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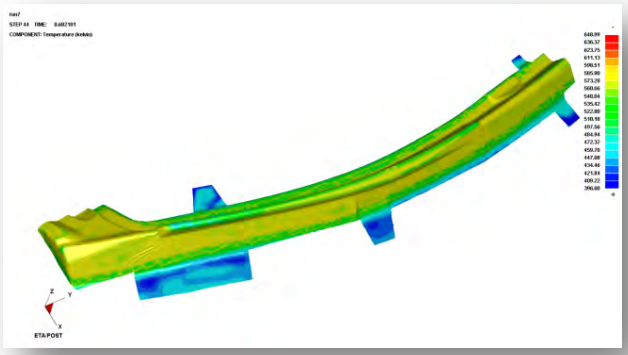

ETA DYNAFORM

CRAY S300

NASA

Airbus

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

FEA Information Inc. Publishes:

FEA Information Engineering Solutions

FEA Information Engineering Journal

FEA Information China Engineering Solutions

FEA Information Engineering Solutions:

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

FEA Information China Engineering Solutions

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

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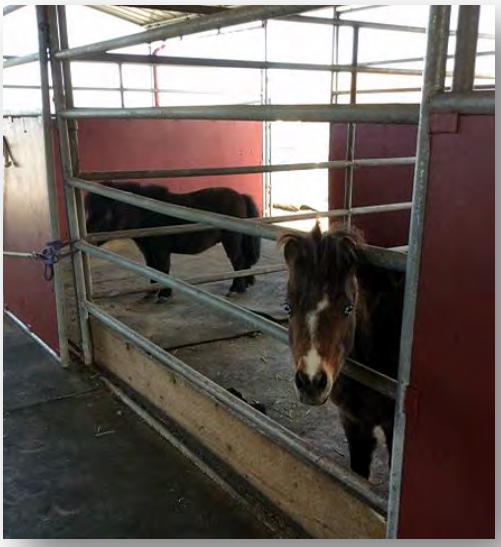
ETA	BETA CAE Systems	Datapoint Labs	ESI Group
Oasys	GOMPUTE	JSOL	D3VIEW
LSTC	CRAY	PENGUIN	

Guest Announcement: Registration sponsor at The 13th Int'l LS-DYNA Conference: 3DXCITE's DELTAGEN Real Impact™ solution for LS-DYNA.

For participation in FEA Information Engineering Solutions, contact Anthony Giaccana agiac99@aol.com



Quincy & Dusty – Back Home With Us!

Thank you CADFEM
&
Rebecca Mueller

Sincerely, Marsha Victory, Trent Eggleston - FEA Information Inc. USA edition

Complete Information will be posted in May Edition

POD (Penguin Computing on Demand offers software including LSTC's LS-DYNA
www.penguincomputing.com/services/hpc-cloud

Penguin HPC clusters are optimized for engineering workloads and offer:

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Self Registration Portal – featuring rich--documentation, wiki, FAQ, pricing and more.
https://pod.penguincomputing.com/

Join us at the following Events

LS-DYNA® International Conference
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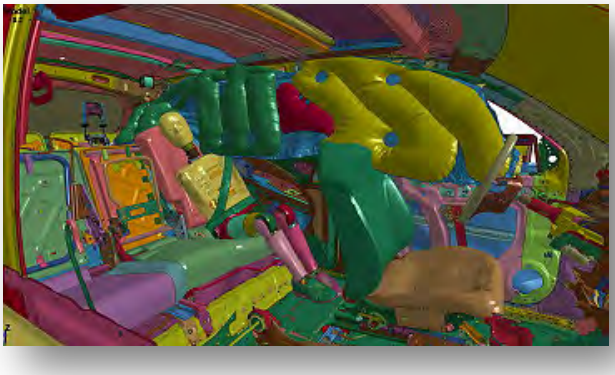
Crash Simulation Visualization Helps Honda Improve Product Development



3DXCITE's DELTAGEN Real Impact™ solution for LS-DYNA. This visualization tool is able to realistically render crash simulation output so that it looks very similar to videos of actual crash tests. The software also allows users to manipulate results so that, for example, the body and other parts can be stripped away to focus on the impact of the crash on components of interest. "*We have gained the potential to improve the quality of decisions and reduce the time required for technical review by greatly increasing the understandability of crash simulation results*," said Eric DeHoff, Technical Leader for CAE in the Crash Safety Group, Honda R&D Americas, Inc.

Ensuring that a vehicle design meets crashworthiness and crash compatibility standards is one of the most critical aspects of the product development process. Over the past few decades, vehicle manufacturers have reduced the number of physical crash tests and replaced them with increasingly accurate computer simulations that evaluate a design's ability to withstand a particular type of crash. A common challenge faced by Honda R&D Americas, Inc. and other automobile manufacturers is unrealistic looking results generated by crash simulation software. Non-simulation experts have difficulty understanding them and utilizing them in the decision-making process.

Honda is overcoming these challenges by using 3DXCITE's DELTAGEN Real Impact™ solution for LS-DYNA. This visualization tool is able to realistically render crash simulation output so that it looks very similar to videos of actual crash tests. The software also allows users to manipulate results so that, for example, the body and other parts can be stripped away to focus on the impact of the crash on components of interest. "We have gained the potential to improve the quality of decisions and reduce the time required for technical review by greatly increasing the understandability of crash simulation results," said Eric DeHoff, Technical Leader for CAE in the Crash Safety Group, Honda R&D Americas, Inc.

Importance of crash simulation

Demands on automobile manufacturers for reductions in fuel consumption and CO2 production are making it essential to reduce vehicle weight. Vehicle manufacturers are using a variety of approaches such as replacing conventional materials with advanced high strength steel grades, aluminum and magnesium alloys and composite materials. These materials often behave differently than conventional materials in a crash. This, in turn, increases the need for evaluating multiple design scenarios for the vehicle to meet safety targets. Crash simulation helps evaluate the performance of these design alternatives at a much lower cost and in less time.

The latest generation of crash simulation codes provides the ability to accurately simulate the performance of design iterations with respect to specific crash test scenarios. These codes also provide much more information than can be captured by sensors during a physical test. A physical crash test remains the gold standard of crashworthiness evaluation and the test that every vehicle must meet before it is introduced to the market. LS-DYNA, the crash simulation software used by Honda R&D Americas, Inc., is a multi-purpose explicit and implicit finite element program. It is employed to analyze the nonlinear response of structures.

Engineers with special training and considerable experience in this demanding technical field typically perform the crash simulations. Based on their results, engineers change design parameters like geometries and materials in an effort to meet regulatory standards, consumer information tests and internal company targets that are often even more demanding. At various points in the development process, a technical evaluation committee reviews crash simulation results and is responsible for making decisions that encompass whether or not to move forward with a proposed design. These members are comprised mostly of engineering managers who typically are not experts in simulation in general, or crash simulation in particular. During reviews, the engineers who performed the simulation present the results comprised of multi-colored, animated models that depict the deflections and contacts predicted by the crash simulation.

Problems in understanding simulation output

"The renderings provided by the base post-processing software look cartoonish," DeHoff said. "Even though these animations accurately reflect the physics of the simulation, their clown-colored appearance robs them of credibility and makes them difficult to understand. Another limitation is that the low resolution rendering of the models makes it difficult to distinguish between actual damage caused by the crash and mathematical artifacts that sometimes appear in simulation results. The engineers who perform the simulations could easily make this determination but the managers could not which again detracted from the credibility of the animations." DeHoff spoke to colleagues at other automotive companies about how they were handling this problem. None had found an internal solution. A few used a production company from the entertainment industry to render the animations. This was very expensive and also took weeks or months to get final results.

