ARUP DYNA MORE ENGINEERING RESEARCH AB LSTC Livermore Software Technology Corp.

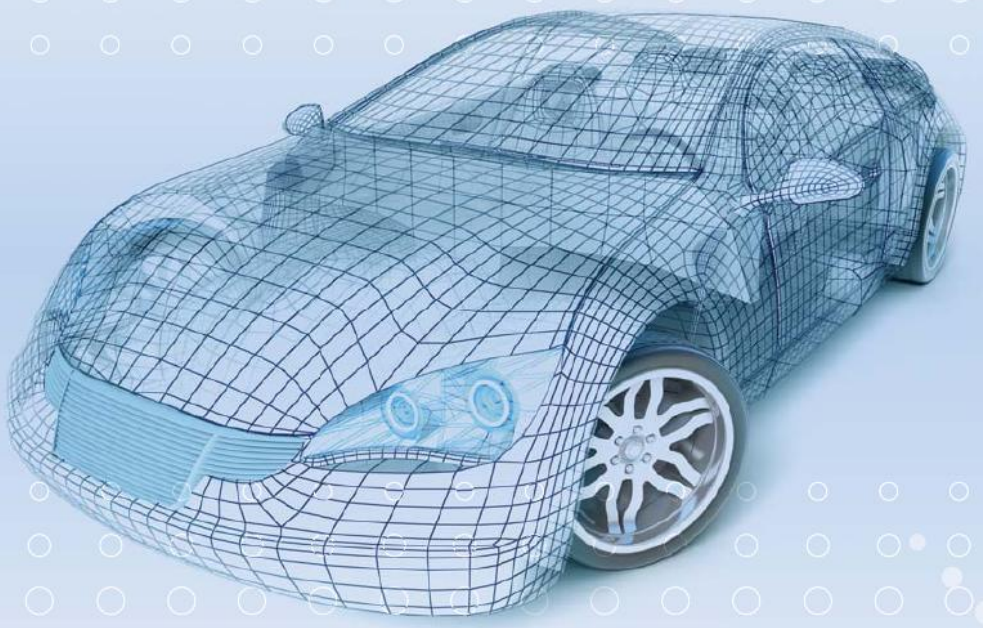
ALYOTECH

LS-DYNA®*

May 23rd-24th, 2011

8th European Users Conference

STRASBOURG - France



NVIDIA

CRAY THE SUPERCOMPUTER COMPANY

Agenda - At a glance *

Sunday, May 22nd

02:00 PM 04:00 PM	**Sightseeing Boat Tour of Strasbourg**
7:00 PM	**Welcome Reception & Registration :** PALAIS DE LA MUSIQUE ET DES CONGRES - ERASME Entrance (Ground Floor)

Monday, May 23rd

08:00 AM	**Registration :** PALAIS DE LA MUSIQUE ET DES CONGRES - ERASME Entrance (Ground Floor)
08:30 AM	**Plenary Session : Welcome & Keynote Presentations -** SCHUMAN (1st Floor) **/ Exhibition**
10:10 AM	Coffee Break
10:35 AM	**Plenary Session : Keynote Presentations -** SCHUMAN (1st Floor) **/ Exhibition**
12:20 PM	Lunch - LES CONTADES (1st Floor)

Parallel Sessions / Exhibition

CONFERENCE ROOM	SCHUMAN	TIVOLI 1	KLEBER	OBERLIN	GUTENBERG 1	PRESIDENT
1:50 PM	**Session 1** Full Vehicle Crashworthiness	**Session 2** Connection Modeling for Crash Analysis	**Session 3** CFD and FSI Applications	**Session 4** Optimization	**Session 5** Pre and Post Processing	**Session 6** High Performance Computing
3:30 PM	Coffee Break					
4:00 PM	**Session 7** Biomechanics and Safety	**Session 8** Design Process and Optimization	**Session 9** Composite Materials	**Session 10** Material Modeling	**Session 11** Process Modeling	**Session 12** Concrete Modeling
8:00 PM	**Gala Dinner at the Kammerzel Restaurant (Strasbourg)**					

