Invitation & Conference Program

7th EUROPEAN

LS-DYNA CONFERENCE

14th - 15th May 2009

Salzburg (Austria) and Bad Reichenhall (Germany)

Salzburg, Austria

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

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LSTC Livermore Software Technology Corp.

Dear LS-DYNA Users,

We cordially invite you to the 7th European LS-DYNA Users Conference, to be held May 14th - 15th, 2009, in Salzburg (Austria). The conference is an ideal forum for LS-DYNA and LS-OPT users to present, share and discuss experiences, to obtain information on upcoming features, and to learn more about new application areas.

More than 140 papers from users and developers worldwide will be presented at the conference. Papers have been submitted from both, academic and industrial parties, and various LS-DYNA related topics are covered. There are contributions about crash applications, metal forming processes, occupant and pedestrian safety, material modeling for metals, plastics, foams, and composites. Within five sessions aspects of optimization and stochastic analysis will be discussed. There are several sessions dealing with new developments regarding element technology, implicit capabilities, SPH, ALE, and EFG. Furthermore, there are numerous papers about CAE software that support the daily work with LS-DYNA and about new developments in IT used in connection with LS-DYNA.

The conference will be accompanied by an exhibition featuring the latest software and hardware developments related to LS-DYNA and LS-OPT. In addition, there are several pre and post conference seminars. They will be held in English language and will take place in Salzburg and in Bad Reichenhall (Germany) which is right next to Salzburg.

Salzburg is „one of the most beautiful regions on earth", as described by Alexander von Humboldt in the 18th century. The historical old town is a splendid example of baroque architecture and is awarded as UNESCO world heritage. Salzburg is the birthplace of the famous composer Wolfgang Amadeus Mozart. It is also known as the main film location of the popular movie „Sound of Music".

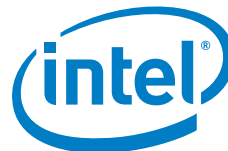We would be very pleased to welcome you in Salzburg.

Yours sincerely

DYNAmore GmbH

Courtesy of Daimler AG

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ORGANIZERS

Monday, 11th May - Wednesday, 13th May

Pre Conference Seminars (see page 8)

Wednesday, 13th May

| 06:00 pm | Registration |
| 06:00 pm | Welcome Reception |

Thursday, 14th May

08:00 am — Registration

Plenary Session

08:30 am — Welcome and Presentations

Plenary Session

10:40 am — Presentations

Parallel Sessions

| 01:40 pm | Crash I | Metal Forming I | Impact | Material I | Optimization I | CAE/IT I |

Parallel Sessions

| 03:40 pm | Crash II (Connections) | Metal Forming II (Hot Forming) | Passive Safety I | Material II (Plastics) | Optimization II | CAE/IT II |

Parallel Sessions

| 05:20 pm | Crash III | Metal Forming III | Passive Safety II (Human Modeling) | Material III (Composites) | Optimization III | CAE/IT III |

Exhibition

08:00 pm — Gala Dinner

Friday, 15th May

Parallel Sessions

| 08:00 am | Crash IV | Metal Forming IV (Material Models) | Civil Engineering | SPH/ALE Applications | Optimization IV |

Parallel Sessions

| 09:50 am | Crash V (Forming to Crash) | Element Technology /Development | Passive Safety III | EFG/SPH/ALE Development | Optimization V |

Parallel Sessions

| 11:20 am | Crash VI (Connections) | Element Technology /Development | Passive Safety IV | Blast/Penetration Various Applic. | Validation & Verification |

Exhibition

Plenary Session

02:00 pm — Presentations

Plenary Session

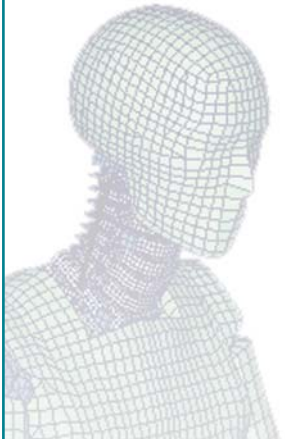| 03:20 pm | Presentations Farewell |
| - 04:30 pm | |

Friday, 15th May - Saturday, 16th May

Post Conference Events (see page 11)

Monday, 18th May - Tuesday, 19th May

Post Conference Seminars (see page 8)

Time		
08:00 am		Registration
PLENARY		**WELCOME / KEYNOTE PRESENTATIONS**
08:30 - 08:40 am		**Welcome** — U. Franz (DYNAmore)
08:40 - 09:10 am		**Recent Developments in LS-DYNA – I** — J. O. Hallquist (LSTC)
09:10 - 09:40 am		**Wood and Wood Products – Linking Multiscale Analysis and Structural Numerical Simulations** — K. Hofstetter, Prof. J. Eberhardsteiner, R. Stürzenbecher C. Hackspiel (Vienna University of Technology)
09:40 - 10:10 am		**Today's Challenges in Crash Simulation** — J. Kohler, T. Frank, M. Feucht (Daimler)
10:10 - 10:40 am		Coffee break
10:40 - 11:10 am		**Virtual Engineering and Planning Process in Sheet Metal Forming** — W. Volk, P. Charvet (BMW)
11:10 - 11:40 am		**Structural Crashworthiness of Rail Vehicles – from the Requirements to the Technical Solutions** — M. Seitzberger (Siemens)
11:40 - 12:10 am		**From 6 Months to 6 Weeks – „Multi-Disciplinary Optimization (MDO)" (Crash – NVH – Restraints)** — T. Zeguer (Jaguar Land Rover)
12:10 - 01:40 pm		Lunch

HARDWARE AND SOFTWARE EXHIBITORS

4a engineering	EnginSoft	IBM	Nafems
Altair Engineering	Engineous Software	Inprosim	Panasas
Arup	Engineering Systems International	Intel	Scapos
Beta CAE Systems	e-Xstream Engineering	JSOL	Siemens PLM Software
Bull	FE-Design	LMS International	transtec
Cadfem	Fraunhofer SCAI	Mellanox Technologies	University of Delaware
Datapoint Labs	GNS	Microsoft	Das virtuelle Fahrzeug Forschungsgesellschaft
DYNAmore	Hewlett Packard	MSC. Software	...

