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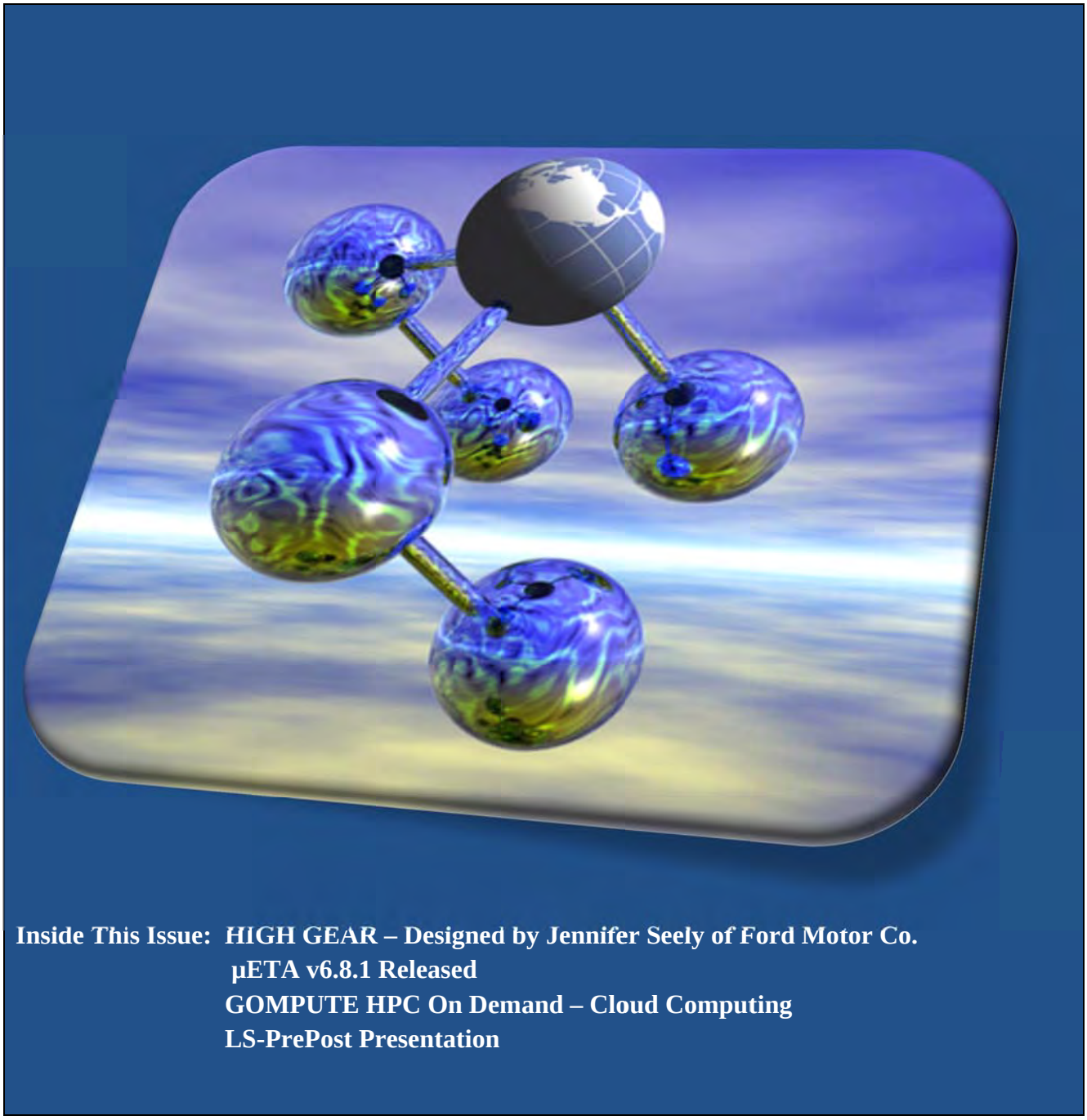
FEA Information Engineering Solutions

Volume 1, Issue 5, June 2012



Inside This Issue: ***HIGH GEAR – Designed by Jennifer Seely of Ford Motor Co.***

µETA v6.8.1 Released

GOMPUTE HPC On Demand – Cloud Computing

LS-PrePost Presentation

FEA Information Inc. is a publishing company founded April 2000, incorporated in the State of California July 2000, and first published October 2000. The initial publication, FEA Information News continues today as FEA Information Engineering Solutions. The publication's aim and scope is to continue publishing technical solutions and information, for the engineering community.

FEA Information Inc. Publishes:

FEA Information Engineering Solutions
FEA Information Engineering Journal
FEA Information China Engineering Solutions

FEA Information Engineering Solutions:

A monthly publication in pdf format sent via e-mail, additionally archived on the website FEA Publications. www.feapublications.com

FEA Information China Engineering Solutions

The first edition was published February 2012. It is published in Simplified and Traditional Chinese in pdf format. Published : February, April, June, August, October, December. The China Solutions is archived on the website FEA Publications. www.feapublications.com
To sign up for the Traditional, or Simplified edition write to yanhua@feainformation.com

FEA Information Engineering Journal: ISSN #2167-1273, first published February, 2012

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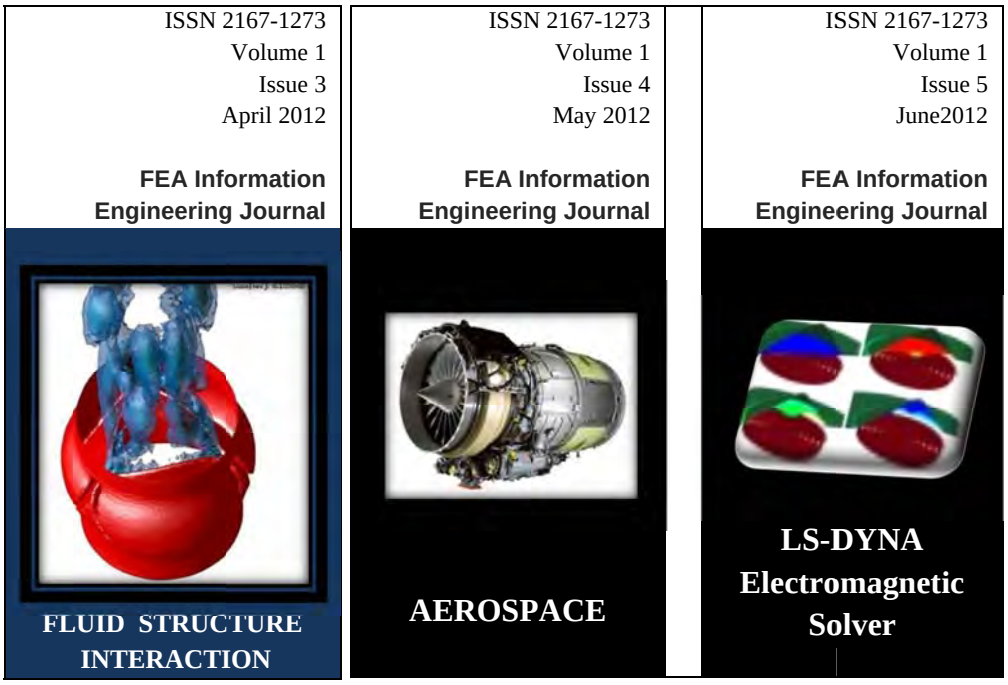

Platinum Participants

www.beta-cae.gr

www.cray.com

www.datapointlabs.com

www.eta.com

www.esi-group.com

www.gns-mbh.com/

http://gridcore.se

www.hengstar.com /

www.jsol.co.jp/english/cae

www.lstc.com

www.oasys-software.com/dyna/en/

www.kaizenat.com

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ANNOUNCEMENTS

For participation subscription including full page ads, articles, static listing, contact Anthony Giaccana, agiac99@aol.com

The FEA Information Engineering Journal for June is now on line.

Featuring LS-DYNA Electromagnetic Solver Publications from the
12th International LS-DYNA Users Conference – June 2012

The full LS-PrePost article is available: write to info@lstc.com for the presentation

We welcome unsolicited topics, ideas, and articles. Publishing is at the sole discretion of FEA Information Inc.

Philip Ho, Lead Developer, LS-PrePost®, Livermore Software Technology Corp.

To preserver KB space we have listed excerpts. For a copy of the complete presentation contact info@lstc.com

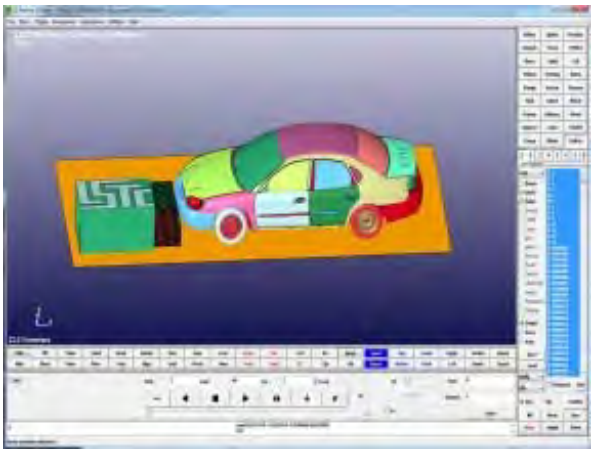
Current Status

- 3.2 is the current release of LS-PrePost
- Still support the old interface (version 2.4) users can toggle between old interface and new interface by F11 function key
- Tools to help users to transition from old to new interface
- Support Linux 64-bit systems, Windows 32bit and 64bits, Apple Mac OSX
- Continue to improve in stability, robustness and features
- Download: http://ftp.lstc.com/anonymous/outgoing/lsprepost/3.2

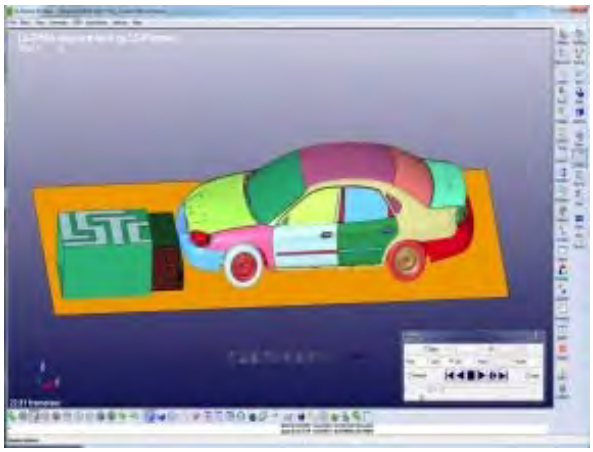
Development Version 4.0 beta

- New rendering technique to render the finite element model results many times faster than the older versions of LS-PrePost
- Latest features and updates will be implemented in this version
- Requires graphics cards that support openGL version 3.3 and higher
- Enter CNTL-L twice before loading data to disable new fast rendering

Old Interface



New Interface



Slide Titles from the LS-PrePost Presentation

LS-PrePost 3.2/4.0 GUI

New Graphics Rendering in version 4.0

Taken from a visualization research project at UCSD that was funded by Honda R&D North America (Mr. Ed Helwig)

New Rendering Performance

User group and Online Documentation

User Group – more than 2200 members as of May, 2012
http://groups.google.com/group/ls-prepost

Other new features and improvements in LS-PrePost3.2/4.0

Batch mode Operation – (-nographics)

LS-PREPOST Features for LS-980

- Support for Multi-Physics keywords: *CESE, *ICFD and *EM
- Multi-Solver keyword files can be displayed and edited
- Models can be a mixture of Multi-Solver and Mechanical meshes
- ICFD modeling can be 2D or 3D with mesh adaption (re-meshing)
- Support for ICFD LevelSet functions

CESE with stochastic particles

Fuel Tank Fluid Surface shown by Levelset part.

