# *FEA* Information http://www.feainformation.com

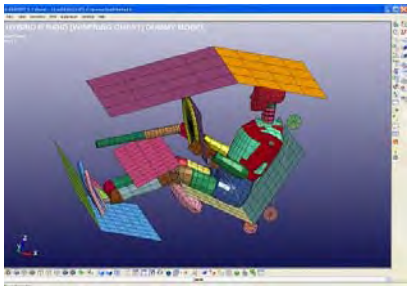
## Engineering Journal and Website Resource

AUGUST 2010

**Porsche Celebrates 60 Years in America**

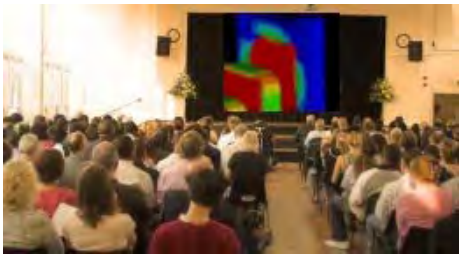
**Mathematical Modeling of An Asteroid Falling into the Ocean**

**ICRASH 2010 Conference**



**LS-PrePost 3.0 now released**

**Galactic Super-Volcano**



**Training Courses**

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# Announcements

In this issue don't miss:

**D3View:**

LSTC is the exclusive distributor of D3View, developed by Suri Bala.

**LS-PrePost:**

Philip Ho, and his team of developers in the US and China have now released LS-PrePost 3.0.

**SGI Cloud Computing**

SGI Cloud Computing has satisfied the LS-DYNA customers that have used it for additional CPU power.

**Press Releases are free postings.**

If you have a press release you would like for us to consider for publishing please send it to Anthony, agiac99@aol.com

**Sincerely, Marsha J. Victory,**
President, FEA Information Inc

From engineering to horses -

Cajun, re-rescued and home to stay this time.

http://www.livermorehorses.com


## FEA Information

## Platinum Participants

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| **OASYS Ltd**:<br>http://www.oasys-software.com/dyna/en/ | **JSOL Corporation**:<br>http://www.jsol.co.jp/english/cae | **HP**:<br>http://www.hp.com/ |
| **ETA:**<br>http://www.eta.com | **INTEL**:<br>http://www.intel.com | **ESI Group**:<br>http://www.esi-group.com |
| **BETA CAE Systems S.A.**:<br>http://www.beta-cae.com | **LSTC:**<br>http://www.lstc.com | **SGI:**<br>http://www.sgi.com |
| **MICROSOFT**<br>http://www.microsoft.com | | |

# Conference Paper Showcase

## Stone Skipping Simulation

## by ALE and SPH

.

The full paper and others of the 11th Int'l LS-DYNA Users Conference – 2010 are available for download at: http://www.dynalook.com/

http://www.dynalook.com/international-conf-2010/Simulation-2-4.pdf

**Stone Skipping Simulation by ALE and SPH**

Mitsuhiro Makino - Dynapower Corporation

Stone skipping is the played at the sea shore and river. The flat stone, which is thrown, skips on the surface of the water.

This phenomena is simulated by ALE and SPH capability of LS-DYNA®. The dependency of the parameters such as the angle between the stone and the water, incident angle of the stone will be discussed

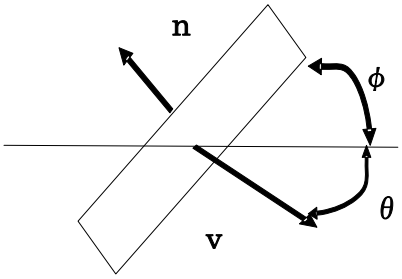


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Fig 1. The parameters of stone

Figure 3 |v|=1000mm

## Conference Paper Showcase

**Mathematical Modeling of An Asteroid Falling into the Ocean**

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The full paper and others of the 11th Int'l LS-DYNA Users Conference – 2010 are available for download at: http://www.dynalook.com/

http://www.dynalook.com/international-conf-2010/Simulation-5-5.pdf

**Mathematical Modeling of Asteroid Falling into the Ocean**

A.V. Abramov, O.V. Voikina, I.V. Minaev -LLC "STRELA" Open Computer Center
V.A. Simonenko - RFNC Zababakhin Research Institute of Technical Physics
E.A. Abramov - South-Ural State University
N.A. Skorkin National Research Nuclear University "MIFI"

Today, experimental information about large-scale collision tsunami is not available. That is why one of the main tools of studies is mathematical modeling. This paper considers falling of stone asteroid with diameter 1 km into the ocean 4 km deep. This asteroid collides with the Earth at a speed of 22 km/s at angles 30, 60 and 90 degrees.

Calculation of space body collision with a barrier is split into two stages. At the first stage, using


Fig. 2. Asteroid Apophis

## Conference Paper Showcase

**Simulation of a Thin Walled Aluminum Tube Subjected to Base Acceleration Using LS-DYNA's Vibro-Acoustic Solver**

.

The full paper and others of the 11th Int'l LS-DYNA Users Conference – 2010 are available for download at: http://www.dynalook.com/

http://www.dynalook.com/international-conf-2010/Simulation-1-2.pdf

**Simulation of a Thin Walled Aluminum Tube Subjected to Base Acceleration Using LS-DYNA's Vibro-Acoustic Solver**

Ofir Shor, Yoav Lev -Rafael
Yun Huang - LSTC

A shaker table test, where a simple thin walled aluminum tube was base accelerated at two geometrical locations, was simulated using the vibro-acoustic solver of LS-DYNA. It was shown that the method of modeling the fixture of the tube to the shaker table's moving plate had a great impact on the simulation result. Three modeling methods of the fixture were tested, and acceleration PSD results at various points along the tube were compared to test data. A simple, numerically low-cost method, of modeling the fixture was found which gave very good agreements with the experimental data

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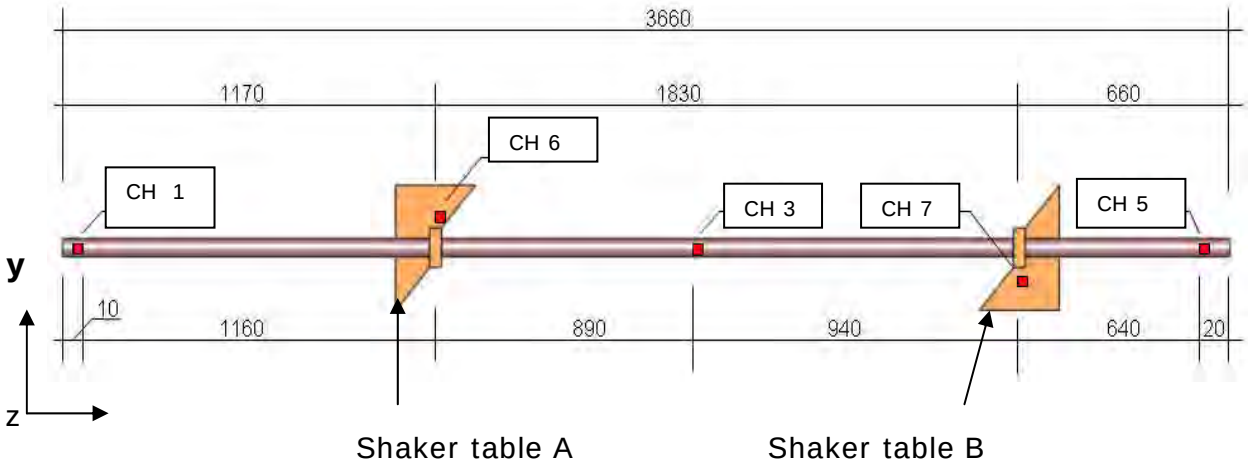

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**International Crashworthiness Conference**

**September 22-24, 2010**

Washington D.C., USA

http://www.bolton.ac.uk/BEE/BAARG/Conferences/icrash2010.aspx

**Organised by**

- The University of Bolton, UK
- The George Washington University, Virginia Campus, USA
- Taylor & Francis Group (Publishers of IJCRASH), UK
- Bolton Automotive & Aerospace Research Group (BAARG), UK

**Conference Scope**

The conference will address five distinct areas of safety in the following separate sessions:

**Structural Crashworthiness**

- Road and Rail Vehicles
- Air and Spacecraft
- Ships and Submarines
- Impact Biomechanics

**Vehicle Occupants,**

- Vulnerable Road Users (Cyclistsand Pedestrians)
- Safety Systems and Materials

**Vehicle Occupant Restraints,**

- Energy Absorbers,
- Metallic and Composite Materials
- Accident Survey and Reconstruction

**Real World Database**

- Realistic Regulations
- Type Approval Tests
- Customer Rating Systems

**Modelling**

- Simulation and Validation
- Introduction

The economic crisis of 2008/09 continues to reverberate loudly worldwide destroying not only the livelihood of many of us but also bankrupting some of the automotive, aerospace and railway businesses we scientists and engineers depend upon and help. While this economic crash will come to an end, unfortunately the number of vehicle crashes will not seize as we experience the ever-increasing demand for mass transport by road, rail, air and sea.

The vehicle crashes will result in human injuries and damage to property. Thus scientists and engineers face an increasing challenge of finding solutions that will greatly improve transport safety. This is true especially as the economic crash makes us all think and come up with new types of vehicle designs that are not only safe but environmentally acceptable to the users and the public at large. The vehicles of the future will use different propulsion systems to be dominated by electric cars. In such electric cars, the structural crashworthiness design will be different to what we currently have. The packaging of the batteries for example will drive future crashworthiness design and we must be ready for this new challenge.