(May 2009)

Courtesy of Adam Opel GmbH

PARALLEL — APPLICATION KEYNOTE (01:40 - 02:10 pm)

Track	Title / Authors
CRASH	**Experimental and Numerical Investigation of Fracture in Aluminium** — P. Du Bois (Consultant); Prof. S. Kan, M. Buyuk (George Washington University); J. He (Engineering Technology Associates)
METAL FORMING	**LS-DYNA used to Analyze the Drawing of Precision Tubes** — Prof. J. Danckert, B. Endelt (Aalborg University)
IMPACT	**High Speed Impact – Test and Simulation** — Prof. S. Hiermaier, M. Boljen, I. Rohr (Fraunhofer Institute EMI)
MATERIAL	**On Constitutive Equations for Dummies** — B. Feng, J. Hallquist (LSTC)
OPTIMIZATION	**Reliability-Based Multi-Objective Optimization and Visualization using LS-OPT Version 4** — N. Stander, W. Roux, T. Goel (LSTC); D. Björkevik, C. Belestam (ERAB); K. Witowski (DYNAmore)
IT / CAE PROCESSES	**New Features of LS-PrePost 3.0** — P. Ho (LSTC)

PARALLEL — Sessions I (CRASH I / METAL FORMING I / IMPACT / MATERIAL I / OPTIMIZATION I / IT / CAE PROCESSES I)

Time	CRASH I	METAL FORMING I	IMPACT	MATERIAL I	OPTIMIZATION I	IT / CAE PROCESSES I
02:10 - 02:30	**Development of Material Input Data for Solid Elements under Crash Loads** — Prof. H. Mandel (Daimler/BA-Stuttgart); P. Du Bois (Consultant); T. Rzesnitzek (Daimler)	**Forming Simulations Based on Parameters Obtained in Microstructural Cold Rolling Simulations in Comparison to Conventional Forming Simulations** — S. Lossau (Daimler); Prof. B. Svendsen (University Dortmund)	**Simulation of a Clamping Ring under High Dynamic Loading** — S. Edelmann, C. Gross, H. Chladek (Inprosim)	**A Systematic Approach to Model Metals, Compact Polymers and Structural Foams in Crash Simulations with a Modular User Material** — G. Oberhofer, H. Gese (Matfem Partnerschaft Dr. Gese & Oberhofer); A. Bach, M. Franzen, H. Lanzerath (Ford Research Center Aachen)	**Integrative Optimization of Injection Molded Plastic Parts – Multidisciplinary Shape Optimization Including Process Induced Properties** — A. Wüst, T. Hensel, D. Jansen (BASF)	**LS-DYNA Productivity and Power-Aware Simulations in Cluster Environments** — G. Shainer, T. Liu (Mellanox Technologies); J. Liberman, J. Layton, O. Celebioglu (Dell); S. Schultz, J. Mora, D. Cownie (AMD; R. Van Holst (Platform Computing)
02:30 - 02:50	**Crash Simulation of an F1 Racing Car Front Impact Structure** — S. Heimbs, F. Strobl, P. Middendorf (EADS Innovation Works); S. Gardner, B. Eddington, J. Key (Force India Formula One)	**Investigation on Simulation of Buckling of Aluminium Sheet Metals** — R. Schleich (Hochschulinstitute Neckarsulm); C. Albiez (AUDI); A. Papaioanu, Prof. M. Liewald (University Stuttgart)	**Verification of Cylindrical Interference Fits under Impact Loads with LS-DYNA** — Prof. H. Behler, J. Göbel (University of Applied Sciences Mannheim); S. Heute (Alpha Engineering Services)	**Micromechanics Analysis Applied to the Modeling of Aluminium Honeycomb and EPS Foams Composites** — G. Caserta, L. Iannucci (Imperial College London); U. Galvanetto (Padova University)	**Multi-Disciplinary Design Optimization Exploiting the Efficiency of ANSA–LS-OPT–META Coupling** — G. Korbetis, D. Siskos (Beta CAE Systems)	**CAE Data Management from a Single Geometry Revision to Multi-Disciplinary Simulation Results** — J. Philippeit, Z. Petrovic (Siemens PLM Software)
02:50 - 03:10	**Dynamic Simulation of Mechatronic Systems** — R. Cresnik, A. Rieser, H. Schluder (Virtual Vehicle; Das virtuelle Fahrzeug Forschungsgesellschaft)	**A Real World Approach for using LS-DYNA to Achieve True Springback Compensation on AHSS Components During Forming** — M. Clarke (Continental Tool and Die); J. He (Engineering Technology Associates, Inc.); X. Zhu (LSTC)	**Drop Test Analysis of a Lamy Pencil** — M. Hörmann, S. Schiele (Cadfem); R. Probol (Lamy)	**Behaviour and Modelling of Dual-Phase Steels** — V. Tarigopula, Prof. O. Hopperstad, Prof. M. Langseth, A. Clausen (NTNU/SIMLab)	**Global Sensitivity Analysis in Structural Optimization** — U. Reuter (Technical University Dresden); M. Liebscher, H. Müllerschön (DYNAmore GmbH)	**Latest Developments in Crash Pre- and Postprocessing – Innovative Ideas Brought to the Industry with ANSA and BETA** — L. Rorris, D. Siskos, Y. Kolokythas (Beta CAE Systems)