In an effort to address these problems, Honda assigned an on-staff computer graphics expert to upgrade the simulation output. It took the expert approximately three weeks to render one crash simulation. This was far too slow, especially when considering that Honda runs approximately 400 crash simulations per month among its many developmental projects. Perhaps three or four per month are critical simulations to be reviewed in technical evaluation meetings. Additionally, the renderings that were created by this method were frozen. It was impossible to review another angle or remove the body from the simulation; none of this could be achieved without redoing the rendering from scratch. "We wanted a tool that would enable all of our crash simulation experts to render their simulations as needed - in minimal time and without having to spend much time in training," DeHoff said. "We talked to Tim Ventura from 3DXCITE, who provided us with a few innovative FEA software solutions in his previous life and understood our challenges very well. He explained that 3DXCITE developed 3D visualization software called DELTAGEN - software that brings CAD data to life. We needed a way for DELTAGEN to talk to LS-DYNA and to, as much as possible, automate the rendering process."

Simplifying the rendering task

3DXCITE took on the task of rendering LS-DYNA results with DELTAGEN. In five months the company wrote an LS-DYNA translator and developed an interface designed for simulation engineers. The resulting software runs as a plugin within DELTAGEN on an engineering workstation equipped with a high-end graphics card. The engineer loads LS-DYNA simulation results (d3plot files) and gives the command to render the output and sets up the parameters that define how the rendering is to be created. The plug-in then works in the background to load each of the 100 or so simulation states comprising the animation into memory. "We tried to make the process push-button simple because engineers already have enough to do and we didn't want to add to their task," said Tom Celusnak, Solutions Architect for 3DXCITE. DELTAGEN renders the animation with realistic lighting and shading. It takes about 30 hours to render a crash simulation on an engineering workstation and processing can be offloaded to a computing cluster for even faster turnaround. "The resulting rendering looks like a real car crash rather than a computer simulation," expressed DeHoff.

"I showed it to a manager that frequently sits on technical evaluation boards and his jaw dropped," DeHoff revealed. "He commented that it was much easier to understand the crash simulation output after it had been rendered with DELTAGEN. Non-crash experts can easily evaluate the technical results and make sure the technical prospect is good before continuing onto the development process. These high quality, rendered animations help reduce time spent trying to understand the crash simulation and affords the technical review committee more time to discuss design improvements. The greatest potential advantage is the advancements gained by improved crash simulation technology will help technical advisory committees make better decisions to ultimately help improve driver and passenger safety."

Manipulating renderings in real time

Live rendering in DELTAGEN enables a presenter to zoom, pan, or rotate the image. Furthermore, they can remove parts from the animation to reveal what is happening under the skin of the vehicle in realtime – a key improvement on existing processes. In evaluations, the user can spin the model around and even gain perspective underneath the car; they can remove the doors or roof of the vehicle and zoom in on the interior. The model can also be displayed in 3D, viewable with 3D glasses. Stereoscopic presentation provides a better spatial understanding of complex structures by providing a better view of how sheet metal crumples in a crash, for example. The ability to represent different materials and textures on interior components like the air bag increases the realism of the animation.

"We are working hard to integrate the rendered crash simulations into our product development process," DeHoff concluded. "We are about 75% of the way there with some work left to do on the infrastructure and methods to get the rendering to run in the background. In the meantime, I presented the renderings to a vice-president and several managers who sit on technical evaluation committees and in most cases, they thought the results were videos of actual crash simulations. They immediately saw benefits from their perspective and they urged me to start using the renderings as part of the product development process as soon as possible."

3DXCITE

the DELTAGEN Real Impact™ tool

Visit our booth

13th International LS-DYNA® Conference

www.ls-dynaconferences.com

Dearborn, MI on June 08-10, 2014.

For more information:

the DELTAGEN Real Impact™ solution

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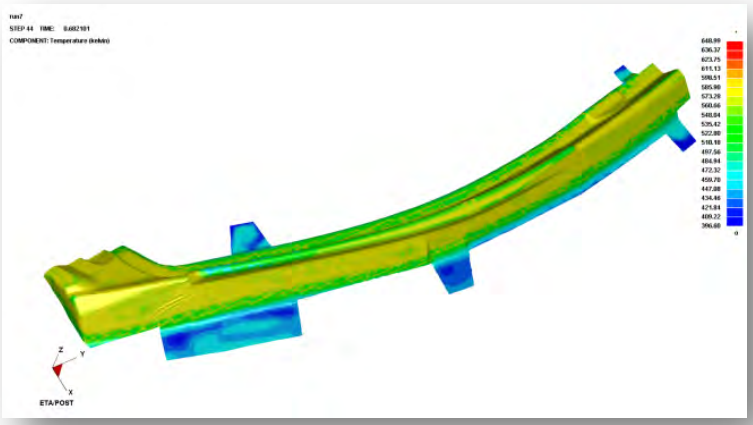

Hot Forming A-Pillar with Patch - Part Temperature Simulation

ETA to Sponsor LS-DYNA Conference: ETA is proud to be the Gold Sponsor of the 13th Int'l LS-DYNA Users Conference in Dearborn, MI on June 08-10, 2014. **Please visit ETA in booth #100.**

DYNAFORM 5.9.2 TO BE RELEASED WITH ADD-ONS

ETA to Sponsor Upcoming LS-DYNA Conference

ETA is proud to be the Gold Sponsor of the 13th International LS-DYNA Users Conference in Dearborn, MI on June 08-10, 2014. Please visit ETA in booth #100.

DYNAFORM 5.9.2 TO BE RELEASED WITH ADD-ONS

Software Release Offers Solutions for Trim Line Development, Rotary Tube Bending, Hot Forming & Die Structure Cooling

Engineering Technology Associates, Inc. (ETA) will introduce DYNAFORM Version 5.9.2 at the upcoming LS-DYNA Conference this June.

DYNAFORM is a simulation software solution, which analyzes the entire die system and allows organizations to bypass soft tooling, reducing tryout time, lowering costs, and improving cycle times and productivity. This latest release offers many new and improved features, as well as brand new add-ons for Trim Line Development, Rotary Tube Bending Design & Analysis, Hot Forming and Die Structure Cooling.

A major new feature in the new release is the *Trim Line Development* Add-on. It offers multiple stage trim line development simulation capabilities. It uses an iterative approach for simulating trimming during metal stamping, which ensures that final trim line result matches the target line.

Another functional new feature in DYNAFORM Version 5.9.2 is the *Rotary Tube Bending* Add-on. This allows the user to calculate the tube (product) centerline, generate the bending process automatically, edit, review and analyze the bending process through simulation. The user can also preview the tools movement through the bending process via the simulation.

Hot Forming Simulations will now be possible with DYNAFORM. Hot forming occurs when hot sheet metal is contacted by a hot die and a hot punch and held in the forming process for a specified period. Using this add-on, the hot forming process can be simulated, while the user can accurately predict the result under different blank and tool temperatures.

The Die Structure Cooling Add-on, implemented in a special version of ETA's PreSys software environment, uses tetra mesh generation plus a transient thermal solver showing the temperature history during stamping cycles.