The objective of this conference is to encourage scientists and engineers meet this challenge by providing a valuable forum in which they can present and discuss their work in this most important field of crashworthiness. The previous six ICRASH conferences were held with unprecedented successes in Dearborn (USA), London (UK), Melbourne (Australia), San Francisco (USA), Athens (Greece) and Kyoto (Japan) respectively, every two years since 1998. ICRASH has become a well-recognized platform for engineers, bioengineers, designers and researchers in the field of structural crashworthiness and impact biomechanics and provides a vital forum for experts to find designs that reduce fatalities and injuries attributed from world's road, railway and air accidents.

Following the excellent reputations and emerging tradition of previous ICRASH conferences, The George Washington University, Virginia Campus (USA) is now hosting the ICRASH 2010 to be held at the spectacular and picturesque National Conference Center on the Upper Belmont Place in Leesburg, Virginia. This is just 25 miles (40 km) Northwest of Washington DC (USA).

**ICrash 2010 Programme Chairpersons**

E. C. Chirwa
(The Univ. of Bolton, UK)

C. D. (Steve) Kan
(The George Washington Univ., Virginia Campus, USA)

**Distinguished Conference Scientific Faculty:**

W. Abramowicz
(Impact Design, Europe, Poland)
S. Acar
(Loughborough University, UK)

W. Altenhof
(Univ. of Windsor, Canada)
J. A. Ambrosio
(Inst. Superior Technico, Portugal)
F. A. Bandak
(Uniformed Svcs. Univ. Health Sci., USA)
F. A. Berg
(Dekra Automobil GmbH, Germany)
C. Bisagni
(Politechnico di Milano, Italy)
R. H. Grzebieta
(Univ. of New South Wales, Australia)
C. D. Kan
(The George Washington Univ., USA)
C. Kindervater
(D F L, Germany)
K. Langwieder
(Institute of Vehicle Safety, Germany)
A. G. Mamalis
(Nat'l Tech. Univ. of Athens, Greece)
D. Otte
(Medical Univ. Hannover, Germany)
J. J. Quartuccio
(NAS. Command, Maryland, USA)
J. D. Reid
(Univ. of Nebraska-Lincoln, USA)

**Local Organizing Committee**

C. D. (Steve) Kan (The George Washington University,USA)

**Conference Manager**

General enquiries should be directed to:

Lilly Nix
The National Crash Analysis Center
The George Washington University,
Virginia Campus
20101 Academic Way, Ashburn VA
20147

Tel: +1 – 703 – 726 – 8515
E-mail: lillynix@ncac.gwu.edu|

# Porsche Celebrates 60 Years in America with a Search for the Oldest Porsche in the Country


https://porsche.promo.eprize.com/60years/

**Porsche owners and enthusiasts are invited to participate in:**
**My Classic Porsche Search and My Porsche Passion Contest at:**
**www.Porsche60Years.com**

ATLANTA — August 13, 2010 /PRNewswire/ — The joy of driving a classic Porsche is a sufficient reward for most enthusiasts, but owning the oldest Porsches in America could bring some very real awards during the company's 60th Anniversary year in the United States. To celebrate six decades of American Porsche passion, on Aug. 13 Porsche Cars North America (PCNA) is launching the My Classic Porsche Search. This national search will focus on finding the oldest Porsches in 12 distinctive model categories, as well as the very oldest Porsche of all.

As part of its 60th Anniversary celebration, Porsche is inviting owners to introduce these most senior members of the Porsche family to everyone in America. My Classic Porsche Search is open to all owners who think they have a shot at earning the "oldest" designation for their car. Entries can be submitted for 12 model ranges, including the Porsche 356, 911, 912, 914, 924, 928, 944, 968, Boxster, Cayenne, Carrera GT and Cayman. In addition, the search is on for the Grossvater of all Porsches on American soil, the oldest Porsche ever sold in the United States.

Owners who have Porsches "with papers" can enter online beginning Aug. 13. To submit an entry, visit www.Porsche60Years.com and review the participation guidelines for My Classic Porsche Search.

The oldest Porsches and their owners will receive special recognition and become eligible for additional awards, including an exclusive badge from the Porsche Museum in Stuttgart. Exhibition-quality images of select winning models will also be featured at the new "Sixty Years of Porsche in America" exhibit, opening Oct. 12 at the Porsche Museum in Stuttgart, Germany. One vehicle may also be selected for display at the Porsche stand during this year's Los Angeles Auto Show, where it will join the company's newest models.

All entries will be evaluated for authenticity by a Porsche panel of

experts, including noted American Porsche historians from the Porsche Club of America.

**In addition to the My Classic Porsche Search, Porsche is unveiling a national My Porsche Passion Contest on Aug. 24. Porsche aficionados will have the opportunity to write and upload a 500-words-or-less story that exemplifies their unique passion for a specific Porsche car, an experience or the brand as a whole. The essay contest will be open to entries until Nov. 1, with 20 winning stories selected by a special panel of Porsche judges**.

Fans will then vote online for their favorites from the list of 20 finalists. The three entries with the most votes will win an all-expense-paid trip the Porsche Sport Driving School in Birmingham, Ala.

**About Porsche Cars North America, Inc**

Porsche Cars North America, Inc. (PCNA), based in Atlanta, Ga., is the exclusive importer of Porsche vehicles for the United States. It is a wholly owned, indirect subsidiary of Dr. Ing.h.c. F. Porsche AG. PCNA employs 213 people who provide Porsche vehicles, parts, service, marketing and training for its 199 dealers. The dealers, in turn, provide Porsche owners with best-in-class service. Throughout its more than six-decade history, Porsche has developed numerous technologies that have advanced vehicle performance, improved safety and spurred environmental innovations within the automotive industry. The company continues to celebrate its heritage by adding to its long list of motorsports victories dating back to its first 24 Hours of Le Mans class win in 1951. Today, with more than 28,000 victories, Porsche is recognized as the world's most successful brand in sports car racing. PCNA, which imports the iconic 911 series, the highly acclaimed Boxster and Cayman mid-engine sports cars, high-end Cayenne sport utility vehicles and the four-door Panamera Gran Turismos, strives to maintain a standard of excellence, commitment and distinction synonymous with its brand.

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and
www.facebook.com/Porsche

## Reading Reference Library Available From Amazon

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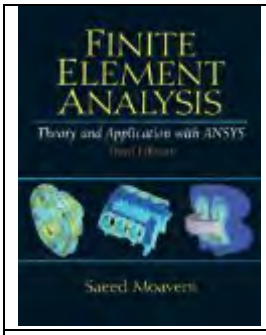
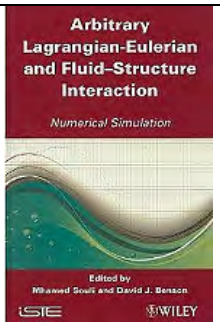
|  | Finite Element Analysis Theory and Application with ANSYS (3rd Edition) |  | Arbitrary Langrangian-Eulerian and Fluid Structure Interaction. |
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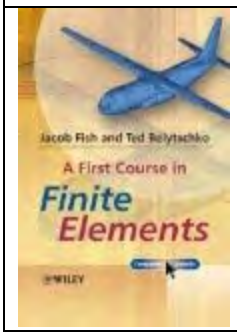
|  | A First Course in Finite Elements | | |


## D3View
## Suri Bala

## D3View
## Available Through LSTC

**We are pleased to announce LSTC is the exclusive distributor of D3View, developed by Suri Bala.**

**For Pricing, Demo license, Availability, Training: sales@lstc.com**

August 19, 2010

Experimental Data Management inside d3VIEW video show available under.

As a simulation engineer, we always like quick access to experimental data. Over the years, with a powerful framework that was developed within d3VIEW, this is now possible to import and visualize experimental data. With a few configurations, you can further tie this with simulation data for easy overlay and comparison. This following video shows how it can be done

Published by Suri Bala August 13th, 2010

Thick shells in contact in LS-DYNA

During one of my recent trips, a question was raised about how LS-DYNA treats thick shells in contact in particular if the contact would detect the surface sides. This simulation Thickshells in contact shows that LS-DYNA treats the thickshells as solids in which all external (free) surfaces are included in the contact. ERODING contact would also regenerate the free surfaces upon element deletion..

**http://blog.d3view.com/**

## Galactic Super-Volcano

## in Action

Eruption of a galactic “super-volcano” in the massive galaxy M87. Image credit: X-ray: NASA/CXC/KIPAC/N. Werner et al Radio: NSF/NRAO/AUI/W.

http://www.nasa.gov/mission_pages/chandra/news/10-110.html

A galactic "super-volcano" in the massive galaxy M87 is erupting and blasting gas outwards, as witnessed by NASA's Chandra X-ray Observatory and NRAO's Very Large Array.

The cosmic volcano is being driven by a giant black hole in the galaxy's center and preventing hundreds of millions of new stars from forming.

Astronomers studying this black hole and its effects have been struck by the remarkable similarities between it and a volcano in Iceland that made headlines early this year.

At a distance of about 50 million light years, M87 is relatively close to Earth and lies at the center of the Virgo cluster, which contains thousands of galaxies. M87's location, coupled with long observations over Chandra's lifetime, has made it an excellent subject for investigations of how a massive black hole impacts its environment.

"Our results show in great detail that supermassive black holes have a surprisingly good control over the evolution of the galaxies in which they live," said Norbert Werner of the Kavli Institute for Particle Astrophysics and Cosmology at SLAC Linear Accelerator Center, who led one of two papers describing the study. "And it doesn't stop there. The black hole's reach extends ever farther into the entire cluster, similar to how one small volcano can affect practically an entire hemisphere on Earth."

The cluster surrounding M87 is filled with hot gas glowing in X-ray light, which is detected by Chandra. As this gas cools, it can fall toward the galaxy's center where it should continue to cool even faster and form new stars.

However, radio observations with the Very Large Array suggest that in M87 jets of very energetic particles produced by the black hole interrupt this process. These jets lift up the relatively cool gas near the center of the galaxy and produce shock waves in the galaxy's atmosphere because of their supersonic speed.

