



6th EUROPEAN LS-DYNA USERS' CONFERENCE

G O T H E N B U R G , S W E D E N , 2 0 0 7

Schedule and Speaker List



Schedule

MAY 28

18:00 - 21:00 Pre-registration with snacks

MAY 29

08:00 - 09:00 Registration

09:00 - 10:30 **Welcome and Keynotes**

J.O. Hallquist, LSTC

Joachim Danckert, Aalborg University

10:30 - 11:00 Coffee

11:00 - 12:45 **Keynotes**

Ingrid Skogsmo, Volvo Car Corporation

Stig Nodin, GM Trollhättan

Odd Sture Hopperstad, Norwegian University
of Science and Technology

12:45 - 14:25 Lunch

14:25 - 15:25 **Session 1**

1.1. Pre and Post Processing

1.2. Automotive, Crash, and Optimization

1.3. Automotive, Crash

1.4. New Methods and Techniques

1.5. Material Modelling

1.6. ALE, FSI, EFG, and SPH

15:25 - 16:05 Coffee

16:05 - 17:05 **Session 2**

2.1. Optimization

2.2. Material Modelling, Crash

2.3. ALE, FSI, EFG, and SPH

2.4. Occupants and Biomechanics

2.5. Forming

2.6. Defence

17:05 - 17:15 Paus

17:15 - 18:20 **Session 3**

3.1. Automotive, Crash

3.2. Crash, Optimization

3.3. Pre and Post Processing

3.4. Material Modelling, Crash

3.5. HPC

3.6. ALE, FSI, EFG, and SPH

19:30

Conference Dinner

MAY 30

08:10 - 09:30	<u>Session 4</u> 4.1. ALE, FSI, EFG, and SPH 4.2. Robustness Design and Optimization 4.3. Airbag 4.4. Crash 4.5. Defence 4.6. New Methods, Crash
09:30 - 09:40	Paus
09:40 - 10:40	<u>Session 5</u> 5.1. Occupants and Dummies 5.2. Automotive, Crash 5.3. Forming 5.4. Crash, Other 5.5. Material Modelling, Crash 5.6. Automotive, Crash
10:40 - 11:30	Coffee
11:30 - 13:00	<u>Keynotes</u> Andreas Hirth, DaimlerChrysler Masami Iwamoto, Toyota Motor Corp.
13:00 - 14:10	Lunch
14:10 - 15:25	<u>Keynotes</u> Magnus Juntti, Gestamp Hardtech Tayeb Zeguer, Jaguar and Landrover
15:25 - 15:55	Coffee
15:55 - 17:15	<u>Keynotes</u> Paul du Bois, Consultant J.O. Hallquist, LSTC
17:15 - 17:25	Farwell

Sessions

1. SESSION 1

1.1. Pre and Post Processing

1.1.1. Current features and developments of LS-PREPOST

P Ho, Livermore Software Technology Group

1.1.2. LS-DYNA Data Management using Visual-Environment

SH Shetty, V Ganesan, SC Sivalingam, E De Pommery, JL Duval, ESI Group

1.1.3. ANSA pre processing for LS-DYNA

A Kaloudis, BETA CAE Systems SA

1.2. Automotive, Crash, and Optimization

1.2.1. Structural optimization of product families exposed to crash loading

M Öman, Linköping University/Scania CV AB

1.2.2. Using LS-OPT/LS-DYNA in a multi-attribute optimization

J Forsberg, G Björkman, Volvo Technology

1.2.3. Volvo Technology Vehicle Structural Optimization Environment

G Björkman, J Forsberg, Volvo Technology
J Engström, SCH Incubator AB

1.3. Automotive, Crash

1.3.1. Application of Shell Honeycomb Model to IIHS MDB Model

S Kojima, Toyota Technical Development Corp.
T Yasuki, K Oono, Toyota Motor Corporation

1.3.2. Advanced Finite Element Model for AE-MDB Side Impact Barrier

M Asadi, P Tattersall, Cellbond Composites Ltd
B Walker, ARUP
H Shirvani, Anglia Ruskin University