About Engineering Technology Associates, Inc. (ETA)

Advanced product development engineers working as structural analysts for the world's largest automotive manufacturers established Engineering Technology Associates, Inc. (ETA) in 1983. ETA's expertise in the areas of vehicle durability, NVH, metal forming, crashworthiness, occupant safety and product design have provided an intimate knowledge of the challenges and needs of the product development engineer. Proactive in the creation and implementation of new analysis methods and software, ETA is the developer of the Inventium Suite, DYNAFORM and VPG. ETA is a subsidiary of Cranes Software International Limited (CSIL)

For further information about ETA and its products, please visit http://www.eta.com, email etainfo@eta.com or call (248) 729-3010.

Website: www.eta.com

Email: etainfo@eta.com

Phone: +1.248.729.3010

DETROIT – GMC today introduced the 2015 Sierra All Terrain HD, a refined, off-road-inspired execution of the brand's capability that blends exclusive design features with the versatility of 4WD. It goes on sale this summer.

"The new 2015 GMC Sierra HD lineup helps customers tackle tough jobs more comfortably, and with the new All Terrain HD, they can do it with greater style," said Duncan Aldred, vice president of GMC Sales and Marketing. "Equally comfortable whether it's a night on the town or traversing a remote job site, it has all the capability that customers demand from a GMC heavy-duty truck on the job."

The new Sierra All Terrain HD is available on 2500HD and 3500HD double cab and crew cab models, and is offered with SLE or SLT trims – all with 4WD, of course, including an electronically controlled transfer case. Also included is the Z71 Off Road package, with Rancho twin-tube shocks, hill descent control and a skid plate.

Sierra HD's 6.0L gas engine is standard and the Duramax turbo-diesel is available.

The All Terrain's exclusive design features include a chrome surround on the grille, exterior graphics, aluminum underbody shields and unique 18-inch six-spoke chrome cast-aluminum wheels. Twenty-inch chrome aluminum wheels are available on 2500HD, while 3500HD models also include adjustable outside camper mirrors with a chrome cap.

Additional exterior content includes light-emitting diode signature headlamps, body-color bumpers (chrome bumpers available), chrome mirrors covers and body side moldings and chrome front-lower bumper plate. Inside, a carbon fiber-inspired theme distinguishes the All Terrain from other models and includes the ALL TERRAIN logo on the instrument cluster. A rearview camera system also is standard.

The new All Terrain HD also includes the latest connectivity technology, including IntelliLink and new OnStar with 4G LTE and standard built-in Wi-Fi hotspot. Enhanced features for IntelliLink include Text Messaging Alerts for smartphone users with Bluetooth profile (M.A.P.), which reads incoming texts through the vehicle's speakers, and Siri Eyes Free for iPhone iOS 6 and iOS 7 users to enhance connectivity and convenience.

New OnStar with 4G LTE connection provides a mobile hub for drivers and passengers to stay connected. The hotspot is on whenever the vehicle is on and comes with a three-month/three-gigabyte data trial.

Additional new and enhanced features introduced on the 2015 Sierra HD lineup include:

- CornerStep rear bumper, EZ Lift and Lower tailgate, standard locking tailgate, standard upper tie-downs and other features that make cargo handling easier
- Standard StabiliTrak with Trailer Sway Control on all models
- Integrated cruise control, auto grade braking and diesel exhaust braking, for greater driving control and reduced brake wear on grades
- Enhanced cooling airflow, which enables the Duramax turbo diesel and 6.0L gas engine to better maintain full power, even under heavy loads and high ambient temperatures
- New Duralife™ disc brake rotors that offer up to double the service life (late availability).

New, heated, power-adjustable trailering mirrors are offered on SLE and SLT – including All Terrain – and Denali (late availability), including segment-first back-up lamps. The large mirrors feature 51 square inches of flat mirror surface positioned over a 24.5-square-inch non-heated or power-adjustable convex mirror surface. A new auxiliary back-up lamp is integrated in each mirror to enhance trailer visibility when backing up, as well as an amber auxiliary clearance lamp. The SLE trailering mirror is black and can be extended and folded manually. The SLT/Denali mirror has a chrome cap and adds a power-folding feature.

The 2015 Sierra HD also offers segment-exclusive safety features such as forward collision alert, lane departure warning with an active safety seat, and front and rear park assist. Head-curtain and seat-mounted side airbags are standard on 2500HD and available on 3500HD models.

All models are backed by GMC Pro Grade Protection, with two years of scheduled maintenance – including diesel exhaust fluid – a three-year/36,000-miles bumper-to-bumper warranty and a five-year/100,000-mile powertrain warranty.

About GMC

GMC has manufactured trucks since 1902, with innovation and engineering excellence built into all GMC vehicles. The brand is evolving to offer more fuel-efficient trucks and crossovers, including the Terrain small SUV and Acadia crossover. GMC's highest-volume vehicle, the Sierra pickup, is the most powerful light duty pickup on the market, and the first full-size pickup to receive the highest possible five-star Overall Vehicle Score for safety since the National Highway Traffic Safety Administration changed its New Car Assessment Program for the 2011 model year.

Details on all GMC models are available at http://www.gmc.com/,

on Twitter at @thisisgmc

or at http://www.facebook.com/gmc.

News Release

The University of Tsukuba in Japan Puts Additional Cray CS300 Cluster Supercomputer Into Production

SEATTLE, WA -- (Marketwired) -- 05/20/14 -- Global supercomputer leader Cray Inc. (NASDAQ: CRAY) today announced that the Center for Computational Sciences (CCS) at the University of Tsukuba in Japan has put another Cray® CS300™ cluster supercomputer into production -- the second Cray CS300 system unveiled at the University in the last six months.

With the addition of the new Cray CS300 system, named "COMA (PACS-IX)," which stands for Cluster Of Many-core Architecture processors, and the previously announced High Accelerated Parallel Advanced system for Computational Science (HA-PACS) system, the University now has two petascale Cray cluster supercomputers.

COMA is the ninth generation of the PACS series of supercomputers at the University of Tsukuba, which has been conducting scientific research on its systems for more than 30 years. The COMA system utilizes Intel® Xeon® processors and Intel® Xeon Phi™ coprocessors, and will provide the CCS user community with a powerful tool for performing research in the areas of space physics, theory of elementary particles, life sciences and material sciences.

"At this moment, COMA is the largest cluster system in Japan to employ Intel Xeon Phi coprocessors," said Prof. Taisuke Boku, Chair of the Administrative Committee for Computer Systems at the Center for Computational Sciences at the University of Tsukuba. "With the sophisticated implementation of the Cray CS300 system, COMA occupies an incredibly small footprint for a petaflop supercomputing system. We are focused on accelerated computing technologies for scientific computing. It is quite interesting to now have the ability to research and compare the performance characteristics of two different types of accelerators -- the GPUs on our HA-PACS system and the Intel Xeon Phi coprocessors on our COMA system."

Focused on promoting scientific discovery through the application of advanced computing technologies, CCS supports computational scientific research in Japanese universities and institutes by operating advanced computing systems. The Center performs research on critical issues in fundamental science, material science and environmental science by performing large-scale simulations and large-scale data analysis.

"We are honored that one of Japan's most prestigious high performance computing facilities, and a recognized leader in accelerated computing, has once again chosen a Cray cluster supercomputer to deliver breakthrough scientific results across a wide range of disciplines," said Mamoru Nakano, president of Cray Japan. "We look forward to continuing to build a collaborative partnership between CCS and their users. The addition of this new Cray system at the University is another example of our continued drive to expand our presence in Japan and across the broader Asia Pacific region."