03:10 - 03:40 — Break

PARALLEL — Sessions II

Time	CRASH II (CONNECTIONS)	METAL FORMING II (HOT FORMING)	PASSIVE SAFETY I	MATERIAL II (PLASTICS)	OPTIMIZATION II	IT / CAE PROCESSES II
03:40 - 04:00	**Modeling of the Deformation and Fracture Behaviour of Laser Welds for Crash Simulation** — S. Sommer (Fraunhofer Institute IWM); F. Klokkers (University Paderborn)	**Using LS-DYNA for Hot Stamping** — A. Shapiro (LSTC)	**Study on the Behavior of Dummy Hybrid III Upper Extremities** — M. Dagonet, S. Kutschenreuter (Takata Petri)	**Multi-Scale Modeling of Crash & Failure of Reinforced Plastics Parts with Digimat to LS-DYNA Interface** — L. Adam, A. Depouhon, R. Assaker (e-Xstream Engineering)	**Geometry-Based Topology Optimization – Improving Head Impact Performance of an Engine Hood** — D. Weiss, B. Sonntag, T. Krumenaker, D. Nowottny, J. Sprave, W. Hipp (Daimler)	**Latest Development in Oasys PRIMER** — R. Sturt (Arup)
04:00 - 04:20	**Improving Analysis Accuracy by Modeling Bolts/Rivets as Solids in Sheet Metal Structure** — A. Ramteke, P. B. Nadgouda (Hema Engineering Industries)	**Determination of Flow Curves by Stack Compression Tests and Inverse Analysis for the Simulation of Hot Forming** — B. Hochholdinger, Prof. P. Hora (ETH Zürich); H. Grass, A. Lipp (BMW)	**Numerical Investigations to Determine Sources for the Scatter of the BioRID Dummy** — S. Stahlschmidt (DYNAmore); A. Hirth (Daimler)	**Numerical Simulation of Low-Velocity Impact Loading of Polymeric Materials** — H. Daiyan, F. Grytten, E. Andreassen, R. Gaarder, E. Hinrichsen (NTNU/Sintef); O. Lyngstad (Plastal); H. Osnes (University Oslo/Simula Research))	**Topology & Geometry Based Structure Optimization using Implicit Parametric Models and LS-OPT** — H. Zimmer, M. Prabhuwaingankar (SFE Concept); Prof. F. Duddeck (Queen Mary College London)	**Performance of the Hybrid LS-DYNA on Crash Simulation with the Multicore Architecture** — M. Willem, Y.-Y. Lin (Hewlett-Packard); J. Wang (LSTC)
04:20 - 04:40	**Combined Numerical/Experimental Approach for Rivet Strength Assessment** — F. Previtali, M. Castelletti, Prof. M. Anghileri, A. Milanese (Politecnico di Milano)	**An LS-DYNA Material Model for Simulations of Hot Stamping Processes of Ultra High Strength Steels** — T. Olsson (Engineering Research Nordic)	**Developments in Finite Element Safety Models** — J. Rasico (FTSS)	**A Constitutive Model for Thermoplastics Intended for Structural Applications** — A. Clausen, Prof. O. Hopperstad (NTNU/SIMLab); M. Polanco-Loria, T. Berstad (NTNU/Sintef/SIMLab)	**A Topology Optimization Tool for LS-DYNA Users: LS-OPT/Topology** — T. Goel, W. Roux, N. Stander (LSTC)	**Computing on Graphical Processor Units** — Prof. U. Göhner (DYNAmore)
04:40 - 05:00	**Characterisation and Simulation of Structural Adhesives** — M. Clarke, J. Broughton, A. Hutchinson (University Oxford); M. Buckley (Jaguar Land Rover)	**Modeling the Dynamic Magneto-Thermomechanical Behaviour of Materials using a Multi-Phases EOS** — G. Le Blanc, J. Petit, P.-Y. Chanal, A. Gilles (Centre d'Etudes de Gramat); P. L'Eplattenier (LSTC)	**Development of PDB Worldsid Model with the German Automotive Industry** — A. Gromer, S. Stahlschmidt, R. D'Souza (DYNAmore)	**Selecting Material Models for the Simulation of Foams in LS-DYNA** — B. Croop, H. Lobo (DatapointLabs)	**Integration of Morphing and Optimization with the CAx-Loadcase Composer at AUDI** — H. Meissner (AUDI); M. Thiele (DYNAmore)	**Cluster Scalability of Implicit and Implicit-Explicit LS-DYNA Simulations using a Parallel File System** — S. Posey, B. Loewe (Panasas); P. Calleja (University Cambridge)