1.3.3. Optimization of Design parameters for a Contact Sensor in Bumper-Pedestrian impact by Using FE Models

Sunan Huang, Jikuang Yang, Chalmers University of Technology
Rikard Fredriksson, Autoliv Research

1.4. New Methods and Techniques

1.4.1. Deployment Simulations of Space Webs

M Gärdback, G Tibert, Royal Institute of Technology

1.4.2. A functional bayesian method for the solution of inverse problems with spatio-temporal parameters

Z Medina-Cetina, International Centre for Geohazards/NGI
R Ghanem, AL Rechenmacher, University of Southern California

1.4.3. Simulation of acoustic and vibroacoustic problems in LS-DYNA using boundary element method

A Alia, M Souli, Livermore Software Technology Group
J Hargreaves, B Walker, ARUP
M Moatamedi, University of Salford

1.5. Material Modelling

1.5.1. Experience from using recently implemented enhancements for Material 36 in LS-DYNA 971 performing a virtual tensile test

M Fleischer, BMW AG
T. Borrvall, Engineering Research Nordic AB
K-U. Bletzinger, Technische Universität München

1.5.2. LS-OPT based identification of a user defined material model for distortional hardening with application to sheet forming processes with complex strain path changes

V Levkovitch, B Svendsen, University of Dortmund

1.5.3. Numerical Modelling and Biaxial Tests for the Mullins Effect in Rubber

WW Feng, JO Hallquist, Livermore Software Technology Group

1.6. ALE, FSI, EFG, and SPH

1.6.1. FE-Modelling of hydrodynamic hull-water impact loads

I Stenius, A Rosén, Royal Institute of Technology

1.6.2. Water impact: experimental tests and numerical simulations using meshless methods

M Anghileri, LM Castelletti, E Francesconi, Politecnico di Milano

1.6.3. High Velocity Impacts simulations with SPH methods in LS-DYNA

G Mazars, G Desille, V Lapoujade, CRIL Technology - Groupe ALYOTECH
C Durin, CNES

2. SESSION 2

2.1. Optimization

2.1.1. New developments in LS-OPT Version 3.2

N Stander, W Roux, Livermore Software Technology Group

2.1.2. Robust parameter design in LS-OPT

W Roux, Livermore Software Technology Group

2.1.3. Doe sensitivity analysis with LS-OPT and visual exploration of design space using D-SPEX

K Witowski, H Mullerschoen, M Thiele, DYNAmore GmbH

2.2. Material Modelling, Crash

2.2.1. Validating dynamic tensile mechanical properties of sheet steels for automotive crash applications

PKC Wood, CA Schley, University of Warwick
M Buckley, Jaguar and Land Rover
B Walker, ARUP
T Dutton, Dutton Simulation

2.2.2. Spotweld Failure Prediction using Solid Element Assemblies

S Malcolm, Honda R&D Americas
E Nutwell, Altair Engineering

2.2.3. Optional Strain-Rate Forms for the Johnson Cook Constitutive Model and the Role of the Parameter Epsilon_0

L Schwer, Schwer Engineering & Consulting Services

2.3. ALE, FSI, EFG, and SPH

- 2.3.1. Investigation into the rising air pressure inside the door during side impacts
M Machens, Wilhelm Karmann GmbH
T Wessels, FH Osnabrück
- 2.3.2. Simulation of the impact on ground of airdrop loads to define a standard worst case test
Y de Lassat de Pressigny, Centre d'Essais en Vol (CEV TI)
- 2.3.3. Fan Blade Bird Strike Analysis Using Lagrangian, SPH and ALE Approaches
A A Ryabov, V I Romanov, S S Kukanov, Sarov Engineering Center
Yuriy N. Shmotin, Pavel V. Chupin, NPO Saturn