The scientists involved in this research have found the interaction of this cosmic "eruption" with the galaxy's environment to be very similar to that of the Eyjafjallajokull volcano, which forced much of Europe to close its airports earlier this year.

With Eyjafjallajokull, pockets of hot gas blast through the surface of the lava, generating shock waves that can be seen passing through the grey smoke of the volcano. The hot gas then rises up in the atmosphere, dragging the dark ash with it. This process can be seen in a movie of the Eyjafjallajokull volcano where the shock waves propagating in the smoke are followed by the rise of dark ash clouds into the atmosphere.

In the analogy with Eyjafjallajokull, the energetic particles produced in the vicinity of the black hole rise through the X-ray emitting atmosphere of the cluster, lifting up the coolest gas near the center of M87 in their wake, much like the hot volcanic gases drag up the clouds of dark ash. And just like the volcano here on Earth, shockwaves can be seen when the black hole pumps energetic particles into the cluster gas.

"This analogy shows that even though astronomical phenomena can occur in exotic settings and over vast scales, the physics can be very similar to events on Earth," said co-author Aurora Simionescu, also of the Kavli Institute. In M87, the plumes of cooler gas being lifted upwards contain as much mass as all of the gas contained within 12,000 light years of the center of the galaxy cluster. This shows the black hole-powered volcano is very efficient at blasting the galaxy free of the gas that would otherwise cool and form stars.

"This gas could have formed hundred of millions stars as massive as our own Sun, if the black hole had not removed it from the center of the galaxy. That seems like a much worse disruption than what the airline companies on Earth had to put up with earlier this year," said Evan Million, a graduate student at Stanford University and lead-author of the second paper to be published about this deep study of M87.

The eruption in M87 that lifted up the cooler gas must have occurred about 150 million years earlier, but a smaller eruption only about 11 million years earlier produced the shock wave. The Chandra image was based on an observation lasting almost 7 days. X-ray data from ESA's XMM-Newton was also used in this study.

The two papers describing these results appeared in the journal of the Monthly Notices of the Royal Astronomical Society. NASA's Marshall Space Flight Center in Huntsville, Ala., manages the Chandra program for NASA's Science Mission Directorate in Washington. The Smithsonian Astrophysical Observatory controls Chandra's science and flight operations from Cambridge, Mass.

More information, including images and other multimedia, can be found at:
http://chandra.harvard.edu

## Update

## CAE Associates

Christina Capasso Jamerson - capasso@caeai.com

1579 Straits Turnpike / Suite 2B / Middlebury, CT 06762 /
Phone: 203.758.2914 / FAX: 203.758.2965

**Latest News:**

CAE Associates Hosts SpaceClaim Direct Modeler Webinar

CAE Associates was pleased to host a complimentary one-hour webinar introducing ANSYS SpaceClaim Direct Modeling (ANSYS SCDM) software on August 18th. If you missed this webinar, you can download it from the website www.caeai.com .

ANSYS SCDM provides a new way to manipulate your CAD models. The model becomes completely dynamic, allowing you to move, stretch and add and remove geometry features with ease. All changes to the geometry occur in real time enabling instant feedback on design iterations. This functionality will work with existing CAD models from 3rd party systems as well as geometry built directly in ANSYS SCDM. The user can also dimension these changes, making it simple to parametrically alter the original geometry model. For example, an IGES file can be imported into ANSYS SCDM and modified as if it was fully parametric
.

**Full Course Information**

http://www.caeai.com/basic-procedures-ansys.php

- Sep 13, 2010 1 day ANSYS DesignModeler
- Sep 14, 2010 2 days Introduction to ANSYS Workbench
- Sep 27, 2010 1 day Computational Fluid Dynamics Fundamentals
- Oct 04, 2010 1 day Introduction to Fracture Mechanics
- Oct 11, 2010 3 days Introduction to ANSYS Part I (Traditional GUI)
- Oct 14, 2010 2 days Introduction to ANSYS Part II (Traditional GUI)
- Oct 18, 2010 3 days Introduction to ANSYS AUTODYN


**Benchmarks**

**LS-DYNA®**

**http://www.topcrunch.org**

**Vendor / Submitter**

**SGI / Applications Engineering**

**Computer / Interconnect**

**Altix XE1300 / Mellanox® Technologies MT26428 ConnectX® IB QDR**

**Processor**

**Intel® Xeon® Six Core X5670 2.93GHz**

| #Nodes x #Processors per Node x #Cores Per Processor = Total #CPU | | |
|---|---|---|
| 11 x 2 x 6 = 132 | 105 | neon_refined_revised |
| 10 x 2 x 6 = 120 | 111 | neon_refined_revised |
| 8 x 2 x 6 = 96 | 125 | neon_refined_revised |
| 4 x 2 x 6 = 48 | 197 | neon_refined_revised |
| 2 x 2 x 6 = 24 | 334 | neon_refined_revised |
| 1 x 2 x 6 = 12 | 586 | neon_refined_revised |
| 16 x 2 x 6 = 192 | 810 | 3 Vehicle Collision |
| 14 x 2 x 6 = 168 | 905 | 3 Vehicle Collision |
| 8 x 2 x 6 = 96 | 1360 | 3 Vehicle Collision |
| 26 x 2 x 6 = 312 | 658 | 3 Vehicle Collision |
| 32 x 2 x 6 = 384 | 4005 | car2car |
| 30 x 2 x 6 = 360 | 4113 | car2car |

**SGI**

**Cloud Computing**

**LS-DYNA core use by the month**

**SGI Cloud Computing For LS-DYNA Customers**

**For LS-DYNA customers that need additional LS-DYNA core use by the month, the week, or the day contact cyclonesales@sgi.com**

The SGI technology at Cyclone's core is comprised of some of the world's fastest supercomputing hardware architectures, including SGI® Altix® scale-up, Altix® ICE scale-out and Altix® XE hybrid clusters, all based on Intel® Xeon® or Itanium® processors. The hybrid architecture offers either NVIDIA® Tesla GPUs or AMD FireStream™ GPU compute accelerators for floating point double precision workloads, and Tilera accelerators for integer workloads. High performance SGI InfiniteStorage systems are available for scratch space and long-term archival of customer data.

At the system software level, Cyclone offers a flexible computing environment with the choice of Novell® SUSE® or Red Hat® Linux® operating systems, further performance-optimized through the addition of SGI® ProPack™. Altair PBS Professional® and SGI® ISLE™ Cluster Manager provide system scheduling and management.

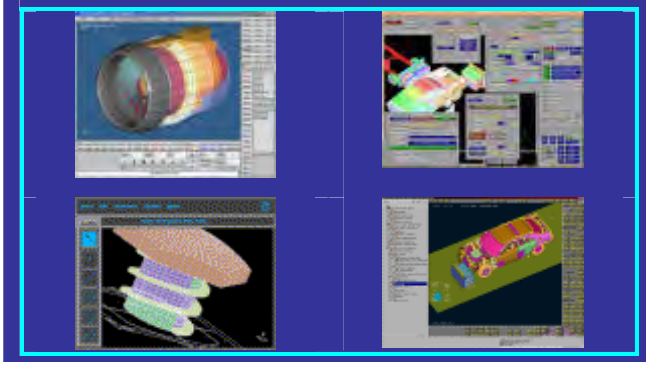
With Cyclone's SaaS model, SGI delivers access to leading-edge open source applications and best-of-breed commercial software platforms from top Independent Software Vendors (ISVs).

**Supported applications include:**

OpenFOAM, NUMECA, Acusolve, LS-Dyna, Gaussian, Gamess, NAMD, Gromacs, LAMMPS, BLAST, FASTA, HMMER, ClustalW and OntoStudio. SGI expects to add additional domains and applications partners over time…

**Complete information at**:

http://www.sgi.com/products/hpc_cloud/



**Pre-Processing**

**Post Processing**

**Model Editing**

A preprocessor is a program that processes its input data to produce output. This data is then used as input to another program.

**BETA CAE Systems S.A.**

http://www.beta-cae.gr/

Provides complete CAE pre- and post-processing solutions. ANSA, the world wide standard pre-processor and full product modeler for LS-DYNA, with integrated Data Management and Task Automation. µETA, with special features for the high performance an effortless 3D & 2D post-processing of LS-DYNA results.

**Engineering Technology Associates, Inc.**

http://www.inventiumsuite.com

PreSys is an advanced Pre/Post Processor. PreSys is a full-featured, core solution that can be used on its own or with a variety of available add-on applications. The system offers advanced automeshing tools to provide the highest quality mesh with little CAD data preparation. It also features a scripting interface and model explorer feature for in-depth data navigation.

**Oasys, Ltd**

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

Oasys Primer is a model editor for preparation of LS-DYNA input decks. - Oasys D3Plot is a 3D visualization package for post-processing LS-DYNA analyses using OpenGL® (SGI) graphics.

**JSOL Corporation**

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

JVISION is a general purpose pre-post processor for FEM software. Designed to prepare data for, as well as support, various types of analyses, and to facilitate the display of the subsequent results.

**Livermore Software Technology Corporation**

http://www.lstc.com

LS-PrePostis an advanced interactive program for preparing input data for LS-DYNA and processing the results from LS-DYNA analyses.