New XYPLOT layout

- New XY plot interface allows xy plots to be drawn to main graphics windows, or to a separate page with multiple plots per page
-

Fringing by Script

- In the fringe expression interface, use script (a programming code) instead of expression
- Assign components to variables
- User writes the script (code) to perform whatever data manipulation to get final result

Slide Titles from the LS-PrePost Presentation

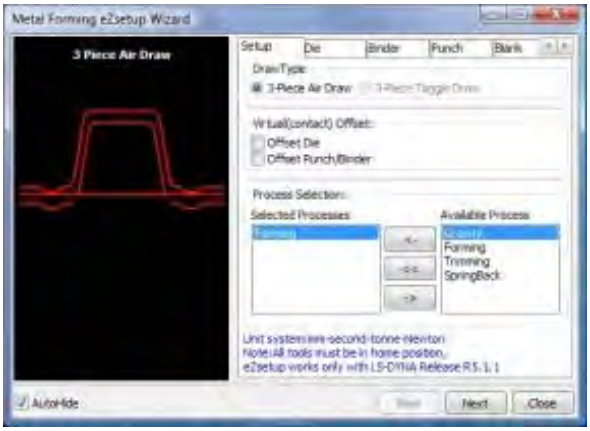
Metal Forming Application

Metal Forming Graphics User Interface (GUI) is designed to ease the setup of a stamping simulation input data using LS-DYNA.

- Easy Setup
- General Setup

Metal Forming → Toolbar

Metal Forming → eZsetup



- Standard draw type
- Step-by-step tool definition
- Easy draw bead modeling
- Automatic tooling position
- Multiple processes
- User control options

DynFold Application

- Dynfold is designed to prepare input files for simulation based airbag folding process. Typical physical airbag folding process is done in 4 to 5 steps (runs of LS-DYNA).
- Dynfold user interface is designed to setup one step at a time. Often the deformed shape at the end of one folding step is used as a starting mesh for the next step.
- The airbag model is expected to have nodes, elements, part, section and material defined before using this interface.
- The physical folding process is generally of the following form:
    a. hold the bag in position while being folded
    b. clamp a portion of the bag to a folding tool
    c. Apply motion to the tool in translational direction or rotational direction or combination of both.
- At present 4 folding tools are supported: Loadmesh, SPC, BPMF(BOX), Stitching and Tuck

Slide Titles from the LS-PrePost Presentation

DynFold Setup Process

Define Parameters: Define Project Step Name, Termination time, airbag tool Material Parameters.

- Load Airbag: Load finite element mesh, Position airbag by translate, rotation, etc.; show airbag, or turn off show.
- Define Airbag Folding Tools, currently there are four kinds of tools
    - Load meshing:
        - Load tool meshing file; Define tool attaching to bag.
        - Define Load Meshing Tools Motion.
        - Preview tool motion (Home position and Final position)
    - Spc_Birth_Death, BPMF(Box), Stitch

Spc_Birth_Death, BPMF(Box), Stitch

- Define boundary spc node set.
- Define Constrained
- Define Birth and Death time**.**

BPMF(Box)

- Define Original and Final position of the Box.
- Define contact between box and airbag parameters .
- preview of Original/Target position of the box in graphics view .

Stitch

- Define Stitch parts and parameters.
- Define Get stitch start position and direction.
- Define stitch Birth and Death time
-

Define Part Motion with motion properties

*Airbag_shell_reference_geometry

- *Airbag_shell_reference_geometry is the required data for airbag deployment in LS-DYNA
- LS-Prepost creates this data by asking user to pick the parts that make up the airbag in 3D final configuration and unrolls them into 2D flat panels.
- Element IDs are preserved with new nodal coordinates

*Airbag_shell_reference_geometry

Part Replace

- Model->PartD->Replace
- To replace a part with another part
- The 2 parts do not need to be the same in no. of elements/nodes.
- Connection between others part will be done automatically when it is possible

Part Replacement

Slide Titles from the LS-PrePost Presentation

Other Miscellaneous Improvements

- Many bugs have been fixed in geometry engine
- Improved mid-surface generation from solid model
- More robust trimming and solid cutting
- Improved automatic solid meshing
- More robust LS-DYNA model checking with auto fixing
- Particle, temperature post-processing data support in FEMZIP format
- Solid element and seatbelt element splitting
- Element edit with check, locate and repair

User written script

- C-like programming scripting language to execute LS-PrePost commands
- Allows “if then else”, for, and while loop operations
- Uses LS-PrePost DataCenter to extract model data: like no. of parts, part ID, no. of elements, no. of nodes, etc.
- Extracted data can be used as variables to perform operations
- Most suitable to perform the same operations over different part of the model

Suppress Boundary line for surface meshing

Solid Meshing with Hex Element

Metal Forming - Die System Module

Complete metal forming Die design system

- Provides a user friendly interface to design the complete tooling system
  - Starting from CAD geometry
  - Tipping: make sure that the part can be made without undercut
    - Many options are available to allow user to check and position the part with a desired orientation
  - Binder design is fully parametric
    - User can easily manipulate the binder surface
  - Addendum design – obtain a smooth surface that is tangent to both the tool part and the binder
    - To make sure that the part can be deformed correctly
    - Parametric patch method will be employed
  - Initial blank size estimation – one step solver

Slide Titles from the LS-PrePost Presentation

THUMS Positioning Setup

- THUMS – Total Human Model for Safety
- THUMS positioning Setup – Setup LS-DYNA keyword data to position the dummy by simulation
    - H-point and Joint method – define amount and direction of rotation at joint
    - Tools method – introduce tools to pull or move the limbs to a desired location

Summary

- New GUI provides better look and feel, also yields maximum windows space for graphics, at the same time old interface is still available to user
- Capabilities in the geometry engine allows CAD data to be modified and repaired before meshing and therefore eliminate tedious mesh modification
- New rendering in Version 4.0 employs the latest rendering techniques in OpenGL, speeds up the rendering by many times, viewing and animation of a very large model now is possible
- LS-DYNA model data check is a very important tool to ensure the validity of the data before running LS-DYNA
- Scripting language will be further developed to provide much more powerful capability

LS-PrePost Recap

- LSTC is committed to continue to develop and enhance LS-Prepost by improving its stability, robustness and user friendliness
- New features have been added continuously to keep up with the development of LS-DYNA both in the post-processing and pre-processing
- New Applications have been implemented to let user do special LSDYNA job setup easily and quickly
- Users' feedback and suggestions are always welcome

HIGH GEAR Designed by Jennifer Seely of Ford Motor Co. HIGH GEAR

'High Gear' Chosen as Concept for First-Ever SEMA Mustang Build Powered

Designed by Jennifer Seely of Ford Motor Co., "High Gear" was the concept selected in the first-ever SEMA Mustand Build Powered by Women. Thousands voted for the satin black luxury Mustang concept, which will debut at the 2012 SEMA Show and then be auctioned on eBay to benefit the SEMA Memorial Scholarship Fund.

DEARBORN, Mich., June 6, 2012 – Thousands of fans voted for a satin-black, luxury Ford Mustang concept in the first-ever SEMA Mustang Build Powered by Women. The project – a collaboration between Ford Motor Company and the Specialty Equipment Market Association (SEMA) – invited the public to view three concepts online and vote for the one they would like to see built by a group of women volunteers.

Known as "High Gear," the winning concept was designed by Jennifer Seely of Ford.

Inspired by international products in categories such as jewelry, couture clothing and architecture, High Gear is meant to stimulate the senses by fusing luxury and power. Highlights include rose-gold chrome accents throughout the exterior and interior; satin-black body; plush, quilted suede seats and a leather-wrapped interior. Modifications will also be made to the engine, undercarriage, drivetrain and sound system.

"We appreciate our readers and fans helping us determine which concept will be used for this very exciting project," said Doug Evans, executive vice president of Source Interlink Media (SIM). SIM, a partner in the project, hosted the voting on several of its websites and will also host the physical build at its El Segundo, Calif., headquarters.

"The concept selected by everyone who voted is amazing," Evans added. "It will be very exciting to see the vehicle transformed in just eight short weeks by this dedicated group of women. The drive and talent this collaboration of women from the SEMA Business Network (SBN), Ford and Source Interlink Media brings to this project is nothing short of phenomenal."

As title sponsor of the project, Ford donated a 2013 Ford Mustang GT. Women members of SBN will perform the hands-on modifications from July to August. The finished car will debut at the 2012 SEMA show in Las Vegas, then be auctioned on eBay to raise money for the SEMA Memorial Scholarship Fund. The fund is dedicated to fostering the next

generation of automotive aftermarket leaders and innovators.

The SBN Vehicle Build Task Force is comprised of Task Force Chair Rose Kawasaki (Exports International), Project Vehicle Coordinator Sherry Kollien (Ford), Assembly Coordinator Kellie Colf (eTool Developers), PR/Media Coordinator Camee Edelbrock (Schiefer Media Inc.) and Product Coordinator Susan Carpenter (JR Products). Advisors include Mike Spagnola (Street Scene), Joel Ayres (Bedslide) and Marla Moore (Hypertech).

To learn more about the SEMA Mustang Build Powered by Women, visit www.sema.org/SEMAMustangBuild or contact SEMA Project Manager Bryan C. Harrison at bryanh@sema.org.

About Ford Motor Company
Ford Motor Company, a global automotive industry leader based in Dearborn, Mich., manufactures or distributes automobiles across six continents. With about 166,000 employees and about 70 plants worldwide, the company's automotive brands include Ford and Lincoln. The company provides financial services through Ford Motor Credit Company. For more information regarding Ford and its products worldwide, please visit http://corporate.ford.com .

About the Specialty Equipment Market Association (SEMA)
SEMA, the Specialty Equipment Market Association founded in 1963, represents the $29.99 billion specialty automotive industry of 6,383 member-companies. It is the authoritative source for research, data, trends and market growth information for the specialty auto parts industry. The industry provides appearance, performance, comfort, convenience and technology products for passenger and recreational vehicles. For more information, contact SEMA at 1575 S. Valley Vista Dr., Diamond Bar, CA 91765, tel: 909/396-0289, or visit www.sema.org or www.enjoythedrive.com.