The Cray CS300 series of cluster supercomputers are scalable, cluster solutions that group optimized, x86 industry-standard building block server platforms into a unified, fully-integrated system. Available with air or liquid-cooled architectures, Cray CS300 systems provide superior price/performance, energy efficiency and configuration flexibility. The systems are integrated with Cray's HPC software stack and include software tools compatible with most open source and commercial compilers, schedulers, and libraries. Cray CS300 systems also feature the Cray Advanced Cluster Engine, an essential management software suite designed to provide network, server, cluster and storage management capabilities that are necessary to run large, complex technical applications.

For more information on Cray CS300 cluster supercomputers, please visit www.cray.com/CS300 .

About Cray Inc.: Global supercomputing leader Cray Inc. (NASDAQ: CRAY) provides innovative systems and solutions enabling scientists and engineers in industry, academia and government to meet existing and future simulation and analytics challenges. Leveraging 40 years of experience in developing and servicing the world's most advanced supercomputers, Cray offers a comprehensive portfolio of supercomputers and big data storage and analytics solutions delivering unrivaled performance, efficiency and scalability. Cray's Adaptive Supercomputing vision is focused on delivering innovative next-generation products that integrate diverse processing technologies into a unified architecture, allowing customers to meet the market's continued demand for realized performance. Go to www.cray.com for more information.

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Source: Cray Inc.

(Source: Airbus; issued May 22, 2014)

The A350 XWB Is Proving Itself In Flight Evaluations Leading to Certification This Year

Airbus is continuing the "no surprise" flight programme for its A350 XWB, with more than 1,700 hours logged in preparation for certification later this year – clearing the way for deliveries to customer airlines.

One of the four A350 XWBs currently involved in the programme took a brief time-out to join opening day ceremonies at this week's ILA Berlin 2014 Air Show, and then departed for the continuation of its work. A fifth aircraft is being prepped to join the test and certification effort, with its maiden takeoff planned in the coming weeks.

The A350 XWB is living up to expectations as the developmental aircraft are being put through their paces, according to Wolfgang Absmeier, an Airbus experimental test pilot who has been fully involved in the A350 XWB's flight test programme.

"One of the surprises with this 'carbon airplane' is that we've had no surprises," Absmeier explained. As an example, he noted the critical flutter testing – to which every new aircraft is subjected, determining the dynamic aeroelasticity – was performed within one week for the A350 XWB, compared to six weeks for the A380.

With over 70 per cent of the A350 XWB's weight-efficient airframe composed of advanced materials combining composites (53 per cent) titanium and modern aluminium alloys – the A350 XWB is setting new standards for commercial airliners.

Among the many flight programme milestones achieved to date are the validation of the advanced high-lift devices on the A350 XWB's highly efficient wings, measurement of the aircraft's noise footprint in the vicinity of airports, runway water injection trials, icing tests and high-altitude airport operations in Bolivia.

This activity is supported by extensive ground-based and flying testbed resources – ranging from the "iron bird" for systems integration to test rigs for the cabin, fuel circuits and the landing gear. More than 13,200 cumulative hours have been logged on these "zero test" means.

http://awg.lstc.com
The LS-DYNA® Aerospace Working Group (AWG)

The LS-DYNA® Aerospace Working Group (AWG) is a partnership of federal agencies, corporations, and universities working together to develop and publish aerospace test cases and modeling guidelines for finite element analyses with LS-DYNA®.

This image shows galaxies clumped together in the Fornax cluster, located 60 million light-years from Earth. The picture was taken by WISE, but has been artistically enhanced to illustrate the idea that clumped galaxies will, on average, be surrounded by larger halos of dark matter (purple).

Image Credit: NASA/JPL-Caltech

A survey of more than 170,000 supermassive black holes, using NASA's Wide-field Infrared Survey Explorer (WISE), has astronomers reexamining a decades-old theory about the varying appearances of these interstellar objects.

The unified theory of active, supermassive black holes, first developed in the late 1970s, was created to explain why black holes, though similar in nature, can look completely different. Some appear to be shrouded in dust, while others are exposed and easy to see.

The unified model answers this question by proposing that every black hole is surrounded by a dusty, doughnut-shaped structure called a torus. Depending on how these "doughnuts" are oriented in space, the black holes will take on various appearances. For example, if the doughnut is positioned so that we see it edge-on, the black hole is hidden from view. If the doughnut is observed from above or below, face-on, the black hole is clearly visible.

However, the new WISE results do not corroborate this theory. The researchers found evidence that something other than a doughnut structure may, in some circumstances, determine whether a black hole is visible or hidden. The team has not yet determined what this may be, but the results suggest the unified, or doughnut, model does not have all the answers.

"Our finding revealed a new feature about active black holes we never knew before, yet the details remain a mystery," said Lin Yan of NASA's Infrared Processing and Analysis Center (IPAC), based at the California Institute of Technology in Pasadena. "We hope our work will inspire future studies to better understand these fascinating objects."

Yan is the second author of the research accepted for publication in the Astrophysical Journal. The lead author is post-doctoral researcher, Emilio Donoso, who worked with Yan at IPAC and has since moved to the Instituto de Ciencias Astronómicas, de la Tierra y del Espacio in Argentina. The research also was co-authored by Daniel Stern at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, and Roberto Assef of Universidad Diego Portales in Chile and formerly of JPL.

Every galaxy has a massive black hole at its heart. The new study focuses on the "feeding" ones, called active, supermassive black holes, or active galactic nuclei. These black holes gorge on surrounding gas material that fuels their growth.

With the aid of computers, scientists were able to pick out more than 170,000 active supermassive black holes from the WISE data. They then measured the clustering of the galaxies containing both hidden and exposed black holes -- the degree to which the objects clump together across the sky.

If the unified model was true, and the hidden black holes are simply blocked from view by doughnuts in the edge-on configuration, then researchers would expect them to cluster in the same way as the exposed ones. According to theory, since the doughnut structures would take on random orientations, the black holes should also be distributed randomly. It is like tossing a bunch of glazed doughnuts in the air -- roughly the same percentage of doughnuts always will be positioned in the edge-on and face-on positions, regardless of whether they are tightly clumped or spread far apart.

But WISE found something totally unexpected. The results showed the galaxies with hidden black holes are more clumped together than those of the exposed black holes. If these findings are confirmed, scientists will have to adjust the unified model and come up with new ways to explain why some black holes appear hidden.

"The main purpose of unification was to put a zoo of different kinds of active nuclei into a single umbrella," said Donoso. Now, that has become increasingly complex to do as we dig deeper into the WISE data."

Another way to understand the WISE results involves dark matter. Dark matter is an invisible substance that dominates matter in the universe, outweighing the regular matter that makes up people, planets and stars. Every galaxy sits in the center of a dark matter halo. Bigger halos have more gravity and, therefore, pull other galaxies toward them.

Because WISE found that the obscured black holes are more clustered than the others, the researchers know those hidden black holes reside in galaxies with larger dark matter halos. Though the halos themselves would not be responsible for hiding the black holes, they could be a clue about what is occurring.

"The unified theory was proposed to explain the complexity of what astronomers were seeing," said Stern. "It seems that simple model may have been too simple. As Einstein said, models should be made 'as simple as possible, but not simpler.'"