## LS-DYNA Distributors

**LS-DYNA is delivered with**
**LS-OPT**
**LS-PrePost**
**LSTC Dummy & Barrier Models**

Alpha Order by Country

| | |
|---|---|
| **Australia** | Leading Eng. Analysis Providers - LEAP<br>http://www.leapaust.com.au/ info@leapaust.com.au |
| **Canada** | Metal Forming Analysis Corp - MFAC<br>http://www.mfac.com/ galb@mfac.com |
| **China** | OASYS Ltd. (software house of Arup)<br>http://www.oasys-software.com/dyna/en stephen.zhao@arup.com |
| **France** | ALYOTECH TECH.<br>http://www.alyotech.fr nima.edjtemai@alyotech.fr |
| **France** | ALLIANCE SVCE. PLUS - AS+<br>http://www.asplus.fr/ls-dyna v.lapoujade@asplus.fr |
| **Germany** | CADFEM<br>http://www.cadfem.de/en lsdyna@cadfem.de |
| **Germany** | DYNAmore<br>http://www.dynamore.de/ uli.franz@dynamore.de |

## LS-DYNA Distributors

**LS-DYNA is delivered with**
**LS-OPT**
**LS-PrePost**
**LSTC Dummy & Barrier Models**

| | |
|---|---|
| **India** | OASYS Ltd. (software house of Arup)<br>http://www.oasys-software.com/dyna/en lavendra.singh@arup.com |
| **India** | EASi Engineering<br>http://www.easi.com/ rvenkate@easi.com |
| **India** | CADFEM Eng. Svce India<br>http://www.cadfem.in/ info@cadfem.in |
| **Italy** | EnginSoft SpA<br>http://www.enginsoft.it/ info@enginsoft.it |
| **Japan** | JSOL Corporation<br>http://www.jsol.co.jp/english/cae cae-info@sci.jsol.co.jp |
| **Japan** | ITOCHU Techno-Solutions Corp.<br>http://www.engineering-eye.com/ ls-dyna@ctc-g.co.jp |
| **Japan** | FUJITSU<br>http://jp.fujitsu.com\solutions\hpc\app\lsdyna\ |

## LS-DYNA Distributors

**LS-DYNA is delivered with**
**LS-OPT**
**LS-PrePost**
**LSTC Dummy & Barrier Models**

| | |
|---|---|
| **Korea** | Theme Engineering<br>http://www.lsdyna.co.kr/ wschung@kornet.com |
| **Korea** | Korea Simulation Technologies<br>http://www.kostech.co.kr young@kostech.co.kr |
| **Netherlands** | Infinite Simulation Systems, BV<br>http://www.infinite.nl/ j.mathijssen@infinite.nl |
| **Sweden** | Engineering Research AB<br>http://www.erab.se/ sales@erab.se |
| **Taiwan** | Flotrend Corporation<br>http://www.flotrend.com.tw/ gary@flotrend.tw |
| **Russia** | State Unitary Enterprise –STRELA<br>info@ls-dynarussia.com |

## LS-DYNA Distributors

**LS-DYNA is delivered with**
**LS-OPT**
**LS-PrePost**
**LSTC Dummy & Barrier Models**

| | |
|---|---|
| **United Kingdom** | OVE ARUP & PARTNERS<br>http://www.oasys-software.com/dyna/en/ dyna.sales@arup.com |
| **USA** | Livermore Software Tech. Corp. - LSTC<br>http://www.lstc.com/ sales@lstc.com |
| **USA** | Engineering Tech. Assc. Inc. – ETA<br>http://www.eta.com/ sales@eta.com |
| **USA** | DYNAMAX<br>http://www.dynamax-inc.com/ sales@dynamax-inc.com |


**Finite Element Analysis**

**North America**

**20**
**&**
**Engineering Services**

FEA Consultants use a wide range of software simulation programs. Their expertise using specific programs for their customers offers the ability for controlling the modeling and analysis of structures, systems, products and many other applications. Consultants and Engineering Services are used by government, homeland security, court trials, and a number of industries needing to have outside sources for expertise in FEA

**http://www.fea-consulting.com**

## North America

**Located: California'**

**Karagozian & Case - (K&C)**
**http://www.kcse.com**

Shangrui Lan
(818) 303-1268

**Located: Connecticut**

**CAE Associates**
**http://www.caeai.com**

(203) 758-2914

**Located: Oregon**

**Predictive Engineering**
**http://predictiveengineering.com**

George Laird
(800) 345-4671

**Located: California**

**Schwer Engineering**
**http://schwer.net**

Len Schwer
(707) 837-0559

**Located: Texas**

**KBEC**
**Khan Bui**

(512) 363-2739

**Located: Ohio**

**AEG Product Engineering Svce.**

http://engineering-group.com
support@enginering-group.com


## Software & Hardware Alliances

**Software Solutions**
**SMP / MPP Hardware & OS**
**MPP & Interconnect MPI**

### ETA – DYNAFORM & VPG

http://www.eta.com

Includes a complete CAD interface capable of importing, modeling and analyzing, any die design. Available for PC, LINUX and UNIX, DYNAFORM couples affordable software with today's high-end, low-cost hardware for a complete and affordable metal forming solution.

### ETA – VPG

http://www.eta.com

Streamlined CAE software package provides an event-based simulation solution of nonlinear, dynamic problems. eta/VPG's single software package overcomes the limitations of existing CAE analysis methods. It is designed to analyze the behavior of mechanical and structural systems as simple as linkages, and as complex as full vehicles.

### OASYS software for LS-DYNA

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

Oasys software is custom-written for 100% compatibility with LS-DYNA. Oasys PRIMER offers model creation, editing and error removal, together with many specialist functions for rapid generation of error-free models. Oasys also offers post-processing software for in-depth analysis of results and automatic report generation.


## Software & Hardware Alliances

**Software Solutions**
**SMP / MPP Hardware & OS**
**MPP & Interconnect MPI**

### ESI Group Visual-CRASH For DYNA

http://www.esi-group.com

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.

### BETA CAE Systems S.A.– ANSA

http://www.beta-cae.gr

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

http://www.beta-cae.gr

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

## FEA Participants

## SMP & MPP Hardware & OS

## For LS-DYNA®

http://www.hpcservers.com

| | |
|---|---|
| CRAY XD1 | Linux |
| HP PA-8X00 | HP-UX 11.11 and above |
| HP IA-64 | HP-UX 11.22 and above |
| HP Opteron | Linux CP4000/XC |
| INTEL IA32 | Linux, Windows |
| INTEL IA64 | Linux |
| INTEL Xeon | Linux Windows 64 bit |
| SGI Mips | IRIX 6.5 X |
| SGI IA64 | SUSE 9 w/Propack 4 RedHat w/Propack 3 |

**FEA Participants**

**MPP and Interconnect and MPI**

**For LS-DYNA®**

http://www.hpcservers.com

| Vendor | O/S | HPC Interconnect | MPI Software |
|---|---|---|---|
| CRAY XD1 | Linux | | |
| HP PA8000 | HPUX | | |
| HPIA64 | HPUX | | |
| INTEL IA32 | Linux, Windows | InfiniBand (Voltaire), MyriCom | Open MPI, MPICH, HP MPI, SCALI |
| INTEL IA64 | Linux | | Open MPI, MPICH, HP MPI |
| INTEL Xeon | Linux x86-64 Windows 64 | InfiniBand (Topspin, Voltaire), MyriCom, PathScale InfiniPath | Open MPI, MPICH, HP MPI, INTEL ICR, SCALI |
| SGI Mips | IRIX 6.5 X | NUMAlink | MPT |
| SGI IA64 | SUSE 9 w/Propack4 RedHat w/Propack 3 | NUMAlink, InfiniBand (Voltaire) | MPT, Intel MPI, MPICH |


## Crash Test Dummy Models

## Anthropomorphic Test Devices
## Crashest Devices
## Websites / Information

**FEA Information**

http://www.ls-dynadummymodels.com

**LSTC's Models**

http://www.lstc.com/models/

**Arup Cellbond Barrier Models**

http://www.oasys-software.com/dyna/en/fe-models/barrier.shtml

**Arup Pedestrian Impactor Models**

http://www.oasys-software.com/dyna/en/fe-models/pedestrian.shtml

**Arup RCAR Barrier Model**

http://www.oasys-software.com/dyna/en/fe-models/rcar.shtml

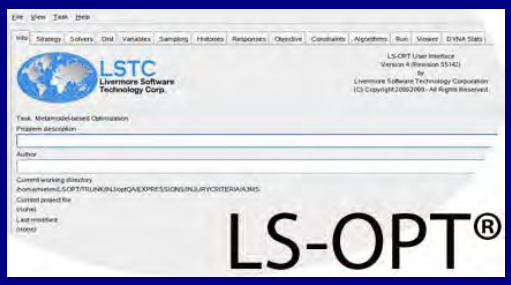
**DYNAMore Models for**

http://www.dummymodels.com

**LS-DYNA Dummy Mailing List**

sarba@lstc.com

# SUPPORT SITES FOR LS-DYNA




**The Official LS-OPT Support site**

http://www.lsoptsupport.com

**LS-OPT User's Group on Google**

A new LS-OPT User Group has been established. The intention of this group is to support LS-OPT users and to provide useful information according to LS-OPT. In addition, the user group provides the possibility to get in contact with other users and to share experience on the application of LS-OPT.

In order to subscribe to the group, please use the following (external) link:
https://www.google.com/accounts/ServiceLogin?service=groups2&passive=1209600&continue=http://groups.google.com/group/lsopt_user_group&followup=http://groups.google.com/group/lsopt_user_group

**The Official LS-OPT Support site**
[http://www.lsoptsupport.com] is jointly monitored by DYNAmore GmbH (Germany) and LSTC (US)

The LS-OPT support site was jointly developed to keep you updated with current information. During January 2010 the site will be updated with

**"Getting Started"**
A first place to stop for new users to view the LS-OPTui and the basic procedures of optimization with LS-OPT.

**How To's**
A collection of information and examples for several tasks with LS-OPT

**Documents**
A collection of documents related to LS-OPT, Optimization and Stochastics

**Examples**
This Section demonstrates LS-OPT capabilities by means of a series of examples

**Glossary**
Alpha order to view definitions such as Anova, Bias error, Iteration and other technical terms.

**Downloads**
Downloads specific to LS-OPT

**FAQ's**
Questions related to Optimization, Robustness and Reliability Analysis
Answers are posted on the LS-OPT Support Site
http://www.lsoptsupport.com/faqs

**News**
Latest news relation to, or about LS-OPT

## 9th German LS-DYNA User Forum

## 12th – 13th October, 2010,

## Bamberg, Germany

DYNAmore invites to the German LS-DYNA Forum, 12 - 13 October 2010 in Bamberg/Germany.

