetration	ICFD Solver / FSI	Road Safety	Workshop ENVYO

19:00 Get together in the exhibition hall

20:00 Gala dinner in Frankonia Saal

Thursday, 11 May

Exhibition

08:30	Crash Batteries / Tires	Ped. Safety Head Impact	Materials Short Fiber	Particles SPH / DEM	Mine Blast / Chemistry	Simulation Misc.	Impact - Marine & Aviation	Workshop LS-OPT Robust.
10:40	Crash Connections	Implicit Mechanics	Materials Laminated Glass	Process Misc.	Failure Misc.	Simulation Misc.		Workshop Blast

12:20 Lunch

13:30 Keynote Presentations / Closing Remarks

15:15 End of conference

Friday, 12 May

10:00 The 2017 THUMS European Users' Meeting

AGENDA – TUESDAY, 9 MAY 2017

WELCOME – KEYNOTE PRESENTATIONS

12:55 **Welcome**
U. Franz (DYNAmore)

13:05 **Recent Developments in LS-DYNA – Part I**
J. O. Hallquist, R. Grimes, J. Xu, G. Cook (LSTC)

13:45 **On Computational Strategies for Fluid-Structure Interaction: Algorithmic Developments and Applications**
Prof. D. Peric, W. G. Dettmer, C. Kadapa (Swansea University)

14:15 **CAE-Based Safety Development of the All-New Volvo S90/V90/V90CC**
J. Jergeus, D. Macri, P.-A. Eggertsen, I. Jenshagen, U. Westberg, M. Khoo (Volvo Cars)

14:45 **Sponsor Presentation: Fujitsu / Intel**
Presenters from Fujitsu Technology Solutions and Intel

15:00 Break

Andreas Hirth Memorial Session

	CRASH – PLASTICS FAILURE	OCCUPANT SAFETY – DUMMIES	MATERIALS – FIBER REINF. PLASTICS	PROCESS – METAL FORMING
15:40	**Implementation of a VE-VP Material Law for the Simulation of Energy Absorbing Thermoplastic Components** P. Du Bois (Consultant); M. Feucht, J. Irslinger (Daimler); T. Erhart (DYNAmore)	**Application of Reduced Model to Estimating Nij of HYBRID3 AF05 Dummy in Sled FE Simulation** T. Yasuki (Toyota Motor)	**A Modular Material Modeling Strategy for UD Composites and Organic Sheets unsing MFGenYld+CrachFEM** M. Vogler, G. Oberhofer, H. Dell (MATFEM)	**Forming Simulation, Meta Language and Input Decks** M. Fleischer, J. Sarvas, H. Grass, J. Meinhardt (BMW Group)
16:05	**Modelling of Ductile Polymer Model for Crash Application** Y. Ngueveu, S. Miyagano (Toyota Motor); F. Lauro Universite de Valenciennes); R. Balieu (KTH Royal Institut of Technology)	**CAE Prediction of H-Point (Occupant Positioning in the Vehicle) using LS-DYNA, ARUP-HPM Tool** C. G. Thangam, F. Eklöf, E. Mårtensson, P. Setterberg, J. Lindberg, S. Johnsson (Volvo Cars)	**Holistic Approach for Simulation Driven Design Process for Fiber Reinforced Plastics** C. Hinse, S. Kaul (SimpaTec)	**Experimental Validation of Detecting Surface Deflections on Sheet Metal Parts with LS-DYNA** A. Weinschenk, A. Schrepfer, W. Volk (TU München)
16:30	**Characterization and Modeling of the Deformation and Failure Behavior of Neat Thermoplastic Homopolymers under Impact Loading Conditions** P. Stelzer, Z. Major (University of Linz)	**THOR 5th Dummy FE Model Development** A. Lakshminarayana, C. Shah (Humanetics)	**Multi-Scale Modeling Technics Applied to a Multi-Material Design Context: SFRP, CFRP, Additive Manufacturing** S. Calmels (e-Xstream)	**Advances in IGA for Sheet Metal Forming Applications** S. Hartmann (DYNAmore)

16:55 Break

	CRASH – SHORT FIBER	OCCUPANT SAFETY – LEGS & SEATS	MATERIALS – PLASTICS	PROCESS – METAL FORMING
17:30	**Simulation of Short Fiber Reinforced Plastics with LS-DYNA Considering Anisotropy, Rate Dependency and Rupture** B. Lauterbach, M. Erzgraeber (Adam Opel); C. Liebold, A. Haufe, M. Helbig (DYNAmore)	**Study of Occupant Lower Leg Injury Value Using Interface New Function** T. Ishihara, H. Sugaya, K. Maehara, H. Mae (Honda R&D)	**Computational Material Models for TSCP Plastics Comparison of the Deformation Behavior with MAT 24 and MAT SAMP-1 with DIEM** M. Dobes, J. Navratil (Robert Bosch)	**Forming Simulations of Niobium Sheets – Upgrade of the Numerical Model and Outcome for Novel Productions** A. Amorim Carvalho, M Garlaschè, A. Dallocchio, O. Capatina, L. Prever-Loiri, M. Narduzzi, J. Brachet, B. Bulat (CERN); L. Peroni, M. Scapin (Politecnico di Torino)
17:55	**Stochastic Approach to Rupture Probability of Short Fiber Reinforced Polypropylene for Automotive Crash Applications** N. Sygusch, B. Lauterbach (Adam Opel); N. Ruesch (Hochschule Darmstadt); S. Kolling (THM Gießen); J. Schneider (TU Darmstadt)	**Numerical Simulation of Aircraft Seat Compliance Test using LS-DYNA Implicit Solver** S. Pathy (LSTC); T. Borvall (DYNAmore Nordic)	**Failure Models of Plastics - Material Characterization for *MAT_ADD_EROSION (DIEM)** A. Fertschej, B. Hirschmann, M. Rollant, P. Reithofer (4a engineering)	**New Features for Metal Forming in LS-DYNA** X. Zhu, L. Zhang (LSTC); B. Hochholdinger (DYNAmore Swiss)
18:20	**Numerical-Experimental Correlation of Mechanical Tests on Fiber-Reinforced Polyamide Composites** A. Molaro, M. Lanzillo, F. Uimbardi, A. Causa, B. Villacci (SAPA)	**Physical Appearance Evaluation of Automotive Seat Structure with J-SEATdesigner** N. Ichinose, H. Yagi (JSOL)	**Creep Modeling Of Plastic Components in Sealed Connectors** H. E. Miled (Delphi Connecting Systems)	**Forming of Ultra-High-Strength Sheet Metals with Alternating Blank Draw-In** R. Radonjic, M. Liewald (University of Stuttgart)

18:45 GET TOGETHER – FOOD, DRINKS AND LIVE MUSIC IN THE EXHIBITION HALL

R. Grimes
LSTC

J. Xu
LSTC

G. Cook
LSTC

Prof. D. Peric
Swansea University

J. Jergeus
Volvo Cars

AIR BLAST

Air Blast Reflection Ratios and Angle of Incidence
L. Schwer (SE&CS)

Comparison of MM-ALE and SPH Methods for Modeling Blast Wave Reflections of Flat and Shaped Surfaces
J. Trajkovski, R. Kunc, I. Prebil
(University of Ljubljana)

Simulating Reinforced Concrete Beam-Column against Close-In Detonation using S-ALE
S. K. Tay, R. Chan, J. K. Poon
(Ministry of Home Affairs)

HPC & CLOUD COMPUTING

Processor Count Independent Results: Challenges and Progress
B. Wainscott, Z. Han (LSTC)