Tuesday, May 24th

Parallel Sessions / Exhibition

CONFERENCE ROOM	SCHUMAN	TIVOLI 1	KLEBER	OBERLIN	GUTENBERG 1	PRESIDENT
8:00 AM	**Session 13** Crashworthiness of Vehicle Components	**Session 14** Metal Forming	**Session 15** Blast Simulation	**Session 16** Polymer and Rubber Modeling	**Session 17** Aeronautical and Off shore Applications	**Session 18** Nuclear and Industrial Applications
10:05 AM	Coffee Break					
10:35 AM	**Session 19** Dummy Modeling and Safety	**Session 20** Polymer Processing	**Session 21** SPH applications	**Session 22** Element Technology and User Options	**Session 23** New CFD and Acoustics Methods	**Session 24** High Performance Computing
12:15 PM	Lunch - LES CONTADES (1st Floor)					
1:45 PM	**Plenary Session : Keynote Presentations -** SCHUMAN (1st Floor) **/ Exhibition**					
2:55 PM	Coffee Break					
3:20 PM	**Plenary Session : Keynote Presentations -** SCHUMAN (1st Floor) **/ Exhibition**					
4:25 PM	Farewell					
4:30 PM	**End of the 8th European LS-DYNA Users Conference**					

Agenda - Monday, May 23rd 2011 *

Plenary Session

8:30 AM	Welcome
	Chairman : Uli FRANZ (DYNAMORE)
9:00 AM	**Global FAURECIA automotive seating FEA/testing strategy towards 0 prototype** Mr. Christophe LEMAITRE (FAURECIA)
9:35 AM	**Upfront simulation and CAE driven design - Reality or long term dream ?** Dr. Tayeb ZEGUER (JAGUAR LAND ROVER)
10:10 AM	Coffee Break
	Chairman : Larsgunnar NILSSON (ERAB)
10:35 AM	**Simulation in sheet metal forming industry : Trends and state of the art** Prof. Dr.-Ing. Karl ROLL (MERCEDES-BENZ CARS, DAIMLER AG)
11:10 AM	**Are numerical simulations of ballistic impact predictive ?** Prof. Dr.-Ing. Tore BORVIK (NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY)
11:45 AM	**Overview of LS-DYNA applications for turbomachinery design** Mr. Pierrick JEAN (SNECMA)
12:20 PM	Lunch

Session 1 : Full vehicle crashworthiness

	Chairman : Karl SCHWEIZERHOF (DYNAMORE)
1:50 PM	**Using CAE to evaluate a structural foam design for increasing roof strengh** S. GUPTA (Honda R&D, Americas)
2:15 PM	**Finite element dynamic simulation of whole rallying car structure : Towards better understanding of structural dynamics during side impacts** E. NASSIOPOULOS & J. NJUGUNA (Cranfield University)
2:40 PM	**Crashworthiness of an electric prototype vehicle series** F. HUBERTH (Fraunhofer EMI)
3:05 PM	**Roof crush resistance and rollover strength of a paratransit bus** C. BOJANOWSKI (Argonne National Lab)

Session 2 : Connection modeling for crash analysis

Chairman : Robert KANT (HUMANETICS)
Development of an improved screw model at Faurecia M. MEYER (Faurecia)
Failure modeling of a self piercing riveted joint using LS-DYNA S. SOMMER (Fraunhofer IWM)
Phenomenological driven modeling of joints M. BIER (F. Porsche AG)
Process development for multi-disciplinary spot weld optimization with CAx-LoCo, LS-OPT and ANSA G. GEISSLER (DYNAmore)