2.4. Occupants and Biomechanics

- 2.4.1. Development and Evaluation of a Continuum Neck Muscle Model
S Hedenstierna, P Halldin, Royal Institute of Technology
K Brolin, Engineering Research Nordic AB
- 2.4.2. Using LS-Dyna as an Aid to the Inclusive Design of Child Resistant Closures
J Luxmoore, A Yoxall, University of Sheffield
- 2.4.3. Developments in Occupant and Seat Modelling with Primer 9.3
M Thornton, R Sturt, C Bell, Arup

2.5. Forming

- 2.5.1. LS-DYNA Features for Hot Forming
Arthur Shapiro, Livermore Software Technology Group
- 2.5.2. Microstructure evolution and mechanical response in the hot stamping process
M Oldenburg, P Salomonsson, Luleå University of Technology
P. Åkerström, G. Bergman, Gestamp Hardtech AB
- 2.5.3. Advances in Adaptive Thermal-mechanical Metal-forming Simulations in LS-DYNA
R Bötticher, TMB GmbH

2.6. Defence

- 2.6.1. Simulation of Masonry Wall Failure and Debris Scatter
SC McCallum, PM Locking, SR Harkness, BAE Systems
- 2.6.2. Reduction of Acceleration Induced Injuries from Mine Blasts under Infantry Vehicles
A Tabiei, G Nilakantan, University of Cincinnati
- 2.6.3. Landmine Protection Of Armoured personnel carrier M113
M Berg Larsen, KC Jorgensen, NIRAS - DEMEX

3. SESSION 3

3.1. Automotive, Crash

- 3.1.1. Rupture Modeling of Spot Welds Suitable for Crash FE Analysis in Vehicle Development Process
K Kumagai, M Shirooka, J Ohachi, T Ogawa, Toyota Motor Corporation
- 3.1.2. FE-Modeling of Spotwelds and Adhesive Joining for Crashworthiness Analysis
A Haufe, G Pietsch, DYNAmore GmbH
M Feucht, S Kolling, DaimlerChrysler AG

3.2. Crash, Optimization

3.2.1. Uncertainty Assessment with Stochastic Simulation in Aircraft Cabin Development

D Vogt, R Hartnack, M Olbert, EADS, Innovation Works
J Schlattmann, Hamburg University of Technology

3.2.2. Probabilistic Assessment of a Stiffened Carbon Fibre Composite Panel Operating in its Postbuckled Region

D Elder, R Thomsom, Coop. Research Centre for Advanced Composite Structures Ltd.

3.2.3. Some applications of LS-OPT to bird impact simulation

P Starke, L Mitterleitner, EADS Military Air Systems

3.3. Pre and Post Processing

3.3.1. Image Based Meshing for LS-DYNA

B Walker, Arup
P Young, Simpleware

3.3.2. New Developments in the Compression of LS-DYNA Simulation Results using FEMZIP

RI Teran, CA Thole, R Lorentz, Fraunhofer Institute for Algorithms and Scientific Computing, SCAI

3.3.3. Interface ANSYS Workbench for LS-DYNA

M Hörmann, CADFEM GmbH

3.4. Material Modelling, Crash

3.4.1. Advanced Simulations of Cellular Structures with LS-DYNA

M Vesenjaj, Z Ren, University of Maribor

3.4.2. Methodology for Selection of Material Models for Plastics Impact Simulation

H Lobo, DatapointLabs

3.5. HPC

3.5.1. Performance of LS-DYNA with Double Precision on Linux and Windows CCS

Yih-Yih Lin, Hewlett-Packard Company

3.5.2. HPC Considerations for Scalable, Multidiscipline CAE Applications on Conventional Linux Platforms

S Posey, Panasas Inc

3.5.3. LS-DYNA Performance and Scalability in the Multi-Core Environment

G Shainer, Mellanox Technologies

3.6. ALE, FSI, EFG, and SPH

3.6.1. Evolving Technology: Multi-Phase, Multi-Material, ALE Approach and Tool Development for Buried Blast Simulation

R Gupta, U.S. Army Research Laboratory

3.6.2. Increasing Initial Internal Energy of Air Elements near Explosive for Fluid-Structure Models of a Steel Plate Subjected to Non-contact Explosion