About the SEMA Scholarship Fund
The SEMA Memorial Scholarship Fund is dedicated to fostering the next generation of automotive aftermarket leaders and innovators. Scholarship awards range from $1,000 - $2,000, with $4,000 going to the top student. Assistance is available for career paths in the automotive industry in accounting, administration, advertising, design/graphics, engineering, information technology, manufacturing, photo/journalism, race car driver/crew, sales/marketing, technicians and transportation.

Research by NASA and international scientists concludes giant asteroids, similar or larger than the one believed to have killed the dinosaurs, hit Earth billions of years ago with more frequency than previously thought.

NLSI Scientists Find History of Asteroid Impacts in Earth Rocks

To cause the dinosaur extinction, the killer asteroid that impacted Earth 65 million years ago would have been almost 6 miles (10 kilometers) in diameter. By studying ancient rocks in Australia and using computer models, researchers estimate that approximately 70 asteroids the same size or larger impacted Earth 1.8 to 3.8 billion years ago. During the same period, approximately four similarly-sized objects hit the moon.

“This work demonstrates the power of combining sophisticated computer models with physical evidence from the past, further opening an important window to Earth’s history,” said Yvonne Pendleton, director of NASA’s Lunar Science Institute (NLSI) at NASA’s Ames Research Center at Moffett Field, Calif.

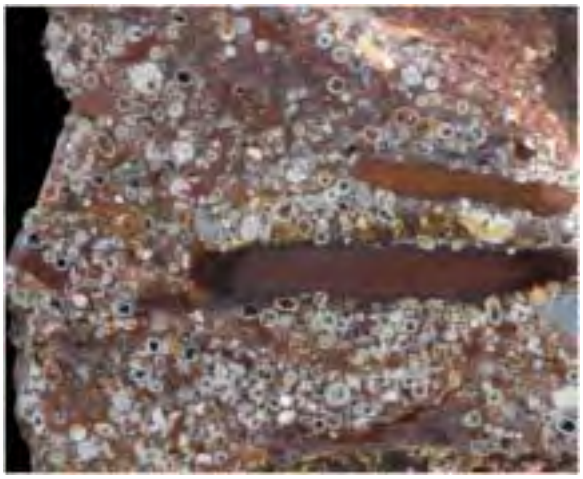
Evidence for these impacts on Earth comes from thin rock layers that contain debris of nearly spherical, sand-sized droplets called spherules. These millimeter-scale clues were formerly molten droplets ejected into space within the huge plumes created by mega-impacts on Earth. The hardened droplets then fell back to Earth, creating thin but widespread sedimentary layers known as spherule beds.
The new findings are published today in the journal Nature.

“The beds speak to an intense period of bombardment of Earth,” said William Bottke principal investigator of the impact study team at the Southwest Research Institute (SwRI) in Boulder, Colo. “Their source long has been a mystery.”

The millimeter-scale circles and irregular gray particles in this sample are formerly molten droplets ejected into space when an asteroid hit the Earth 2.63 billion years ago late in the Archean period. Credit: Bruce Simonson, Oberlin College and Conservatory.

The team’s findings support the theory Jupiter, Saturn, Uranus and Neptune formed in different orbits nearly 4.5 billion years ago, migrating to their current orbits about 4 billion years ago from the interplay of gravitational forces in the young solar system. This event triggered a solar system-wide bombardment of comets and asteroids called the “Late Heavy Bombardment.” In the paper, the team created a

model of the ancient main asteroid belt and tracked what would have happened when the orbits of the giant planets changed. They discovered the innermost portion of the belt became destabilized and could have delivered numerous big impacts to Earth and the moon over long time periods.



At least 12 mega-impacts produced spherule beds during the so-called Archean period 2.5 to 3.7 billion years ago, a formative time for life on Earth. Ancient spherule beds are rare finds, rarer than rocks of any other age. Most of the beds have been preserved amid mud deposited on the sea floor below the reach of waves.

The impact believed to have killed the dinosaurs was the only known collision over the past half-billion years that made a spherule layer as deep as those of the Archean period. The relative abundance of the beds supports the hypothesis for many giant asteroid impacts during Earth's early history.

The frequency of the impacts indicated in the computer models matches the number of spherule beds found in terrains with ages that are well understood. The data also hint at the possibility that the last impacts of the Late Heavy Bombardment on Earth made South Africa's Vredefort crater and Canada's Sudbury crater, both of which formed about 2 billion years ago.

"The Archean beds contain enough extraterrestrial material to rule out alternative sources for the spherules, such as volcanoes," said Bruce Simonson, a geologist from Oberlin College in Oberlin, Ohio.

The research was funded by NLSI and conducted by members or associates of NLSI's Center of Lunar Origin and Evolution, based at SwRI.

The impact study team also includes scientists from Purdue University in West Lafayette, Ind.; Charles University in Prague, Czech Republic; Observatorie de la Cote d'Azur in Nice, France; and Academia Sinica in Taipei, Taiwan.

Posted by: Soderman/NLSI Staff
Source: NLSI Team

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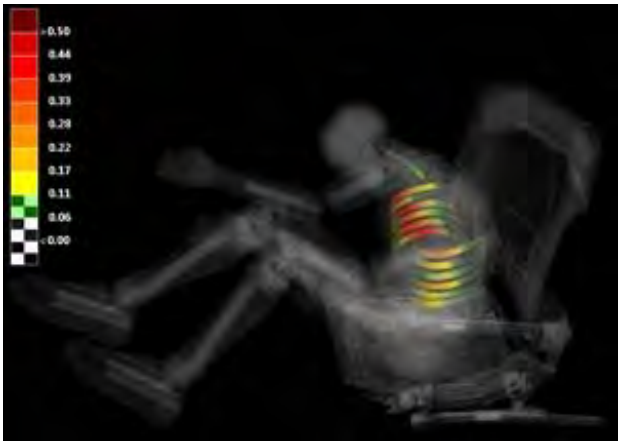
http://www.ansa-usa.com/component/content/article/72

µETA v6.8.1 release - June 1st, 2012

BETA CAE Systems S.A. announces the release of µETA v6.8.1 with enhancements and important code corrections



The official software release is comprised by the latest meta_post_v6.8.1 files dated June 1st, 2012. These replace any pre-releases and files downloaded prior to this date.

Supported Platforms

- µETA v6.8.x is available on MS-Windows, Linux and Mac OS only.
- The support of the UNIX platforms: HP-UX, IBM-AIX and SUN-Solaris is discontinued.
- The support of Windows 2000 SP3 is also discontinued and Windows XP SP1 is the earliest S-Windows supported version.

Among the New Features Introduced:

- Support of Abaqus 6.12-x files (ref. to "Particularly for the support of Abaqus .odb files" paragraph in the Download section)
- New read options for Scalar and Vector results on elements
- New fringe option named Facets
- Various improvements of the 2D Plot tool
- Reading of OpenFOAM binary and zipped databases
- Volume and Area calculations for CFD analyses, available from the PIDs list

Known Issues Resolved

- µETA would not start on TurboVNC configurations
- Nastran *.op2 files created with the mode=i8 option would not be read
- Reading certain Abaqus 6.11-x files would cause µETA to crash
- Reading FEMZIP-compressed d3plot files could cause µETA to block
- Various issues of the 2D Plot tool

Compatibility

µETA v6.8.1 can only run with beta_lm_tools v6.0 or later. The latest beta_lm_tools version is v6.3.
The .metadb files saved by the later versions of

µETA are fully compatible and can be opened by earlier versions of µETA.

What do download and documentation

Please visit their site for full article on download:

July Courses:

ASTR 101: Basic ANSA for Structures:
July 11 - 13, 2012
ASTR 101: Basic ANSA for CFD:
July 24 - 25, 2012
http://www.ansa-usa.com/

BETA CAE Systems US.A, Inc.
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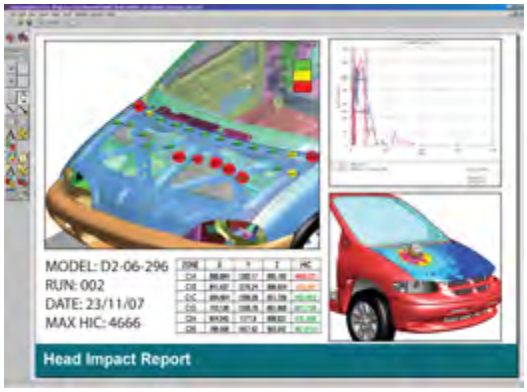
Email: beta@ansa-usa.com

URL: http://www.ansa-usa.com

http://www.oasys-software.com/dyna/en/software/reporter.shtml



REPORTER is a program that enables fast and convenient post-processing of LS-DYNA results through the use of templates and scripts.

The user creates a report template using Oasys REPORTER, this template forms the basic structure of the report, and defines areas on the pages that are intended for text, pictures or graphs. These are then linked to scripts either user-defined or from the built-in library that will generate the actual content .

When generating a report from a completed template Oasys REPORTER will execute each of the scripts, automatically opening D3PLOT and T/HIS to produce the required images, and place them at the defined position in the report
The user can also define variables which are passed between Oasys REPORTER and other Oasys programs as well as user-written scripts and programs. These variables can then be used to replace file and directory names, node and element numbers, or any other information the user wishes to include. This allows the user to use the same report for multiple runs simply by specifying the value of a small set of variables when generating a report rather than having to edit a whole series of scripts and command files.

Main features:

- Full support for LS-DYNA version 971 and Oasys software
- Compatible with scripts written in all major computer languages
- Supports files from a mixed UNIX / PC system
- Reports can be output in postscript, HTML, PDF and PowerPoint VBA formats
- Use of user defined variables allows one report templates to be used with a series of different models
- Eliminates the need for time consuming manual post-processing
- Enable easy review and comparison of large sets of data

Built-In Library of Scripts

Oasys REPORTER includes a library of pre-defined scripts for extracting a range of data from an LS-DYNA run. These include data from the keyword file such as initial velocity and include files used and data from the OTF file such as amount of added mass, timestep, analysis run time and termination status.

Oasys D3PLOT and T/HIS Integration

Oasys REPORTER is fully integrated with D3PLOT and T/HIS.

This allows users to interactively in D3PLOT or THIS arrange a particular view they want and REPORTER will automatically generate the script to create the image, rather than the user having to write the script by hand.

Conference 9th European LS-DYNA® Users' Conference Conference

Location: Manchester Central Convention Complex, Manchester, UK

Welcome Reception and Social Event:
Sunday 2nd June 2013

Conference:
Monday 3rd and Tuesday 4th June 2013

Gala Dinner:
Monday 3rd June 2013

Arup are pleased to announce that the 9th European LS-DYNA Users' Conference will be held at Manchester Central Convention Complex, UK on 3rd and 4th June 2013.