Approximately 80 papers from users and developers, including keynote presentations from:

- Prof. M. Kaliske (TU Dresden),
- S. Frik (Opel),
- H. Klamser (Porsche),
- K. Wiegand (Daimler),
- C. Lemaitre (Faurecia),
- T. Zeguer (Jaguar Cars),
- P. Du Bois (Consultant)
- J. O. Hallquist (LSTC)

Special emphasis will be on fibre reinforced plastics and advanced occupant analysis, along with the contributions from the main applications crash and sheet metal forming.

The majority of presenters will use English slides and some of the presentations will be held in English language. If requested, se-lected presentations will be translated simultaneously.

The detailed agenda is available at
www.dynamore.de/forum2010e

Online registration at
www.dynamore.de/forum2010e/registration

Additionally, we offer three pre and post conference seminars, held in English language:

**Corpuscular Method - Simulate Airbag Unfolding**,
by Dr. J. Wang (LSTC),
October 11 in Stuttgart
http://www.dynamore.de/seminars/passive-safety/cpm-airbag

**ALE and Fluid-Structure Interaction in LS-DYNA**
by Prof. M. Souli
(LSTC/University of Lille),
October 14-15 in Bamberg,
http://www.dynamore.de/seminars/new-methods/ale

**Blast Modelling with LS-DYNA** – Protective Structures, Vehicles, Security Threats
by Paul Du Bois (Consultant)
Dr. Len Schwer (SE&CS),
October 14-15 in Bamberg
http://www.dynamore.de/seminars/defence/blast

## 2010 EnginSoft International Conference
## CAE Technologies for Industry
## and
## ANSYS Italian Conference

21-22 October 2010,
Fiera Montichiari, Brescia - Italy

For more than 20 years, the EnginSoft International Conference on "CAE Technologies for Industry" has been the reference event for the VP community in Italy, offering unique insights into: current and future values of software technologies, background trends, outstanding achievements, groundbreaking scientific developments and the visions of those who realize advancements.

The accompanying exhibition will see the world's leading CAE and VP solution providers showcasing products and services covering all aspects of the technologies and their successful implementation.

Delegates and exhibitors use the exhibition as an international networking forum to gain new insights, share experiences and find new business opportunities.

The 2010 EnginSoft International Conference also offers:

- a think tank bringing together executives from industry, research, academia and technology providers
- a panel of simulation-based engineering and science experts and technology experts
- an informal environment for delegates, technology providers, managers and experts to meet and share experiences, address key industry issues and challenges, and explore new business opportunities

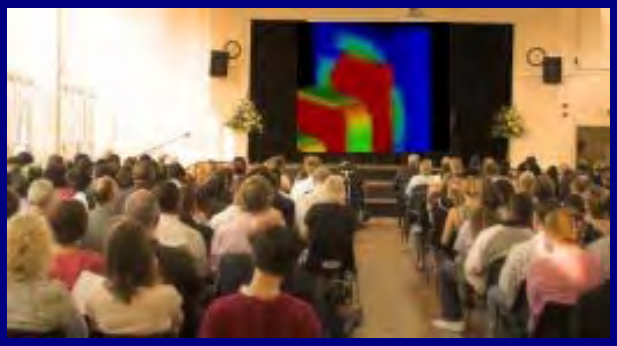
…in a word: the ideal occasion to discuss today's limitless applications of "simulation based engineering and sciences" in the true sense of the conference motto: "Believe in innovation: simulate the world"

The annual conference takes place concurrently with the ANSYS Italian Users' Meeting.

The conference program highlights applications in automotive, aerospace, energy, marine, oil & gas, consumer goods, environment, biomedicine and others and presents the use of the following software:
ANSYS - ANSYS CFX - ANSYS FLUENT - ANSYS ICEM CFD - modeFRONTIER - ANSOFT - -FLOWMASTER - MAGMASOFT - FORGE - FTI - THIRD WAVE SYSTEM

LSTC's LS-DYNA®

Submit a talk, attend the conference, visit the exhibition and/or be an exhibitor: www.caeconference.com



**ERAB**

**The Nordic LS-DYNA Users' Forum**

**Sponsored by Microsoft**

**Engineering Research organizes the Nordic LS-DYNA Users' Forum biannually.**

http://www.erab.se/?page+conf_registration

Nordic LS-DYNA Users' Forum: FREE of CHARGE,

**About**

The Nordic LS-DYNA Users' Forum will be held at Fars Hatt , Gothenburg, on October 14 2010.
The forum brings together LS-DYNA users, researchers and developers to discuss LS-DYNA developments and its applications in simulations of complex mechanical problems. Developers from LSTC will participate to inform about the latest developments in LS-DYNA, LS-PrePostand LS-OPT. Specially invited speakers will talk about how LS-DYNA simulations contribute to their companies and products. We expect 200 attendees from the Nordic countries and Baltic states.

**Training and Seminars**

In close connection to the forum, we are pleased to offer the following training classes and seminars in Gothenburg.

•LS-DYNA Introductory course

Date: Monday October 11 - Wednesday October 13.

•ANSA and mETA Introduction
Date: Thusday October 12 - Wednesday October 13.

## TRAINING COURSES

**Send listings to**
**agiac99@aol.com**

For changes for accuracy please see the company websites.

**France – AS+ www.asplus.fr**

**September**

| | |
|---|---|
| 14-16 | LS-DYNA Introduction (explicit) |
| 17 | LS-OPT Introduction |
| 27 | LS-DYNA Implicit – Introduction |
| 28 | LS-DYNA Implicit - Advanced |
| 29 | LS-PrePost3.0 – Switch from 2.4 to 3.0 |
| 30 | LS-PrePost3.0 – Advanced Meshing capabilities |

•

**UK - Oasys**

http://www.oasys-software.com/dyna/en/training/

**Oasys PRIMER –**
An Introduction 1 FREE 27th Sep 2010

LS-DYNA Introductory Course
25th-27th Oct 2010

For further information or to enrol on any of the courses listed below please contact:
Katherine Groves
0121 213 3399 at
katherine.groves@arup.com .

**TRAINING COURSES**
**DYNAmore**

**Send listings to**
**agiac99@aol.com**

**For Full Course List and Dated: http://www.dynamore.de/seminars/infodays**

**DYNAstart - Getting Started with LS-DYNA**

Ingolstadt, Sep 22, 2010
Traboch, Austria, Nov 03, 2010
Stuttgart, Nov 10, 2010
Stuttgart, Dec 14, 2010

**Possibilities of Computational Fluid Dynamics (CFD) with LS-DYNA**

Stuttgart, Sep 30, 2010

**LS-DYNA Application in Civil Engineering**

Stuttgart, Oct 05, 2010

**Capabilities of LS-DYNA / Implicit**

Stuttgart, Oct 20, 2010

**Support Day**

Stuttgart, Oct 22, 2010
Stuttgart, Dec 17, 2010

**Simulation of Drop Tests with LS-DYNA**

Stuttgart, Oct 28, 2010

**Introduction to Forming Simulation using LS-DYNA and ETA / DYNAFORM**

Stuttgart, Nov 09, 2010

**Visual-Crash DYNA - Environment for LS-DYNA**

Stuttgart, Nov 24, 2010

**Dynamic Material Characterisation using 4A Impetus**

Stuttgart, Dec 01, 2010

**Occupant Safety Support Day**

Stuttgart, Dec 06, 2010

**Current LS-DYNA Trends and Delevopments for Forming Simulations**

Stuttgart, Dec 09, 2010

**TRAINING COURSES**

**LSTC**

**Send listings to**
**agiac99@aol.com**

**LSTC Course Coordinator: Cathie Walton**
Cathie@lstc.com (248) 649-4728 x221

| Course | Location | Start Date | End Date |
|---|---|---|---|
| ALE Advanced Application (AAA) | CA | 8/25/2010 | 8/27/2010 |
| Contact in LS-DYNA | MI | 9/1/2010 | 9/2/2010 |
| LS-PrePost (no charge with Intro to LS-DYNA) | MI | 9/13/2010 | 9/13/2010 |
| Intro to LS-DYNA (3-1/2 days; half day on Friday) | MI | 9/14/2010 | 9/17/2010 |
| Concrete & Geomaterial Modeling | CA | 9/14/2010 | 9/15/2010 |
| Modeling & Simulation with LS-DYNA | CA | 9/16/2010 | 9/17/2010 |
| Blast Modeling with LS-DYNA | CA | 9/20/2010 | 9/21/2010 |
| Penetration Modeling with LS-DYNA | CA | 9/22/2010 | 9/23/2010 |
| LS-PrePost *new date* (no charge w/ Intro to LS-DYNA) | CA | 11/15/2010 | 11/15/2010 |
| Intro to LS-DYNA *new dates* (3.5 days; 1/2 day Friday) | CA | 11/16/2010 | 11/19/2010 |
| LS-OPT *new dates* (3-1/2 days; half day on Friday) | CA | 11/30/2010 | 12/3/2010 |
| Advanced Options in LS-DYNA | CA | 12/9/2010 | 12/10/2010 |
| LS-PrePost (no charge with Intro to LS-DYNA) | MI | 12/13/2010 | 12/13/2010 |
| Intro to LS-DYNA (3-1/2 days; half day on Friday) | MI | 12/14/2010 | 12/17/2010 |

**Isogeometric Analysis 2011**
www.ices.utexas.edu/iga
**January 13-15, 2011, Austin Texas**
**Integrating Design and Analysis**

**Dr. David Benson**
**dbenson@ucsd.edu**

Contact: Ruth Hengst - e-mail ruthusacm@ices.utexas.edu

Geometry is the foundation of analysis yet modern methods of computational geometry have until recently had very little impact on analysis. The reason may be that Finite Element Analysis (FEA), as we know it today, was developed in the 1950's and 1960's, before the advent and widespread use of Computer Aided Geometric Design (CAGD), which occurred in the 1970's and 1980's. The CAGD – FEA interface gives rise to many problems.