05:00 - 05:20 — Break

PARALLEL — Sessions III

Time	CRASH III (FORMING TO CRASH)	METAL FORMING III	PASSIVE SAFETY II (HUMAN MODELING)	MATERIAL III (COMPOSITES)	OPTIMIZATION III	IT / CAE PROCESSES III
05:20 - 05:40	**Investigation of Accuracy Improvement on Crashworthiness Simulation with Pre-Simulation of Metal Forming** — K. Takashina, K. Uuda, T. Ohtsuka (Mitsubishi Motors)	**Adjusting the Contact Surface of Forming Tools in Order to Compensate for Elastic Deformations During the Process** — K. Großmann, H. Wiemer, A. Hardtmann, L. Penter, S. Kriechenbauer (Technical University Dresden)	**Head Injury Prediction Tool for Protective Systems Optimization** — C. Deck, Prof. R. Willinger (University Strasbourg)	**Simulation of Dynamic Delamination and Mode-I Energy Dissipation** — M. Ilyas, C. Espinosa, F. Lachaud, M. Salaün (University Toulouse)	**Practical Examples of Efficient Design Optimization by Coupling VR&D GENESIS and LS-DYNA** — D. Salway, P.-A. Pierré (GRM Consulting); M. Liebscher (DYNAmore)	**High Performance Computing with CUDA and Tesla Hardware** — T. Lanfear (Nvidia)
05:40 - 06:00	**Considering Damage History in Crashworthiness Simulations** — F. Neukamm, M. Feucht (Daimler); A. Haufe (DYNAmore)	**Improved Tool Development Process for Novel SCS Technology for Aluminium Sheet Metal** — A. Papaioanu, Prof. M. Liewald (University Stuttgart); R. Schleich (Hochschulinstitute Neckarsulm)	**Material Modeling of Orthopetic Insoles** — Prof. S. Kolling, M. Neubert, J. Subke, J. Griesemann (University of Applied Sciences Gießen)	**A Study of Material and Architectural Effects on the Impact Response of 2D and 3D Dry Textile Composites using LS-DYNA** — G. Nilakantan, M. Keefe, J. Gillespie (University Delaware); T. Bogetti, R. Adkinson (US Army Research Laboratory)	**Grouping Detection of Uncertain Structural Process by Means of Cluster Analysis** — A. Piotrow, S. Pannier, Prof. W. Graf (University Dresden); M. Liebscher (DYNAmore)	**Handling of Large LS-DYNA Full Vehicle Crash Models with Tecosim-Advanced Inhouse Process Tools** — D. Lopez, U. Jankowski, S. Oldenburg (Tecosim)
06:00 - 06:20	**Coupled FEM Calculations – a CAE Tool to Improve Crash-Relevant Automotive Body Components by Local Hardening** — K. Wolf (Fraunhofer Institute SCAI); R. Schilling (Ford-Werke); J. Lütjens, Michael Hunkel (IWT Bremen); T. Wallmersperger (University Stuttgart); U. Jankowski (Tecosim); D. Sihling (GNS); K. Wiegand, A. Zöller (Daimler); M. Heuse (Faurecia Autositze)	**A Parametric and User Friendly Approach to Incremental Process Simulation of Sheet Metal Forming** — V. Apanovitch, S. Huhn (Forming Technologies)	**Development of Numerical Models for the Investigation of Motorcyclists Accidents** — M. Ghajari, L. Iannucci (Imperial College London); U. Galvanetto (University Padova); C. Deck, R. Wilklinger (University Strasbourg)	**Taking into Account Glass Fiber Reinforcement in Polymer Materials: the Non Linear Description of Anisotropic Composites via the Digimat to LS-DYNA Interface** — J. Seyfarth, M. Hörmann (Cadfem); R. Assaker (e-Xstream Engineering); C. Kattamuri, B. Grass (BSH Bosch und Siemens Hausgeräte)	**Variable Complexity Modeling for Speeding Up Multi-Run-Design-Tasks with Computationally Expensive Simulation Models** — H. Wenzel (Simulia SLM Europe)	**Early Validation of Vehicle Interiors for FMVSS 201 using IHIT and LS-DYNA** — A. Chickmenahalli (International Automotive Components); S. Sivalingam, T. Weninger (ESI Group)
06:20 - 06:40	**Damage Modelling of a TRIP Steel for Integrated Simulation from Deep Drawing to Crash** — D.-Z. Sun, F. Andrieux (Fraunhofer Institute IWM); M. Feucht (Daimler)	**A Numerical Study of the Effect of Geometrical Factors on Bi-layered Tube Hydroforming** — A. Alaswad, A. G. Olabi (Dublin City University)	**Improvements and Validation of an Existing LS-DYNA Model of the Knee-Thigh-Hip of a 50th Percentile Male Including Muscles and Ligaments** — C. Silvestri, M. Mongiardini, Prof. M. Ray (University Worcester)	**Progressive Damage Modeling of Plain-Weave Composites using LS-DYNA Composite Damage Model MAT162** — B. Gama, J. Gillespie (University Delaware); T. Bogetti, (US Army Research Laboratory)	**Optimization and Robustness of Complex Material Model Simulations with ModeFrontier** — F. Lineares, M. Perillo, V. Primavera, L. Fuligno (EnginSoft); G. Fabbri, C. Steenbergen, N. Pasini (Automobili Lamborghini)	**A Next Generation Software Platform for LS-DYNA Modeling and Configurable Vertical Application Development** — H. Ouyang, T. Palmer, Q. He (Engineering Technology Associates)

from 08:00 pm — **GALA DINNER**

Final program could be subject to alterations.
Some presentations are subject to final approvals.