Manchester is situated in the centre of the UK with one of the world's best connected international airports and efficient road and rail links. The event will give those in academia and industry a chance to present their work to colleagues and to catch up on the latest developments in the software. Attendees can also meet with exhibitors to find out more about hardware, software and services relating to LS-DYNA.

On the evening of Monday 3rd June the Gala Dinner will take place at the Museum of Science and Industry, just a short walk from the conference venue. The museum brings to life innovation and invention from science and industry through the ages even offering rides on 'Planet', a reproduction steam locomotive!

Important dates:

Registration Opens: end of September 2012
Abstract Deadline: end of December 2012
Papers Deadline: end of April 2013

If you would like to attend, present, exhibit or sponsor, please visit our conference website at: http://arup.cvent.com/euroconference.

We look forward to welcoming you to the event!

Cray Awarded $16 Million Contract From the Department of Defense High Performance Computing Modernization Program

SEATTLE, WA, Jun 14, 2012 -- Global supercomputer leader Cray Inc. (NASDAQ: CRAY) today announced that the Department of Defense High Performance Computing Modernization Program (DOD HPCMP) has awarded a contract to Cray to significantly upgrade the program's three existing Cray XE6 supercomputers. As part of the contract, Cray will also deliver a new Cray XE6m supercomputer to the Naval Research Laboratory in Monterey, California, which will be used by the organization's Marine Meteorology Division.

In 2010, Cray was awarded a contract to provide three Cray XE6 supercomputers to the DOD Supercomputing Resource Centers (DSRCs) at the U.S. Air Force Research Laboratory (AFRL) located at the Wright Patterson Air Force Base in Ohio, the Arctic Region Supercomputing Center (ARSC) in Fairbanks, Alaska and the U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg, Mississippi. Under the terms of the contract Cray is announcing today, Cray will double the number of processor cores in each of the three systems by upgrading the Cray XE6 supercomputers to the AMD Opteron(TM) 6200 Series "Interlagos" processors. Additionally, Cray will combine these separate systems into one petascale supercomputer, which will be located at the DSRC at ERDC.

"Breaking through the challenges faced by the Department of Defense research, development, test, and evaluation communities requires increasingly powerful supercomputers in addition to the unique expertise that the HPCMP provides," said John E. West, director of the DOD HPCMP. "Cray has been a technology partner of the HPCMP for many years, and we look forward to continuing that relationship through the deployment of these systems."

"Our organization conducts a research and development program that's focused on improving the basic understanding of atmospheric processes, studying the effects of the natural environment on Naval weapons systems, and developing environmental forecasting systems for DOD users," said Dr. Jim Hansen, head of the Meteorological Applications Development Branch. "High performance computing is crucial to our work, and the Cray XE6m provides a unique opportunity to perform operational demonstrations of real-time advanced environmental prediction capabilities in support of US Navy Fleet exercises."

The upgrade to the three systems and the consolidation into one large Cray supercomputer, as well as the delivery of the Cray XE6m system to the Naval Research Laboratory, are expected to be completed later this year.

The initial contract is valued at more than $16 million in product revenue and also includes separately priced options for multi-year maintenance service

"The DOD's High Performance Computing Modernization Program plays a vital role in ensuring that the DOD's researchers and engineers are equipped with advanced supercomputing technologies, and Cray is honored to continue to be a major partner for this important program," said Peter Ungaro, president and CEO of Cray. "Upgrading these Cray XE6 systems, and ultimately combining them into one petascale supercomputer, is a great example of the approach we take in designing Cray supercomputers and the value we deliver to our customers. We strive to lower the total cost of system ownership for our customers by giving them the ability to easily upgrade and significantly expand their systems, which also reduces the environmental impact associated with replacing an entire supercomputer."

Excerpt - About HPCMP - The DOD HPCMP provides the DOD supercomputing capabilities, high-speed network communications and computational science expertise that enable DOD scientists and engineers to conduct a wide-range of focused research, development and test activities. This partnership puts advanced technology in the hands of US forces more quickly, less expensively, and with greater certainty of success….

For full information about HPCMP, please visit the DOD HPCMP Web site at: www.hpc.mil .

Excerpt About Cray Inc. - As a global leader in supercomputing, Cray provides highly advanced supercomputers and world-class services and support to government, industry and academia. Cray technology is designed to enable scientists and engineers to achieve remarkable breakthroughs by accelerating performance, improving efficiency and extending the capabilities of their most demanding applications.
For full article information Go to www.cray.com

Excerpt – Full Safe Harbor Statement should be viewed at www.cray.com

- This press release contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934 and Section 27A of the Securities Act of 1933, including, but not limited to, statements related to Cray's ability to deliver upgrades, combine separate existing Cray systems into one Cray system and deliver a new Cray XE6m for the DOD HPCMP when required and that meet the DOD HPCMP's needs. These statements involve current expectations, forecasts of future events and other statements that are not historical facts. Inaccurate assumptions and known and unknown risks and uncertainties can affect the accuracy of forward-looking statements and cause actual results to differ materially from those anticipated by these forward-looking statements. Factors that could affect actual future events or results include, but are not limited to, the risk that the upgraded and combined system and Cray XE6m required by the DOD HPCMP are not delivered or completed in a timely fashion or do not perform as expected and such other risks as identified in the Company's quarterly report on Form 10-Q for the quarter ended March 31, 2012, and from time to time in other reports filed by Cray with the U.S. Securities and Exchange Commission. You should not rely unduly on these forward-looking statements, which apply only as of the date of this release….

Cray Media: - Nick Davis - 206/701-2123
pr@cray.com Cray Investors: Paul Hiemstra – 206/701-2044 ir@cray.com

https://www.gompute.com/web/guest/cd-adapco-and-gompute

June 14, 2011 - Gothenburg, Sweden

GOMPUTE, HPC-on-Demand & STAR-CCM+ /Power-on-Demand now in full collaboration.

The leading CFD Software on the leading HPC cloud CD-adapco and Gompute announce full collaboration in the product licensing scheme, called, "STAR-CCM+ /Power-on-Demand", which allows users to run STAR-CCM+ /Power Session simulations using on-demand cloud computing service of Gompute supporting public, private and hybrid clouds.

Gompute's services allow users to exploit, secure and reliable, High Performance Computing resources over the Internet by paying for what they actually use. Gompute provides computing power, remote visualization, storage, system administration and support for applications provided by third party Gompute partners like CD-adapco. CD-adapco is the world's largest independent CFD-focused provider of engineering simulation software.

The compelling benefits of STAR-CCM+ /Power-on-Demand for use with Gompute include:

- Increased power: Each license allows access to unlimited computing resources, either on your own cluster (which can run the Gompute software stack) or using cloud computing services of Gompute.
- Increased throughput: Each license allows unlimited number of concurrent sessions.
- Increased flexibility : Creation of a flexible simulation environment that expands and contracts based on your workload and target performance parameters, providing you with burst capacity
- Remote hardware accelerated graphics for PRE/POST operations to minimize data transfer requirements.

Designed around the principle of automation, the overriding goal of STAR-CCM+ is to make it easier for engineers to concentrate on engineering analysis, freeing them from the repetitive routine tasks traditionally associated with preparing and running simulations. This cooperative and integrated approach, that equals Gompute's, allows engineers to focus their time on generating a constant stream of useful information to guide the design process, ultimately resulting in more innovative, better engineered products.

An Introduction to CD-adapco - CD-adapco has over 30 years of experience in delivering industrial strength engineering simulation. The scope of the activities extends well beyond software development to encompass a wide range of CAE engineering services in both CFD and FEA.

Consistently growing at an organic rate of over 17% per year, CD-adapco employs over 495 talented individuals, working at 21 offices around the globe, involved in dedicated support, software development and engineering services.
Our Purpose

CD-adapco's principal aim is "Engineering Success." We aim to help our customers to succeed through the application of engineering simulation, driving innovation in their products AND reducing the engineering time and cost associated with bringing those products to market.

An introduction to Gompute - Gompute on demand® is a Cloud HPC service oriented to Technical and Scientific users.

Gompute is owned, developed and operated by Gridcore AB in Sweden. Founded in 2002, Gridcore is devided in three areas: Systems Integration, Research & Development and HPC as a service.

Gridcore has wide experience of different industries and applications, developed a stable product portfolio to simplify an engineer/scientist's use of computers, and has established a large network of partners and collaborations, where we together solve the most demanding computing tasks for our customers. Gridcore has offices in Gothenburg (Sweden), Stuttgart (Germany), Durham NC (USA) and sales operations in The Netherlands and Norway.

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Phone: +31 650 647 036
amo@gridcore.se www.gompute.com

CD-adapco - 9401 General Drive - Suite 131
Plymouth MI 48170 - USA
Phone: +1 734 453 2100 www.cd-adapco.com

Gridcore AB, Byfogdegatan 6, 415 05 Göteborg, Sweden. Gridcore GmbH, Liebknechtstr. 33, D-70565, Stuttgart, Germany.

Gridcore, Silurveien 44, 0380, Oslo, Norway.

GOMPUTE Inc., Imperial Business Park,
4819 Emperor Boulevard, Suite 400
Durham, North Carolina, 27703 USA.

Porter Q400 turboprop Aerospace Porter Q400 turboprop

http://www.bombardier.com/en/corporate/media-centre/press-releases/details?docID=0901260d80219a88

Aéroports de Montréal, Bombardier Aerospace and Porter Airlines kick off ICAO Flightpath to a Sustainable Future

Porter Q400 turboprop to fly first leg of series of biofuel flights from Montréal

Aéroports de Montréal (ADM), Bombardier Aerospace and Porter Airlines today joined forces to launch the inaugural flight of a series of biofuel flights which will deliver Raymond Benjamin, the Secretary General of the International Civil Aviation Organization (ICAO) to Rio de Janeiro for the United Nations Conference on Sustainable Development (Rio+20). Prior to departing from Montréal Pierre Elliott Trudeau International Airport to Billy Bishop Toronto City Airport, executives from each organization emphasized the importance of investing in sustainable aviation and their commitment to working with the industry to reduce the environmental impact of aviation.

"As signatories of the Aviation Industry Commitment to Action on Climate Change, we fully share these objectives," said Mr. James C. Cherry, President & CEO, Aéroports de Montréal. "I would like to take this opportunity to point out that Montréal–Trudeau airport was the first in North America to sell carbon credits and that we already have made several innovative achievements in the area of greenhouse gas reduction," added Mr. Cherry

This marks the second biofuel flight for Bombardier and Porter this year. In April, Porter successfully conducted the first biofuel-powered revenue flight in Canada. In the conclusion to a test program that was launched in 2010, the airline flew one of its Q400 turboprops from its base at Toronto City Airport to Ottawa using a 50/50 blend of biofuel and Jet A1 fuel in one of its engines. Today's flight is using the same fuel in one engine - certified to the new American Society for Testing and Materials (ASTM) D7566/D1655 standard and derived from the oilseed crop, Camelina sativa* (49 per cent) and Brassica carinata* (one per cent). The aircraft's other engine is powered by Jet A1 fuel.