3:30 PM	Coffee break

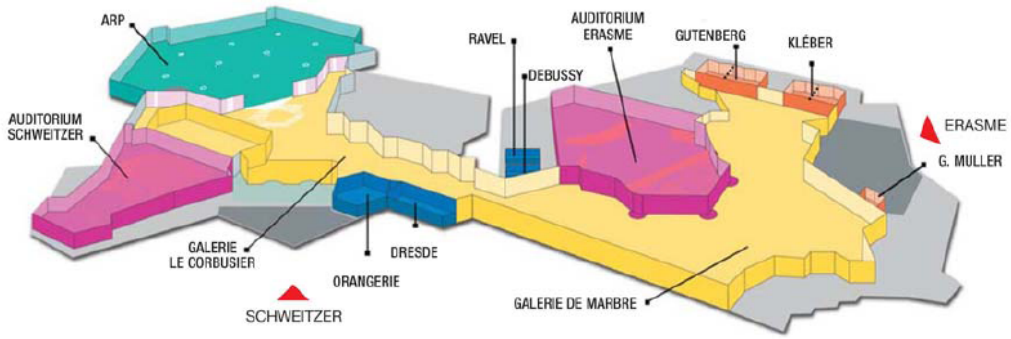
Session 7 : Biomechanics and Safety

	Chairman : Julien LACAMBRE (ALYOTECH)
4:00 PM	**A pregnant woman model to study injury mechanisms in car crashes** J. PERES (IFSTTAR)
4:25 PM	**Development of passive protection systems using cellular materials** R. M. COELHO (University of Aveiro)
4:50 PM	**The use of different CSF representations in a numerical head model and their effect on the results of FE head impact analyses** K. BAECK (K. U. Leuven)
5:15 PM	**Development of a thorax finite element model for thoracic injury assessment** N. N. NSIAMPA (Royal Military Academy)
5:40 PM	**Implementation of a strain rate dependent human bone model** Z. ASGHARPOUR (Munich University)

Session 8 : Design Process and Optimization

Chairman : Thomas MÜNZ (DYNAMORE)
Investigation and application of multi-disciplinary optimization for automotive body-in-white development A. SHELDON (Honda R&D, Americas)
The ACP Process applied to the Future Steel Vehicle project : The Future of Product Design and Development (Part 1) A. FARAHANI (ETA) & M. LAMBRIKS (Tata Steel)
The ACP Process applied to the Future Steel Vehicle project : The Future of Product Design and Development (Part 2) A. FARAHANI (ETA) & M. LAMBRIKS (Tata Steel)
A modified approach for simulating complex compound structures within early design steps G. GRUBER (University of Erlangen-Nuremberg)
Parametric modelling of simplified car models for assessment of frontal impact compatibility M. STEIN (University of Berlin)

Convention center - Ground Floor



Session 3 : CFD and FSI applications

Chairman : Mhamed SOULI (LSTC)

Analysis of a single stage compressed gas launcher behaviour : from breech opening to sabot separation
F. PLASSARD (Thiot Ingénierie)

Numerical simulation of consequences of passenger aircraft tyre damage
V. ROMANOV (Sarov Engineering Center)

Numerical simulation of the ice-structure interaction in LS-DYNA
H. DAIYAN (Northern Research Institute)

Simulation of the flow around a vertical axis wind turbine : LS-DYNA v980
I. CALDICHOURY (LSTC / AS+)

Session 4 : Optimization

Chairman : Heiner MÜLLERSCHÖN (DYNAMORE)

Using LS-OPT for meta-model based global sensitivity analysis
Z. MEHMOOD (Technical University Dresden)

An effective curve matching metric for parameter identification using partial mapping
N. STANDER (LSTC)

Complexity based design robustness analysis - Application to mechatronic component (vehicle hatchback)
K. KAYVANTASH (CADLM)

Topology design using LS-TaSC Version 2 and LS-DYNA
W. ROUX (LSTC)

3:30 PM — Coffee break

Session 9 : Composite Materials

Chairman : William FENG (LSTC)

Finite element analysis of localised impact loading on short glass fibre-reinforced polyamide engine oil pan subjected to low velocity impact from flying projectiles
J. NJUGUNA & Z. MOUTI (Cranfield University)

Material data determination and crash simulation of fiber reinforced plastic components
F. BECKER (German Institute for Polymers DKI)

M.M.I. ConfidentDesignTM: Improving the Prediction of LS-DYNA Calculations with Rhodia Data and Digimat
C. DEMAIN (Rhodia)

Analysis of fibre orientation using µCT data
S. MÖNNICH (German Institute for Polymers DKI)

Prediction of structural response of FRP composites for conceptual design of vehicles under impact loading
S. K. KRISHNAMOORTHY (German Aerospace Center DLR)

Session 10 : Material Modeling

Chairman : Kambiz KAYVANTASH (CADLM)

A novel transversely-isotropic 3D elastic-viscoplastic constitutive law for modeling fiber matrix composites
M. VOGLER (Leibniz University Hannover)