Perhaps the most significant of all is the problem of translating CAGD files into analysis-suitable FEA geometry and meshing, reputed to take 80% of overall analysis time for complex engineering designs. The approximate, polynomial-based geometry of FEA also creates difficulties in modeling sliding contact, flows about aerodynamic shapes, buckling of thin shells, etc. It would seem that it is time to look at more powerful descriptions of geometry to provide a new and more efficient basis for analysis. An attempt to address these issues and improve on FEA has led to the introduction and development of Isogeometric Analysis, in which a single geometric representation is utilized for design and analysis. Among the approaches that have been proposed, those that have demonstrated the most potential so far are Subdivision Surfaces, NURBS, and T-Splines. NURBS are the industry standard for CAGD systems used in engineering design. NURBS-based isogeometric analysis has already been applied to fluids, structures, fluid-structure interaction, phase-field modeling, electromagnetics, shape and topology optimization, material modeling (e.g., implicit gradient damage models), discrete and diffuse modeling of crack propagation, etc. T-Splines, which are a generalization of NURBS that allow efficient local refinement while maintaining higher-order continuity and exact geometry, have recently attracted increasing attention. The purpose of this workshop is to bring together experts in geometry and analysis interested in the development of the new generation of analysis procedures based on modern methods of computational geometry. The workshop will focus on:

- Analysis-suitable geometry
- Mathematics of isogeometric methods
- New isogeometric analysis technologies
- Applications
- Implementation and software
- History of CAGD and FEA

## BETA CAE Systems SA

## Twitter
## Events to Visit BETA CAE

**From the BETA CAE Systems SA News In Brief pdf.**
**http://www.beta-cae.gr/news/20100624_news_in_brief.pdf**

**BETA CAE Systems SA launches a Twitter account**

Follow@betacae on Twitter to be updated on the latest news about our products, services and events. http://twitter.com/betacae

**4th ANSA & µETA International Conference**,
June 1-3, 2011, Makedonia Palace, Thessaloniki, Greece

**NAFEMS Nordic Regional Summit 2010: Trends and Future Needs in Engineering Simulation,**
October 26–27, 2010, Gothenburg, Sweden organized by NAFEMS

**German LS-DYNA User Forum**
October 12-13, 2010, Bamberg, Germany organized by DYNAmore GmbH

**LS-DYNA Nordic Users' Forum,**
October 14, 2010, Kungälv (Gothenburg), Sweden organized by Engineering Research Nordic AB

**8th MIRA International Vehicle Aerodynamics Conference**
October 13-14, 2010, Grove, United Kingdom organized by MIRA

**Open Source CFD International Conference 2010,**
November 4-5, 2010, Munich, Germany organized by ICON

**SIMVEC - Berechnung und Simulation im Fahrzeugbau,**
November 16-17, 2010, Baden-Baden, Germany organized by VDI

## HP has earned the Excellence in Service Operations certification

http://www.hp.com/hpinfo/newsroom/press/2010/100812a.html

Sole PC manufacturer to win coveted industry recognition

PALO ALTO, Calif., Aug. 12, 2010

HP has earned the Excellence in Service Operations certification from the Technology Services Industry Association (TSIA) for providing superior technical support and services in North America.

This marks the third consecutive year HP has achieved recognition for commercial notebook and desktop PC support, and the second year HP was certified in the consumer market, including both PCs and printers.

HP remains the sole PC manufacturer to receive this coveted industry recognition in 2010, which comprises a comprehensive evaluation of phone, field service and web service operations for customers.

“HP is to be commended for excellent preparation and execution,” said Joanne Weigel, senior director, Organizational Certification Programs, TSIA. “Most notable were enhancements in HP escalation management processes, interactive voice response telephone support and online support forums.”

Auditors from TSIA closely review management policies and procedures. HP support operations were compared against nearly 300 industry best practices, including executive commitment, talent management, support tools and technology, and operation metrics. The rigorous onsite and surveillance audit process was conducted by a panel of seasoned service executives with more than 20 years of experience.

“We are committed to making investments that continually improve customer experiences,” said Antonio Neri, vice president, Customer Experience and Warranty Services, Personal Systems Group, HP. This certification means HP customers can purchase PCs and printers with the confidence that they are not only receiving quality products, but also quality support.

Earlier this year, HP received the TSIA Service Excellence STAR Award for Innovative Support. This award recognizes companies that use Web 2.0 tools and processes to create an engaging online community of customers and partners. HP is also a recipient of the

TSIA STAR Awards Hall of Fame Lifetime Achievement Award, which is given to companies that have won 10 or more individual STAR Awards.

**About TSIA**

The Technology Services Industry Association (TSIA) is the leading association dedicated to advancing the business of technology services. Technology services organizations large and small look to TSIA for world-class benchmarking and research, exceptional peer networking and learning opportunities, and high-profile certification and awards programs. We keep their business leaders informed and connected through a full range of programs and services that tackle real-world service business challenges, providing real-world solutions. TSIA corporate members represent the world's top technology companies as well as scores of innovative small and midsize businesses in four major markets: enterprise IT and telecom, consumer technologies and carriers, healthcare and healthcare IT, and industrial automation. TSIA brings the technology services industry together www.tsia.com.

**About HP**

HP creates new possibilities for technology to have a meaningful impact on people, businesses, governments and society. The world's largest technology company, HP brings together a portfolio that spans printing, personal computing, software, services and IT infrastructure to solve customer problems. More information about HP (NYSE: HPQ) is available at http://www.hp.com/.

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**Editorial contacts:**

Nora Hahn, HP: nora.hahn@hp.com

# ESI Announces VA One 2010

**Latest release of noise and vibration software includes advanced methods for response diagnosis**

VA One model of sound radiated by vehicle horn at 2kHz (using Indirect Fast Multipole BEM analysis) Paris, France – July 29, 2010

VA One is a complete solution for simulating noise and vibration across the full frequency range and seamlessly combines Finite Elements, Boundary Elements, and Statistical Energy Analysis (SEA) in a single model. This new release includes over 80 major enhancements and is focused on improved methods for response diagnosis.

Advanced methods for response diagnosis

Diagnosing the response of a system is an important step in a vibro-acoustic analysis that can provide physical insights and help guide the design of various counter measures. The VA One 2010 release simplifies this process and includes advanced methods to be applied to this task. In particular, the Statistical Energy Analysis (SEA) module now includes functionality for automatic identification of dominant transmission paths (using advanced algorithms from Graph Theory), along with sensitivity analysis for quickly determining the key parameters that control the response. Furthermore, the low frequency Finite Element and Boundary Element modules include expanded functionality for panel contribution analysis to help identify key radiating surfaces.

The VA One 2010 release also includes functionality for calculating complex or coupled modes for any combination of Finite Element, Boundary Element, Poroelastic Element and SEA subsystems in a model. This new functionality is ideal for diagnosing damped resonances, particularly in open systems or for systems that contain foam and fiber noise control treatments.

The Fast Multilevel Multipole Boundary Element (FMM BEM) solver has also been significantly enhanced and now covers a wider kD range and includes both direct and indirect formulations. This enables FMM BEM models to be applied to a broader range of applications across a wider frequency range.

The Hybrid module has been complemented and includes new functionality for quickly modeling the mid-frequency response of unbaffled structures such as satellite antennas and solar arrays. A significant number of

improvements have also been made to the VA One environment to simplify model management and improve productivity.

"At VTT we provide high-end technology solutions and innovation services that enhance our customers' competitiveness", said Jukka Tanttari, Senior Research Scientist, VTT. "VA One is a standard tool in our analysis process and helps us diagnose and improve vibro-acoustic performance."

"We are pleased to announce the release of VA One 2010", said Dr. Phil Shorter, Director of Vibro-Acoustic Product Operations, ESI Group. "This release includes over 80 major enhancements across all modules and ensures that our users have access to state-of-the-art methods for vibro-acoustic analysis and design".