The biofuel research is only one of many initiatives Bombardier has embarked on in recent years in the area of sustainable aviation as a pillar of the company's

Corporate Social Responsibility program. Bombardier is also involved in numerous projects to reduce the environmental footprint of its sites and its products by using a lifecycle approach including Design for Environment and the implementation of Leadership in Energy and Environmental Design (LEED) building standards at its manufacturing sites.

"Bombardier is proud to be involved in this symbolic journey for the industry," said Hélène V. Gagnon, Vice-President, Public Affairs, Communications and Corporate Social Responsibility, Bombardier Aerospace. "As a leading aircraft manufacturer we must act as a role model for the industry where the environment is concerned, not only by designing and building innovative and responsible products, but by working in partnership with the entire industry to find solutions that can benefit us all in the long term."

Porter operates a single-type fleet of 26 Q400 aircraft throughout its regional network.

"One reason that Porter initially chose the Q400 aircraft is because of its efficiency characteristics, including substantially reduced fuel usage and emissions compared to comparable jet aircraft," said Robert Cordes, Executive Vice President and COO, Porter Airlines. "Biofuel used on a regular basis has the potential to make even greater improvements in the future. We're proud to contribute to this goal as part of overall industry efforts."

Porter Q400 turboprop

The Q400 turboprop airliner, which is built at Bombardier's Toronto, Ontario facility, is the advanced successor to Bombardier's Dash 8/Q-Series family of aircraft. Optimized for short-haul operations, the "comfortably greener," 70- to 80-seat Q400 aircraft is a large, fast, quiet and fuel-efficient turboprop. It provides an ideal balance of passenger comfort and operating economics with a reduced environmental footprint.

Setting new environmental standards, the Q400 aircraft uses 30 to 40 per cent less fuel and produces 30 to 40 per cent fewer emissions on routes where it has replaced similar-capacity, older jets. Overall, the Q400 aircraft is 15 decibels quieter than ICAO Chapter 4 noise standards; raising the bar for the entire industry.

More than 380 Q400 aircraft are in service with approximately 40 operators in 30 countries, on six continents. These aircraft have transported more than 177 million passengers.

About ADM

ADM is the local airport authority responsible for the management, operation and development of Montréal–Pierre Elliott Trudeau and Montréal–Mirabel international airports since 1992. The Corporation employs 600 people at both airports and at

head office. ADM has been ISO 14001 certified since 2000.

About Porter Airlines

Founded in 2006, Porter Airlines has revolutionized short-haul flying with a warm and effortless approach to hospitality and restoring glamour and refinement to air travel. An Official 4 Star Airline® in the World Airline Star Rating® by Skytrax, and rated second in the world in Condé Nast Traveler's Readers Choice Awards Top Small Airlines category, Porter is committed to providing a premium travel experience. Complimentary amenities include luxurious airport lounges, Starbucks coffee, premium snacks, and wine or beer onboard.

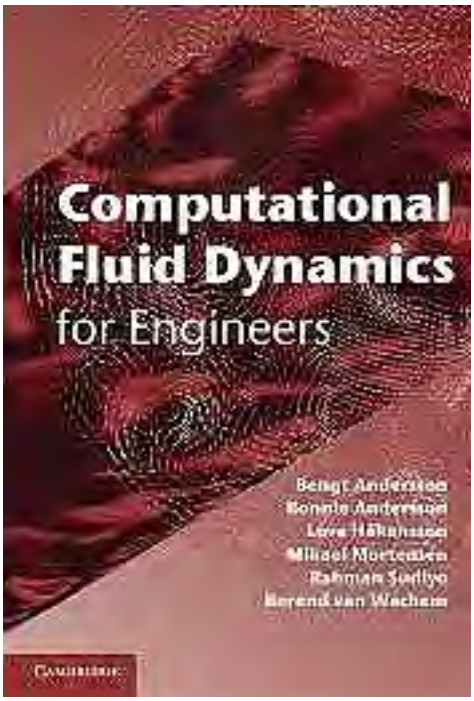
The airline currently offers flights to Toronto, Ottawa, Montréal, Québec City, Moncton, Halifax, St. John's, Thunder Bay, Sault Ste. Marie, Sudbury, Timmins, Windsor, New York (Newark), Chicago (Midway), Boston (Logan), Washington, D.C., and has seasonal flights to Mt. Tremblant, Que., Myrtle Beach, S.C., and Burlington, Vt. Visit www.flyporter.com or call (888) 619-8622 for more information.

About Bombardier

Bombardier is the world's only manufacturer of both planes and trains. Looking far ahead while delivering today, Bombardier is evolving mobility worldwide by answering the call for more efficient, sustainable and enjoyable transportation everywhere. Our vehicles, services and, most of all, our employees are what make us a global leader in transportation.

Bombardier is headquartered in Montréal, Canada. Our shares are traded on the Toronto Stock Exchange (BBD) and we are listed on the Dow Jones Sustainability World and North America indexes. In the fiscal year ended December 31, 2011, we posted revenues of $18.3 billion USD. News and information are available at bombardier.com or follow us on Twitter @Bombardier.

Computational Fluid Dynamics for Engineers



[Hardcover]
Bengt Andersson (Author),
Ronnie Andersson (Author),
Love Håkansson (Author),
Mikael Mortensen (Author),
Rahman Sudiyo (Author),
Berend van Wachem (Author)

Publisher: Cambridge University Press;
1 edition (February 27, 2012)
Hardcover: 202 pages
Language: English
ISBN-10: 1107018951 - ISBN-13: 978-1107018952

Book Description:

An introduction to a fast growing discipline, this book delivers the knowledge required to use CFD successfully in a wide range of engineering applications. Ideal for engineers wanting to enter the field or widen their understanding and project managers requiring the basics in order to negotiate with consulting companies.

About the Authors:

Bengt Andersson is a Professor in Chemical Engineering at Chalmers University, Sweden. His research has focused on experimental studies and modeling of mass and heat transfer in various chemical reactors ranging from automotive catalysis to three phase flow in chemical reactors.

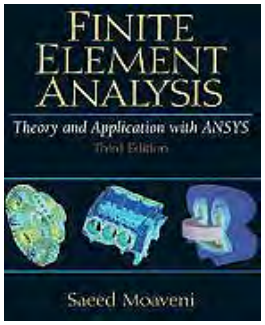
Ronnie Andersson is an Assistant Professor in Chemical Engineering at Chalmers University. He obtained his PhD at Chalmers in 2005 and from 2005 until 2010 he worked as consultant at Epsilon HighTech as a specialist in CFD simulations of combustion and multiphase flows. His research projects involve physical modelling, fluid dynamic simulations and experimental methods.

Love Håkansson works as Consultant at Engineering Data Resources (EDR) in Oslo, Norway. His research has been in mass transfer in turbulent boundary layers. He is now working with simulations of single and multiphase flows.

Mikael Mortensen obtained his PhD at Chalmers University in 2005 in turbulent mixing with chemical reactions. After two years of postdoctoral work at the University of Sydney, he is now working with fluid dynamics at the Norwegian Defence Research Establishment in Lillehammer, Norway.

Rahman Sudiyo is a Lecturer at the University of Gadjah Mada in Yogyakarta, Indonesia. He received his PhD at Chalmers University in 2006. His research has been in multiphase flow.

Berend van Wachem is a Senior Lecturer at Imperial College London, UK. His research projects involve multiphase flow modeling, ranging from understanding the behaviour of turbulence on the scale of individual particles, to the large-scale modeling of gas-solid and gas-liquid flows.

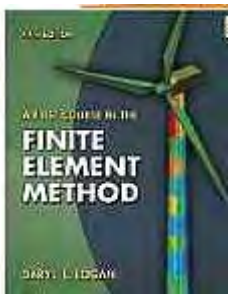


Finite Element Analysis Theory and Application with ANSYS (3rd Edition)

Saeed Moaveni

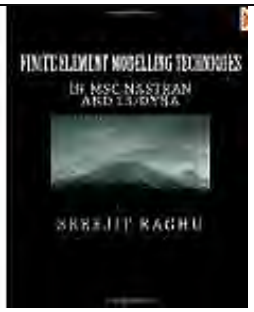
Practical Stress Analysis with Finite Element

Bryan J Mac Donald



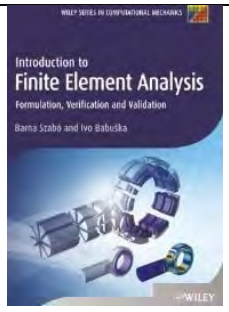
A First Course in the Finite Element Method

Daryl L. Logan



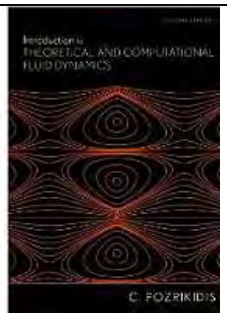
Finite Element Modelling Techniques in MSC.NASTRAN and LS/DYNA

Sreejit Raghu



Finite Element Analysis/formulation & verification

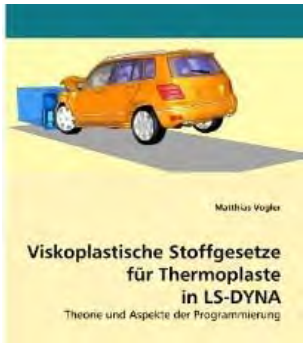
B. A. Szabo



Introduction to Theoretical and Computational Fluid Dynamics

C. Pozrikidis

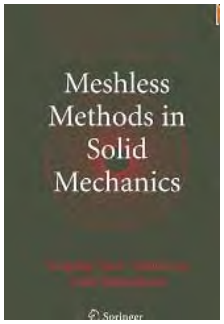
Reference Library



Viskoplastische Stoffgesetze für Thermoplaste in LS-DYNA: Theorie und Aspekte der Programmierung

Matthias Vogler

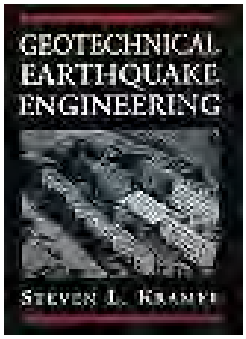
Recommended Reading



Meshless Methods in Solid Mechanics

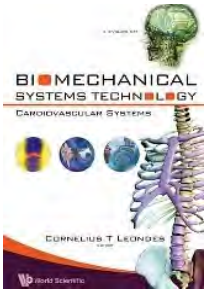
Youping Chen

Reference Library



Geotechnical Earthquake Engineering

Steven Lawrence Kramer



Biomechanical Systems Technology: Computational Methods

Cornelius T. Leondes

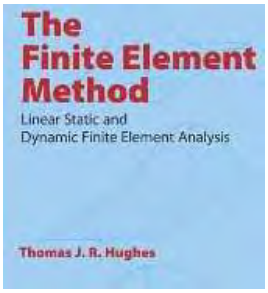
Numerical response of steel reinforced concrete slab subjected to blast and pressure loadings in LS-DYNA.