Maximizing Cluster Scalability for LS-DYNA
P. Lui, D. Cho, G. Lotto, G. Shainer
(Mellanox Technologies)

On Demand Licensing with LS-DYNA
Prof. U. Göhner (DYNAmore)

15:40

16:05

16:30

16:55

AIR BLAST

A Review of S-ALE Solver for Blast Simulations
I. Kurtoglu, B. Balaban
(FNSS Savunma Sistemleri)

A Comparison between Three Air Blast Simulation Techniques in LS-DYNA
H. Bento Rebelo, C. Cismasiu
(Universidade NOVA de Lisboa)

Secondary Shocks and Afterburning: Some Observations
L. Schwer (SE&CS); S. Rigby
(University of Sheffield)

CLOUD COMPUTING

Leveraging Rescale's Cloud HPC Simulation Platform to Run LS-DYNA Models and Accelerate Design Exploration: Examples and Case Studies
W. Dreyer, T. Smith (Rescale)

HPC in the Cloud: Gompute Support for LS-DYNA Simulations
I. Fernandez (Gompute)

HPC in the Cloud – An Alternative to Cover "Just" Capacity Issues? Challenges & Outlook for Dynamic Scaling with LS-DYNA
A. Heine, J. Tamm (CPU 24/7)

SDM & CAE PROCESSES

A Unified Environment For Processing Test Videos And Simulation Models
S. Kleidarias, V. Pavlidis
(BETA CAE Systems)

Systems Engineering with Status.E and CAViT – Comparison and Assessment of CAT & CAE Data
G. Geißler, M. Liebscher, R. Hausdorf
(SCALE); M. van der Hove (AUDI)

d3VIEW - Data to Decision Platform Development Update
S. Bala (LSTC)

WORKSHOP

Welding Simulation
T. Loose (DynaWeld)

In this workshop, two simulation models will be presented addressing the Gas Metal Arc Welding of a T-joint as well as a Laser Welding overlapp joint with a tension test.

Herein, the most important features of a welding simulation are discussed:
- preparation of material data
- single- and multi-phase materials
- aluminium and steel
- weldpath and weld sequence
- heat source and heat input control
- heat input simulation with SimWeld
- contact, clamps and loads

The workshop is closed with a short demonstration of the welding preprocessor DynaWeld.

17:30

17:55

18:20

GET TOGETHER – FOOD, DRINKS AND LIVE MUSIC IN THE EXHIBITION HALL 18:45

Program subject to alterations.

AGENDA – WEDNESDAY, 10 MAY 2017

07:15 Running LS-DYNA (45 min. jogging)

MORNING SESSIONS

	CRASH – METAL FAILURE	OPTIMIZATION – GENERAL	MATERIALS – CONTINUOUS FIBERS	PROCESS – CONNECTIONS
08:30	**Plastic Instability of Rate-Dependent Materials - A Theoretical Approach in Comparison to FE Analyses** C. Keller, U. Herbrich (Bundesanstalt für Materialforschung und –prüfung)		**Numerical Evaluation of Low-Speed Impact Behaviour of a Fabric Layered Composite Plate in an Industrial Context** S. Treutenaere, F. Lauro, B. Bennani, G. Haugou, W. Xu (University of Valenciennes); E. Mottola, T. Matsumoto (Toyota Motor)	**Numerical Simulation of High-Speed Joining** M. Gerkens, Prof. G. Meschut (University of Paderborn)
08:55	**Short Introduction of a New Generalized Damage Model** T. Erhart, F. Adrade (DYNAmore); P. Du Bois (Consultant)	**Lightweighting and Cost Reduction Using Optimization-Led Design Software** A. Farahani, M. Kiani, D. Mittal (ETA); A. Kaloudis (BETA CAE)	**Modeling of Carbon-Fiber-Reinforced Polymer (CFRP) Composites in LS-DYNA with Optimization of Material and Failure Parameters in LS-OPT** S. Dong (Ohio State University); L. Graening (Honda Research Institute); A. Sheldon (Honda R&D Americas)	**Continuous Simulations from Resistance Spot Welding Process to Joint Strength** S. Yagishita, T. Kawashima, N. Ma (JSOL)
09:20	**Ductile Failure in Large-Scale Analyses of Aluminium Structures** D. Morin, T. Berstad, O.S. Hopperstad, M. Langseth (NTNU)	**MDO Collision/NV/Stiffness Optimization with LS-OPT** R. Ishii, M. Takeda (JSOL); Y. Tanaka (Toyota Auto Body); M. Nishi (Nihon Emsco)	**Material Characterization of a 3D-Woven Carbon Fiber Preform at Macro-Scale Level for Manufacturing Process Modelling** G. Scarlat, R. Ramgulam, P. Martinsson, H. Bayraktar (Albany Engineered Composites)	**Resistive Spot Welding Simulations Using LS-DYNA** P. L'Eplattenier, I. Çaldichoury (LSTC); T. Loose (DynaWeld)
09:45	**Characterization and Modeling of Anisotropic Behavior of Aluminum Profile** F. Andrieux, D. Sun (Fraunhofer IWM)	**Parallel Constrained Efficient Global Optimization for Deterministic and Probabilistic Problems** A. Basudhar, N. Stander, I. Gandikota (LSTC); K. Witowski, A. Svedin (DYNAmore Nordic)	**Numerical Investigations of Adhesive CFRP-Joints and Determination of Transverse Properties of the Adherends** T. Behling, M. Holzapfel (DLR)	**Modeling of Curing Adhesives between Jointed Steel and Aluminum Plates using MAT_277 in LS-DYNA** S. Dong (Ohio State University); A. Smith, A. Sheldon (Honda R&D Americas)
10:10	Break			
	CRASH – METAL FAILURE	**OPTIMIZATION – TOPOLOGY**	**MATERIALS – ARENA 2036**	**PROCESS – HOT FORMING**
10:40	**Modeling of Deformation and Damage Behavior of High Strength Steels under Multiaxial Crash Loading** D. Sun, A. Trondl. S. Klitschke (Fraunhofer IWM)	**Topology Optimization Methods based on Nonlinear and Dynamic Crash Simulations** Prof. F. Duddeck, M. Bujny, D. Zeng (TU München)	**Investigating the Influence of Local Fibre Architecture in Textile Composites by the Help of a Mapping Tool** M. Vinot, M. Holzapfel (DLR); C. Liebold (DYNAmore)	**Hot Rolling Simulation of Aluminium Alloys using LS-DYNA** P. Simon, G. Falkinger (AMAG); S. Scheiblhofer (LKR Ranshofen)
11:05	**A Status Review of Failure Simulation at the Federal Aviation Administration** D. Cordasco, W. Emmerling (Federal Aviation Administration); P. Du Bois (Consultant)	**LS-TaSC Product Status** K. Witowski (DYNAmore); W. Roux (LSTC)	**The Digital Prototype as Part of Envyo – Development History and Applications within the ARENA2036 Environment** C. Liebold, A. Haufe (DYNAmore); M. Vinot (DLR); J. Dittmann, P. Böhler (University of Stuttgart); H. Finckh, F. Fritz (ITV Denkendorf)	**Tool Cooling Simulation for Hot Forming** T. Kuroiwa (JSOL)
11:30	**A Comparison of Damage and Failure Models for the Failure Prediction of Dual-Phase Steels** F. Andrade (DYNAmore); M. Feucht (Daimler)	**A Systematic Study on Topology Optimization of Crash Loaded Structures using LS-TaSC** K. Weider, A. Marschner, Prof. A. Schumacher (University of Wuppertal)	**Manufacturing Simulation as Part of the Digital Prototype** P. Böhler, J. Dittmann, D. Michaelis, P. Middendorf (University of Stuttgart); C. Liebold (DYNAmore)	**The Structural Conjugate Heat Transfer Solver – Recent Developments** T. Klöppel (DYNAmore)
11:55	**Applications of Multiscale and Subcycling Methods for Press Hardened Steel Parts Failure Assessment** Y. Drouadaine (ArcelorMittal)	**Free-Form Shape Optimization on CAD Models** D. Baumgärtner, M. Breitenberger, Prof. K.-U. Bletzinger (TU München)	**Textile Process Simulation as Part of Process Chain** H. Finckh, F. Fritz, G. Gresser (ITV Denkendorf)	**An Analysis of the Hot-forming Process with Thermal and ICFD Simulations** M. Kintsch, S. Szabo, R. Schneider (Voestalpine Automotive Components); W. Rimkus (Hochschule Aalen)
12:20	Lunch break			