Scientists still are actively combing public data from WISE, put into hibernation in 2011 after scanning Earth's entire sky twice. WISE was reactivated in 2013, renamed NEOWISE, and given a new mission to identify potentially hazardous near-Earth objects.

For more information about NEOWISE, visit:
http://neo.jpl.nasa.gov/programs/neowise.html

For more information about WISE, visit:
http://www.nasa.gov/wise

-end-

J.D. Harrington - Headquarters, Washington
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j.d.harrington@nasa.gov

Whitney Clavin -
Jet Propulsion Laboratory, Pasadena, Calif.
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CADFEM GmbH June Event CADFEM GmbH

June 4 – 6, 2014

32nd CADFEM USERS' MEETING 2014 - June 4 – 6, 2014; NCC Ost, Nuremberg, Germany
For Full Information please visit the website - www.usersmeeting.com

The Numerical Simulation Conference

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DYNAmore June Event DYNAmore

June 03, 2014

Invitation to LS-DYNA Information Day (free of charge)

LS-DYNA – The Numerical Simulation Program for Numerous Applications

Venue: DYNAmore GmbH, Stralauer Platz 34, 10243 Berlin, Germany

DYNAmore invites you to participate at the free-of-charge information day on 3 June 2014 in Berlin, Germany. The aim behind this event is to inform you about the general-purpose computational software LS-DYNA and its associated optimization program LS-OPT.

Pre- Conference Seminar
Using LS-DYNA for Heat Transfer Analysis & Coupled Thermal-Stress
Sunday, June 8, 2014 9am - 5pm
Location: Adoba Hotel

LSTC 1 Day Seminar

Instructor: Dr. Arthur Shapiro
Registration: $ 50.00 Students $ 30.00
Contact: vic@lstc.com

Description: This class provides guidelines in using the heat transfer capabilities in LS-DYNA to model coupled thermal-stress problems with a focus on hot stamping manufacturing operations. It is intended for people with a background in using LS-DYNA for computational mechanics, but who are not familiar with modeling heat transfer or coupled thermal-stress.

May

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09 JSOL - HYCRASH
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12 BETA CAE Systems S.A. ANSA & µETA v14.2.
14 LSTC - DES Discrete Element Sphere
15 Cray - Cray to Install Tiered Adaptive Storage Solution at the North German Supercomputing Alliance (HLRN)
17 MSC Software - The Jury Has Spoken
18 Penguin - POD (Penguin Computing on Demand
19 AEROSPACE X-29 research aircraft

March FEA Information Engineering Solutions

06 AEROSPACE X-29 research aircraft
08 BMW i8 Delivery in June
10 OASYS Software HPM / HRMD Positioning Tool
11 SEID KORIĆ New World Record in Parallel Scaling
13 CAE Associates Aerodynamic Analysis of an Airbrake System
14 Predictive Engineering Respirator Modeling
15 Gompute User Meeting
16 FORD Analyzing NASA's Robonaut 2
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February FEA Information Engineering Solutions

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

BETA CAE Systems S.A.– ANSA

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

BETA CAE Systems S.A.– μETA

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

CRAY www.cray.com

Cray CS300-AC Cluster Supercomputer

§ The Cray CS300-AC cluster supercomputer features an air-cooled architecture based on blade server or rackmount server building block platforms. The system is built for capacity and data-intensive workloads. It delivers turnkey high performance computing with a broad range of flexible system configuration options.

§ The CS300-AC system features two new preconfigured ready-to-go solutions, the CS300 shared memory parallel and the CS300 large memory systems.

Cray CS300-LC Cluster Supercomputer

§ The Cray CS300-LC cluster solution features a direct liquid-cooled architecture using warm water heat exchangers instead of chillers. It delivers a turnkey, energy-efficient solution that reduces datacenter power and cooling operation costs for faster ROI while addressing capacity and data-intensive workloads.

Cray XC30 Supercomputer Series

§ The Cray XC30 family delivers on Cray's commitment to an adaptive supercomputing architecture that provides both extreme scalability and sustained performance. The flexibility of the Cray XC30 platform ensures that users can configure the exact machine to meet their specific requirements today, and also remain confident they can upgrade and enhance their system to address the demands of the future.

Cray Sonexion Scale-out Lustre Storage System

§ Brought to you by Cray, the world's leading experts in parallel storage solutions for HPC and the technical enterprise, the Cray Sonexion is a fully integrated, modular and compact scale-out storage system for Lustre.

DatapointLabs **www.datapointlabs.com**

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

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

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

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

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

ETA – Engineering Technology Associates **www.eta.com**

etainfo@eta.com

Inventium Suite™

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

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

PreSys

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

VPG

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

DYNAFORM

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

ESI Group www.esi-group.com

Visual-Environment: Visual-Environment is an integrated suite of solutions which operate either concurrently or standalone within a common environment. It aims at delivering an open collaborative engineering framework. As such, it is constantly evolving to address various disciplines and available solvers.

Visual-Crash is a dedicated environment for crash simulation: It helps engineers get their job done in the smoothest and fastest possible way by offering an intuitive windows-based graphical interface with customizable toolbars and complete session support.

For LS-DYNA users, Visual-Crash DYNA allows to focus and rely on high quality digital models, from start to finish as it addresses the coupling with competitive finite element or rigid body based software. This very open and versatile environment simplifies the work of CAE engineers across the enterprise by facilitating collaboration and data sharing.

Further tools are integrated in Visual-Environment enhancing CAE engineers work tasks most efficiently.

Visual-Mesh generates 1D, 2D and 3D elements for any kind of simulation.
Visual-Mesh provides automatic and guided surfaces clean up, application specific mesh generation and intuitive post mesh editing features..

Visual-Viewer is a complete, productive and innovative post-processing environment for CAE applications.

Visual-Viewer delivers a dedicated plotting and animation control solution. It offers a multi page, multi plot environment, allowing to group data into pages and plots. It is designed with a Windows GUI based on an intuitive and sleek user interface.

Visual-Process Executive is an advanced CAE environment for process customization and automation.

VisualDSS is an End-to-End Decision Support System for CAE. Manufacturers widely resort to Simulation-Based Design to gain a competitive edge in product development.

Gompute on demand®/ Gridcore AB Sweden
www.gompute.com www.gridcore.se

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

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

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

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

HYCRASH

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

JSTAMP/NV

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

JMAG

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

Livermore Software Technology Corp. www.lstc.com

LS-DYNA

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

LS-PrePost

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

LS-OPT

LS-OPT is a standalone Design Optimization and Probabilistic Analysis package with an interface to LS-DYNA.

The graphical preprocessor LS-OPTui facilitates definition of the design input and the creation of a command file while the postprocessor provides output such as approximation accuracy, optimization convergence, tradeoff curves, anthill plots and the relative importance of design variables.

LS-TaSC

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

LSTC Dummy Models

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

LSTC Barrier Models

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

Oasys, Ltd **www.oasys-software.com/dyna**

Oasys LS-DYNA® Environment

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

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

Key benefits:

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

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

Key benefits:

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

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

Key benefits:

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

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

Shanghai Hengstar www.hengstar.com

Center of Excellence

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

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

On Site Training

Hengstar also provides customer customized training programs on-site at the company facility.

Training is tailored for company needs using LS-DYNA or the additional software products by LSTC.