Vivek Reddy

Formulas for Mechanical and Structural Shock and Impact

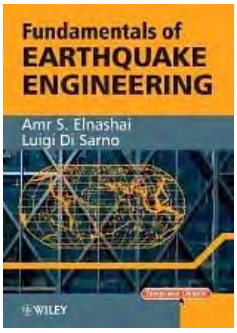
Gregory Szuladziniski

Reference Library



[The Finite Element Method]

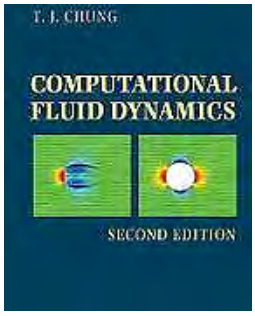
Thomas J. R. Hughes



[Fundamentals of Earthquake Engineering]

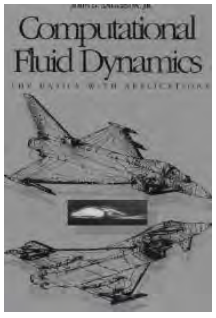
Amr S. Elnashai

Recommended Reading



[Computational Fluid Dynamics]

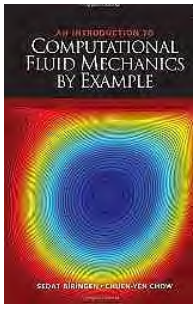
T. J. Chung



[Computational Fluid Dynamics]

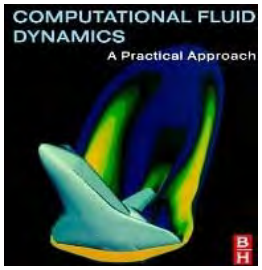
John David Anderson

Reference Library



[An Introduction to Computational Fluid Mechanics by Example]

Sedat Biringen



[Computational Fluid Dynamics: A Practical Approach [Paperback]]

Guan Heng Yeoh

BETA CAE Systems S.A. www.beta-cae.gr

BETA CAE Systems S.A.– ANSA

Is an advanced multidisciplinary CAE pre-processing tool that provides all the necessary functionality for full-model build up, from CAD data to ready-to-run solver input file, in a single integrated environment. ANSA is a full product modeler for LS-DYNA, with integrated Data Management and Process Automation. ANSA can also be directly coupled with LS-OPT of LSTC to provide an integrated solution in the field of optimization.

BETA CAE Systems S.A.– μETA

Is a multi-purpose post-processor meeting diverging needs from various CAE disciplines. It owes its success to its impressive performance, innovative features and capabilities of interaction between animations, plots, videos, reports and other objects. It offers extensive support and handling of LS-DYNA 2D and 3D results, including those compressed with SCAI's FEMZIP software

CRAY

www.cray.com

http://www.cray.com/Products/Products.aspx

The Cray XK6

The Cray XK6 supercomputer combines Cray's proven Gemini interconnect, AMD's leading multi-core scalar processors and NVIDIA's powerful many-core GPU processors to create a true, productive hybrid supercomputer

Cray XE6™ and Cray XE6m™ Supercomputers

The Cray XE6 scalable supercomputer is engineered to meet the demanding needs of capability-class HPC applications. The Cray XE6m is optimized to support scalable workloads in the midrange market.

Cray XMT™ System YarcData uRiKA™ Graph Appliance

The YarcData uRiKA graph appliance is a purpose built solution for Big Data relationship analytics. uRiKA enables enterprises to discover unknown and hidden relationships in Big Data, perform real-time analytics on Big Data graph problems, and realize rapid time to value on Big Data solutions.

The uRiKA graph appliance complements an existing data warehouse or Hadoop cluster.

Cray Sonexion 1300™ Storage System

The Cray Sonexion 1300 system is an integrated, high performance storage system that features next-generation modular technology to maximize the performance and capacity scaling capabilities of the Lustre file system.

Cray also offers custom and third-party storage and data management solutions

DatapointLabs

www.datapointlabs.com

Testing over 1000 materials per year for a wide range of physical properties, DatapointLabs is a center of excellence providing global support to industries engaged in new product development and R&D.

The compary meets the material property needs of CAE/FEA analysts, with a specialized product line, TestPaks®, which allow CAE analysts to easily order material testing for the calibration of over 100 different material models.

DatapointLabs maintains a world-class testing facility with expertise in physical properties of plastics, rubber, food, ceramics, and metals.

Core competencies include mechanical, thermal and flow properties of materials with a focus on precision properties for use in product development and R&D.

Engineering Design Data including material model calibrations for CAE Research Support Services, your personal expert testing laboratory Lab Facilities gives you a glimpse of our extensive test facilities Test Catalog gets you instant quotes for over 200 physical properties.

ETA – Engineering Technology Associates www.eta.com

Inventium Suite™

Inventium Suite™ is an enterprise-level CAE software solution, enabling concept to product. Inventium's first set of tools will be released soon, in the form of an advanced Pre & Post processor, called PreSys.

Inventium's unified and streamlined product architecture will provide users access to all of the suite's software tools. By design, its products will offer a high performance modeling and post-processing system, while providing a robust path for the integration of new tools and third party applications.

PreSys

Inventium's core FE modeling toolset. It is the successor to ETA's VPG/PrePost and FEMB products. PreSys offers an easy to use interface, with drop-down menus and toolbars, increased graphics speed and detailed graphics capabilities. These types of capabilities are combined with powerful, robust and accurate modeling functions.

VPG

Advanced systems analysis package. VPG delivers a unique set of tools which allow engineers to create and visualize, through its modules--structure, safety, drop test, and blast analyses.

DYNAFORM

Complete Die System Simulation Solution. The most accurate die analysis solution available today. Its formability simulation creates a "virtual tryout", predicting forming problems such as cracking, wrinkling, thinning and spring-back before any physical tooling is produced

ESI Group

www.esi-group.com

Visual-Crash

Visual Crash for LS-DYNA helps engineers perform crash and safety simulations in the smoothest and fastest possible way by offering an intuitive windows-based graphical interface with customizable toolbars and complete session support. Being integrated in ESI Group's Open VTOS, an open collaborative multi-disciplinary engineering framework, Visual-Crash for DYNA allows users to focus and rely on high quality digital models from start to finish. Leveraging this state of the art environment, Visual Viewer, visualization and plotting solution, helps analyze LS-DYNA results within a single user interface.

vibro-acoustic software

With ESI's vibro-acoustic software you no longer have to account for noise and vibration right at the design stage - no more costly delays or panic driven test-based solutions. Our vibro-acoustic software has everything you need to diagnose potential noise and vibration problems up front in your development process. Manage risk by identifying possible problem areas that may need more detailed modeling or test based development, while you still have time to make an impact on the product!

VA One

VA One is a complete solution for simulating the response of vibro-acoustic systems across the full frequency range. VA One seamlessly combines Finite Elements (FE), Boundary Elements (BEM) and Statistical Energy Analysis (SEA) in ONE model. It is the only simulation code on the market today that contains the complete spectrum of vibro-acoustic analysis methods within ONE common environment.

GNS - Gesellschaft für Numerische Simulation mbH www.gns-mbh.com

Animator4

A general finite element post-processor and holds a leading position in its field. Animator4 is used worldwide by almost all automotive companies, a great number of aerospace companies, and within the chemical industry.

Generator2.

A specialized pre-processor for crashworthiness applications and has become very successful in the field of passenger safety and pedestrian protection. It is mainly used as a positioning tool for finite element component models by a great number of automobile companies throughout the world.

Indeed

An easy-to-use, highly accurate virtual manufacturing software that specializes in the simulation of sheet metal forming processes. Indeed is part of the GNS software suite and works concurrently with all other GNS software products.

OpenForm

A pre- and post-processor independently of a particular finite element forming simulation package. The software is extremely easy to handle and can be used as was designed to enable those who are not finite element experts to carry out multi-stage forming simulations with even complex multi purpose finite element codes.

Gompute on demand®/ Gridcore AB Sweden

www.gompute.com **www.gridcore.se**

Gompute is owned, developed and operated by Gridcore AB in Sweden. Founded in 2002, Gridcore is active in three areas: Systems Integration, Research & Development and HPC as a service.

Gridcore has wide experience of different industries and applications, developed a stable product portfolio to simplify an engineer/scientist's use of computers, and has established a large network of partners and collaborations, where we together solve the most demanding computing tasks for our customers. Gridcore has offices in Gothenburg (Sweden), Stuttgart (Germany), Durham NC (USA) and sales operations in The Netherlands and Norway.

The Gridcore developed E-Gompute software for internal HPC resources gives end users (the engineers) an easy-to-use and complete environment when using HPC resources in their daily work, and enables collaboration, advanced application integrations, remote pre/post, accounting/billing of multiple teams, license tracking, and more, accelerating our customers usage of virtual prototyping .

JSOL Corporation

www.jsol.co.jp/english/cae/

HYCRASH

Easy-to-use one step solver, for Stamping-Crash Coupled Analysis. HYCRASH only requires the panels' geometry to calculate manufacturing process effect, geometry of die are not necessary. Additionally, as this is target to usage of crash/strength analysis, even forming analysis data is not needed. If only crash/strength analysis data exists and panel ids is defined. HYCRASH extract panels to calculate it's strain, thickness, and map them to the original data.

JSTAMP/NV

As an integrated press forming simulation system for virtual tool shop the JSTAMP/NV meets the various industrial needs from the areas of automobile, electronics, iron and steel, etc. The JSTAMP/NV gives satisfaction to engineers, reliability to products, and robustness to tool shop via the advanced technology of the JSOL Corporation.

JMAG

JMAG uses the latest techniques to accurately model complex geometries, material properties, and thermal and structural phenomena associated with electromagnetic fields. With its excellent analysis capabilities, JMAG assists your manufacturing process

Livermore Software Technology Corp. www.lstc.com

LS-DYNA

A general-purpose finite element program capable of simulating complex real world problems. It is used by the automobile, aerospace, construction, military, manufacturing, and bioengineering industries. LS-DYNA is optimized for shared and distributed memory Unix, Linux, and Windows based, platforms, and it is fully QA'd by LSTC. The code's origins lie in highly nonlinear, transient dynamic finite element analysis using explicit time integration.

LS-PrePost

An advanced pre and post-processor that is delivered free with LS-DYNA. The user interface is designed to be both efficient and intuitive. LS-PrePost runs on Windows, Linux, and Macs utilizing OpenGL graphics to achieve fast rendering and XY plotting.

LS-OPT

LS-OPT is a standalone Design Optimization and Probabilistic Analysis package with an interface to LS-DYNA. The graphical preprocessor LS-OPTui facilitates definition of the design input and the creation of a command file while the postprocessor provides output such as approximation accuracy, optimization convergence, tradeoff curves, anthill plots and the relative importance of design variables.