Wen-Chih Li, Wen-Feng Yu, Ding-Shing Cheng, National Defense University

4. Session 4

4.1. ALE, FSI, EFG, and SPH

- 4.1.1. MPP decomposition of a SPH model
JL Lacombe, V Lapoujade, CRIL Technology - Groupe ALYOTECH
- 4.1.2. Fluid Structure Interaction for Immersed Bodies
J Wang, Hao Chen, Livermore Software Technology Group
- 4.1.3. ALE Modeling of Surface Waves
A Nicolas, Livermore Software Technology Group

4.2. Robustness Design and Optimization

- 4.2.1. Probabilistic analysis of uncertainties in the manufacturing process of metal forming
H Müllerschön, D Lorenz, DYNAmore GmbH
W Roux, Livermore Software Technology Corporation
M Liebscher, S Pannier, Inst. Statik und Dynamik der Tragwerke
K Roll, DaimlerChrysler AG
- 4.2.2. Practical Optimization for Automotive Sheet Metal Components
X Chen, O Ghouati, Ford Research and Advanced Engineering Europé
- 4.2.3. Robustness Evaluation Crashworthiness Simulation Results
J Will, DYNARDO GmbH
U Stelzmann, CADFEM GmbH

4.3. Airbag

- 4.3.1. Corpuscular method for airbag deployment simulations
L Olovsson, IMPETUSAlea AB
- 4.3.2. Mathematical modelling of the early phase deployment of a passenger airbag – folding using origami theory and inflation using ls-dyna particle method
K Mroz, B Pipkorn, Autoliv Research
- 4.3.3. Concept Design of an A-Pillar Mounted Airbag for Pedestrian Head Protection
Jianfeng Yao, Jikuang Yang, Chalmers University of Technology

4.4. Crash

- 4.4.1. Modeling Hailstone Impact onto Composite Material Panel Under a Multi-axial State of Stress
M Anghileri, LM Castelletti, A Milanese, A Semboloni, Politecnico di Milano
- 4.4.2. Implementation Of a Novel Ship Side Structure Into a Tanker And a ROPAX Vessel for Increased Crashworthiness
S Ehlers, K Tabri, N Schillo, J Ranta, Helsinki University of Technology
- 4.4.3. A New Impact Scenario for P-V Tram Certification
M Anghileri, LM Castelletti, M Pirola, F Pistochini, S Raiti, Politecnico di Milano

4.5. Defence

4.5.1. Finite element analysis of Polymer reinforced CRC columns under close-in detonation

B Riisgaard, NIRAS Consulting Engineers
A Gupta, P Mendis, T Ngo, The University of Melbourne

4.5.2. Multi-Scale Modelling of Textile Structures in Terminal Ballistics

R Barauskas, Kaunas university of technology

4.5.3. Simulation of a mine blast effect on the occupants of an APC

A Brill, B Cohen, RAFAEL Ballistic Center
PA Du Bois, Consulting Engineer

4.6. New Methods, Crash

4.6.1. Simplified Modeling Of Thin-Walled Tubes With Octagonal Cross Section – Axial Crushing

Yucheng Liu, ML Day, University of Louisville

4.6.2. Effects of Mesh Size and Remapping on the Predicted Crush Response of Hydroformed Tubes

G D'Amours, A Rahem, R Mayer, B Williams, M Worswick, National Research Council of Canada, Aluminium Technology Centre

4.6.3. Innovative modeling capabilities in virtual.lab in view of cross attribute simulation

T Van Langenhove, C Canadas, N Tzannetakis, C Liefoghe, LMS International

5. Session 5

5.1. Occupants and Dummies

5.1.1. Enhancements in dummy model development and outlook

F Zhu, First Technology Safety Systems, Inc

5.1.2. Accurate and efficient dummy models for occupant safety design

F Schoenmakers, TNO - MADYMO - LSDYNA

5.1.3. Development of BioRID II Dummy Model using Stochastic Methods

S Stahlschmidt, B Keding, K Witowski, H Müllerschön, U Franz, DYNAMore GmbH

5.1.4. Modelling Carpet for Use in Occupant Crash Simulations

D Thomas, Honda R&D Americas

5.2. Automotive, Crash

5.2.1. Development of validated Finite element model of a rigid truck suitable to simulate collisions against road safety barriers