PARALLEL	CRASH IV	METAL FORMING IV (MATERIAL MODELS)	CIVIL ENGINEERING	SPH / ALE APPLICATIONS	OPTIMIZATION IV	PARALLEL
08:00 - 08:20 am	An Assessment of the New LS-DYNA Layered Solid Element: Basics, Patch Simulation and its Potential for Thick Composite Structure Analysis M. Chatti (Cadfem); T. Gül (Adam Opel); Prof. A. Matzenmiller (University of Kassel)	Modelling of Ductile Failure in Metal Forming H. Wisselink, J. Huetink (University Twente)	Finite Element Modeling of the ITER Superconducting Cables Mechanical Behavior using LS-DYNA Finite Element Code A. Nemov, A. Borovkov (University St. Petersburg); Prof. B. Schrefler (University Padua)	Deformation Behaviour of Filled and Capped PET Bottles in the High-Speed Labeling Machine B. Chittepu, M. Hörmann, U. Stelzmann (Cadfem); H. Wels, T. Albrecht (Krones)	Automated Metamodeling for Efficient Multi-Disciplinary Optimization of Complex Automotive Structures F. Jurecka (FE-Design)	08:00 - 08:20 am
08:20 - 08:40 am	Finite Element Development and Early Experimental Validations for a Three Dimensional Virtual Model of a Bus Prof. M. Pernetti (University Naples); S. Scalera (AMET)	Numerical Investigation of Draw Bending and Deep Drawing Taking into Account Cross Hardening C. Barthel, T. Clausmeyer, Prof. B. Svendsen (University Dortmund)	High-Mass, Low-Velocity Impacts on Reinforced Concrete Slabs A. Sangi, I. May (University Edinburgh)	A Strategy to Design Bird-Proof Spinners Prof. M. Anghileri, L.-M. Castelletti, D. Molinelli, F. Motta (Politecnico di Milano)	Optimization Study of a Parametric Vehicle Bumper Subsystem under Multiple Load Cases using Virtual.Lab and Optimus L. Farkas, C. Canales, S. Donders, T. Van Langenhove, N. Tzannetakis (LMS International)	08:20 - 08:40 am
08:40 - 09:00 am	Quicker Process to Consider Strain Hardening for Crash Analysis Using Hycrash S. Endoh, T. Miyachi, Y. Umezu (JSOL)	Identification of an Advanced Hardening Model for Single Phase Steels Prof. M. Noman, Prof. B. Svendsen (University Dortmund)	SPH Simulations of High Velocity Impacts on Concrete Plate T. Sakakibara, T. Tsuda, R. Ohtagaki (Itochu Techno-Solutions)	Bird Strike Analysis of Aircraft Engine Fan Y. Shmotin, P. Chupin, D. Gabov (NPO Saturn); A. Ryabov, V. Romanov, S. Kukanov (Sarov Engineering Center)	Process Chain Forming to Crash: Efficient Stochastic Analysis T. Clees, D. Steffes-Lai (Fraunhofer Institute SCAI); M. Helbig (Fraunhofer Institute IWM); Prof. K. Roll, M. Feucht (Daimler)	08:40 - 09:00 am
09:00 - 09:20 am	Collision of a Light Weight Passenger Car Against a Steel Bridge Barrier: Evaluation of Severity Indices Varying Impact Conditions Prof. M. Pernetti (University Naples) S. Scalera (AMET)	Forming Limit Diagrams with an FE-Based Approach for Sheets under Non-Proportional Loading A. Reyes, Prof. O. Hopperstad (NTNU); T. Berstad, O.-G. Lademo (Sintef)	Strain Rate Induced Strength Enhancement in Concrete: Much ado about Nothing? L. Schwer (Schwer Engineering & Consulting Services)	A Numerical-Experimental Investigations on Crash Behaviour of Skin Panels during a Water Impact Comparing ALE and SPH Approaches E. Francesconi, Prof. M. Anghileri (Politecnico di Milano)	Decision Making in Multi-Objective Optimization for Industrial Applications – Data Mining and Visualization of Pareto Data K. Witowski, M. Liebscher (DYNAmore); T. Goel (LSTC)	09:00 - 09:20 am
09:20 - 09:50	Coffee break					09:20 - 09:50 am

PARALLEL	CRASH V (BARRIERS)	ELEMENT TECHNOLOGY / DEVELOPMENT	PASSIVE SAFETY III	EFG / SPH / ALE DEVELOPMENT	OPTIMIZATION V	PARALLEL
09:50 - 10:10 am	An Investigation to Compare the Application of Shell and Solid Element Honeycomb Model in ODB M. Asadi (Cellbond); B. Walker (Arup); Prof. H. Shirvani (Anglia Ruskin University)	Brick versus Shell Elements in Simulations of Aluminium Extrusions Subjected to Axial Crushing Ø. Fyllingen, K. Mathisen (University Bergen); Prof. O. Hopperstad, A. Hanssen, Prof. M. Langseth (NTNU)	New Method Characterize Airbag Inflators – On the Way to OoP Simulation J. Fernández (Takata-Petri)	New Features in LS-DYNA EFG Method for Solids and Structures Analysis C. Wu (LSTC)	Adaptive Simulated Annealing for Global Optimization in LS-OPT T. Goel, N. Stander (LSTC)	09:50 - 10:10 am
10:10 - 10:30 am	Layout, Validation and Benchmark of an all New Frontal Offset Barrier FEM Model B. Fellner (Magna Steyr Fahrzeugtechnik); T. Jost (Virtual Vehicle)	A Heuristic Attempt to Reduce Transverse Shear Locking in Fully Integrated Hexahedra with Poor Aspect Ratio T. Borrvall (Engineering Research Nordic)	Use of the FTSS Modular Crash Dummy Models in Frontal Occupant Simulation R. Brown (Jaguar Land Rover)	SPH Formulations: New Developments in LS-DYNA J. Lacome (LSTC)	An Inverse Approach for Material Parameter Identification in a Cyclic Bending Test using LS-DYNA and LS-OPT P.-A. Eggertsen (Chalmers University of Technology); K. Mattiasson (Volvo Cars Safety Centre)	10:10 - 10:30 am
10:30 - 10:50 am	SuperLIGHT-CAR – the Multi-Material Car Body L. Berger, M. Lesemann, C. Sahr (RWTH Aachen University); S. Hart, R. Taylor (ARUP)	Simulation of Crack Propagation using Damage-Driven Fission Adaptivity Coupled with Element Erosion or Node Splitting T. Berstad, C. Dørum (NTNU/Sintef); Prof. O. Hopperstad, T. Borvik (NTNU)	MADYMO and LS-DYNA; the Strength of a Combined Approach F. Schoenmakers (TASS)	ALE Formulation for the Evaluation of Seismic Behavior of Anchored and Unanchored Tanks Z. Ozdemir (University Istanbul); Prof. M. Souli (LSTC/Université de Lille); Y. Fahjan (Gebze Institute of Technology GYTE)	4a Impetus – Efficient Evaluation of Material Cards for Non-Reinforced and Reinforced Thermoplastics P. Reithofer, M. Fritz (4a engineering)	10:30 - 10:50 am
10:50 - 11:20 am	Coffee break					10:50 - 11:20 am

