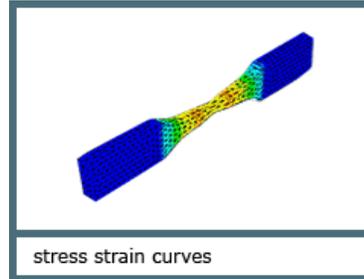


FEA Information <http://www.feainformation.com>

Engineering Journal and Website Resource



**Panasas®
ActiveStor™ 12
(PAS 12)**



**DatapointLabs
Expert Material Testing**

Professor Klaus Weinmann



**Professor of Mechanical Engineering
Michigan Technological University**



The F-117A Nighthawk



The Honda Air

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Announcements - In this issue don't miss:

We welcome as participants:

APACS Services Inc - <https://sites.google.com/site/apacsservicesinc>

FauCon Aps <http://www.faurcon.com/>

DatapointLabs <http://www.datapointlabs.com/>

Platinum participant Panasas, Inc.

Panasas, Inc., the leader in high performance parallel storage for business-critical applications, enables customers to rapidly solve complex computing problems, speed innovation and accelerate new product introduction. All Panasas storage products leverage the patented Panasas® PanFS™ parallel file system to deliver superior performance, data protection, scalability and manageability. Panasas systems are optimized for demanding storage applications in the energy, government, finance, manufacturing, bioscience and higher education industries. For more information, visit www.panasas.com

This week I will attend:

Japan - the LS-DYNA & JSTAMP Forum 2010, Hosted by JSOL

Korea - Korean LS-DYNA User Meeting hosted by THEME.

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

From engineering to horses - <http://www.livermorehorses.com>



Cathie Walton,
Manager LSTC Michigan Office
Visited LSTC Livermore, CA and had a nice ride
on Cody.



FEA Information

Platinum Participants

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



Conference Paper Showcase

Paper available for download at:

DYNALOOK

<http://www.dynalook.com/>

1. **LS-DYNA Analysis of a Full-Scale Helicopter Crash Test**

<http://www.dynalook.com/international-conf-2010/Aerospace-2-1.pdf>

Martin S. Annett, NASA Langley Research Center

A full-scale crash test of an MD-500 helicopter was conducted in December 2009 at NASA Langley's Landing and Impact Research facility (LandIR). The MD-500 helicopter was fitted with a composite honeycomb Deployable Energy Absorber (DEA) and tested under vertical and horizontal impact velocities of 26 ft/sec and 40 ft/sec, respectively. The objectives of the test were to evaluate the performance of the DEA concept under realistic ...

2. **Advancements in Material Modeling and Implicit Method for Metal Stamping Applications**

<http://www.dynalook.com/international-conf-2010/MetalStamping-4.pdf>

Xinhai Zhu, Li Zhang - Livermore Software Technology Corporation

A review of recent developments in stamping manufacturing will be conducted. The review will be focused on discussions surrounding new features related to static implicit binder wrap, advanced material modeling with Yoshida's non-linear kinematic hardening in conjunction with Hill's 1948, Barlat 1989 and Barlat 2000 yield criteria.

3. **Predicting the Dynamic Crushing Response of a Composite Honeycomb Energy Absorber Using Solid-Element-Based Models in LS-DYNA**

<http://www.dynalook.com/international-conf-2010/Aerospace-2-5.pdf>

Karen E. Jackson - NASA Langley Research Center

This paper describes an analytical study that was performed as part of the development of an externally deployable energy absorber (DEA) concept. The concept consists of a composite honeycomb structure that can be stowed until needed to provide energy attenuation during a crash event, much like an external airbag system. One goal of the DEA development project was to generate a robust and reliable Finite Element Model (FEM) of the DEA that ...



**Personal View
By M. Victory
FEA Information Inc.**

28 CADFEM User's Meeting

November 3rd – 5th I attended the **28th CADFEM Users' Meeting** held in Aachen, Germany to listen to the presentations, meet exhibitors, and LS-DYNA users. And, had the pleasure of speaking with **Margareta and Guenter Mueller**, colleagues and close friends, on the past and continuation of CADFEM into the future (and children, grandchildren, horses, etc.)

First, I need to thank Christine Bundlechner, of CADFEM, for being helpful not only at the conference, but for helping me find my way from the US to Frankfurt Germany...to Dusseldorf Germany...to Aachen Germany and back. Thanks to Stefan, for all the driving. Now on to the conference - I would like to share a few of the many highlights I found at the conference:

Dr. John A. Swanson

One of my favorite presentations had to be listening to **Dr. John A. Swanson, "ANSYS Beginning: What Did We Do Right? The ASD Program and CADFEM A Good Partnership"** It was an amazing history of the beginning of ANSYS software and the journey of a man with a dream, a vision, and the technical expertise to bring it to fruition. Although Dr. Swanson additionally mentioned that he would "again" be retiring and shared his projects that he will continue

- Education (Swanson School of Eng. at Univ. of Pittsburgh)
- Energy Solar Power – Drive price to parity
- Nuclear Power – Simulation and Safety

PD.Dr Laszlo Kovacs

It is well known that one of my personal interests is in the use of LS-DYNA for the biomedical engineering field. This made

it an honor to meet PD.Dr Laszlo Kovacs from the Department of Plastic Surgery and Hand Surgery (Klinikum rechts der Isar der Technischen Universität München).