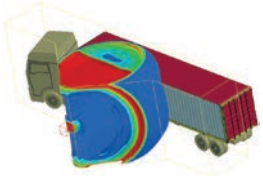
Courtesy of Daimler AG

Courtesy of Husqvarna AB

Courtesy of Knorr-Bremse Systeme für Schienenfahrzeuge GmbH

Courtesy of Jaguar Land Rover Limited

Courtesy of BMW Group



Courtesy of Thiot Ingenierie

CONCRETE UNDER BLAST LOAD

2D Modeling of Blast Induced Rock Damage around a Single Blasthole
A. Saadatmand Hashemi, T. Katsabanis (Queen's University)

Numerical Modeling of Concrete Response to High Strain Rate Loadings
R. Sharath, D. Arumugam, B. Dhana Sekaran, T. Subash (Larsen & Toubro)

Numerical Prediction of the Dynamic Response of Prestressed and Reinforced Concrete Hollow Core Slabs Under Blast Loading
A. Maazoun, S. Matthys (Ghent University); J. Vantomme (Royal Military Academy)

Simulating Dynamic Loads on Concrete Components using the MM-ALE (Eulerian) Solver
S. K. Tay, R. Chan, J. K. Poon (Ministry of Home Affairs)

ICFD SOLVER & FSI

Simulation of Fluid-Structure Interaction between Injection Medium and Balloon Catheter using ICFD
L. Wiesent, Prof. M. Wagner (OTH Regensburg)

Generalized Porous Media Flow in ICFD-LS-DYNA: FSI, Free-Surface, RTM and Parachute Modeling
R. Paz, F. Del Pin, I. Çaldichoury (LSTC); H. Castro (Conicet)

Effect of Porous Components on the Aerodynamics of a Bluff Body
S. Szyniszewski, M. Pelacci, J. Aguero, D. Birch (University of Surrey); Y. Liu (Southwestern University)

Investigating the Post Processing of LS-DYNA in a Fully Imersive Environment
E. Helwig, F. Del Pin (LSTC)

SDM & CAE PROCESSES

Recent Developments in LoCo – Instant Collaboration in Simulation Data Management
R. Bitsche, M. Thiele, T. Landschoff (SCALE); M. Koch (Dr. Ing. h.c. F. Porsche)

Data Management and Loadcase Composition in ANSA
T. Fokilidis, L. Rorris, T. Loiras (BETA CAE Systems)

The Benefits of Scripting for CAE Engineers – How a Little Can Go a Long Way
G. Newlands, M. Thornton (ARUP)

WORKSHOP

MPIP - Material Parameter Identification Process with 4a impetus
A. Fertschej, B. Jilka (4a engineering)

The material card generation using 4a impetus solution is shown exemplary for thermoplastic materials. The latest software features of 4a impetus are presented, especially the "Autofit" workflow and implementation of anisotropic material laws are main topics. New test methods focusing on failure estimation and component validation complete the workshop topics.

Besides the presentation there will be time for interactions between the presenters and the audience.

08:30
08:55
09:20
09:45
10:10

CONCRETE PENETRATION

Assessment of the Capacity of a Reinforced Concrete Structure for Impact with Military Jet Aircraft
M. Miloshev, M. Kostov (Risk Engineering)

Evaluation of Debris Modeling Technique on Failure Simulation of Concrete Structures
S. Tokura (Tokura Simulation Research); K. Niwa (Terrabyte)

Comparison of the RHT Concrete Material Model in LS-DYNA and Ansys Autodyn
C. Heckötter, J. Sievers (GRS)

Perforation of Concrete Target: Numerical Simulation with SPH-FE Coupling Method
M. Özkan, S. Duran (Tübitak Sage)

NVH

The Use of LS-DYNA for Body NVH "The Success so far"
T. Zeguer (Jaguar Land Rover); Y. Huang, M. Souli (LSTC)

Recent Developments for Frequency Domain Analysis in LS-DYNA
Y. Huang, Z. Cui (LSTC)

Acoustic Aalysis for Impact Sound with LS-DYNA
R. Ishii (JSOL); T. Yamamoto (Nihon Emsco); Z. Cui, Y. Huang (LSTC)

A New Eigensolver for High Performance NVH Analysis: MCMS (Multi-Level Component Mode Synthesis)
Prof. K. Chang-Wan (Konkuk University); R. Grimes (LSTC)

WORKSHOP

SDM and CAE-Processes with SCALE Solutions
R. Bitsche, G. Geißler (SCALE)

The workshop gives an overview of the SCALE SDM products such as LoCo, CAViT and Status.E.

There will be a discussion on how to benefit from SCALE solutions as a user or project manager. The application of selected uses cases will be presented within live demos. Examples of typical CAE workflows and process automation using SCALE SDM applications are introduced.

A lively discussion at the end of the workshop is very welcome to investigate a potential integration of SDM software in your environment.

WORKSHOP

New LS-PrePost Interface for ICFD Preprocessing
I. Çaldichoury (LSTC)

A new interface for model setup is under development in LS-PrePost where the user can easily assign physical properties and options for his model. LS-PrePost will then automatically translate the definitions into keyword format.

The current capabilities focus on the ICFD solver but will be extended in the future.

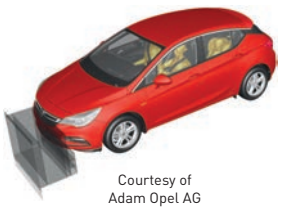
10:40
11:05
11:30
11:55

Program subject to alterations.


Courtesy of Ford Forschungszentrum Aachen GmbH


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


Courtesy of Autoliv & Volvo Cars


Courtesy of Adam Opel AG


Courtesy of Volkswagen AG


Courtesy of Volvo Car Corporation

AFTERNOON SESSIONS

KEYNOTE PRESENTATIONS

13:40 **You want me to do what?!**
E. DeHoff (Honda R&D Americas)

14:10 **Simulation of Mechanical Watches at IWC**
P. Steinhaeuser (IWC Schaffhausen)

14:40 **Technical Challenges in the Integration of Hybrid-Components in New Automotive Concepts***
D. Moncayo, Prof. C. Glöggler (Daimler)
*subject to approval