M Perneti, Second University of Naples
S Scalera, University of Naples "Federico II"

5.2.2. Development of validated finite element model of an articulated truck suitable to simulate collisions against road safety barriers

M Perneti, S Scalera, G Cibellis, University of Naples

5.2.3. Road Safety Devices Assessment for Sliding Motorcyclists Protection

M Anghileri, LM Castelletti, A Milanese, M Pirola, F Pistochini, Politecnico di Milano

5.2.4. Evaluation of Rail Height Effects on the Safety Performance of W-Beam Barriers

D Marzougui, P Mohan, CD Kan, NCAC
K Opiela, Turner Fairbank Highway Research Center

5.3. Forming

5.3.1. Some observations on failure prediction in sheet metal forming

M Larsson, Saab Automobile
Kjell Mattiasson, Chalmers Univ. of Technology/Volvo Cars
Mats Sigvant, Volvo Cars

5.3.2. Simulating the Complete Forming Sequence for a Roll Formed Automotive Bumper Beam

T Dutton, P Richardson, Dutton Simulation Ltd
M Tomlin, T Harrison, Wagon Automotive plc

5.3.3. Springback analysis in Advanced High Strength Steel using a new flexible semi-industrial tool geometry, the flex-rai

A Andersson, Volvo Cars/Lund University

5.3.4. Forming of alloy plate by underwater shock wave of explosive

K Kuroda, H Hamada, H Hamashima, S Itoh, Kumamoto University

5.4. Crash, Other

5.4.1. Modelisation of screen rupture during a mobile phone free fall

C Lacroix, Sagem Communication

5.4.2. Simulation of containment-tests of fast-spinning rotors by explicit FEM

H Beck, A Huss, Ingenieurbüro Huß & Feickert
T Winter, MAN B&W Diesel

5.4.3. Seismic Modelling of an AGR Nuclear Reactor Core

B Duncan, B Kralj, Atkins

5.4.4. Sloshing response of a LNG storage tank subjected to seismic loading

R Doroli, D Lisi, D Bardaro, CETMA
M Perillo, EnginSoft S.p.A.

5.5. Material Modelling, Crash

5.5.1. Numerical Determination of the Nonlinear Effective Mechanical Properties of Folded Core Structures for Aircraft Sandwich Panels

S Heimbs, P Middendorf, EADS, Innovation Works
T Mehrens, A Schumacher, University of Applied Sciences Hamburg
M Maier, Institute of Composite Materials

5.5.2. Parameter identification for the simulation of debonding in honeycomb sandwich using LS-Dyna

M Hörmann, CADFEM GmbH

5.5.3. Multi-Scale Modeling of the Impact and Failure of Fiber Reinforced Polymer Structures using DIGIMAT to LS-DYNA Interface

L Adam, R Assaker, R Ramaya, e-Xstream engineering S.A.

5.5.4. Implementation of a material model with shear rate and temperature dependent viscosity

M Vingaard, B. Endelt, J. deClaville Christiansen, Aalborg University

5.6. Automotive, Crash

5.6.1. Virtual Modelling of Motorcycle Safety Helmets: Practical Problems

A Cernicchi, U Galvanetto, L Iannucci, Imperial College London

5.6.2. Contact and Sliding Simulation of Rubber Disk on Rigid Surface with Microscopic Roughness

S Tokura, JRI Solutions, Limited

5.6.3. Model improvement during seat project

C Karlsson, Scania CV AB

5.6.4. Simulation of a CMVSS 215 bumper pendulum test series with LS-DYNA

H Beck, A Huss, Ingenieurbüro Huß & Feickert