If you are not familiar with Dr. Kovacs, he initiated the research group Computer Aided Plastic Surgery (CAPS). Margareta Mueller introduced me to him and he introduced us to some of his work. His work is needed not only by the engineering community for research, but people with medical needs. I found his work with plastic surgery one of the most fascinating aspects of computer aided engineering applications. It was a great honor to be able to meet him and have him take a moment to introduce me to the work he is doing. You will find it very interesting to learn more about CAPS at <http://www.caps.me.tum.de>

DatapointLabs

I was so happy to again see and speak with Barbara Leichtenstern and Renu Gandhi of DatapointLabs, an expert materials testing company. And I am pleased to announce that DatapointLabs is now and FEA Information Inc. participant. Their first article is in this November issue and I look forward to more of their articles to share with you. <http://datapointlabs.com>.

SIMetrIs

Martin Meiler, Executive Director, Simulation Measurement Software, took time to explain to me how his company covers finite element simulations, as well as computer aided measurements of mechatronics and in special acoustic components.

<http://www.simetrIs.eu>.

Polytec I was introduced to in Germany, and after returning to California last week am in contact for ways to collaborate with Eric Lawrence of Polytec Inc. in Irvine, California. Polytec manufactures a range of laser vibrometers for non-contact vibration measurement. <http://polytec.com>

PhilonNet At the conference dinner I spoke with two of my friends and colleagues from Greece, Johannes Heydenreich and Stavroula Stefanatou. Additionally, their company PhilonNet Engineering Solutions is the exclusive LS-DYNA distributor in Greece directly for LSTC. Roger Grimes of LSTC attended their previous conference

CADFEM GmbH will have their conference recap in a future issue.

<http://www.cadfem.de>

meeting many LS-DYNA users and presenting LS-DYNA's new features. They are now planning their 5th PhilonNet Conference for 9th of May 2011 – <http://www.philonnet.gr>

optiSLang

Another software product I was introduced to in the exhibitor booth area by Dr.-Ing. Johannes Will was optiSLang, by Dynardo (Dynamic Software and Engineering GmbH) and how the integration of LS-DYNA calculations into OptiSLang is done by a graphical parameterizing editor. You can find out more at <http://www.dynardo.de>

I found that the CADFEM Users' Meeting 2010 brought engineering past, present and future to one forum that was well received by all attendees and technically excellent. CADFEM was, is, and will continue to be a major presence in Germany for software, training, development, consulting, and Users' Meetings with leading edge information.

Later this week I will be attending:

Japan: LS-DYNA & JSTAMP Forum 2010 hosted by JSOL

Korea LS-DYNA User conferences. hosted by THEME.



**The passing of
Professor Klaus Weinmann
peacefully in his sleep on
November 3, 2010**

EL CERRITO, Calif. - Klaus Weinmann, 73, of 8515 Buckingham Drive, El Cerrito, California 94530, passed away peacefully in his sleep on November 3, 2010, the last day of his dream vacation cruise to the Galapagos Islands.

Professor Weinmann's research concentrated on manufacturing processes with emphasis on metal forming and tribology in metal working. He was involved in the design and construction of a next-generation sheet metal drawing die incorporating active drawbeads as elements for control of material flow in the die.

In other studies, sensors are being developed capable of recording tangential and normal forces in sheet metal forming at the tool-sheet interfaces, and a friction test for cold extrusion of steel was created.

Professor Weinmann's interests also extended to the mechanics of chip formation and tool life in machining.

He led the ME-EM department from 1993 to 1997, came to Michigan Tech in 1970. He was the director of the Manufacturing/Industrial Area and focused his research on manufacturing engineering and metal forming.

He was the director of the Manufacturing/Industrial Area and focused his research on manufacturing engineering and metal forming.

Weinmann retired in 2003 but continued to work as a research professor at Michigan Tech and as an adjunct professor of mechanical engineering at the University of California at Berkeley. He lived in California with his wife, Sigrid Weinmann, a professor emeritus of humanities.

Weinmann was elected a fellow in the American Society of Mechanical Engineers, the Society of Manufacturing Engineers and CIRP. He received a Distinguished Alumnus Award in 2000 from the University of Illinois-Urbana-Champaign, where he earned BS, MS and PhD degrees in Mechanical Engineering.

He is survived by his wife, Sigrid; daughter, Sylvia, and daughter, Claudia along with her husband, Brett Howe and their children, Simon and Juliet.

The family kindly requests that memorial contributions be made to the Klaus J. Weinmann Scholarship at the Michigan Tech Fund.



Aerospace Information

<http://www.aerospaceinformation.com>

The picture of the month does not depict use of any software. It is chosen, by FEA Information Inc. staff, solely based on aerospace dynamics and/or aviation history. The F-117A Nighthawk - The F-117A production decision was made in 1978 with a contract awarded to Lockheed Advanced Development Projects.