For more information, please visit: www.esi-group.com/products/vibro-acoustics

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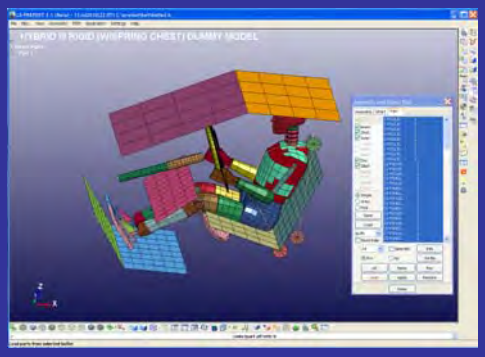
About ESI Group

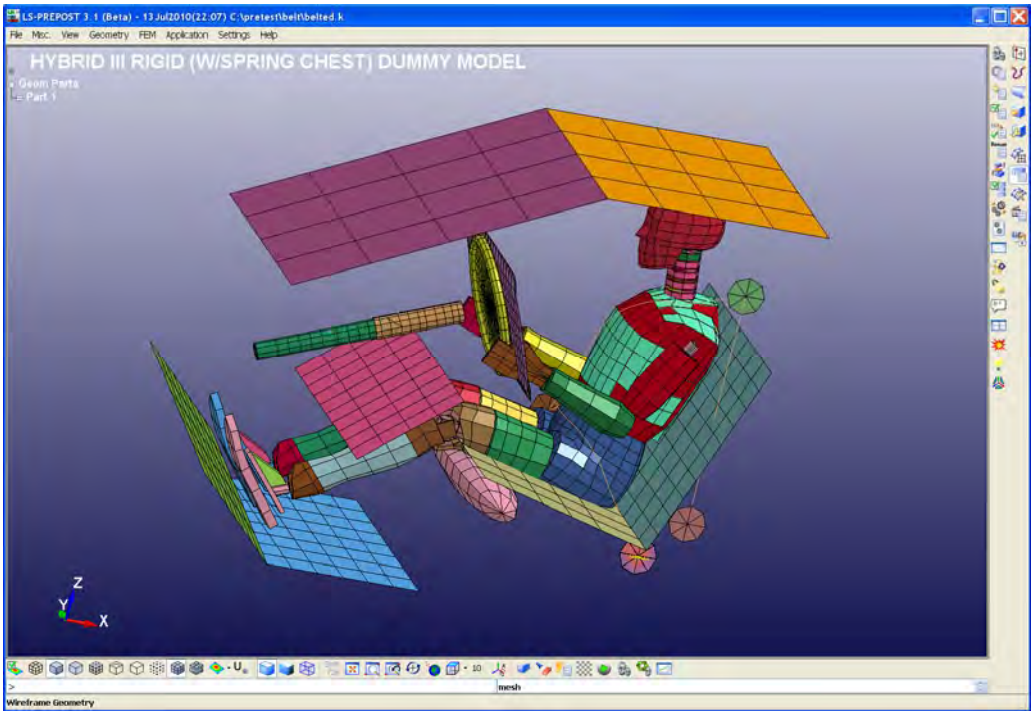
ESI is a pioneer and world-leading solution provider in virtual prototyping that takes into account the physics of materials. ESI has developed an extensive suite of coherent, industry-oriented applications to realistically simulate a product's behavior during testing, to fine-tune manufacturing processes in accordance with desired product performance, and to evaluate the environment's impact on performance. ESI's solutions fit into a single collaborative and open environment for End-to-End Virtual Prototyping, thus eliminating the need for physical prototypes during product development. The company employs over 750 high-level specialists worldwide covering more than 30 countries. ESI Group is listed in compartment C of NYSE Euronext Paris. For further information, visit www.esi-group.com



**LS-PrePost3.0**

**Now Released**

This version of LS-PrePost has a completely new graphical interface plus many new features. One of the most important additions is the Geometry module, this can create and handle simple to very complex geometry data and definitions.

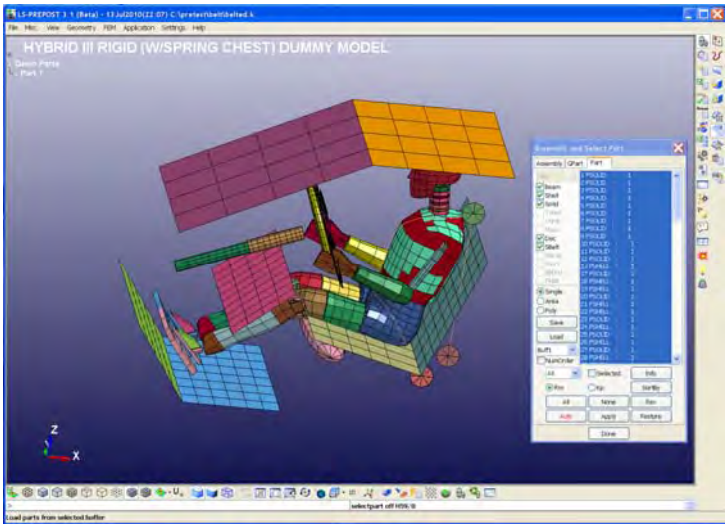



## User Interface

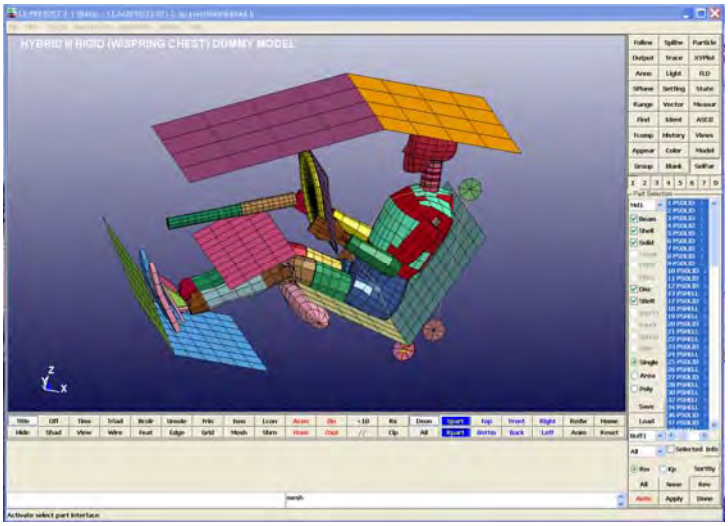
The new user interface is in the style of current Windows applications with tool bars and icons used for the main menu system to replace the old text based button scheme. This new interface provides the maximum possible graphical area for the model rendering and at the same time allows users to define their own toolbars with frequently used icons put together in any fashion. Besides using icons and toolbars, a pull down menu system is provided to select

application features and interface dialogues. Popup dialogues are used for each main functional operation. Only one functional operational is active at one time. So when a new one is opened the previous one is set down. This is done to avoid cluttering the graphical area.

**F11 Function**




**New interface, after press F11**



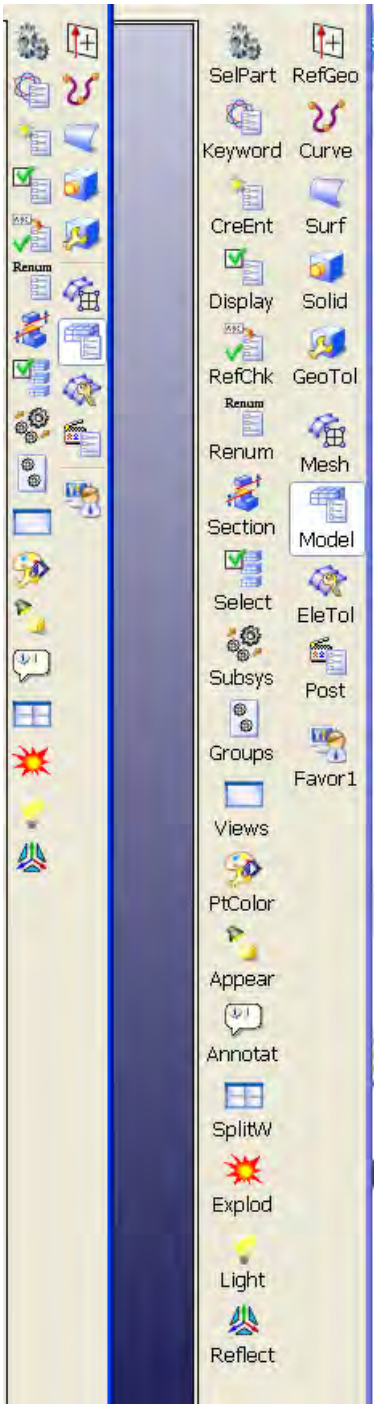

**Old interface**

All settings of the GUI are saved automatically in a configuration file that resides in the user's home directory, and ensures that a subsequent launch of LS-Prepost3.0 will have the same look and feel as the previous session.

**The F11 Function:**

For those users that are not comfortable with the new interface, there is an easily switch back to the old interface by pressing the F11 function key. However, new features such as the geometry data manipulation will not be available in the old interface.

Pressing function key F11 will toggle between the old and the new interfaces, however, some features like IGES files are on transferrable between the old and new interface



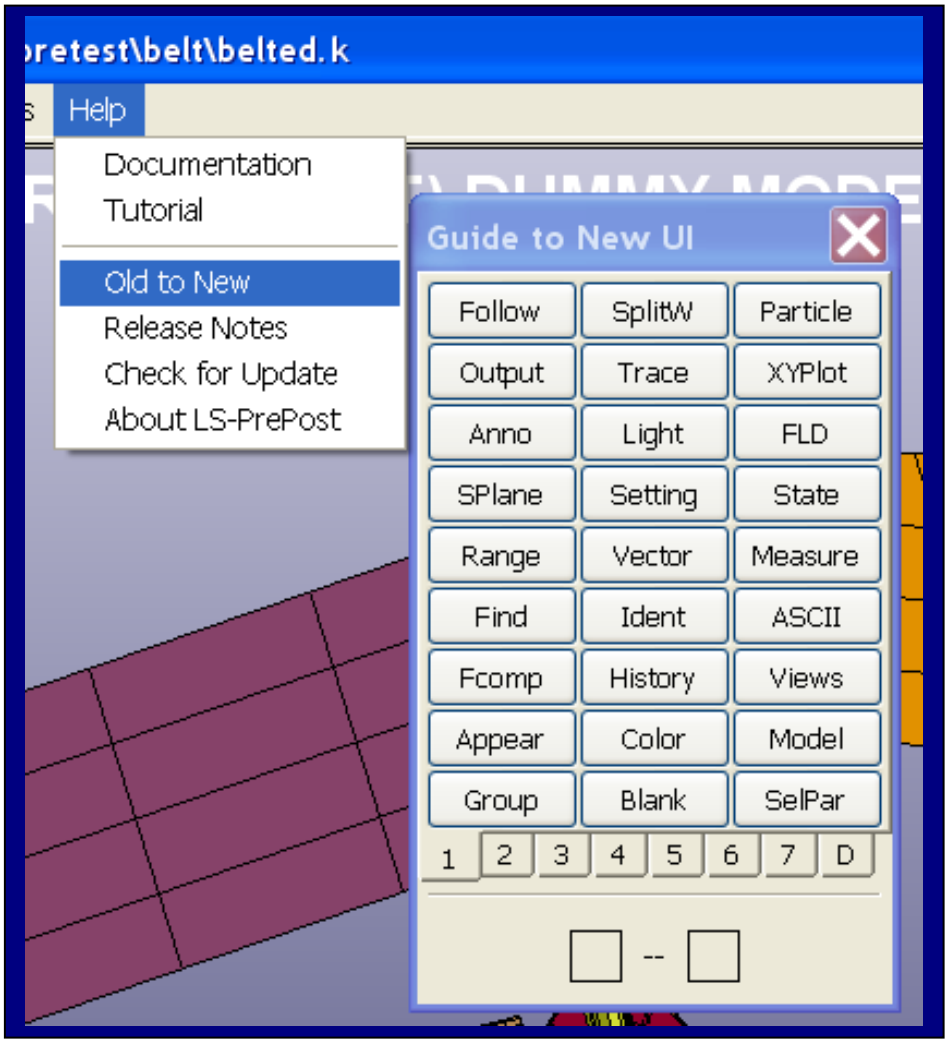

**Icons without text and icons with text**

## Transitioning from old to new interface

The icons in the new interface can be set to have text or without text on the Icons, having text will provide easier recognition.