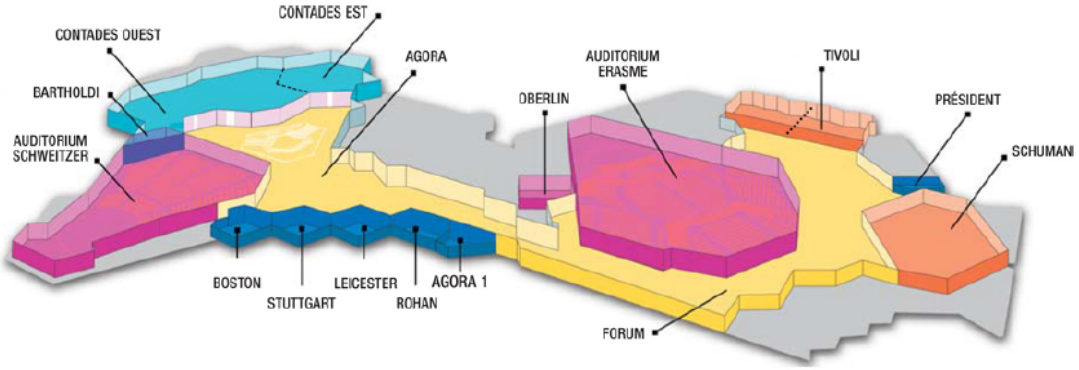
Investigation of failure criterion in dynamic torsion tests with solid cylindrical specimens
F. K. ANTONOV (RIM Lomonosov)

Development and verification of a material model for prediction of containment safety of exhaust turbochargers
D. MEMHARD (Fraunhofer IWM)

On fracture criterion of titanium alloy under dynamic loading conditions
F. K. ANTONOV (RIM Lomonosov)

Recent enhancements to the GISSMO failure model in LS-DYNA
A. HAUFE (DYNAmore)

Convention center - First Floor



Session 5 : Pre and Post Processing	
Chairman : Clément GOUBEL (LIER)	
Customising the model build/setup process using JavaScript in Oasys PRIMER M. THORNTON (Arup)	
Usage of fully detailed CAE models for concept design with the ANSA Morphing Tool G. KORBETIS (Beta CAE System)	
STRADYNA : A custom built GUI to integrate customer specific LS-DYNA pre and post processing routines J. LACAMBRE (Alyotech)	
The use of generic entities for multidisciplinary preprocessing. A simple but powerful pattern in ANSA Y. KOLOKYTHAS (Beta CAE System)	

Session 6 : High performance computing	
Chairman : Takahiko MIYACHI (JSOL)	
Performance benefits of NVIDIA GPUs for LS-DYNA S. POSEY (Nvidia)	1:50 PM
Progress on GPU implementation for LS-DYNA implicit mechanics R. GRIMES (LSTC)	2:15 PM
Performance of large scale implicit crash analysis on multi-core processor systems Y.-Y. LIN (Hewlett-Packard)	2:40 PM
MPP execution of implicit mechanics with 10M or more elements R. GRIMES (LSTC)	3:05 PM

Coffee break 3:30 PM

Session 11 : Process Modeling	
Chairman : Cedric LIU (CORETECH SYSTEM)	
Warm tube hydroforming simulation of 7075 aluminium alloy G. D'AMOURS (National Research Council Canada)	
Simulation of thread forming processes A. STÜHMEYER (CADFEM)	
Modeling and simulation of Mecano-welding process for tubular sections Z. FENG (Guangxi University)	
Cowper-symonds material deformation law application in material cutting process using LS-DYNA FE code : turning and milling V. GYLIENE (Kaunas University of Technology)	
3-Dimensional forming of thick plates A comparison of deep drawing and an approach of rolling and bending within a single process M. BOJAHR (University of Rostock)	

Session 12 : Concrete Modeling	
Chairman : Ala TABIEI (UNIVERSITY OF CINCINNATI)	
The RHT concrete model in LS-DYNA T. BORRVALL (ERAB)	4:00 PM
The Winfrith concrete model : Beauty or Beast ? Insights into the Winfrith concrete model L. SCHWER (SE&CS)	4:25 PM
Qualification of *Constrained_Lagrange_In_Solid command for steel/concrete interface modeling L. MOUTOUSSAMY (University Pierre and Marie Curie)	4:50 PM
Impact simulations on concrete slabs : LS-OPT fitting approach N. VAN DORSSELAER (AS+)	5:15 PM
	5:40 PM

Agenda - Tuesday, May 24th 2011 *

	Session 13 : Crashworthiness of vehicle components
	Chairman : Paul DU BOIS
8:00 AM	**Prediction of failure on high strength steel in seat mechanisms simulation** M. CHAUFFRAY (Faurecia)
8:25 AM	**Crashworthiness and sensitivity analysis of structural composite inserts in vehicle structure** C.-K. PARK (NCAC)
8:50 AM	**Optimizing thermoplastic parts in crash applications - Status and vision** A. WÜST (BASF)
9:15 AM	**Wood-steel structure for vehicle restraint systems** C. GOUBEL (LIER)
9:40 AM	**Comparison of material models for crash simulation - experimental and simulation work** F. BECKER (German Institute for Polymers DKI)