Among the aerospace publications presented at the LS-DYNA Conferences:

Investigation of *MAT_58 for Modeling Braided Composites

<http://www.dynalook.com/international-conf-2010/Aerospace-1-1.pdf>

Development of Hail Material Model for High Speed Impacts on Aircraft Engine

<http://www.dynalook.com/international-conf-2010/Aerospace-1-2.pdf>

Engine Impeller Sub-Fragmentation Simulation Using EFG Method

<http://www.dynalook.com/international-conf-2010/Aerospace-1-3.pdf>

Modeling Bird Impact on a Rotating Fan: The Influence of Bird Parameters

<http://www.dynalook.com/international-conf-2010/Aerospace-1-4.pdf>

LS-DYNA Implemented Multi-Layer Fabric Material Model Development for Engine Fragment Mitigation

<http://www.dynalook.com/international-conf-2010/Aerospace-1-5.pdf>

Predicting the Dynamic Crushing Response of a Composite Honeycomb Energy Absorber Using Solid-Element-Based Models in LS-DYNA

<http://www.dynalook.com/international-conf-2010/Aerospace-2-5.pdf>



Automotive Information

The Honda Air Concept Vehicle

The picture of the month does not depict use of any software. It is chosen, by FEA Information Inc. staff, solely based on informational interest.

The Honda Air concept vehicle is designed by Honda's Advanced Design Studio, Pasadena, California. It was designed for the "1000 Pound Car Design Challenge," for the LA Auto Show. It is estimated to weigh only 800 pounds

The vehicle takes its lightweight inspiration from skydiving and roller coasters, using compressed air to power its pneumatic regulator system. This system 'utilizes turbo vacuums and external air-flow to regenerate tank pressure for extended range and increased boost for an estimated 100 miles'. To keep the car lightweight, all components are mounted directly to the chassis, eliminating unnecessary structures. The exterior is made from vegetable based plastic wrapped around the body with an open-air style.

Each year for the past seven years, a topical theme is chosen and the major Southern California automotive design studios are invited to compete in the

Design Challenge. For the first time studios from Germany and Japan joined the competition adding an international dimension to the contest. The highly anticipated challenge allows studios to flex their creativity and explore new ideas in automotive design.

The theme this year addressed society's shift toward minimizing consumption of the earth's resources. The objective was to envision an efficient, light-weight, four passenger vehicle (not to exceed 1,000 lbs.), that is both comfortable and safe, while delivering satisfactory driving performance without sacrificing the styling consumers demand.

<http://www.laautoshow.com/DC10/>



LS-OPT Support Site Latest News

November 10, 2010 posting

<http://www.lsoptsupport.com/>

New tool LSTCVM, a secure proxy, available

A popular execution mode for LS-OPT is to run LS-OPT on Windows and the LS-DYNA jobs on a linux cluster. LSTCVM provides a secure connection to the cluster.

LSTCVM avoids security risks associated with rsh/ssh

The file system can be shared or not (latter requires LS-OPT/wrapper executable for transmission)

Interfaces to queuing systems available

LSTCVM is available with LS-OPT Version 4.1.

For further information see LS-OPT Manual.

Updated LS-OPT® Manual available

An updated LS-OPT manual is available for download on

<http://www.lstc.com/manuals.htm>

Future build will include the update as help.

Especially the post-processing section has been updated.



TOPCRUNCH.ORG

SGI/Applications Engineering posted benchmark results Sept - November

Computer/Interconnect	Processor	#Nodes x #Processors per Node x #Cores Per Processor = Total #CPU	Time (Sec)	Benchmark Problem	Submission Date
Altix ICE 8400/Mellanox® Technologies ConnectX-2® IB QDR	Intel® Xeon® Six Core X5680 3.33GHz	1 x 2 x 6 = 12	568	neon refined revised	11/10/2010
Altix UV10/QPI	Intel® Xeon® 8 core X7560 2.27GHz	1 x 4 x 8 = 32	319	neon refined revised	9/19/2010
Altix UV10/QPI	Intel® Xeon® 8 core X7560 2.27GHz	1 x 4 x 8 = 32	3769	3 Vehicle Collision	9/19/2010

For Complete Benchmark Results visit www.topcrunch.org



Panasas® ActiveStor™ 12 (PAS 12)

Brent Welch, Dir., Software Architecture, Panasas, Inc., welch@panasas.com

PAS 12

<http://www.panasas.com/products/pas-12.php>

The fastest HPC storage system in the world

Panasas® ActiveStor™ 12 (PAS 12) brings appliance-like plug-and-play simplicity to large scale storage deployments. It provides industry-leading performance and unrivaled performance per gigabyte for complex business-critical applications. This fourth generation Panasas storage blade system more than doubles performance over the previous generation product, going from 600MB/s to a stunning 1.5GB/s per chassis.

Maximum Performance and Scalable Capacity



PAS 12 easily scales via a modular, buy-as-you-grow blade architecture based on industry standard disk storage. This superior product design provides effortless capacity expansion from 40TB to 4 petabytes (PB) per system at a highly competitive price performance level. Performance scales linearly to a staggering 150GB/s, the industry's highest system throughput per gigabyte of disk storage for a scalable file system.