LS-TaSC

A Topology and Shape Computation tool. Developed for engineering analysts who need to optimize structures, LS-TaSC works with both the implicit and explicit solvers of LS-DYNA. LS-TaSC handles topology optimization of large non-linear problems, involving dynamic loads and contact conditions.

LSTC Dummy Models

Anthropomorphic Test Devices (ATDs), as known as "crash test dummies", are life-size mannequins equipped with sensors that measure forces, moments, displacements, and accelerations.

LSTC Barrier Models

LSTC offers several Offset Deformable Barrier (ODB) and Movable Deformable Barrier (MDB) model

Oasys, Ltd

www.oasys-software.com/dyna

Oasys LS-DYNA® Environment

The Oasys Suite of software, exclusively written for LS-DYNA®, is at the leading edge of the market and is used worldwide by many of the largest LS-DYNA® customers.

Oasys PRIMER is a model preparation tool that is fully compatible with the latest version of LS-DYNA®, eliminating the risk of data loss or corruption when a file is manipulated, no matter what operations are performed on it:

Key benefits:

- Maintains data integrity
- Finds and fixes model errors (currently over 5000 checks)
- Specialist tools for dummy positioning, seatbelt fitting, mechanisms, interior head impact etc.
- Connection manager for spotwelds, bolts, adhesive etc.
- Intelligent editing, deletion and merging of data
- Customisable with macros and JavaScript.

Oasys D3PLOT is a powerful 3D visualization package for post-processing LS-DYNA® analyses

Key benefits:

- Fast, high quality graphics
- Easy, in-depth access to all LS-DYNA® results.
- User defined data components
- Customisable with JavaScript.

Oasys T/HIS is an X-Y graph plotting package for LS-DYNA®

Key benefits:

1. Automatically reads all LS-DYNA® results.
2. Wide range of functions and injury criteria.
3. Easy handling of data from multiple models
4. Scriptable for automatic post-processing

Oasys REPORTER is an automatic report generation tool, for use with LS-DYNA®. which allows fast automatic report creation for analyses.

Shanghai Hengstar

www.hengstar.com

Center of Excellence

Hengstar Technology is the first LS-DYNA training center of excellence in China. As part of its expanding commitment to helping CAE Engineers, Hengstar Technology will continue to organize high level training courses and seminars in 2012.

The lectures/training are taught by senior engineers and experts mainly from LSTC, Carhs, OEMs, and other consulting groups.

On Site Training

Hengstar also provides customer customized training programs on-site at the company facility. Training is tailored for company needs using LS-DYNA or the additional software products by LSTC.

Distribution & Support

Hengstar Distributes and supports LS-DYNA, LS-OPT, LS-PrePost, LS-TaSC. Hongsheng Lu, previously was directly employed by LSTC before opening his distributorship in China for LSTC software. He travels to LSTC often to keep current on the latest software features and support to continue to grow Hengstar as a CAE consulting group.

Canada **Metal Forming Analysis Corp MFAC** galb@mfac.com

www.mfac.com

	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	
	eta/DYNAFORM	INVENTIUM/PreSys		

United States **CAE Associates Inc.** info@caeai.com

www.caeai.com

ANSYS Products	CivilFem	Consulting ANSYS	
		Consulting LS-DYNA	

United States **DYNAMAX** sales@dynamax-inc.com

www.dynamax-inc.com

LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
LSTC Dummy Models		LSTC Barrier Models	

United States	**ESI-Group N.A** www.esi-group.com			
	QuikCAST	SYSWELD	PAM-RTM	PAM-CEM
	VA One	CFD-ACE+	ProCAST	Visual-Process
	VisualDSS	Weld Planner	Visual-Environment	IC.IDO
United States	**Engineering Technology Associates – ETA** www.eta.com		sales@eta.com	
	INVENTIUM/PreSy	NISA	VPG	LS-DYNA
	LS-OPT	DYNAform		
United States	**Gompute** www.gompute.com		info@gompute.com	
	LS-DYNA Cloud Service		Additional software	
	Additional Services			

United States	**Livermore Software Technology Corp**		sales@lstc.com	
	LSTC www.lstc.com			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	TOYOTA THUMS	

United States	**Predictive Engineering** www.predictiveengineering.com		george.laird@predictiveengineering.com	
	FEMAP	NX Nastran	LS-DYNA	LS-OPT
	LS-PrePost	LS-TaSC	LSTC Dummy Models	
			LSTC Barrier Models	

Distribution & Consulting — Europe — Distribution & Consulting

France	**DynAS+**		v.lapoujade@dynasplus.com	
	www.dynasplus.com			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	DYNAFORM	VPG	MEDINA	
	LSTC Dummy Models		LSTC Barrier Models	
France	**ALYOTECH**		nima.edjtemai@alyotech.fr	
	www.alyotech.fr			
	ANSYS	LS-DYNA	MOLDEX3D	FEMZIP
	Primer	PreSys	DYNAFORM	SKYGEN
	MERCUDA	MOCEM		
Germany	**CADFEM GmbH**		lsdyna@cadfem.de	
	www.cadfem.de			
	ANSYS	LS-DYNA	optiSLang	DIGIMAT
	ESAComp	AnyBody	VPS	
	FTI FormingSuite			

Distribution & Consulting — Europe — Distribution & Consulting

Germany	**DYNAmore GmbH**		uli.franz@dynamore.de	
	www.dynamore.de			
	PRIMER	LS-DYNA	FTSS	VisualDoc
	LS-OPT	LS-PrePost	LS-TaSC	DYNAFORM
	Primer	FEMZIP	GENESIS	
	TOYOTA THUMS		LSTC Dummy & Barrier Models	
Germany	**GNS**		mbox@gns-mbh.com	
	www.gns-mbh.com			
	Animator	Generator	Indeed	OpenForm
Netherland	**Infinte**		j.mathijssen@infinite.nl	
	www.infinite.nl			
	ANSYS Products	CivilFem	CFX	Fluent
	LS-DYNA	LS-PrePost	LS-OPT	LS-TaSC

Distribution & Consulting — Europe — Distribution & Consulting

Italy	**EnginSoft SpA**		info@enginsoft.it	
	www.enginsoft.it			
	ANSYS	MAGMA	Flowmaster	FORGE
	CADfix	LS-DYNA	Dynaform	Sculptor
	ESAComp	AnyBody	FTI Software	
	AdvantEdge	Straus7	LMS Virtual.Lab	ModeFRONTIER
Russia	**STRELA**		info@dynarussia.com	
	LS-DYNA	LS-TaSC	LS-OPT	LS-PrePost
	LSTC Dummy Models		LSTC Barrier Models	
Sweden	**DYNAmore Nordic**		marcus.redhe@dynamore.se	
	www.dynamore.se			
	ANSA	µETA	LS-DYNA	LS-OPT
	LS-PrePost	LS-TaSC	FastFORM	DYNAform
	FormingSuite		LSTC Dummy Models	
			LSTC Barrier Models	
Sweden	**GRIDCORE**		info@gridcore.com	
	www.gridcore.se			
	LS-DYNA Cloud Service		Additional software	

Switzerland	**DYNAmoreSwiss GmbH**		info@dynamore.ch	
	www.dynamore.ch			
	LS-DYNA		LS-OPT	LS-PrePost
	LS-TaSC		LSTC Dummy Models	
			LSTC Barrier Models	
UK	**Ove Arup & Partners**		dyna.sales@arup.com	
	www.oasys-software.com/dyna			
	LS-DYNA		LS-OPT	LS-PrePost
	LS-TaSC	PRIMER	D3PLOT	T/HIS
	REPORTER	SHELL	FEMZIP	HYCRASH
	DIGIMAT	Simpleware	LSTC Dummy Models	
			LSTC Barrier Models	

China	**ETA – China**		lma@eta.com.cn	
	www.eta.com/cn			
	Inventium	VPG	DYNAFORM	NISA
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
			LSTC Barrier Models	LS-TaSC

China	**Oasys Ltd. China**		Stephen.zhao@arup.com	
	www.oasys-software.com/dyna			
	PRIMER D3PLOT	HYCRASH	T/HIS REPORTER	SHELL
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
	DIGIMAT	FEMZIP	LSTC Barrier Models	LS-TaSC

China	**Shanghai Hengstar Technology**		info@hengstar.com	
	www.hengstar.com			
	LS-DYNA	LS-TaSC	LSTC Barrier Models	
	LS-DYNA Courses	LS-OPT	LSTC Dummy Models	LS-PrePost

India	**Oasys Ltd. India**		lavendra.singh@arup.com	
	www.oasys-software.com/dyna			
	PRIMER D3PLOT	T/HIS		
		LS-OPT	LSTC Dummy Models	LS-PrePost
		LS-DYNA	LSTC Barrier Models	LS-TaSC

India	**EASI Engineering**		rvenkate@easi.com	
	www.easi.com			
	ANSA			
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
			LSTC Barrier Models	LS-TaSC

India	**CADFEM Eng. Svce**		info@cadfem.in	
	www.cadfem.in			
	ANSYS VPS	optiSLang	ESAComp	DIGIMAT
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
	FTI FormingSuite	AnyBody	LSTC Barrier Models	LS-TaSC

Distribution & Consulting	Asia Pacific	Distribution & Consulting	
Japan	**ITOCHU**	LS-dyna@ctc-g.co.jp	
	www.engineering-eye.com		
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	CmWAVE	
Japan	**JSOL**		
	www.jsol.co.jp/english/cae		
	JSTAMP	HYCRASH	JMAG	
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	TOYOTA THUMS	
Japan	**FUJITSU**		
	http://jp.fujitsu.com/solutions/hpc/app/lsdyna		
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	CLOUD Services	

Korea	**THEME**	wschung@kornet.com		
	www.lsdyna.co.kr			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	Planets
	eta/DYNAFORM	FormingSuite	Simblow	TrueGRID
	JSTAMP/NV	Scan IP	Scan FE	Scan CAD
	FEMZIP			

Korea	**KOSTECH**	young@kostech.co.kr		
	www.kostech.co.kr			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM
	eta/DYNAFORM	DIGIMAT	Simuform	Simpack
	AxStream	TrueGrid	FEMZIP	

Taiwan **Flotrend** gary@flotrend.tw

www.flotrend.com.tw

LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM

Taiwan **APIC**

www.apic.com.tw

LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM

Cloud Service	LS-DYNA	Cloud Services
Germany	Gridcore www.gridcore.se	
Sweden	Gridcore www.gridcore.se	
United States	Gompute www.gompute.com	

Training Classes **Germany CADFEM GmbH** **Training Classes**

The Complete Courses Offered Can Be Found At: www.cadfem.de

Please check the site for accuracy and changes.
Among the many course offered:

Introduction to explicit structural mechanics with ANSYS-LS-DYNA and LSTC's LS-DYNA

08/29/12 09/05/12
11/06/12 12/19/12

Material Modeling with LS-DYNA
10/16/12

Simulation of composites with ANSYS Composites PrepPost and LS-DYNA
05/08/12 08/21/12

Contact modeling with LS-DYNA
05/22/12 11/06/12

Modeling joints with LS-DYNA
10/12/12

Crash simulation with LS-DYNA
09/25/12

Introduction to simulation with Diffpack
11/06/12

Working efficiently with Diffpack in ANSYS Workbench
11/07/12

Introduction to simulation of joint- and muscle-forces with AnyBody
09/19/12

Efficient coupling of AnyBody with ANSYS Workbench
09/21/12

Additional Courses are offered – please check the website for upcoming dates for: FTI Forming Suite - DIGIMAT DIFFPACK and others.