15:10 Break

	CRASH – BAKE HARDENING	OPTIMIZATION – TOPOL. & ROBUSTN.	EXPERIMENTS & PARAMETER OPT.	PROCESS – WELDING
15:40	**Enhancing Fracture Prediction by Local Material Property Distribution – Feasibility Study** D. Riemensperger (Adam Opel); A. Haufe (DYNAmore)	**Topology Optimization of the Bogie Structure Of a Tracked Military Vehicle** K. Akcengiz, B. Balaban (FNSS Savunma Sistemleri)	**New Generation Modeler for LS-DYNA Material Parameter Conversion** H. Lobo, E. Strong (Matereality)	**Equivalent Energy Method for Welding Structure Analysis** T. Loose, J. Rohbrecht (DynaWeld)
16:05	**FE Implementation of AA6xxx Series Aluminium Pre-Strain Dependent Strengthening Response During Paint Bake** S. Jurendic, Z. Liang, R. Burrows (Novelis); S. Saha (RWTH Aachen)	**Improvement of Response Surface Quality for Full Car Frontal Crash Simulations by Suppressing Bifurcation using Statistical Approach** M. Okamura (JSOL)	**Experimental Investigation on the Damage Behaviour of a Rubber-Toughend Polymer** M. Helbig (DYNAmore)	**Prediction of Residual Deformation from a Forming and Welding Procedure in Alloy 718 using LS-DYNA** E. Odenberger, L. Peréz Caro (Swerea); M. Schill (DYNAmore Nordic)
16:30	**Experimental Investigation and Numerical Characterization of the Bake-Hardening Effect of a Two-Phase Steel** D. Koch, A. Haufe (DYNAmore); M. Feucht (Daimler)	**Combined Analysis of LS-DYNA Crash-Simulations and Crash-Test Scans** L. Jansen, D. Borsotto, C. Thole (Sidact)	**Explicit and Implicit FE Simulations of Material Tests for Subsequent Durability Analyses** P. Thumann, Prof. M. Wagner (OTH Regensburg); B. Suck (BMW Group); S. Marburg (TU München)	**Preliminary Study on Modeling of the Deformation and Thermal Behavior of FSW using SPH Approach** S. Patil, H. Lankarani (Wichita State University); F. Baratzadehl (National Institute for Aviation Research)

16:55 Break

	CRASH – MODEL BUILDING	OCCUPANT SAFETY – CAE	EXPERIMENTS & PARAMETER OPT.	IMPACT & FAILURE
17:25	**Development of a 2015 Mid-Size Sedan Vehicle Model** R. Reichert, S. Kan (George Mason University)	**Airbag Folding with JFOLD – Latest Developments and Case Studies** R. Taylor (ARUP); S. Hayashi (JSOL)	**Testing in Support of the Development of Accurate Numerical Simulations of Plastic Deformation and Failure** A. Gilat, J. Seidt (The Ohio State University)	**Numerical Modelling of the Fluid Structure Interaction using ALE and SPH: The Hydrodynamic Ram Phenomenon** D. Varas, J. A. Artero-Guerrero, J. Pernas-Sánchez, J. López-Puente (University of Madrid)
17:50	**Small Electric Car Front Cross-Member Assembly Low Speed Impact Simulation** Prof. G. Lampeas, I. Diamantakos, K. Fotopoulos (University of Patras); I. Lopez Benito (Batz S.)	**Curve Comparison using esiCORA** M. Sommer, M. Seshadri (ESI)	**Application of Digital Image Correlation to Material Parameter Identification using LS-OPT** N.Stander (LSTC); K. Witowski, A. Haufe, M. Helbig, D. Koch, C. Ilg (DYNAmore)	**Novel Simulation of Composite Material behavior Subjected to Hyper-Velocity Impact (HVI) and Produced Secondary Debris by using Smoothed Particle Hydrodynamics Code (SPH) Methodology in LS-DYNA** E. Giannaros, Prof. A. Kotzakolios, S. Tsantzalis, V. Kostopoulos (University of Patras) G. Campoli (ESA /ESTEC)
18:15		**Error of Measuring Non Coplanar-2D Hex Elements in FEA Codes that use Varignon Theorem** F. Conde, C. Lois (ZF-TRW)		**Isogeometric Models for Impact Analysis with LS-DYNA** M. Montanari, N. Petrinic (University of Oxford); L. Li (LSTC)

19:00 RECEPTION IN THE EXHIBITION HALL

20:00 GALA DINNER IN „EUROPA HALL"

E. DeHoff
Honda R&D Americas

P. Steinhaeuser
IWC Schaffhausen

D. Moncayo
Daimler

Prof. C. Glöggler
Daimler

METALS UNDER BLAST LOAD

Investigation on the Dynamic Behavior of AlgoTuf 400F Steel
G. Toussaint (Defence Research and Development Canada)

Absorbing Materials – Tests Versus Simulations
R. Ridky, M. Popovic (SVS FEM); M. Drdlova (Výzkumný ústav stavebních hmot); O. Koutny (Bogges)

Numerical Modelling of the Plastic Deformation of Ti-6Al-4V Sheets Under Explosive Loading
D. Kakogiannis, F. Coghe, L. Rabet (Royal Military Academy)

ICFD SOLVER & FSI

Review and Advances of Coupling Methods for the ICFD Solver in LS-DYNA
F. Del Pin, I. Çaldichoury, R. Paz (LSTC)

Applications of ICFD / SPH Solvers by LS-DYNA to Solve Water Splashing Impact to Automobile Body
G. Wang, E. DeHoff (Honda R&D Americas); F. Del Pin, I. Çaldichoury, E. Yreux (LSTC); K. Gardner (Ohio State University)

Hydrodynamic Drag Force Predictions for Amphibious Military Vehicles
I. Kurtoglu (FNSS Savunma Sistemleri)

MODEL ORDER REDUCTION

An Investigation into Modeling Approaches for the Dynamic Response of a Shipping Container Cart and Suspended Automotive Parts under Random Base Excitation using LS-DYNA
Prof. S. Noll, A. Ramanathan (Ohio State University); E. DeHoff, R. Rittenhouse (Honda R&D Americas)

Application of Model Order Reduction Techniques in LS-DYNA
P. Friedrich (SCALE)

Hierarchical Multi-Level-Optimization of Crashworthy Structures using Automatic Generated Submodels
H. Singh, Prof. A. Schumacher (Bergische Universität Wuppertal); C. Falconi, A. Walser (Automotive Simulation Center Stuttgart); S. Trentmann, L. Benito (Iges. Für numerische Simulation); H. Müllerschön (Scale); C. Foussette, P. Krause (divis intelligent solutions)

WORKSHOP

Introduction into the New Optimisation Tools for Forming Simulation with eta/DYNAFORM
M. Merten (DYNAmore)

Recently, DynaForm version 5.9.3 was published, which contains several new features. Particular highlights are the new automatic springback compensation process or the reworked blank & trim line development, which improve the workflow of a toolmaker in daily life.

The goal of this workshop is to present these new features and how they work. How they can be an applied will be shown with the aid of a live demonstration on a simple geometry. Attention is drawn on a quick and proper setup for these processes.