	Session 14 : Metal forming
	Chairman : Miles THORNTON (ARUP)
	A new method for CrachFEM damage parameter transfer from Autoform to LS-DYNA M. BUCKLEY (Jaguar Land Rover)
	Analysis of formability of advanced high strength steel sheets with phenomenologically based failure criteria with separate treatment of instability, shear and normal fracture K. ISIK (Technical University of Dortmund)
	Statistical analysis of process chains : novel PRO-CHAIN components D. STEFFES-LAI (Fraunhofer SCAI)
	How to use LS-OPT for parameter estimation – hot stamping and quenching applications A. SHAPIRO (LSTC)
	Deep drawing simulation of α - titanium alloys using LS-DYNA S. JURENDIC (Akrapovic)

10:05 AM	Coffee break

	Session 19 : Dummy modeling and Safety
	Chairman : Laurent GUERIN (FAURECIA)
10:35 AM	**Development of detailed AF05%ile Hybrid III dummy FE model** Y. ONISHI (Toyota)
11:00 AM	**Development of Advanced Finite Element Models of Q Child Crash Test Dummies** R. KANT (Humanetics Innovative Solutions)
11:25 AM	**Objective evaluation of the quality of the FAT ES-2 dummy model** S. STAHLSCHMIDT (DYNAmore)
11:50 AM	**An approach to capture the ejection mitigation requirements of FMVSS 226 with finite element simulations** A. HAUFE (DYNAmore)

	Session 20 : Polymer processing
	Chairman : Daniel HILDING (ERAB)
	Integrating plastics molding and structure dynamics analysis by leveraging LS-DYNA, Moldex3D and PreSYS C. LIU (CoreTech System)
	Multiscale approach for CFRP composite simulation by JSTAMP/NV and DIGIMAT N. ICHINOSE (JSOL)
	Mechanical characterization of talc particle filled thermoplastics F. KUNKEL (German Institute for Polymers DKI)
	Efficient nonlinear multiscale modeling of large multi component composite structures T. VILLETTE (e-Xstream engineering)

12:15 PM	Lunch

Premium Sponsor

NVIDIA

Sponsors

BULL sgi hp

Gold Sponsor

CRAY THE SUPERCOMPUTER COMPANY

TotaLinuX

FEA Information

Session 15 : Blast simulation

Chairman : Akbar FARAHANI (ETA)

Influence of HE shape on blast profile
F. PLASSARD (Thiot Ingénierie)

Using LS-DYNA MM-ALE capabilities to help design a wall mitigating accidental blast effects
J. LACAMBRE (Alyotech)

Simulation of shock wave mitigation in granular materials by pressure and impulse characterization
C. GUEDERS (Royal Military Academy)

Shock wave effect on aluminium foam
M. VESENJAK (University of Maribor)

Session 16 : Polymer and rubber modeling

Chairman : André HAUFE (DYNAMORE)

A new advanced visco-elastoplastic eight chain rubber model for LS-DYNA
T. OLSSON (ERAB)

A constitutive equation for the aging of elastomer and application to dummy impact programs
W. W. FENG (LSTC)

Validation and material modeling of plastics
P. REITHOFER (4A Engineering)

A constitutive model for thermoplastics with some applications
A. H. CLAUSEN (SIMLab)

Behaviour model for semi-crystalline polymer, application to crashworthiness simulations
R. BALIEU (University of Lille)

10:05 AM — Coffee break

Session 21 : SPH applications

Chairman : Art SHAPIRO (LSTC)

Simulation of charge and structure behaviour in a tumbling mill
P. JONSEN (Luleå University of Technology)

Modeling of cone penetration test using SPH and MM-ALE approaches
R. F. KULAK (Argonne National Lab)

Hypervelocity impact of aluminium sphere against aluminium plate : experiment and LS-DYNA correlation
F. PLASSARD (Thiot Ingénierie)

Application of LS-DYNA SPH formulation to model semi-solid metal casting
F. PINEAU (National Research Council Canada)

Session 22 : Element technology and user options

Chairman : Len SCHWER (SE&CS)

An overview of User Defined Interfaces in LS-DYNA
T. ERHART (DYNAmore)

User defined nonlocal models in LS-DYNA
F.X.C. ANDRADE (University of Porto)

Ply-based composite modeling with the new *ELEMENT_SHELL_COMPOSITE keyword
U. STELZMANN (CADFEM)