Distribution & Support

Hengstar Distributes and supports LS-DYNA, LS-OPT, LS-PrePost, LS-TaSC. Hongsheng Lu, previously was directly employed by LSTC before opening his distributorship in China for LSTC software.

Hongsheng travels to LSTC often to keep current on the latest software features and support to continue to grow Hengstar as a CAE consulting group.

Comet Solutions www.cometsolutions.com

Comet enables rapid and robust design space exploration from concept discovery and selection through concept validation using a model-based engineering approach. We empower our customers to discover an array of possible design concepts, evaluate which ones are feasible, then select the best.

Comet software is a tool-open, extensible, vendor-neutral performance engineering workspace that lets engineers and engineering project teams readily carry out multi-fidelity, multi-physics modeling and simulation.

In the Comet workspace, companies can better leverage all of their simulation assets – "best practices" expertise, COTS as well as in-house engineering tools, and product performance data.

Canada	**Metal Forming Analysis Corp MFAC** galb@mfac.com www.mfac.com			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	
	eta/DYNAFORM	INVENTIUM/PreSys		
United States	**CAE Associates Inc.** info@caeai.com www.caeai.com			
	ANSYS Products	CivilFem	Consulting ANSYS Consulting LS-DYNA	
United States	**DYNAMAX** sales@dynamax-inc.com www.dynamax-inc.com			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models		LSTC Barrier Models	

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

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

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

France	**DynaS+**		v.lapoujade@dynasplus.com	
	www.dynasplus.com		Oasys Suite	
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	DYNAFORM	VPG	MEDINA	
	LSTC Dummy Models		LSTC Barrier Models	

Germany	**CADFEM GmbH**		lsdyna@cadfem.de
	www.cadfem.de		
	ANSYS	LS-DYNA	optiSLang
	ESAComp	AnyBody	
	FTI FormingSuite		

Germany	**DYNAmore GmbH**		uli.franz@dynamore.de	
	www.dynamore.de			
	PRIMER	LS-DYNA	FTSS	VisualDoc
	LS-OPT	LS-PrePost	LS-TaSC	DYNAFORM
	Primer	FEMZIP	GENESIS	Oasys Suite
	TOYOTA THUMS		LSTC Dummy & Barrier Models	

Germany	**GNS**		mbox@gns-mbh.com	
	www.gns-mbh.com			
	Animator	Generator	Indeed	OpenForm

The Netherlands	**Infinite Simulation Systems B.V**		j.mathijssen@infinite.nl	
	www.infinite.nl			
	ANSYS Products	CivilFem	CFX	Fluent
	LS-DYNA	LS-PrePost	LS-OPT	LS-TaSC

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

Switzerland	**DYNAmoreSwiss GmbH**		info@dynamore.ch	
	www.dynamore.ch			
	LS-DYNA		LS-OPT	LS-PrePost
	LS-TaSC		LSTC Dummy Models	
			LSTC Barrier Models	

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

Australia	**LEAP**			
	www.leapaust.com.au			
	ANSYS Mechanical	ANSYS CFD	ANSYS EKM	Recurdyn
	ANSYS DesignXplorer	ANSYS HPC	FlowMaster	Ensigh
	LS DYNA	DYNAform	Moldex 3D	FE-Safe
China	**ETA – China**		lma@eta.com.cn	
	www.eta.com/cn			
	Inventium	VPG	DYNAFORM	NISA
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
			LSTC Barrier Models	LS-TaSC
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	www.oasys-software.com/dyna			
	PRIMER D3PLOT	HYCRASH	T/HIS REPORTER	SHELL
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
	DIGIMAT	FEMZIP	LSTC Barrier Models	LS-TaSC
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	www.hengstar.com			
	LS-DYNA	LS-TaSC	LSTC Barrier Models	
	LS-DYNA Courses	LS-OPT	LSTC Dummy Models	LS-PrePost

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	PRIMER	D3PLOT	T/HIS	
			LS-OPT	LSTC Dummy Models	LS-PrePost
			LS-DYNA	LSTC Barrier Models	LS-TaSC

India	**CADFEM Eng. Svce**		info@cadfem.in	
	www.cadfem.in			
	ANSYS	VPS	ESAComp	optiSLang
	LS-DYNA	LS-OPT	LS-PrePost	

India	**Kaizenat Technologies Pvt. Ltd**		support@kaizenat.com	
	http://kaizenat.com /			
	LS-DYNA	LS-OPT	LSTC Dummy Models	LS-PrePost
	Complete LS-DYNA suite of products		LSTC Barrier Models	LS-TaSC

Distribution & Consulting	Asia Pacific		Distribution & Consulting
Japan	**CTC**	LS-dyna@ctc-g.co.jp	
	www.engineering-eye.com		
	LS-DYNA	LS-OPT	LS-PrePost LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	CmWAVE
Japan	**JSOL**		
	www.jsol.co.jp/english/cae		Oasys Suite
	JSTAMP	HYCRASH	JMAG
	LS-DYNA	LS-OPT	LS-PrePost LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	TOYOTA THUMS
Japan	**FUJITSU**		
	http://jp.fujitsu.com/solutions/hpc/app/lsdyna		
	LS-DYNA	LS-OPT	LS-PrePost LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	CLOUD Services
Japan	**LANCEMORE**	info@lancemore.jp	
	www.lancemore.jp/index_en.html		
	Consulting		
	LS-DYNA	LS-OPT	LS-PrePost LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	
Japan	**Terrabyte**	**English:**	
	www.terrabyte.co.jp	www.terrabyte.co.jp/english/index.htm	
	Consulting		
	LS-DYNA	LS-OPT	LS-PrePost LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	AnyBody

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	www.lsdyna.co.kr		Oasys Suite	
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	Planets
	eta/DYNAFORM	FormingSuite	Simblow	TrueGRID
	JSTAMP/NV	Scan IP	Scan FE	Scan CAD
	FEMZIP			

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

Taiwan	**Flotrend**	gary@flotrend.tw		
	www.flotrend.com.tw			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM

Taiwan	**APIC**			
	www.apic.com.tw			
	LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM

Gompute

www.gompute.com

Penguin Computing

www.penguincomputing.com/services/hpc-cloud

Training Classes Germany CADFEM GmbH Training Classes

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

Training Classes Germany DYNAmore Training Classes

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

Training Classes United States LSTC Training Classes

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

Training Classes Sweden DYNAmore Nordic Training Classes

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

Training Classes France DynAS+ Training Classes

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

Training Classes	Thailand	Training Classes

Complete Courses offered can be found at: **http://www.dfe-tech.com/training.html**

Training Classes	United States ETA	Training Classes

The Complete Courses Offered Can Be Found At: www.eta.com etainfo@eta.com

Training Classes	United States CAE Associates	Training Classes

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

Training Classes	France Alyotech Technologies	Training Classes

For course location visit www.alyotech.fr

Training Classes	UK ARUP	Training Classes

For course location visit www.oasys-software.com/dyna/en/training

The training classes are held at our Bangalore and Pune locations

Details about the trainings offered are given below

LS- DYNA Basic Training
May 7-9

Airbag Deployment Application
May 15-16

LS- DYNA Basic Training
May 21-23

LS- DYNA Basic Training
Jun 11-13

Advanced Material Forming Analysis
Jun 19-20

LS- DYNA Basic Training
Jun 25-27

Information and Agenda

Classes generally start at 9:30 a.m. and end at 5:00 p.m. Access to computer for workshop exercises and lunch each day are included with the registration.For any queries/clarification please contact us @ support@kaizenat.com

 **FACEBOOK**

BETA CAE SYSTEMS SA CADFEM Cray Inc.