End-to-End Data Integrity

Only Panasas includes RAID data protection as a component of its file system which removes cost and single points of failure. System-managed parallel rebuilds mitigate the risk of successive drive failures by providing the industry's fastest rebuild times which actually decrease as the size of the storage pool increases. Panasas uniquely permits different RAID configurations for different data files, even within the same volume and storage pool. This allows users to tune performance and reliability characteristics on a file-by-file basis to satisfy data protection requirements of specific storage environments.



Manageability

A Global Namespace presents a single pool of virtualized storage giving customers the flexibility to employ multiple applications and workflows on a single storage system

Feature	Benefit
2.5x Increase in DF Bandwidth Performance	Faster Time-to-Results w/Parallel I/O Clients
2.5x Increase in Meta Data Performance	I/O Improvement for Over Subscribed Volumes
7x Increase in NFS Performance	Competitive NFS Single Client Performance
Write Data Path Power Protection	All Performance Data Includes Data Protection
Faster Rebuild Time	Reduced Probability of Second Blade Failure
Dual Shelf Switch Link Aggregation	High Availability Data Paths with Aggregate Performance
User Quotas	Manage Per-User Capacity Limits. Per User-Charge Back
New Industrial Design	Improved Cooling and Light Status Indicators

RAID Implementation	Benefit
Object Raid	System intelligently assigns RAID levels based on size Automatic transitioning from RAID 1 to RAID 5 without re-striping
Per File Raid	High performance file reconstruction (vs. drive sector reconstruction) Rebuild in hours Parallel rebuild - all blade sets participate in RAID rebuilds
Horizontal (Blade) and Vertical (Disk) Parity Raid	Raid within the individual drive as well as across drives Improves internal ECC capabilities Predicatively solves media errors Significantly lowers drive failure probability

PAS 12 page website:

<http://www.panasas.com/products/pas-12.php>

PAS 12 datasheet:

<http://www.panasas.com/docs/PAS12-DataSheet-PW-10-42800-lores.pdf>

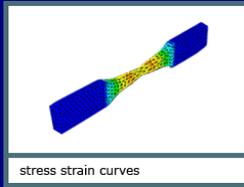
PAS 12 Performance Brief:

<http://performance.panasas.com/wp-pas12performancepaper.html>

PAS 12 press release:

<http://www.panasas.com/company/pressreleases/pr-11-10-2010.php>

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<http://www.datapointlabs.com/>

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Services for:

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- rubber,
- composites,
- foam,
- ceramics,
- food and
- metals.

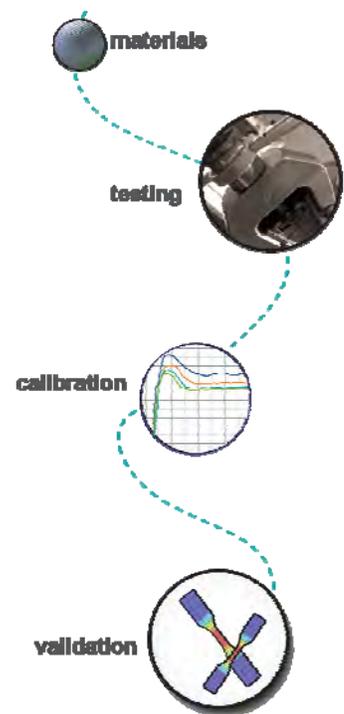
Material Testing at Our Facility

- Done in an ISO 17025 production environment.
- Fully equipped with modern instruments.
- Expert personnel.

A center of excellence

for physical properties of materials in the solid and melt state, including:

- mechanical,
- rheological,
- thermal,
- pVT,
- viscoelastic,
- impact,
- fatigue, and
- creep.



TestPaks® for CAE

DatapointLabs provides CAE material model calibration services with its product line TestPaks®. TestPaks allow users to order all the material testing needed for their CAE, and receive complete material models in digital format, ready for import into their design application. The digital data include raw data, converted data and any validation results.

Delivery

Most TestPaks can be ordered for a five-day delivery (RUSH 48 hour service is also available), and include pre / post material modeling technical support.

LS-DYNA TestPaks®

A sample of our LS-DYNA TestPaks is available below. To view our entire TestPaks catalog and order online, visit www.datapointlabs.com

LS-DYNA High Speed Tensile Rate Dependent Model	5 tensile stress-strain measurements, 0.01, 0.1, 1, 10 and 100/s. Poisson's ratio included. Data ready for Mat 24, MAT 19 or MAT 89.
LS-DYNA High Speed Foam Model	5 compressive stress-strain measurements, 0.01, 0.1, 1, 10 and 100/s. Data ready for Mat 63 or Mat 83 (Fu Chang or other models). Can add bulk and viscous properties.
LS-DYNA Semi-Analytical Model for Plastic (SAMP-1)	5 tensile stress-strain measurements, 0.01, 0.1, 1, 10 and 100/s. unloading curve is generated at quasi-static speed as well as Poisson's ratio data extending into the plastic region. Compression and shear stress-strain data is provided.
LS-DYNA Simplified Rubber with Rate Dependency (MAT 181)	1 tensile + 1 comp test to generate uniaxial data. Can add rate effects with 2 additional tensile and comp tests. Limit rate dependency to either tensile, compression, or both, to reduce cost; add bulk modulus test for additional cost.