Also, an "Old to new" interface button system has been implemented to transition users from the old interface to the new interface.

**"Old to New" interface to transition to new icons**



## Geometry Processing Engine

The major feature in LS-PrePost3.0 is the newly developed geometry processing engine. This processing engine is based on Open Cascade Technology 6.3, which supports basic geometry entities such as vertices, lines, surfaces, and solids. It supports shape fixing and reshaping, small holes and small edges removal, duplicated surfaces removal, vertex reposition and deletion, and small faces removal or face extension. It also supports faces stitching to provide fully connected geometry topologies. Meshing the geometry data after it has been cleaned gives a much better mesh, and requires less subsequent mesh editing and cleaning. Geometry data can be created using the existing geometry editing functions or imported via iges or Step file format. Modified geometry can be exported in iges or Step file format. In addition, surfaces can be created from an existing mesh using LSTC's own reverse engineering module.

## New surfaces auto-mesher for metal forming

Coupling with the capability in the geometry processing engine, a completely new surface auto mesher for metal forming applications has been developed. It creates much better mesh compare with the tool mesher in the previous LS-PrePostversions. The speed of this new mesher in general, is at least 10 to 20 times faster than the old version depending on the size and the complexity of the model.

## New Applications

Besides, the new interface and geometry processing engine. New LS-DYNA application preprocessing has been added to the LS-PrePost3.0 such as: Roller Hemming job setup, ALE job setup, Granular flow setup, and Airbag impact setup. An application frame work has been created such that new applications can be easily added in the future

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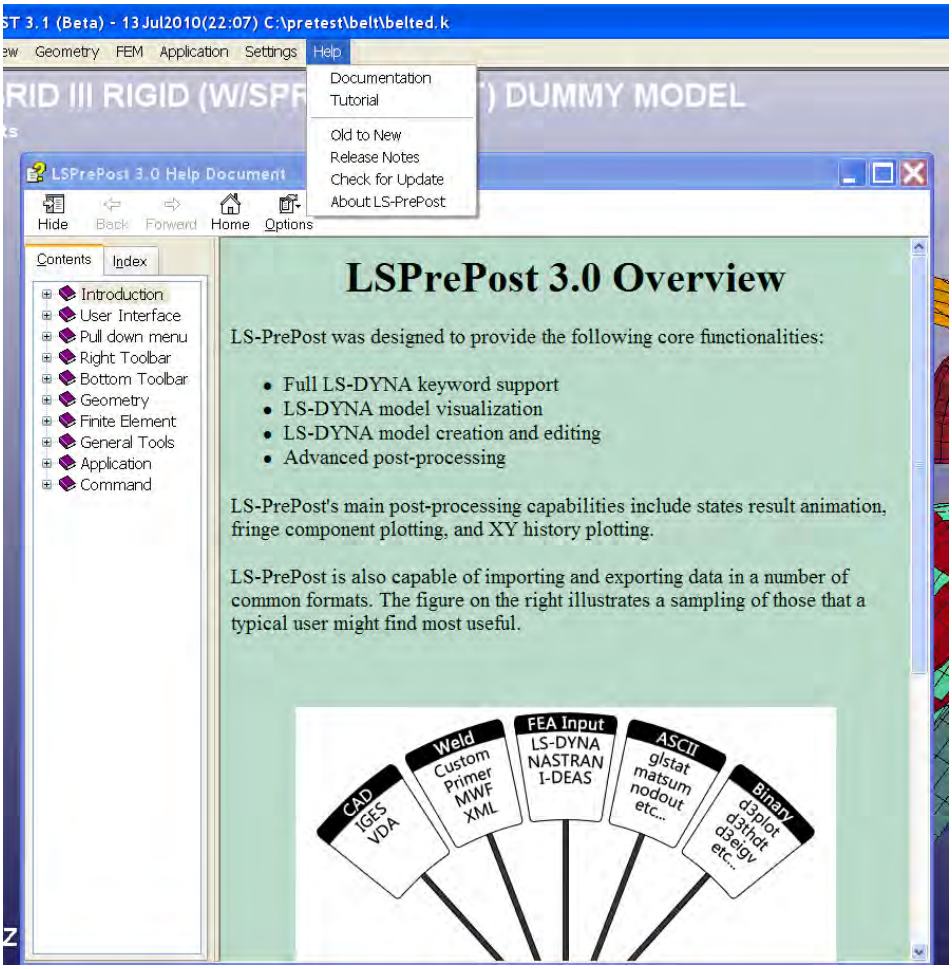


## Documentation and Help

Documentation is with the program, provided in the Help Menu.

## Supported systems and downloads:

Both 32bit and 64bit Windows XP/Vista/Win7 are supported. For Linux systems, only 64bit version is available. Users can download the new released version from LSTC's ftp directories:

ftp://ftp.lstc.com/outgoing/lsprepost/3.0/win32 or
ftp://ftp.lstc.com/outgoing/lsprepost/3.0/win64 or
ftp://ftp.lstc.com/outgoing/lsprepost/3.0/linux64


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Contact: David Heller, David.Heller@MCADCafe.com

A Must Read NewsWire Recommendation:

**Siemens Competition Deadline Approaching October 1**

Individuals & Teams to Strive for $100,000 Grand Prize in Nation's Top High School Science Competition

ISELIN, N.J., Aug. 25 — (PRNewswire) — Less than two months remain for students to enter the 2010 Siemens Competition in Math, Science & Technology. A signature program of the Siemens Foundation, this annual competition for high school students awards college scholarships ranging from $1,000 to $100,000 for original research projects in both individual and team categories. Established in 1999, the Siemens Foundation has granted more than 800 scholarships through the Siemens Competition in support of our nation's future scientists and engineers.

Entries must be received by Friday, October 1, 2010, at 5 p.m. EDT. Instructions and online registration can be found at the Siemens Foundation website, www.siemens-foundation.org and at www.collegeboard.com/siemens . Students may enter as individuals or as members of a team. Those who are not able to complete registration online may call 1-877-358-6777 from 8:30 a.m. to 5 p.m. EDT for further assistance.

The College Board administers the Siemens Competition on behalf of the Siemens Foundation. Entries will be judged at the regional level in November by esteemed scientists and faculty at six prestigious universities: California Institute of Technology; Carnegie Mellon University; Georgia Institute of Technology; Massachusetts Institute of Technology; University of Notre Dame; and The University of Texas at Austin. Winners from each regional competition will continue on to the national finals, scheduled for December 3-6, 2010, at George Washington University, in Washington, D.C. and will be judged by a panel of prominent scientists and mathematicians.

The Siemens Competition continues to attract the nation's brightest minds and innovators of tomorrow. The 2009 national winners took on revolutionary research in biophysics and mathematics. Ruoyi Jiang, a senior at Ward Melville High School in East Setauket, New York, won the $100,000 scholarship in the individual category for research on chemotherapy drug resistance. Sean Karson, a senior at Trinity Preparatory High School in Winter Park, Florida; Dan Liu, a junior at the Liberal Arts and Science Academy High School in Austin,

Texas; and Kevin Chen, a junior at William P. Clements High School in Sugar Land, Texas, won the team category and will share a $100,000 prize for their graph theory research.

"The Siemens Foundation is proud to continue our tradition of supporting this country's rising talents in science and math," said Jeniffer Harper-Taylor, president of the Siemens Foundation. "The young science stars of the Siemens Competition are solving tomorrow's problems today."

The Siemens Foundation: The Siemens Foundation provides more than $7 million annually in support of educational initiatives in the areas of science, technology, engineering and mathematics (STEM) in the United States. Its signature programs include the Siemens Competition in Math, Science & Technology, Siemens Awards for Advanced Placement, and The Siemens We Can Change the World Challenge, which encourages K-12 students to develop innovative green solutions for environmental issues. The Foundation's mission is based on the culture of innovation, research and educational support that is the hallmark of Siemens' U.S. companies and its parent company, Siemens AG.

**The College Board:** The College Board is a not-for-profit membership association whose mission is to connect students to college success and opportunity. Founded in 1900, the College Board is composed of more than 5,700 schools, colleges, universities and other educational organizations. Each year, the College Board serves seven million students and their parents, 23,000 high schools, and 3,800 colleges through major programs and services in college readiness, college admission, guidance, assessment, financial aid and enrollment. Among its widely recognized programs are the SAT®, the PSAT/NMSQT®, the Advanced Placement Program® (AP®), SpringBoard® and ACCUPLACER®. The College Board is committed to the principles of excellence and equity, and that commitment is embodied in all of its programs, services, activities and concerns. For further information, visit www.collegeboard.com.

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