ESI Group

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ESI Group ETA Lancemore

 **NEWS FEEDS** ETA:

HPC on-demand for academic users

Run your LS-DYNA simulations and pay for what you use on a turn-key environment

- For LSTC academic customers.
- Run your simulations from 0.05 €/CCH without reservation
- Remote visualization using LS-PrePost
- Avoid installation and maintenance costs
- Other simulation applications also ready to use
- Global connectivity, remote graphics and collaborative environment
- Large number of cores available

For more information please visit: www.gompute.com

Price for computing-core/hour (CCH). Licenses and account set up are not included. Pricing valid only for universities, academic centers and research institutes. The following are trademarks or registered trademarks of Livermore Software Technology Corporation in the United States and/or other countries: LS-DYNA, LS-OPT, LS-PrePost, LS-TaSC. Gompute is owned and operated by Gridcore AB, 2012 All rights reserved.

POD (Penguin Computing on Demand) offers software including LSTC's LS-DYNA

www.penguincomputing.com/services/hpc-cloud

Penguin HPC clusters are optimized for engineering workloads and offer:

- Instant access to an HPC Cloud Cluster
- High performance InfiniBand bare-metal compute
- Free support from HPC experts
- No charges for network transfers
- Cost-effective, pay-per-use billing model
- Secure environment for private data
- Detailed billing reports for user groups and projects

Self Registration Portal – featuring rich--documentation, wiki, FAQ, pricing and more.

https://pod.penguincomputing.com/

POD Software Applications and Libraries (visit site for complete listing)

FEA, CFD and FDTD Modeling

- **LS-DYNA** / LS-PrePost LS-DYNA is an advanced general-purpose multiphysics simulation software package. Its core-competency lie in highly nonlinear transient dynamic finite element analysis (FEA) using explicit time integration. LS-PrePost is an advanced pre and post-processor that is delivered free with LS-DYNA.
- **OpenFoam:** OpenFOAM (Open source Field Operation And Manipulation) is a C++ toolbox for the development of customized numerical solvers, and pre-/post-processing utilities for the solution of continuum mechanics problems, including computational fluid dynamics (CFD).
- **ANSYS HFSS:** ANSYS HFSS software is the industry standard for simulating 3-D full-wave electromagnetic fields. Its gold-standard accuracy, advanced solver and compute technology have made it an essential tool for engineers designing high-frequency and high-speed electronic components.
- **ANSYS Fluent** ANSYS Fluent software contains the broad physical modeling capabilities needed to model flow, turbulence, heat transfer, and reactions for industrial applications.
- **Star-CD** and **Star-CCM+:** STAR-CCM+ is CD-adapco´s newest CFD software product. It uses the well established CFD solver technologies available in STAR-CD, and it employs a new client-server architecture and object oriented user interface to provide a highly integrated and powerful CFD analysis environment to users.
- **Convergent:** CONVERGE is a Computational Fluid Dynamics (CFD) code that completely eliminates the user time needed to generate a mesh through an innovative run-time mesh generation technique.
- **Lumerical:** Simulation tools that implement FDTD algorithms.

For the complete list of ATD Models developed and/or offered by DYNAmore visit
http://www.dynamore.de/en/products/models/side

PDB WorldSID-50

DYNAmore has developed a model of the WorldSID 50%. The model is validated with material, component and sled tests. The model was developed with a consortium of the German OEMs (PDB: Audi, BMW, Daimler, Porsche, and VW). The methods applied are the same as in the previous projects with the FAT for the ES-2, ES-2re, USSID, and BIORID model. The table below provides some general information about the release 2.0.1 of the WorldSID 50th percentile male model:

FAT ES-2 and ES-2re Dummy Model

The dummy is used in US-NCAP- and Euro-NCAP side impact assessment, the ES-2re will be used in the new FMVSS214. The dummy is also used for the legal authorization in Europe, Japan and the United States. The table below provides some general information about the release v5.01 of FAT ES-2 model. The version v5.01 of the ES-2re, a variation of the ES-2 for the authorization and the evaluation in the United States, is also available with a comparable number of entities.

FTSS SID-IIs Model

The dummy represents a small female body and is used in an IIHS side impact load case, in the FMVSS214 and the US-NCAP load cases. The table below provides some general information about the release 3.1a of the SID-IIs model. A version for Build Level C (BLC) and Level D (BLD) is available.

FAT EuroSID Model

The dummy is used in the legal authorization in South Korea, Australia, China and India. The table below provides some general information about the actual release 3.6 of the model.

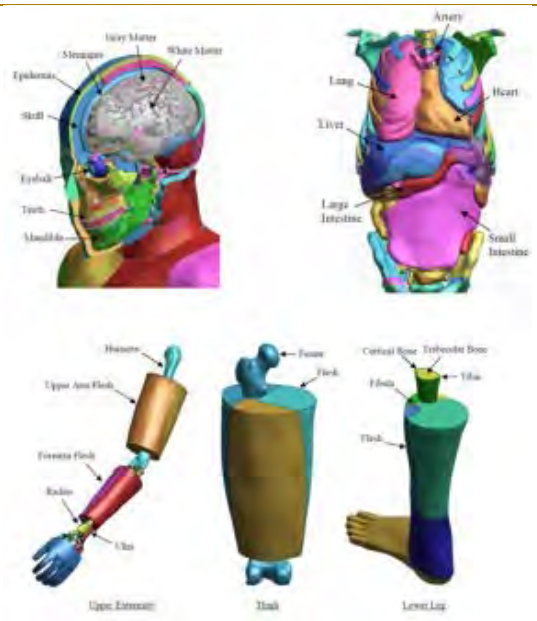
FAT US-SID and SIDHIII Model

The latest model of the FAT US-SID is version v5.0. The dummy is used in the subsiding FMVSS214 regulation and in the SINCAP load case. The modified version, the SIDHIII v5.1 is used in lateral impact to a pole. For both dummies a detailed model is available. The table below provides some general information about the actual multiple validated model of the US-SID.

Total Human Model for Safety - THUMS
LSTC is the US distributor for THUMS

About

The Total Human Model for Safety, or THUMS®, is a joint development of Toyota Motor Corporation and Toyota Central R&D Labs. Unlike dummy models, which are simplified representation of humans, THUMS represents actual humans in detail, including the outer shape, but also bones, muscles, ligaments, tendons, and internal organs. Therefore, THUMS can be used in automotive crash simulations to identify safety problems and find their solutions.

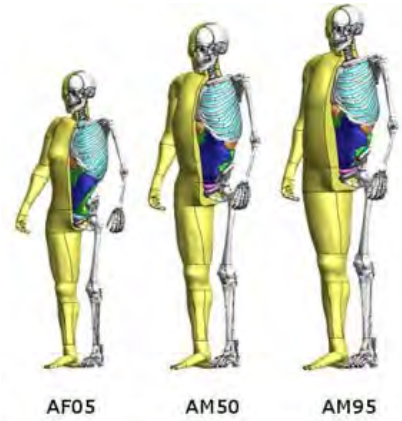


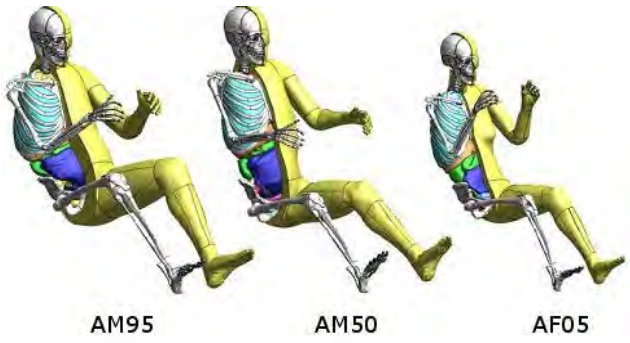
THUMS is limited to civilian use and may under no circumstances be used in military applications.