Reading Reference Library

Available From
Amazon

	<p>Finite Element Analysis Theory and Application with ANSYS (3rd Edition)</p>		<p>Arbitrary Lagrangian-Eulerian and Fluid Structure Interaction.</p>
	<p>Isogeometric Analysis: Toward Integration of CAD and FEA</p>		<p>NURBS for Curve & Surface Design: From Projective Geometry to Practical Use</p>
	<p>A First Course in Finite Elements</p>		<p>Engineering Numerical Analysis</p>



**D3View
Suri Bala**

**D3View Blog Update
Published by Suri Bala**

**Demo licenses are now available for D3View, developed by Suri Bala
Available through LSTC – sales@lstc.com**

Excerpt of October Postings:

Hybrid LS-DYNA

With the recent growth of multi-core chips, scalability of pure MPP LS-DYNA beyond 128 cores has shown degradation due to several factors including latency and network communications. LSTC has recently developed a new code named "Hybrid LS-DYNA" that provides sustained scalability for large number of cores and also yields digit-2-digit repeatability when changing the number of cores per job.

Mat224 Keyword Manual Pages

Several of you requested the manual pages for the newly developed tabulated Johnson-Cook

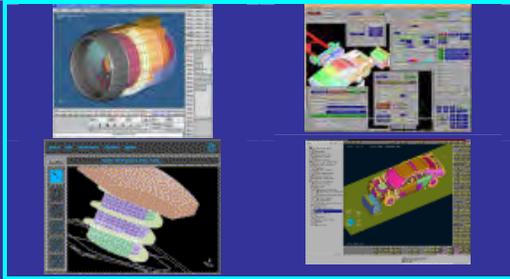
constitutive law now labeled as MAT_224.

Shell Local Material Axis Definition for Orthotropic Material

Most orthotropic material rely on the parameter AOPT to define the change/update the default material axes defined by LS-DYNA.

White Paper Presentation:

[d3VIEW – Collaboration Software For Virtual Product Development](#)



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. μ ETA, 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-PrePost is 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 http://www.leapaust.com.au/ info@leapaust.com.au
Canada	Metal Forming Analysis Corp - MFAC http://www.mfac.com/ galb@mfac.com
China	ETA China http://www.eta.com.cn/ lma@eta.com.cn
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Japan	ITOCHU Techno-Solutions Corp. http://www.engineering-eye.com/ ls-dyna@ctc-g.co.jp
Japan	FUJITSU http://jp.fujitsu.com/solutions/hpc/app/lldyna/

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Netherlands	Infinite Simulation Systems, BV http://www.infinite.nl/ j.mathijssen@infinite.nl
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Russia	State Unitary Enterprise –STRELA info@ls-dynarussia.com



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USA	Engineering Tech. Assc. Inc. – ETA http://www.eta.com/ sales@eta.com
USA	DYNAMAX http://www.dynamax-inc.com/ sales@dynamax-inc.com



Finite Element Analysis

North America Consultants & 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

<p>Located: Texas</p> <p>KBEC Khan Bui</p> <p>(512) 363-2739</p>	<p>Located: Connecticut</p> <p>CAE Associates http://www.caeai.com</p> <p>(203) 758-2914</p>
<p>Located: Oregon</p> <p>Predictive Engineering http://predictiveengineering.com</p> <p>George Laird, Ph.D., P.E. (503) 206-5571</p>	<p>Located: California</p> <p>Schwer Engineering http://schwer.net</p> <p>Len Schwer (707) 837-0559</p>
<p>Located: Illinois</p> <p>APACS Services, Inc. https://sites.google.com/site/apacsservicesinc/</p> <p>Alex Pinsker, Ph.D., P.E. Phone: 847-317-1910</p>	<p>Located: Ohio</p> <p>AEG Product Engineering Svce. http://engineering-group.com support@engineering-group.com</p>



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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 or 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



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
SGI Mips	IRIX 6.5 X
SGI IA64	SUSE 9 w/Propack 4 RedHat w/Propack 3

MPP and Interconnect and MPI For LS-DYNA®

Vendor	O/S	HPC Interconnect	MPI Software
CRAY XD1	Linux		
HP PA8000	HPUX		
HPIA64	HPUX		
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
Crash Test 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

First Technology Safety Systems

<http://www.humaneticsatd.com/virtual-models>



The Official LS-OPT Support site

<http://www.lsoptsupport.com>

SUPPORT SITES FOR LS-DYNA

LS-OPT User's Group on Google

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



TRAINING COURSES

Send listings to
aqiac99@aol.com

For changes for accuracy please see the company websites.

France – AS+ www.asplus.fr

Sweden – ERAB

<http://www.erab.se/courses/>

India - CADFEM India

<http://www.cadfem.in>

US - LSTC Course Coordinator: Cathie Walton

<http://www.lstc.com>

Cathie@lstc.com (248) 649-4728 x221

2011 The full Course Schedule will be posted December issue

Course	Location	Start Date	End Date
ALE / Eulerian & Fluid Structure Interaction	CA	02/16/2011	02/18/2011



UK - Oasys

NEW COURSE OFFERING

JavaScript for Oasys
PRIMER and D3PLOT

Contact: Katherine Groves 0121 213 3399 - katherine.groves@arup.com .