PARALLEL	CRASH VI (CONNECTIONS)	ELEMENT TECHNOLOGY / DEVELOPMENT	PASSIVE SAFETY IV	BLAST / PENETRATION – VARIOUS APPLICATIONS	VALIDATION & VERIFICATION	PARALLEL
11:20 - 11:40 am	An Investigation of the Application of Bolt Pre-Stress and its Affect During Low Speed Impact Effect on Impact Loading S. Duvall (AMEC)	A Study of LS-DYNA Implicit Performance in MPP C. Ashcraft, R. Grimes, B. Lucas (LSTC)	On Predicting Lower Leg Injuries for the EuroNCAP Front Crash T. Hofer, L. Fredriksson, N. Brännberg (Altair Engineering); P. Karlsson (Saab Automobile)	Aluminium Plate Perforation: A Comparative Case Study using Lagrange with Erosion, Multi-Material ALE, and SPH L. Schwer (Schwer Engineering & Consulting Services)	Crash and Vibration Analysis of Rotors in a Roots Vacuum Booster M. Roth (Pfeiffer Vacuum); Prof. S. Kolling (University of Applied Sciences Gießen)	11:20 - 11:40 am
11:40 - 12:00 am	A Rate-Dependent, Elasto-Plastic Cohesive Zone Mixed-Mode Model for Crash Analysis of Adhesively Bonded Joints S. Marzi, O. Hesebeck, M. Brede (Fraunhofer Institute IFAM); F. Kleiner (Henkel)	Simulation of Acoustic and Vibroacoustic Problems in LS-DYNA using Boundary Element Method Y. Hang, Prof. M. Souli, R. Perez (LSTC / University of Lille /Schneider Electric Industries)	Development of a Flex-PLI LS-DYNA Model S. Hayashi (JSOL); I. Nishimura, M. Awano (Mitsubishi Motors)	Numerical Simulation of the Critical Blast Wave of Mines on APV's Crew Members A. Brill (Netvision); P. du Bois (Consultant)	Experimental and Simulation Characterization of the Suspension of a Small Car W. Tiu (University Hertfordshire)	11:40 - 12:00 am
12:00 - 12:20 am	Modelling and Predicting Spotweld Failures in Automotive Crash Structures P. Wood, C. Schley, R. Beaumont (University Warwick); B. Walker (Arup); T. Dutton (Dutton Simulation); M. Buckley (Jaguar Land Rover)	On Adaptive Finite Element Analysis in Structural Dynamics of Shell-Like Structures – A Specific View on Practical Engineering Applications and Engineering Modelling – Part I Prof. K. Schweizerhof (DYNAmore), S. Kizio (University Karlsruhe)	Simplified FE Simulation of Frontal Occupant Restraint Systems R. Brown, D. Coleman (Jaguar Land Rover); I. Bruce (Arup)	A Coupling of Empirical Explosive Blast Loads to ALE Air Domains in LS-DYNA T. Slavik (LSTC)	Development of a Software for the Comparison of Curves During the Verification and Validation of Numerical Models M. Mongiardini, M. Ray, Prof. M. Anghileri (University Worcester)	12:00 - 12:20 pm
12:20 - 12:40 am	A New Design of Roadside Pole Structure: Crash Analysis of Different Longitudinal Tubes using LS-DYNA A. Elmarakbi, N. Fielding (University Sunderland)	On Adaptive Finite Element Analysis in Structural Dynamics of Shell-Like Structures – A Specific View on Practical Engineering Applications and Engineering Modelling – Part II Prof. K. Schweizerhof (DYNAmore), S. Kizio (University Karlsruhe)	Finite Element Modelling of the Arresting Gear and Simulation of the Aircraft Deck Landing Dynamics D. Mikhaluk, I. Voinov, Prof. A. Borovkov (University St. Petersburg)	Developing Failure Criteria for Application to Ship Structures Subjected to Explosive Blast Loadings M. Tyler-Street, J. Luyten (TNO Defense)	Comparison of Crash Tests and Simulations for Various Vehicle Restraint Systems C. Goubel, M. Massenzio, S. Ronel (University Lyon); E. Di Pasquale (Simtech)	12:20 - 12:40 pm
12:40 - 02:00 pm	Lunch			Modelling of the Dynamics of a 40 mm Gun and Ammunition System During Firing N. Eches, D. Cosson (Nexter Munitions); Q. Lambert (C.T.A. International /University Orléans); A. Langlet, J. Renard (University Orléans)		

PLENARY	KEYNOTE PRESENTATIONS
02:00 - 02:30 pm	Advanced Simulation Methods for the New Porsche Panamera F. Sautter, H. Hogenmüller (Dr.-Ing. h.c. F. Porsche)
02:30 - 03:00 pm	Bird Strike and Fan Blade Out using LS-DYNA at Snecma M. Nucci (Snecma)
03:00 - 03:20 pm	Coffee break
03:20 - 03:30 pm	Sponsor Presentation: Hewlett Packard / Intel
03:30 - 04:00 pm	Crashworthiness of Aluminium Structures – Modeling and Validation Prof. M. Langseth (NTNU)
04:00 - 04:30 pm	Recent Developments in LS-DYNA – II J. Hallquist (LSTC)
04:30 pm	Farewell K. Schweizerhof (DYNAmore)

Final program could be subject to alterations.
Some presentations are subject to final approval.