15:40

16:05

16:30

16:55

ARMOR PENETRATION

Numerical Investigations on Ricochet of a Spin-Stabilised Projectile on Armour Steel Plates
M. Seidl, T. Wolf, R. Nuesing (ISL)

Numerical and Experimental Investigation of Asymmetrical Contact Between a Steel Plate and Armor-Piercing Projectiles
T. Fras (French-German Research Institute of Saint-Louis); P. Pawlowski (Polish Academy of Sciences)

ICFD SOLVER & FSI

Applications of ICFD Solver by LS-DYNA in Automotive Fields to Solve Fluid-Solid-Interaction (FSI) Problems
G. Wang, P. Rodriguez, J. Tippie, S. Smith (Honda R&D Americas); F. Del Pin, I. Çaldichoury (LSTC)

Simulation of Flow Induced Vibrations in Pipes using the LS-DYNA ICFD Solver
M. Timgren (DYNAmore)

Free Fall Movement Decomposition of a Payload Released by Aircraft: Study of the Aerodynamic Coefficients using the LS-DYNA ICFD Solver
E. Grippon, M. Seulin, V. Lapoujade, T. Maillot, C. Michel (DynaS+)

ROADSAFETY

TB11 Test for Short W-Beam Road Barrier
K. Wilde, S. Burzyński, D. Bruski, J. Chróścielewski, W. Witkowski (Gdańsk University of Technology)

Simulation of Wire Rope Road Barriers and Vehicle Collision: Experiment and LS-DYNA Correlation
I. Karpov, I. Demiyanushko, B. Tavshavadze (Moscow Automobile and Road Construction State Technical University (MADI)

On the Influence of Shell Element Properties on the Response of Car Model in Crash Test
S. Burzyński, K. Wilde, D. Bruski, J. Chróścielewski,W. Witkowski (Gdańsk University of Technology)

WORKSHOP

Mapping with Envyo
C. Liebold (DYNAmore)

Envyo is a multi-purpose mapping tool which was introduced to the public in 2016 during the German LS-DYNA Forum

The goal of this workshop, is to present the already implemented mapping capabilities and to demonstrate their usage. The general need to map simulation results is shown with the aid of dedicated examples.

The workshop is closed with an open discussion where you can place your own ideas for future mapping developments.

17:25

17:50

18:15

RECEPTION IN THE EXHIBITION HALL 19:00

GALA DINNER IN „EUROPA HALL" 20:00

Program subject to alterations.

AGENDA – THURSDAY, 11 MAY 2017

	CRASH - BATTERIES & TIRES	PEDESTRIAN SAFETY – HEAD IMPACT	MATERIALS – SHORT FIBER	PARTICLE METHODS: SPH & DEM
08:30	**Mechanical Modeling of Li-Ion Cell Crush Experiments using LS-DYNA** M. Seulin, C. Michel, V. Lapoujade (DynaS+); J. Marcicki (Ford Research and Innovation Center); P. L'Eplattenier (LSTC)	**Using LS-DYNA for Detailed Biomechanical Impact Simulation** W. Lietz, O. Siegemund (Cadfem); H. Ottersbach (IFA)	**Compression Molding Analysis of Long Fiber Reinforced Plastics using Coupled Method of Beam and 3D Adaptive EFG in LS-DYNA** S. Hayashi (JSOL); H. Chen, W. Hu (LSTC)	**Impact of Soft Body Materials, an Experimental and Numerical Approach using a Hopkinson Tube: Application to Substitute Bird** J. Pernas-Sánchez, R. del Caurillo, J. A. Artero-Guerrero, D. Varas, J. López-Puente (University of Madrid)
08:55	**Battery Abuse Simulations Using LS-DYNA** P. L'Eplattenier (LSTC)	**Head Impact Analysis Correlation for Aluminium Bonnet** O. Çolpan, F. Aras (Tofas)	***MAT_4A_MICROMEC – Theory and Application Notes** P. Reithofer, A. Fertschej, B. Jilka (4a engieering); A. Erhart, S. Hartmann (DYNAmore)	**Thermal Coupling Method Between SPH Particles and Solid Elements in LS-DYNA** J. Xu, J. Wang (LSTC)
09:20	**Modeling of a Cast Aluminium Wheel for Crash Application** Y. Leost (Fraunhofer EMI)	**Validation of Thums Human Model Throw Distance in Pedestrian Accident Scenarios** M. Orlowski, C. Bastien, M. Bhagwani (Coventry University)	**High-Dynamic Drop Test Simulation for Fiber Reinforced Plastics in Automotive Electronic Control Units** T. Zhao, D. Papathanassiou (Bosch Automotive Products)	**Simulation of Agricultural Soil Tillage Machine using DEM** H. Mouradjalian, Z. Asaf, I. Shmulevich (Technion - Israel Institute of Technology); B. Zion (Israeli Agricultural Research Organization)
09:45	**Tire Model Development Update** S. Bala (LSTC)	**Define_Pressure_Tube: Simulating Pressure Tube Sensors in Pedestrian Crash** J. Karlsson (DYNAmore Nordic)	**Considering the Local Anisotropy of Short Fiber Reinforced Plastics: Validation on Specimen and Component** R. Steinberger, T. Gross (Hirtenberger Automotive Group); S. Paul (Simpatec); P. Reithofer (4a engineering)	**Discrete Element Modelling of a Metamaterial for Launcher Tanks Dynamic Experiments** T. Legaud, E. Grippon, V. Lapoujade, P. Chiambaretto (DynaS+)
10:10	Break			
	CONNECTIONS	**IMPLICIT MECHANICS**	**MATERIALS – LAMINATED GLAS**	**PROCESS – MISC.**
10:40	**Modeling of Joints with Inserts for Sandwich Structures in Crash Simulation** P. Rochel, S. Sommer (Fraunhofer IWM)	**Enhancements to Implicit Mechanics** R. Grimes, R. Lucas, C. Weisbecker, C. Ashcraft, F. H. Rouet, J. Anton (LSTC)	**Hybrid Laminated Glass: Material Characterisation and CAE Modelling** B. Feng (Jaguar Land Rover)	**A Layer by Layer Approach for Simulating Residual Stresses in AM** N. Strömberg (Örebro University); M. Schill (DYNAmore Nordic)
11:05	**Development of Accurate Finite Element Models and Testing Procedures for Bolted Joints in Large Caliber Gun Weapon Systems** M. Koehler, G. Fish (US Navy)	**Improving LSTC's Mulitfrontal Linear Equation Solver** R. Lucas, R. Grimes, F. Rouet, C. Weisbecker (LSTC); N. Meng (Intel); T. Zhu (Cray)	**Validation Tests and Simulations for Laminated Safety Glass** M. Sauer, F. Kölble (Fraunhofer EMI); K. Mattiasson (Chalmers University of Technology); L. Schmidt (Saint-Gobain Sekurit Deutschland); S. Wenig (Sika Automotive); T. Carlberger (University West); M. Buckley (Jaguar Land Rover)	**Evaluation of Different Thermo-Viscoplastic Material Models under Simultaneous Hot/Cold Forging Conditions** M. Nahrmann, P Kühlmeyer, A. Matzenmiller (University of Kassel)
11:30	**Characterization and Modeling of Spot-Weld Joints in Press Hardening Steels Associated with Softening in Heat Affected Zone** H. Ghassemi-Armaki, Q. Khan (ArcelorMittal); A. Gill, S. Zilincik (Chrysler)	**An Implicit Study of High Order Elements in LS-DYNA** T. Borrvall (DYNAmore Nordic); Prof. D. Benson, H. Teng (LSTC)	**A New Failure Criterion for Laminated Safety Glass** C. Alter, S. Kolling (TH Mittelhessen); J. Schneider (TU Darmstadt)	**Orbital Forming of SKF's Hub Bearing Units** E. Omerspahic, J. Facht (SKF)
11:55	**Investigation of Undermatched Weld Fracure for Automotive Applications** B. Hiriyur, P. Woelcke (Thornton Tomasetti)	**A Roadmap to Linear and Nonlinear Implicit Analysis with LS-DYNA** G. Laird (Predictive Engineering)	**Laminated Amorphous Polymers Subjected to Low-Velocity Impact** A. Rühl, S. Kolling, J. Scheider (TH Mittelhessen); B. Kiesewetter (Evonik Industries)	**Modelling of Hot Rotary Kiln** D. Ramanenka, G. Gustafsson, P. Jonsen (University of Lulea)
12:20	Lunch break			