NO FEE – January 20, 2011

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

Duration: 1 Day

This course aims to familiarise attendees with the JavaScript language and teach them to write JavaScripts for Oasys PRIMER and Oasys D3PLOT. No previous experience of JavaScript is required but it is strongly recommended that attendees have some experience of programming or scripting in other languages.

The possible applications of JavaScript in Oasys software include the following (not all of these are covered in the course):

Oasys PRIMER:

- Creating a simple mesh, or test models with standard loading
- Data checking or correcting
- Geometric morphing functions
- Input or output translators, special-format spotweld or connections files
- Automating routine tasks

Oasys D3PLOT:

- Generating your own data components for plotting, calculated from any information already contained in the model or from external files

Course Outline:

• Introduction –

Aims of this course
Which Oasys products have JavaScript?
What is JavaScript?
Examples of use of JavaScript

• PRIMER JavaScript – Part 1

- Basic concepts

• D3PLOT JavaScripts

- Running an existing JavaScript, plotting the data
- The process of writing and debugging scripts
- Writing JavaScripts to calculate new data

• PRIMER JavaScripts – Part 2

- Guidance on Core JavaScript capabilities
- How to use the Oasys JavaScript extensions in PRIMER
- Accessing, modifying and creating keyword data
- Reading and writing external files
- Interacting with PRIMER – picking and selecting
- GUI: Using ready-made windows
- Using command-line commands
- Common errors and how to avoid them

• PRIMER JavaScripts – Part 3

- Using Sets
- Functions within a script
- GUI: create your own menus
- Other topics



TRAINING COURSES DYNAmore

For Full Course List and Dated:

<http://www.dynamore.de/seminars/infodays>

DYNAsart - Getting Started with LS-DYNA

Stuttgart, Dec 14, 2010

Support Day

Stuttgart, Dec 17, 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



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

For Complete Information and full conference announcement:

http://www.beta-cae.gr/conference04_announcement.htm

Being consistent to our biannual appointment, it is our pleasure to invite you to attend the 4th ANSA & μETA International Conference that will be held from June 1st to June 3rd 2011, in Classical Makedonia Palace Hotel, Thessaloniki, Greece.

The principal aims of this event are to bring the CAE Community together with BETA CAE Systems S.A. and to promote an international exchange of the latest concepts, knowledge and development requirements on our flagship software products, ANSA & μETA. Technical papers will be presented outlining the latest advances in CAE strategy, methodology, techniques and applications related to our products. Participants will have the opportunity to be informed about the latest software trends, demonstrate their concepts and achievements and present new development requirements.

Following the success of our previous events and after the request of the majority of the participants, the duration of our 4th conference will be of three days. The closer technical communication with the software developers' team of our products, within

the framework of a technical forum, features this three-day conference.

Further discussions, sessions, meetings and events will allow the interaction between participants and organizers. Senior executives of our company, the engineers from the development and services teams and our business agents from around the world will be glad to meet with customers and users, to discuss the applications, the existing functionality, latest enhancements and future development plans of our software products. We expect that this will be a unique opportunity for you to share your success and for us to share our vision.

The attire of the event is business casual. The language of the event is English.

Important Dates:

Abstracts: February 25th 2011

Acceptance: March 11th 2011

Registration: April 15th 2011

Final manuscripts: April 29th 2011

Presentations files: April 29th 2011

Event: June 1st to June 3rd 2011



**The 8th European
LS-DYNA Users Conference
hosted by
ALYOTECH
May 23rd & 24th, 2011.
Strasbourg (France)**

8th European LS-DYNA© Users Conference Strasbourg - France

The 8th European LS-DYNA Users Conference hosted by ALYOTECH with the support of ARUP, DYNAMORE, ERAB and LSTC. The conference will be an excellent occasion to meet LS-DYNA© users from all over the world and to share LS-DYNA© applications in different areas.

Presentations will cover various LS-DYNA© related topics, new developments and new applications from academic and industrial engineers. An exhibition area will allow to obtain information about the latest software and hardware developments related to LS-DYNA©.

Several training classes will be held immediately before or after the Conference:

- Crash & Impact Modeling
- FSI & ALE in LS-DYNA
- Material Modeling and User-Defined Materials in LS-DYNA
- Modeling & Simulation with LS-DYNA
- SPH & EFG Methods in LS-DYNA
- Optimization with LS-OPT
- Sheet Metal Forming with LS-DYNA & DYNAFORM
- LS-PrePost
- Using LS-DYNA for Heat Transfer with Hot Stamping Applications
- LS-DYNA Applications to Protective structures, blasts, vehicle mines, ...

Known as the European Capital, Strasbourg is home to the Council of Europe, the Human Rights Building and the European Parliament. It is a major hub, making for an easy access to the European LS-DYNA© meeting!

We hope to count you among our participants very soon!