PRE AND POST CONFERENCE SEMINARS

■ **Crashworthiness Simulation using LS-DYNA**

This is an advanced course and applies to engineers which have experience in application of explicit programs or which bring along experience from the field of dynamic and non-linear calculation with implicit programs. The aim of the course is to show how to perform a crashworthiness simulation in the automobile industry using LS-DYNA.
11th - 13th May 2009, 1.450.– Euro
Lecturer: P. Du Bois (Consultant)

■ **Implicit Analyses using LS-DYNA**

The seminar is designed for engineers intending to use LS-DYNA to carry out implicit analysis. Also, experienced 'explicit' users have the opportunity to learn more about the key issues to bear in mind when converting an explicit to an implicit input file.
12th - 13th May 2009, 980.– Euro
Lecturer: Prof. Dr. M. Pitzer (University of
                    Applied Sciences Gießen)

■ **Optimization with LS-OPT**

The seminar gives an introduction to the optimization pro-gram LS-OPT and shows its possibilities and limits. LS-OPT is a powerful optimization software particularly suitable for highly nonlinear problems. LS-OPT is primarily intended to be used for general design optimization, shape optimization, parameter identification, DOE-studies and robustness or reliability analysis.
11th - 13th May 2009, 1.450.– Euro
Lecturer: Dr. N. Stander (LSTC)

■ **Meshless Methods in LS-DYNA**

This seminar will introduce attendees to the application of the meshless „Element-Free Galerkin" (EFG) and „Smooth Particle Hydrodynamics" (SPH) methods in LS-DYNA. The seminar will outline the theoretical bases and thoroughly refers to the settings required in the LS-DYNA input deck in order to carry out an EFG/SPH simulation.
12th - 13th May 2009, 980.– Euro
(490,– Euro per day, can be booked separately)
Lecturer: Dr. C.-T. Wu - EFG,
                    Dr. J. L. Lacome - SPH (LSTC)

■ **User Interfaces in LS-DYNA**

This seminar is designed for users in both industrial and aca-demic research who intend to integrate their own routines in LS-DYNA. All available user interfaces will be presented, whereas the main focus will be on user materials, user ele-ments and user friction.
11th May 2009, 490.– Euro
Lecturer: Dr. T. Erhart (DYNAmore)

■ **Modeling of Geomaterials with LS-DYNA** [1]

The course starts from the common ground of introductory metal plasticity modeling and successively builds on this base adding the constitutive modeling features necessary to model geomaterials.
12th - 13th May 2009, 980.– Euro
Lecturer: Dr. L. Schwer (Schwer Engineering
                    & Consulting Services)

■ **PRIMER as a Preprocessor for LS-DYNA**

In this seminar the practical use of PRIMER is arranged for the participant. All important functions are described and demonstrated in the context of a Workshops. On the basis of many training examples the participant learns the safe operation for different areas of application.
12th - 13th May 2009, 980.– Euro
Lecturer: R. Sturt (Arup)

■ **Enhanced Possibilities and Special Settings for Metal Forming Simulation in LS-DYNA**

This seminar conveys the basics of the simulation of metal forming processes with LS-DYNA and provides information and hints for the application. Thereby it is particularly focused on the specific settings and features for the forming processes in LS-DYNA.
11th - 12th May 2009, 980.– Euro
Lecturer: Dr. A. Haufe (DYNAmore)

■ **Metal Forming Simulations with eta/dynaform**

The seminar offers an introduction to the simulation of metal forming processes with LS-DYNA. As preprocessor eta/dynaform is presented. The seminar introduces the different procedures to set up simulations for deep drawing. It covers one and multi step operations and presents the various options to post-process a results.
13th May 2009, 490.– Euro
Lecturer: P. Vogel (DYNAmore)

■ **LS-DYNA Modeling of Blast & Penetration**

This training class is intended for the LS-DYNA analysts possessing a comfortable command of the LS-DYNA keywords and options associated with typical Lagrangian analyses. This training class will attempt to provide the analyst with the additional tools and knowledge required to model the class of high energy events.
18th - 19th May 2009, 980.– Euro
Lecturer: Dr. L. Schwer (Schwer Engineering
                    & Consulting Services)

■ **Structural Optimization with GENESIS** [1]

This seminar provides an introduction to the GENESIS software and the Design Studio for GENESIS graphical user interface. The individual concepts for optimization (topology, topometry, topography, sizing and shape) and fields of application will be outlined and discussed.
18th - 19th May 2009, 980.– Euro
Lecturer: Dr. M. Liebscher (DYNAmore)

Seminar Information

Venue: Salzburg, Austria; [1] Bad Reichenhall, Germany
Language: English
Reduced conference fees for seminar attendees: Per pre/post conference seminar day a discount of 50.– Euro on the registration fee for the European LS-DYNA conference in Salzburg is granted.

Registration and more information: http://www.dynamore.de/conf-seminars

7th European LS-DYNA Conference
14th - 15th May 2009, Salzburg, Austria, and Bad Reichenhall, Germany

Conference Registration

❑ I register for the conference
  ❑ Industry: 560.- Euro
  ❑ Academic: 390.- Euro - only for students and employees of universities
  ❑ ___ additional attendee(s) for Conference Gala Dinner: 80.- Euro
❑ Please send exhibitor information.
❑ Please send sponsor information.

Pre and Post Conference Seminars

I register for the following accompanying classes. Per day of attendance of a pre/post conference seminar a discount of 50.– Euro on the registration fee for the European LS-DYNA conference in Salzburg is granted.