KEYNOTE PRESENTATIONS – FAREWELL

13:30 **Modelling of Adhesively Bonded Joints in CAE-Models at Porsche – Look behind the Scenes**
F. Burbulla (Dr. Ing. h.c. F. Porsche)

14:00 **Recent Developments in LS-DYNA and LS-OPT – Part II**
J. O. Hallquist, P. L'Eplattenier, N. Stander, Y. Huang, S. Bala, F. Del Pin (LSTC)

15:00 **Farewell**
T. Münz (DYNAmore)

15:15 End of conference

MINEBLAST / CHEMISTRY COUPLING	SIMULATION – MISC.	IMPACT - MARINE & AVIATION	WORKSHOP	
	Finite Element Modelling of a NiTi SMA Wire W. L. H. Wan A. Hamid, L. Iannucci, P. Robinson (Imperial College London)	**Marine Accident Integrated Analysis System using Highly Advanced M&S System of FSI Analysis Technique** S. Lee (Korea Maritime & Ocean University)	**LS-OPT Robustness Analysis** K. Witowski (DYNAmore) The goal of this workshop is to provide an overview of the methods for robustness analysis that are available in LS-OPT. Herein, the basic ideas of direct and metamodel-based Monte Carlo Analysis as well as RBDO/RDO will be discussed. A life demonstration of how to set up a robustness analysis using the graphical user interface of LS-OPT and how to visualize and evaluate the results will also be given.	08:30
A Review of Strucural Part Modelling for Blast Simulations G. Balaban, I. Kurtoğlu (FNSS Savunma Sistemleri)	**Process Chain Simulation for Die-Less-Hydroforming Including Welding and Forming using DynaWeld and LS-DYNA** A. Metzger, T. Ummenhofer (Karlsruhe Institute of Technology)	**Cause Investigation of Flooding & Sinking Accident of Ro-Ro Ferry Ship using Marine Accident Integrated Analysis System** S. Lee (Korea Maritime & Ocean University)		08:55
Applying Buried Mine Blast Loads to a Structure Utilizing the User Module Capability E. Lazerson, H. Raz, Z. Asaf (Plasan SASA)	**Study on the Electromagnetic Flux Generation using the new 2D Axisymmetric Capability of Electromagnetism Solver in LS-DYNA** K. Takekoshi (Terrabyte)	**Cause Investigation of Capsizing Accident of Ro-Ro Ferry Ship using Marine Accident Integrated Analysis System** S. Lee (Korea Maritime & Ocean University)		09:20
FSI with the Detailed Chemistry and their Applications in LS-DYNA CESE Compressible Solver I. Kyoung-Su, Z. Zhang, G. Cook, (LSTC)	**Control System in LS-DYNA** C. Keisser (DYNAmore France); I. Yeh (LSTC)	**Test and simulation approach towards the certification of an aircraft structure subjected to a bird strike** H. Abdulhamid, F. Plassard (Thiot-Ingenierie)		09:45
				10:10
FAILURE – MISC.	**SIMULATION – MISC.**		**WORKSHOP**	
Numerical Modelling of Symmetric and Asymmetric Punching and Post-Punching Shear Responses of RC Flat Slab N. Ulaeto, J. Sagaseta (University of Surrey)	**Characterization and Modeling of Engineering Friction and Wear with LS-DYNA** S. Dong (Ohio State University); A. Sheldon (Honda R&D Americas)		**Blast Analysis with LS-DYNA** D. Hilding (DYNAmore Nordic) An overview is given of the available methods in LS-DYNA to calculate explosive blast loads from conventional explosives on structures for structural engineering purposes. Advantages and disadvantages with the different methods will be pointed out. The focus is on air-blast. The intended audience is LS-DYNA users interested in methods for blast & explosion simulation with the goal to be able to do strength/ performance analysis of blast loaded structures. Time permitting, a short demonstration will be given.	10:40
Evaluation of Advanced Element Formulations for Failure Prediction of Highly Complex 3D-Printed Parts S. Mohapatra (Sabic)	**Numerical Model to Predict Kickback for Angle Grinders** G. Fleury (INRS)			11:05
Reduced Ductility due to Local Variation in Material Properties for 3D-printed Components T. Tryland (Sintef Raufoss Manufacturing)	**Biotex BigBag Simulation - LS-DYNA Airbag Tool Unusual Application** C. Weinberger, B. Hirschmann (4a engineering); J. Eichelter (Franz S. Huemer)			11:30
A 3D Discontinuous Galerkin Finite Element Method with the Bond-Based Peridynamics Model for Dynamic Brittle Failure Analysis W. Hu, B. Ren, C.T. Wu, Y. Guo, J. Wu (LSTC)	**Verification and Validation of LS-DYNA for the Transport and Storage of Radioactive Materials** G. Marchaud, V. Saint-Jean (Areva)			11:55
				12:20

F. Burbulla
Dr. Ing. h.c. F. Porsche

P. L'Eplattenier
LSTC

N. Stander
LSTC

Y. Huang
LSTC

S. Bala
LSTC

F. Del Pin
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Program subject to alterations.

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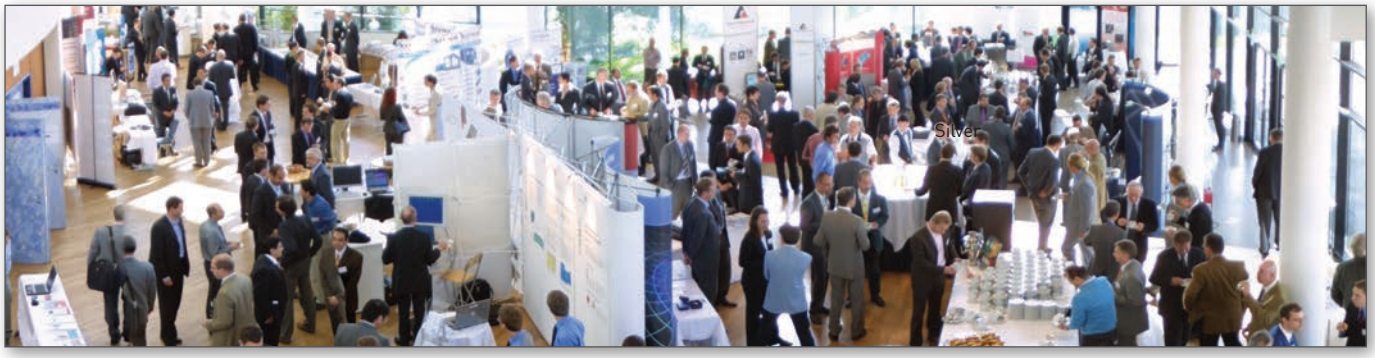

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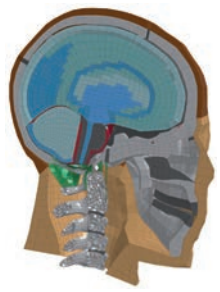
THE 2017 THUMS EUROPEAN USERS' MEETING

12 May 2017, Salzburg, Austria



THUMS™

JSOL is delighted to announce The 2017 THUMS European Users' Meeting. THUMS, the Total Human Model for Safety for use with LS-DYNA is being rapidly adopted by users worldwide. We invite you to join us and share in THUMS technical information.