Individual Training: Take advantage of the expertise of our specialists and get to know how simulation processes in your company can be arranged in an optimal way.

Training Classes Germany DYNAmore Training Classes

The Complete Courses Offered Can Be Found At: www.dynamore.de/en

Intro LS-DYNA
09/20/12 10/15/12 10/30/12 12/10/12

Contact Definitions
10/18/12

Element types
07/04/12

Plasticity
10/24/12

Users Interfaces
11/19/12

Crash Analysis
12/04/12

Spot Welds
09/27/12

Dummy Modeling
06/14/12

Airbag Modeling
06/14/12

eta/DYNAFORM
09/17/12

ALE
10/11/12

Meshless Methods
10/11/12

The Complete Courses Offered Can Be Found At: www.lstc.com

Please check the site for accuracy and changes. Among the many course offering are the following:

Implicit Analysis with LS-DYNA CA
June 12-13, 2012

Contact in LS-DYNA CA
June 14-15, 2012

Introduction to LS-PrePost (no charge) MI
June 18, 2012

Introduction to LS-DYNA MI
June 19-22, 2012

Composite Materials_LS-DYNA CA June 26-27, 2012

User-Defined Materials_LS-DYNA CA
June 28-29, 2012

Introduction to LS-PrePost (no charge) CA
July 30, 2012

Introduction to LS-DYNA CA July 31 - August 3, 2012

Advanced Options in LS-DYNA MI
August 14-15, 2012

Introduction to LS-PrePost (no charge) MI
August 20, 2012

Contact in LS-DYNA MI
August 16-17, 2012

Introduction to LS-DYNA MI
August 21-24, 2012

NVH & Frequency Domain Analysis with LS-DYNA CA
October 9-10, 2012 Tues-Wed

Introduction to LS-OPT MI
November 6-9, 2012

Introduction to LS-PrePost (no charge) CA
November 12, 2012

Introduction to LS-DYNA CA
November 13-16, 2012

Introduction to LS-PrePost (no charge) MI
December 10, 2012

Introduction to LS-DYNA MI
December 11-14, 2012

Advanced Options in LS-DYNA MI
December 17-18, 2012

The Complete Courses Offered Can Be Found At: www.dynamore.se

Please check the site for accuracy and changes. Among the many course offering are the following:

LS-PrePost 3, introduction
September 3

LS-PrePost 3, introduction
November 26

LS-DYNA, introductory course September 4

LS-DYNA, introductory course November 27

LS-OPT, optimization and robust design September 18

LS-DYNA, implicit analysis
October 2

ANSA & Metapost, introductory course
October 9

Contacts in LS-DYNA
October 12

LS-DYNA, simulation of sheet metal forming processes
October 16

LS-DYNA, advanced training class in impact analysis
November 20

Training Classes **France DynAS+** **Training Classes**

The complete Training Courses offered can be found at www.dynasplus.com

Please check the site for accuracy and changes.

LS-DYNA Introduction Explicit Solver
10-12/09

LS-DYNA Introduction Implicit Solver
24/09

LS-DYNA Unified Introduction Implicit & Explicit Solver
16-19/01, 18-21/06 & 12-15/11

LS-OPT & LS-TaSC Introduction
24-25/10

Switch to LS-DYNA
10-11/10

Switch from Ls-PrePost 2.X to 3.X
4/04 & 26/09 & 28/11

LS-DYNA Advanced Implicit Solver
25/09
-material modeling
14-15/12

LS-DYNA ALE / FSI
22-23/10

LS-DYNA SPH
21-22/05 & 8-9/10

LS-PrePost 3.0 – Advanced meshing capabilities
5/04 & 27/09 & 29/11

LS-DYNA User Options
23-24/05

LS-DYNA – Plasticity, Damage & Failure – By Paul DU BOIS
26-27/11
(date may be changed in Q1)

LS-DYNA – Polymeric materials – By Paul DU BOIS
12-13/12

LS-DYNA – Geo

Users LS-DYNA Days

Alyotech will be hosting two Users Days this year. These events will focus on the recent evolutions of LS-DYNA and related products from LSTC and will feature talks both about novel functions and real-world applications.

Two sessions will be held: the first one will take place in Toulouse on September 20th while the second one will be held in Antony on November 8th.

Each session will start with lectures from Alyotech and presentations of studies from LS-DYNA users in the morning. The afternoon will then be devoted to discussions between users on selected topics of interest.

Don’t hesitate to contact us at support.ls-dyna@alyotech.fr

Engineering Technology Associates
The Complete Courses Offered Can Be Found At: www.eta.com

Please check the site for accuracy and changes.
Among the many course offering are the following:

Introduction to LS-DYNA

July 24 - 25
August 21 - 22
Sept 18 - 19

Introduction to DYNAFORM

July 10 - 11
Aug 07 - 08
Sept 04 - 05

Intro to PreSYS

August 14
Sept 11

The Complete Courses Offered Can Be Found At: www.caeai.com

Please check the site for accuracy and changes. Among the many course ffering are the following:

ANSYS Training, CFD and FEA Consultants Serving CT, NJ, NY, MA, NH , VT

Jul 11, 2012
3 days Introduction to ANSYS Workbench/ LS-Dyna / Middlebury, CT $ 1 800.

Jul 18, 2012
2 days Introduction to Fatigue & Fracture Analysis / Middlebury, CT $ 1 200.00

Jul 23, 2012
3 days Introduction to ANSYS AUTODYN / Middlebury, CT $ 1 800.00

Sep 10, 2012
1 day ANSYS DesignModeler / Middlebury, CT $ 600.00

Sep 11, 2012
2 days Introduction to ANSYS Mechanical (Workbench) / Middlebury, CT $ 1 200.00

Sep 18, 2012
1 day Finite Element Analysis Fundamentals / Middlebury, CT $ 600.00

Oct 15, 2012
1 day ANSYS DesignModeler / Middlebury, CT $ 600.00

Oct 16, 2012
1 day ANSYS Workbench Meshing for CFD / Middlebury, CT $ 600.00

Oct 17, 2012
2 days Introduction to CFX / Middlebury, CT

The Complete Courses Offered Can Be Found at http://www.hengstar.com

2012	2	3	4	5	6	7	8	9	10	11	12
An Introduction to LS-DYNA(High Level)											
Concrete & Geomaterial Modeling with LS-DYNA											
Pedestrian Safety and Bonnet Design with LS-DYNA											
Crashworthiness Theory and Technology											
LS-DYNA MPP, Airbag Simulation with LS-DYNA											
Introduction of LS-OPT which is Based on LS-DYNA											
Passive Safety and Restraint Systems Design											
Crashworthiness Simulation with LS-DYNA											
Passive Safety Simulation with LS-DYNA											
Crashworthy Car Body Development - Design, Simulation and Optimization											

Training Classes France Alyotech Technologies Training Classes

For course location visit www.alyotech.fr

LS-DYNA Introduction
- Sept 10-12
- Oct 01-03
- Nov 12-14
- Dec 03-05

LS-DYNA Thermal
- Sept 13-14

LS-DYNA Implicit
- Sept 17-19
- Nov 19-21

LS-PrePost – Meshing
- Sept 27
- Nov 26

LS-PrePost – New Interface
- Sept 28
- Nov 27

LS-OPT Introduction
- June 18-19
- Dec 10-11

LS-TaSC – Topology Optimization
- Dec 12

Material Modeling & User Defined Material in LS-DYNA
- July 10-11

LS-DYNA Composite
- July 12-13

October 09, 2012
www.dynamore.de/en/training/conferences/upcoming/ls-dyna-forum-2012/ls-dyna-update-forum-2011

German LS-DYNA Forum 2012 LS-DYNA Forum, 9 - 10 October 2012, Ulm, Germany

On the 9th and 10th October 2012, our 11th LS-DYNA Forum will be taking place at the Maritim Hotel in Ulm, Germany. We cordially invite you not only to attend the event but submit a paper. In your presentation, you can talk about your experiences with LS-DYNA or LS-OPT and you can discuss and exchange these experiences with other users.

User presentations will form the core of the event. General lectures given by renowned speakers are also planned as well as talks on the latest LS-DYNA und LS-OPT .

Comprehensive information all about

LS-DYNA software can be obtained from the accompanying exhibition.

The Forum will be accompanied by seminars which will be held during the week of the conference on the subjects of CPM Airbag OoP, ALE and fluid-structure inter-action, meshless methods and on concrete and geomaterial modeling.

Your presentation: You are cordially invited to contribute towards the program plan by submitting a paper. Contributions from the various areas of application of LS-DYNA/LS-OPT are planned

To Submit your papers: Please send us the title, authors and a short summary (approx. 300 words).

Dates: Submission of proposed paper:
25th May 2012
Author notification: 11th June 2012
Submission of two-page summary for proceedings: 7th Sept. 2012

Location: Maritim Hotel Ulm
Basteistraße 40, 89073 Ulm

Registration and contact
DYNAmore GmbH
Tel. +49 (0) 7 11 - 45 96 00 - 0
Fax +49 (0) 7 11 - 45 96 00 - 29
E-Mail: forum@dynamore.de
www.dynamore.de/forum12

October 24-26, 2012 Location: Kassel Germany

Environmental protection and economic aspects make electric mobility one of the great challenges of the coming years. Step-by-step it will replace traditional forms of mobility in everyday life. Therefore, a number of projects have been defined in so-called ‘model regions’ in order to better understand and optimize this process.

For a better understanding of electric mobility and its optimization, simulation specialist ANSYS has extended its portfolio with a set of simulation applications that can serve as models in the development and implementation of innovative drive concepts. Structural and fluid mechanics and electromagnetic simulation models of the individual components are modeled in a consistent environment both individually and interacting, considering the drive as a complete multi-physical system – Engineering the System!

The ANSYS Conference & the 30th CADFEM Users’ Meeting focus on the many simulation options in electric mobility and several other current application fields where structural mechanics, fluid mechanics and electro magnetics issues are important.

CADFEM GmbH and ANSYS Germany GmbH cordially invite you to join the conference

We look forward to your participation

The CADFEM & ANSYS Germany Team