❑ User Interfaces in LS-DYNA, 11th May 2009: 490.– Euro
❑ Enhanced Possibilities and Special Settings for Metal Forming Simulation, 11th - 12th May 2009: 980.– Euro
❑ Metal Forming Simulations with eta/dynaform, 13th May 2009: 490.– Euro
❑ Optimization with LS-OPT, 11th - 13th May 2009: 1.450.– Euro
❑ Crashworthiness Simulation using LS-DYNA, 11th - 13th May 2009: 1.450.– Euro
❑ Implicit Analyses using LS-DYNA, 12th - 13th May 2009: 980.– Euro
❑ Modeling of Geomaterials with LS-DYNA, 12th - 13th May 2009: 980.– Euro
❑ PRIMER as a Preprocessor for LS-DYNA, 12th - 13th May 2009: 980.– Euro
❑ Meshless Methods in LS-DYNA, 12th - 13th May 2009
  ❑ Both days: 980.– Euro   ❑ EFG on 12th: 490.– Euro   ❑ SPH on 13th: 490.– Euro
❑ Structural Optimization with GENESIS, 18th - 19th May 2009: 980.– Euro
❑ LS-DYNA Modeling of Blast & Penetration, 18th - 19th May 2009: 980.– Euro

Post Conference Events

I am interested in attending the following events. Please contact me.
Friday, 15th May
❑ Mozart Dinner Concert, 48.– Euro per person   No. of attending persons:_____
❑ The Sound of Music Dinner Show, 46.– Euro per person   No. of attending persons:_____
Saturday, 16th May
❑ Post Conference Tour 1: Salzburg - Sound of Music Tour   No. of attending persons:_____
❑ Post Conference Tour 2: Ride the Großglockner with Paul Du Bois No. of attending persons:_____
❑ Salzburg Fortress Concerts, 47.– Euro per person (2nd category) No. of attending persons:_____

Sender

Company / University _____
Department _____
Title, First and Last Name _____
Street _____
ZIP-Code, City _____
Country _____
Tel. / Fax _____
E-mail _____
Date, Signature _____

Please copy, complete and mail or fax to

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: cf09@dynamore.de   All prices plus VAT if applicable.

REGISTRATION FORM

7th European LS-DYNA Conference

14th - 15th May 2009, Salzburg, Austria, and Bad Reichenhall, Germany

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- ❏ Salzburg Fortress Concerts, 47.– Euro per person (2nd category)   No. of attending persons:_____

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Department   _____

Title, First and Last Name _____

Street   _____

ZIP-Code, City   _____

Country   _____

Tel. / Fax   _____

E-mail   _____

Date, Signature   _____

Please copy, complete and mail or fax to

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: cf09@dynamore.de   All prices plus VAT if applicable.

Conference Venue
Salzburg Congress
Auerspergstraße 6
5020 Salzburg, Austria
http://www.salzburgcongress.at

Exhibition / Sponsoring
If you would like to participate as an exhibitor or sponsor please ask for further information.

Registration Fees
Industry: 560.– Euro
Academic: 390.– Euro
+ VAT if applicable

Accommodation
Conference registrants can reserve a discounted room rate for hotels in Salzburg by using the congress accommodation booking service which is accessible through
http://www.dynamore.de/hotel

Travel Information
By air: International Airports Salzburg or Munich
By train: ICE train station Salzburg, www.bahn.de

Additional Information
http://www.dynamore.de/conference

City of Salzburg

Registration and 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: cf09@dynamore.de

Partner Program

Thursday, 14th <u>and</u> Friday 15th May 2009

Special City Walking Tour „On the Traces of Mozart"
Begin: 10:00 am, 1,5 hours
37.– Euro per person incl. entrance fee.

Excursion Through Bavarian Alps with a Visit to the Saltmines
Begin: 2:00 pm, approx. 4 hours
45.– Euro per person incl. entrance fee.

Friday, 15th May 2009

Travel Along Majestic Alpine Roads to the Largest Ice Caves and Underground Glacier in the World
Begin: 1:00 pm, 5 hours
56.– Euro per person incl. entrance fee.

Bookings

All the above mentioned tours are exclusively offered by Panorama Tours in Salzburg to Conference delegates.

The tours
- Special City Walking Tour „On the Traces of Mozart",
- Excursion Through Bavarian Alps with a Visit to the Saltmines, and
- Travel Along Majestic Alpine Roads to the Largest Ice Caves and Underground Glacier in the World

Großglockner

can be booked directly through our webpage www.dynamore.de/event.

Post Conference Events

Friday, 15th May 2009

- *Mozart Dinner Concert*
  Begin: 8:00 pm
  48.– Euro per person

- *The Sound of Music Dinner Show*
  Begin dinner: 7:00 pm
  Begin show: 8:30 pm
  Costs: 46.– Euro per person, one drink & 3 course menu included
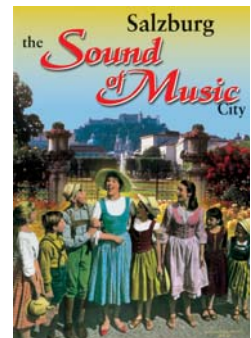
Saturday, 16th May 2009

Post Conference Tour 1: Salzburg - Sound of Music Tour
- Salzburg Walking City Tour (10:00 am, 2,5 hours)
- Lunch in the Restaurant Stieglkeller (12:30 am)
- Sound of Music Tour (02:00 pm, 4 hours)
If you are not able to attend the Post Conference Tour 1 it is possible to book the Sound of Music Tour at 10:00 individually via www.panoramatours.com.

Post Conference Tour 2:
Ride the Großglockner with Paul Du Bois
1-day bicycle trip on Großglockner high alpine road; we organize transport, bicycle rental, equipment. Please request further information.

Salzburg Fortress Concerts
Begin: 6:30 pm, 47.– Euro per person (2nd category)

Bookings

Please use registration form on previous page or book online at www.dynamore.de/conference. We will contact you for further information.

You have questions or need assistance? Please send E-Mail to cf09@dynamore.de or call us at +49 (0)7 11 - 45 96 00 - 0.

For partner program and post conference events we kindly ask to complete bookings before 30th April 2009!