Venue: NH Hotel Salzbug City
www.nh-hotels.com/hotel/nh-salzburg-city

Organizer: JSOL Corporation
www.jsol.co.jp/english

Information: http://ls-dyna.jsol.co.jp/en/thums/thums_um2017.html

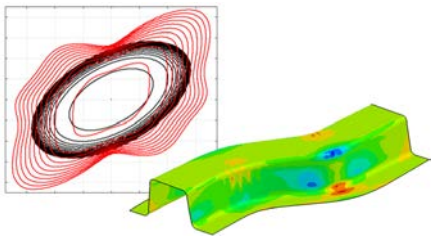
JSOL is looking forward to seeing you in Salzburg, Germany.

Courtesy of Daimler AG

Modeling Metallic Materials

Date: 2 - 3 May
Course fee: 950 Euro*
Location: Stuttgart, Germany
Lecturers: F. Andrade, A. Haufe, T. Münz (DYNAmore)

Plenty of material models are available in LS-DYNA for describing the mechanical behavior of metallic materials. However, a profound understanding of the adopted material model is crucial for obtaining reasonable and reliable FE simulation results.

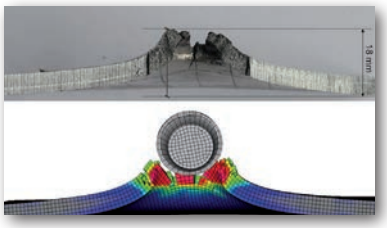


The aim of this class is to give practical guidelines about the application of the most commonly used material formulations. The focus will be especially on the underlying basic theory as well as on the assumptions made for the corresponding material formulations. Moreover, besides the practical information about particular input formats and the relevance of special settings, the algorithmic background of the various models will also be highlighted. Finally, diverse applications for the most commonly used metallic material models in LS-DYNA will be illustrated with the help of simple examples.

Damage and Failure Modeling

Date: 4 - 5 May
Course fee: 950 Euro*
Location: Stuttgart, Germany
Lecturer: F. Andrade (DYNAmore)

This seminar covers the adjustment of material models with failure and intends to look at the complete picture, reaching from the approach to test design to the actual creation of a material card using LS-DYNA. Thus, the entire verification and validation process is reflected. In particular, the conversion of test data to real stress and expansion values will be explained, as well as the dependencies of deformation patterns on anisotropy and tri-axial condition, including complex descriptions of failure. In addition, the seminar intends to explain the influence of model reduction in shell elements, using descriptions of failure. e.g. according to Wierzbicki, on the basis of Gurson, Johnson-Cook and extended Barlat models. The influence of the dependency on element size will be discussed in the context of expansion and energy equivalence. The issues of material stability and strength loss will be discussed in detail using the Gurson material model. Exercise examples illustrate the theoretical findings.



Courtesy of FVV (Forschungsvereinigung Verbrennungs-kraftmaschinen e.V.) and Inprosim GmbH

Nonlinear Implicit Analyses with LS-DYNA

Date: 8 May
Course fee: 475 Euro*
Location: Salzburg, Austria
Lecturers: P. Glay (DYNAmore)

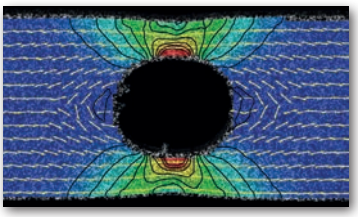
The implicit solver of LS-DYNA is well suited to handle many challenging applications, thereby coping with large deformations, difficult contact situation and material nonlinearities. With respect to the latter, there are many advanced material models available that are suitable for both explicit and implicit analysis. Moreover, the scalability on many CPU cores is very good, which allows for the treatment of large scale problems.

The goal of this one-day seminar is to present a brief, practical introduction to the implicit capabilities in LS-DYNA with a focus on nonlinear structural analysis. The course is suited for users with some previous experience from using LS-DYNA, or for experienced users of other implicit FE-programs.

Parameter Identification with LS-OPT

Date: 8 May
Course fee: 475 Euro*
Location: Salzburg, Austria
Lecturers: K. Witwoski (DYNAmore)

The use of new materials, such as plastics, composites, foams, fabrics or high-tensile steels, demands the application of highly complex material models. These material formulations are generally associated with numerous material parameters.



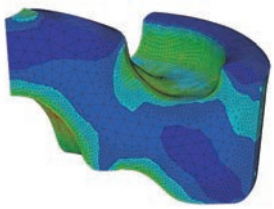
The optimization program LS-OPT is ideally suited for identifying these parameters. In the identification process, an automatic comparison is carried out between the experimental results and the simulation results of LS-DYNA. Thereafter, the error between experiments and simulations is minimized. In this seminar, a brief introduction in LS-OPT is given with a focus on the application of LS-OPT to determine material parameters. No prior knowledge about optimization or the application of LS-OPT is required.

Meshfree EFG, SPG, Advanced FE Methods

Date: 8 May
Course fee: 550 Euro*
Location: Salzburg, Austria
Lecturers: C. Wu (LSTC)

Particular attention is drawn on 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. Herein, the difference between the conventional EFG and SPG formulations and the adaptive or discontinuous formulations will be explained. 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. In particular, the new features of local mesh refinement in combination with the implicit time integration are the key enablers for these processes. Moreover, fracture simulations can be carried using the discontinuous EFG formulation.

Please note: This regular 2-day course was condensed to a one day course without workshop examples.



Smoothed Particle Hydrodynamics (SPH) in LS-DYNA

Date: 12 May
Course fee: 550 Euro*
Location: Salzburg, Austria
Lecturer: J. Xu (LSTC)

Due to the true meshless nature of SPH, the method is perfectly suitable in situations with very large deformations. Typical applications of SPH in LS-DYNA include impact simulations of fluids or solids or other scenarios where it is essential to capture the momentum exchange accurately.

Attendees will learn the application of the SPH with the aid of many workshop examples. The course instructor Prof. Mhamed Soul of the University of Lille is a long-term software developer at LSTC and is frequently implementing new features for the methods ALE and SPH in LS-DYNA. This seminar aims at engineers who have already worked with LS-DYNA and would like to use SPH as a meshless method.

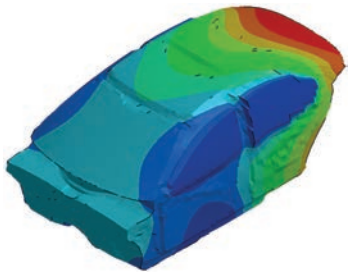
Please note: This regular 2-day course was condensed to a one day course without workshop examples.

NVH, Frequency Domain and Fatigue with LS-DYNA

Date: 12 May
Course fee: 550 Euro*
Location: Salzburg, Austria
Lecturer: Y. Huang (LSTC)

The objective of the training course is to introduce the frequency domain vibration, fatigue and acoustic features of LS-DYNA to users, and give a detailed look at the application of these features in vehicle NVH simulation. This course is recommended for engineers who want to run NVH or other frequency domain vibration, fatigue and acoustic simulation problems with LS-DYNA. This course is useful for 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.

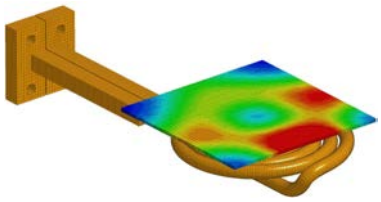
Please note: This regular 2-day course was condensed to a one day course without workshop examples.



Electromagnetism in LS-DYNA

Date: 12 May
Course fee: 550 Euro*
Location: Salzburg, Austria
Lecturer: I. Çaldichoury (LSTC)

This class provides an introduction to the Electromagnetics (EM) solver in LS-DYNA. The Maxwell equations are solved in the Eddy-Current approximation suitable for cases, where the propagation of electromagnetic waves in air (or vacuum) can be considered as instantaneous.