Additional information/ registration:

www.lsdynaec.alyotech.fr



Fluid Structure Interaction 2011

May 9-11, 2011
Orlando Florida, USA

<http://www.wessex.ac.uk/11-conferences/fluidstructureinteraction-2011.html>

Fluid Structure Interaction 2011 is the sixth conference in this successful series, dedicated now to the memory of its originator, the late Professor Subrata Chakrabarti. The series provides a forum for the presentation of new ideas and the latest work in the specialised field of fluid structure interaction.

The principal aim of this conference is to promote international exchange of information and knowledge of fluid structure interaction problems, giving experts from different application fields the opportunity to interact with one another and to provide valuable cross breeding of ideas and techniques.

The conference will encompass a wide range of topics within this area ranging from different types of fluids, such as; wind, current, biofluids and ocean waves to different types of structures; tall buildings, ocean structures, cables, towers, bridges, risers and others. New research for the advancement of interaction problems will be the main focus of the conference. Papers with new

applications to real world problems will be particularly welcome. The basic mathematical formulations of fluid structure interaction and their numerical simulation will also be discussed, as well as their physical modelling. Papers are sought in areas such as advanced analytical techniques, computer and experimental modelling, new applications and verification of interaction.

Organisers:

University of Central Florida, USA
Wessex Institute of Technology, UK

Sponsor

WIT Transactions on the Built Environment

Conference Secretariat

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**Mini-Symposium
Advances in Computational
Mechanics for Security
Applications**

**May 26-28, 2011 on the
island of Corfu, Greece**

<http://www.compdyn2011.org/> COMPDYN 2011 is one of the Thematic Conferences of the European Community on Computational Methods in Applied Sciences (ECCOMAS) and a Special Interest Conference of the International Association for Computational Mechanics (IACM). It has also been promoted by the European Committee on Computational Solids and Structural Mechanics (ECCSM) of ECCOMAS.

David L Littlefield wrote:

Colleagues: Kent Danielson and I are again organizing the mini-symposium entitled "Advances in Computational Mechanics for Security Applications", this time at COMPDYN 2011, which will be held May 26-28, 2011 on the island of Corfu, Greece.

The deadline for abstracts has already passed but we will continue to accept abstracts until DECEMBER 15, 2010.

If you would like to submit an abstract to this mini-symposium, please visit the COMPDYN 2011 website at www.compdyn2011.org.

From there, go to the pre-registration area to set up an account for abstract submission. When you submit your abstract, under the session block, select "MS 2 – Advances in

Computational Mechanics for Security Applications".

We welcome your contributions and look forward to a fruitful and informative interaction on the beautiful island of Corfu.

Best regards,
David and Kent

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**A mini-symposium entitled
"Meshfree and
Generalized/Extended Finite
Element Methods"**

**July 25-29, 2011
Minneapolis, Minnesota**

At the 11th US National Congress on Computational Mechanics

A mini-symposium entitled "Meshfree and Generalized/Extended Finite Element Methods" at the 11th US National Congress on Computational Mechanics

An abstract can be found at
<http://dl.dropbox.com/u/2543463/USNCCM11/3.5%20MS%20Chen.pdf>

You are invited to deliver a presentation in this mini-symposium. **The abstract submission deadline** is January 31, 2011, but we would be glad to know in advance if you plan to submit an abstract.

The abstract can be submitted at
http://www.usnccm.org/index.php?option=com_content&view=article&id=138&Itemid=116

Important conference deadlines can be found at

http://www.usnccm.org/index.php?option=com_content&view=article&id=114&Itemid=99

We look forward to hearing from you.
With best regards,

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- Ivo Babuska, The University of Texas at Austin, USA
babuska@ices.utexas.edu

<http://cm.strumech.citg.tudelft.nl/simone/>

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**The 4th International Conference
on Chaotic Modeling and
Simulation, CHAOS 2011,
Agios Nikolaos, Crete Greece
31 May - 3 June 2011**

✓ **Full Article is Available –
October Issue at <http://www.feapublications.com>**

The forthcoming 4th International Conference (CHAOS2011) on Chaotic Modeling, Simulation and Applications (www.cmsim.org) was decided by the previous Committee meeting in June 2010 following the successful organization of the 3rd CHAOS2010 International Conference.

The study of nonlinear systems and dynamics has emerged as a major area of interdisciplinary research and found very interesting applications. This conference is intended to provide a widely selected forum among Scientists and Engineers to exchange ideas, methods, and techniques in the field of Nonlinear Dynamics, Chaos, Fractals and their applications in General Science and in Engineering Sciences.

The principal aim of Chaos2011 International Conference is to expand the development of the theories of the applied nonlinear field, the methods, empirical data and computer techniques as well as the best theoretical achievements of chaotic theory.

is responsible for the selection and the review process of the papers of his session.

Chaos2010 Conference provides a forum for bringing the various groups working in the area of Nonlinear Systems and Dynamics, Chaotic theory and Application to exchange views and report research findings.

Topics and Special Sessions

The Conference includes three types of presentations

- * Key Note Presentations on the main topics of the Conference selected by the Program Committee;
- * Contributed papers or posters proposed by authors;
- * Special Sessions proposed by people working in a special topic of the Chaotic field and accepted by the Program Committee

Every Special Session includes 4-6 presentations.