About Isogeometric Analysis and the new NURBS-based Finite Elements in LS-DYNA
S. HARTMANN (DYNAmore)

12:15 PM — Lunch

Session 17 : Aeronautical and Off shore applications

Chairman : Uli STELZMANN (CADFEM)

An airbag application for the ALAR incidences for the passenger aircrafts
V. ANANDAN (Goodrich)

Hail impact simulation on CFC covers of a transport aircraft
P. STARKE (EADS)

Orion space craft water and land landing system simulation; an injury case study
A. TABIEI (University of Cincinnati)

Development of a water filled fender system for off shore installations
A. S. DUVALL (AMEC)

Simulation of ice action loads on off shore structures
D. HILDING (ERAB)

Session 18 : Nuclear and Industrial applications

Chairman : Marcus REDHE (ERAB)	
Computational simulations of aluminium foam projectile behaviour M. BOROVINSEK (University of Maribor)	8:00 AM
Numerical simulation of spiral-strand cables subjected to high velocity fragment impact R. JUDGE (University of Liverpool)	8:25 AM
A methodology on how to certify transportation containers N. BARDON (CEA CESTA)	8:50 AM
Simulation of shock absorbers behavior during a 9m drop test F. COLLIN (TN International)	9:15 AM
LS-DYNA application to develop a package for air transportation of fissile materials O. V. VOYKINA (LLC Strela)	9:40 AM

Coffee break 10:05 AM

Session 23 : New CFD and acoustics methods

Chairman : Anthony DARRABA (ALYOTECH)

ALE incompressible fluid in LS-DYNA
M. SOULI (LSTC / University of Lille)

Incompressible CFD results using LS-DYNA for high Reynolds number flow around bluff bodies
I. CALDICHOURY (LSTC / AS+)

Development of frequency domain dynamic and acoustic capabilities in LS-DYNA
Y. HUANG (LSTC)

BEM methods for acoustic and vibroacoustic problems in LS-DYNA
M. SOULI (LSTC / University of Lille)

Session 24 : High performance computing

Chairman : Stan POSEY (NVIDIA)	
The effect of MPI collective operations and MPI collective offloads on LS-DYNA performance G. SHAINER (Mellanox Technologies)	10:35 AM
ODB-10M - New topcrunch benchmark data M. MAKINO (Dynapower Corporation)	11:00 AM
Efficient processing of multiple contacts in MPP-DYNA B. WAINSCOTT (LSTC)	11:25 AM
FEM STUDY OF METAL ROLLING IN GROOVED ROLLS D.V. SCHEVCHENKO (Siemens) -This paper will not be presented-	11:50 AM

Lunch 12:15 PM

Plenary Session

Chairman : Brian WALKER (ARUP)

1:45 PM **CAE in car-body development at Audi - Trends in different areas e.g. SDM and Optimization**
Dr. Bernd MLEKUSCH (AUDI AG)

2:20 PM **Dynamic analysis, verification and validation for submarine applications**
Mr. Stefan STOJKO (ROLLS ROYCE MARINE POWER)

2:55 PM Coffee Break

Chairman : Nima EDJTEMAI (ALYOTECH)

3:20 PM **NVIDIA GPU Computing for LS-DYNA** - Mr. Joerg KRALL (NVIDIA)

3:30 PM **Cray Technology applied to CAE applications** - Mr. Greg Clifford (CRAY)

3:40 PM **LS-DYNA recent and future developments**
Dr. John O. HALLQUIST (LSTC)

4:25 PM **Farewell**

4:30 PM **End of the 8th European LS-DYNA Users Conference**

Training sessions program *

Crash & Impact Modeling Mr. P. DU BOIS	May, 17-20th
FSI & ALE in LS-DYNA Mr. M. SOULI	May, 19-20th
Material Modeling & User-Defined material in LS-DYNA Mr. A. TABIEI	May, 19-20th
SPH & EFG Methods in LS-DYNA Mr. M. SOULI & Mr. C.T. WU	May, 25-26th
Optimization with LS-OPT Mr. N. STANDER	May, 25-26th
Heat Transfer with Hot Stamping Applications Mr. A. SHAPIRO	May, 25-26th
Protective Structures, Blasts, Vehicles Mines & IED Mr. A. TABIEI	May, 25-26th

LS-DYNA® *

May 23rd-24th, 2011

8th European Users Conference

www.lsdynaeuc.alyotech.fr