Courtesy of Institut für Verbundwerkstoffe GmbH

The solver is coupled with the solid mechanics and thermal solvers of LS-DYNA allowing the simulation of applications such as magnetic metal forming, welding, bending, induced heating, resistive heating and so forth. The course includes a presentation of the general principles, a keyword description to set up an Eddy-Current problem, and an introduction to the more advanced features (Inductive heating problems, exterior magnetic field, magnetic materials and so forth) as well as an advanced description of the available controlling tools to ensure a safe analysis. Key electromagnetic concepts are reviewed such that a general knowledge about electromagnetics is not mandatory.

ALE and Fluid-Structure Interaction

Date: 15 - 16 May
Course fee: 1,100 Euro*
Location: Stuttgart, Germany
Lecturer: Prof. M. Souli (Univ. Lille/LSTC)

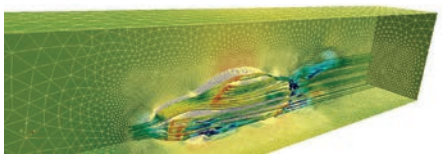
In this seminar, you receive comprehensive information directly from one of the program developers about the latest developments of the features provided by the solver LS-DYNA to analyse fluids and, in particular, the fluid-structure interaction using its Arbitrary Lagrangean Eulerian (ALE) capabilities. The theoretical background to fluid modeling in LS-DYNA is presented and illustrated with several practical applications. Problems solved during the workshop include tank sloshing, tank dropping (partially and completely filled), viscous flow in a channel, underwater explosion, bird strike, ship collision and acoustics in air and water. The seminar is directed towards advanced LS-DYNA users, whereas prior knowledge of fluid dynamics is not required.

Courtesy of Hankook Tire Co.

ICFD Incompressible Fluid Solver in LS-DYNA

Date: 17 - 18 May June
Course fee: 1,100 Euro*
Location: Stuttgart, Germany
Lecturer: I. 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 solver may run as a stand-alone CFD solver, where only fluid dynamics effects are studied, or it can be coupled to the solid mechanics solver to study loosely or strongly coupled fluid-structure interaction (FSI) problems. 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. A brief review of basic fluid mechanics and CFD concepts are also offered such that no expert knowledge of fluids is required. The second day will deal with the newly implemented features and advanced applications.



Pre-Conference Workshop: Crash Analysis for Electric and Autonomous Cars

Date: 9 May (10:00 - 12:00 am)
Course fee: free of charge
Location: Salzburg, Austria
Organizer: Automotive Simulation Center Stuttgart

simpulse day

The megatrends Electromobility and Autonomous Driving move the entire vehicle industry. These trends offer space for new and safe vehicle concepts. Before entering new ground the increasing demands such as increasing productivity, reducing time-to-market, changing customer expectations, improving quality and further improvements in compatibility with the environment as well as the conservation of resources should be taken into account. Topics such as lightweight construction, hybrid material combination and modular design play an increasing important role. How can simulation methods meet the upcoming challenges and what further development are needed?

The simpulseday „Crash Analysis for Electric and Autonomous Cars" will discuss new solutions for future challenges and show the potential for starting new method development projects with various competence partners.

* 10% discount for conference participants.

All prices plus VAT.
Seminar fees include class notes, lunch, and drinks during the breaks.

Online registration at
www.dynamore.de/conf2017-sem

ORGANIZATION

Venue
Salzburg Congress
Auerspergstr. 6
A-5020 Salzburg, Austria
www.salzburgcongress.at

Traveling to Salzburg
Salzburg Congress is situated right in the centre of the city.
Arriving by Air:
Salzburg's W. A. Mozart Airport is located only four kilometers from the city center, a fifteen minute journey by taxi or bus.
Arriving by Train:
Salzburg Train Station is a 5 minutes' walk from Salzburg Congress.
Car and Public Transport:
Salzburg is at the centre of the European highway network: the A1 Vienna-Salzburg, the A8 Munich–Salzburg and the A10 Villach–Salzburg all converge in Salzburg. Please remember to purchase a toll sticker if you are driving to Salzburg.

Accommodation
Please contact the central hotel accommodation booking service:
Tourismus Salzburg / Salzburg Congress:
Auerspergstr. 6, A-5020 Salzburg, Austria
Tel.: +43 (0) 6 62 - 8 89 87 - 3 17
Fax: +43 (0) 6 62 - 8 89 87 - 66
E-Mail: service@salzburgcongress.at

Participant fees
Participants from industry: 640 Euro
Participants from academia: 490 Euro
All prices plus VAT if applicable.
Fees include conference attendance, conference proceedings, gala dinner, lunches, coffee breaks, and attendance of the get together.

Hardware and software exhibition
More information under www.dynamore.de/conf2017-exh-pdf.

Conference language
English

Registration
Please use the the registration form, send an E-Mail to conference@dynamore.de or register online at www.dynamore.de/conf2017-reg.

Contact
DYNAmore GmbH
Industriestr. 2, D-70565 Stuttgart, Germany
Tel.: +49 (0) 7 11 - 45 96 00 - 0
Fax: +49 (0) 7 11 - 45 96 00 - 29
E-Mail: conference@dynamore.de

DYNAmore GmbH
DYNAmore is dedicated to support engineers in solving nonlinear mechanical as well as multiphysical problems numerically. Our product portfolio includes the finite element solver LS-DYNA, the pre- and postprocessor LS-PrePost and the optimization software LS-OPT as well as numerous finite element models needed for crash worthiness simulation. You will find DYNAmore in Stuttgart, Dresden, Ingolstadt, Berlin, Langlingen, Zurich (CH), Linköping (S), Gothenburg (S), Versailles (F) and Turin (I).

More information
www.dynamore.de/conf2017

CONFERENCE ORGANIZERS

The conference will be organized by

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or scan and e-mail to: conference@dynamore.de

I herewith register for the 11th European LS-DYNA Conference, 9 - 11 May 2017 in Salzburg, Austria:

- ❑ Participant fee: 640 Euro
- ❑ Participant fee for academic: 490 Euro
- ❑ I will participate at the Pre-Conference Workshop: Crash Analysis for Electric and Autonomous Cars (free of charge)
- ❑ Please send us exhibitor/sponsoring information.

I herewith register for the following seminar:	Date	Fee (*)	Location
❑ Modeling Metallic Materials	2 - 3 May	950 Euro	Stuttgart, Germany
❑ Damage and Failure Modeling	4 - 5 May	950 Euro	Stuttgart, Germany
❑ Nonlinear Implicit Analysis with LS-DYNA	8 May	475 Euro	Salzburg, Austria
❑ Parameter Identification with LS-OPT	8 May	475 Euro	Salzburg, Austria
❑ Meshfree EFG, SPG, Advanced FE Methods	8 May	550 Euro	Salzburg, Austria
❑ Smoothed Particle Hydrodynamics (SPH) in LS-DYNA	12 May	550 Euro	Salzburg, Austria
❑ NVH & Frequency Domain Analysis with LS-DYNA	12 May	550 Euro	Salzburg, Austria
❑ Electromagnetism in LS-DYNA	12 May	550 Euro	Salzburg, Austria
❑ ALE and Fluid-Structure Interaction	15 - 16 May	1,100 Euro	Stuttgart, Germany
❑ ICFD Incompressible Fluid Solver in LS-DYNA	17 - 18 May	1,100 Euro	Stuttgart, Germany

* 10% discount for conference participants.
All prices plus VAT.

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Declaration of consent to the use of personal data:
With your registration you allow us the use and the processing of your data for the conference organization and promotional purposes.
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