The session organizer



**LS-DYNA®
Implicit Hybrid Technology on
Advanced
SGI® Architectures**

**Full Article is Available –
October Issue at <http://www.feapublications.com>**

Abstract: LS-DYNA's implicit solver integration with explicit software allows large time steps transient dynamics as well as linear statics and normal modes analysis. Until recently, this capability could only be run on large Shared Memory Parallel (SMP) systems, where the application had access to large memory address space of the model. Distributed Memory Parallel (DMP) implementation of LS-DYNA's implicit solver now allows the factorization of smaller mass and stiffness matrices of the decomposed problem domain by corresponding tasks in less memory. Performance enhancement through SMP processing is moreover also available in the recently introduced 'hybrid' mode.

This paper demonstrates how advanced SGI computer systems, ranging from SMP servers addressing large memory space through multi-node clusters can be used to architect and accelerate solutions to meet complex analysis requirements.

Introduction

The subject of this paper is to evaluate the use of SGI Octane™ III, Altix® XE, Altix ICE, Altix UV and Altix architectures to Shared Memory Parallel (SMP),

Distributed Memory Parallel (DMP) and their combination (hybrid mode) LS-DYNA implicit analyses. The strategies employed by LS-DYNA and the practical importance of such analyses are described in Refs [2] and [3]. Integrated within its explicit framework, LS-DYNA's implicit technology provides the capability to perform transient analyses with larger time steps as well as usual linear statics and modal analyses. How to best use SGI hardware is described in Ref [4].

1. Benchmark Description

The benchmarks used are identical physical problems as in Refs [2] and [3] available in meshes of 100K, 500K, 1M, 2M, 4M, up to 20M nodes. The model represents 6 nested cylinders held together with surface to surface contact, meshed with single elastic material solid elements.

A prescribed motion on the top and a load on the bottom are imposed for one nonlinear implicit time step with two factorizations, two solves and four force computations



PreSys
2010 R1 Release

*Improving FE Modeling
Capabilities*

**Full Article is Available –
October Issue at <http://www.feapublications.com>**

The R1 update of its finite element modeling software, PreSys is available immediately through ETA and its world-wide distribution network, this update delivers new features which enhance the software's ability to quickly and efficiently create complex simulation models and visualize simulation results.

A core solution for finite element analysis engineers, PreSys is an efficient, cost-effective software tool, which interfaces with popular CAD software products such as CATIA, Unigraphics, ProEngineer, Solidworks and AutoCAD. It allows product development engineers and simulation specialists to access design data and quickly create simulation models.

The software's extensive toolset features the ability to create a wide variety of insightful simulations which include durability, vibration,

crashworthiness and fluid-structure interaction models. It interfaces seamlessly with LS-DYNA, MSC/NASTRAN, NX NASTRAN and NEI NASTRAN.

In addition to the model creation tools, PreSys provides users with complete results visualization and reporting capabilities. Users can create detailed images of simulation results, communicating important details regarding the product's behavior under simulated loadings. In addition, users can examine graphs of various simulation results, comparing the results of various simulations.

Building upon its initial release in June of 2010, the updated version of PreSys provides the most complete and advanced toolset on the market.

The software tool is available on the Windows platform, directly through ETA and its distributor network. To find out more, please visit www.eta.com



The ANSA Kinematics Tool

A Solver for performing complex mechanism movements

Full Article is Available –

October Issue at <http://www.feapublications.com>

Introduction: One of the greatest burdens of crash/safety simulation pre-processing is the fast and accurate positioning and articulation of kinematic mechanisms. Such mechanisms can be the occupant seat, the crash-test dummy, the seat with the dummy positioned on it, suspensions, rooftops, hoods etc.

Most of the software available in the market today, used for the above operations, requires advanced knowledge of dynamics in order to model and simulate these types of mechanisms. In addition, a detailed knowledge of the mechanism's structure is required for the set-up and use of such software.

On the other hand, ANSA's Kinematics Tool was developed to provide the CAE engineer with the ability to easily set-up and simulate the movement of mechanisms models without requiring a deep knowledge of the mechanisms' kinematics from the engineer.

An Implicit Multibody Dynamics solver (HHT-13), wrapped around by a user-friendly interface, has been integrated within ANSA, in order to allow the users to efficiently and easily position such complex kinematics mechanisms.

Basic Concepts of the Kinematics Tool

Kinematic Rigid Bodies and Joints

The Kinematics Tool automatically extracts kinematic rigid bodies and kinematic joints from the FE model. The two main ways for the automatic identification of the definition of a kinematic mechanism is by:

- Model Connectivity: The tool automatically detects the connectivity of the model and separates the model into the appropriate kinematic rigid bodies and joints.

- Sets: This technique is more common in defining seat mechanism. The seat manufacturers usually provide the kinematic rigid bodies as nodal sets. Providing this set to the tool, the appropriate kinematic rigid bodies and joints are created.

References: -ANSA v13.1.1 User's Guide, BETA CAE Systems S.A., October 2010 - Information contact BETA CAE Systems S.A. ansa@beta-cae.gr