Model Details: Each of the different sized models is available as sitting model to represent vehicle occupants and as standing model to represent pedestrians.

The internal organs were modeled based on high resolution CT-scans.

LSTC is the US distributor for THUMS. Commercial and academic licenses are available.
For more information please contact us at THUMS@lstc.com .





THUMS®, is a registered trademark of Toyota Central R&D Labs.

Owned and Operated by Dr. Al Tabiei

www.LSDYNA-ONLINE.com using GO TO MEETING.

- **Course Notes with Class, or by separate purchase**
- **Tutorials and Movies can be purchased**
- **Workshops - Tutorials - YouTube Videos**

www.youtube.com/user/LSDYNATV/videos

Courses are easy to sign up forand attend with simple steps:

- Register and pay for the training.
- You will receive the course notes few days prior to the class date in PDF format.
- You will be sent the "go-to-meeting "invitation 2 days before the course date.
- You login to go to meeting few minutes before the class time.
- The class starts and you attend the interactive lectures.

Customer Location

Courses can be presented at the customer location. We offer several preset courses similar to the ones on line and/or we can custom design courses for your engineering needs.

For courses at your location preset, or special customization contact:

courses@lsdyna-online.com

Course Titles

- Material Models in LS-DYNA (new course)
- Intro LS-DYNALS-DYNA
- ImplicitFluid Structure Interaction in LS-DYNA
- Advance Fluid Structure Interaction in LS-DYNA
- Blast using LS-DYNA
- Penetration using LS-DYNA
- Composite Materials in LS-DYNA
- Contact in LS-DYNALS-DYNA
- DummiesAdvance Impact Simulations Using LS-DYNA
- Material Modeling Using User Defined Material
- Intro LS-PREPOST
- Advance LS-PREPOST
- Multi-Physics LS-DYNA

Dr. Al Tabiei has been a consultant on the use of LS-DYNA for more than 20 years to more than 60 companies.

He has been teaching different courses on LS-DYNA for more than 18 years nationally and internationally.

His primary work focus is in the area of multi-physics simulations, crash simulation, impact simulation, and material model development for isotropic and composite materials..

Len Schwer

http://www.duboisschwertraining.com/future

Paul Du Bois and I are pleased to announce or 2014 schedule of classes to be presented in Troy Michigan and hosted by our ETA partners (www.eta.com)

A registration form with the class price list is available on our web page.
http://www.duboisschwertraining.com/classes/Registration%20Details%20Troy%20MI

Completed registration forms are required prior to 13 May 2014 to establish class size. Class size minimum is four attendees. Once a class is confirmed, an invoice with payment instructions will be emailed.

2014 Schedule of Classes

ETA, Troy, Michigan

Hosted by our ETA Partners www.eta.com

27-28 May 2014 - Concrete and Geomaterial Modeling with LS-DYNA
29-30 May 2014 - Methods and Modeling Techniques: Prerequsite for Blast and Penetration
2-3 June 2014 - Penetration Modeling with LS-DYNA
4-5 June 2014 - Blast Modeling with LS-DYNA
6 June 2014 - Explosives Modeling for Engineers

DYNAmore, Stuttgart, Germany

9-10 October 2014 - Concrete and Geomaterial Modeling (Len)
13-14 October 2014 - Blast Modeling with LS-DYNA
15-16 October 2014 - Penetration Modeling with LS-DYNA

ARUP, Solihull, United Kingdom

20-21 October 2014 - Concrete and Geomaterial Modeling (Len)
20-21 October 2014 - Polymer Modeling (Paul)
22 October 2014 - Explosives Modeling for Engineers

See you at the following events:

- International LS-DYNA Users' Conference: June 8-10, 2014; Dearborn, MI, USA
- ANSYS Conf. & CADFEM Users' Mtg: June 4-6, 2014; Nuremburg, Germany
- SIMULIA Community Conference: May 19-22, 2014; Providence, RI, USA
- CARHS Automotive CAE Grand Challenge: April 15-16, 2014; Hanau, Germany

testpaks.com is the side of DatapointLabs focused on the material modeling needs of the CAE (Computer-Aided Engineering) community.

With widespread use of modern materials there is the growing need to understand material behavior for the proper utilization of virtual product development tools. testpaks.com is the first web site to feed the "material" needs of the CAE (computer aided engineering) user. It seeks to concentrate the current knowledge base of materials modeling for virtual product design, drawing from the extensive experience of DatapointLabs materials specialists, CAE vendors, and expert users. testpaks.com is important in view of the widespread difficulty experienced by the CAE community and the subsequent limitations it places upon the use of CAE products.

As CAE use has evolved in the past decade, DatapointLabs products for CAE, TestPaks®, have offered CAE users with the most convenient way to get material data inputs specific to their material and simulation programs. For good material models, it is important that the testing and modeling be done by people who understand material behavior, as well as CAE programs. To better understand the needs of CAE, DatapointLabs maintains an active and extensive Alliance Program with all major CAE vendors, and has been serving its client base with not just material data, but "ready-to-load" models that can be exported in digital format as CAE-input decks via MaterealityDDS.

testpaks.com is info-mercial in nature. While it serves as a convenient online catalog for purchase of material testing for CAE, it also serves as a place for CAE community to submit content, opinions and experiences on the modeling of materials. We actively solicit this input and post it subject to review. We have in-house facilities to take relevant papers, presentations, web-links and movies and make them ready for the web. These facilities are at your disposal and you can work interactively with our team to get the desired interconnectivity and results.\

The new online job market is designed for CAE-engineers from industry, research & development and education. The portal has been initially developed in cooperation with the German NAFEMS Online-Magazine, the magazine for numerical simulation methods and related fields (FEM, CFD, MBS, VR, etc.).

In order to provide this service also to the international engineering community we now offer this service in English language.

FOR EMPLOYERS

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Check for jobs, new challenges - use search options or browse through different categories!

Introductory offer!

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POST YOUR JOB OFFER TODAY!

http://www.CAE-JOBmarket.com

Call for Papers

LS-DYNA Forum 2014

6 – 8 October 2014, Bamberg, Germany

www.dynamore.de/forum2014-e

DYNAmore invites you to attend 13th LS-DYNA Forum which will take place from 6 - 8 October in Bamberg, Germany. This year, the conference is extended by half a day with the successful Developer Forum, which will take place before the main two-day User Forum.

You are warmly welcome to participate at the event as well as to actively contribute to the conference agenda by submitting an abstract. In your presentation you may report about your experience with LS-DYNA or LS-OPT as well as exchange your knowledge and discuss your problems with other users.

Additionally, there will be selected keynote lectures of renowned speakers from industry and universities. Software developers from LSTC and DYNAmore will present the latest features in LS-DYNA and the associated new application possibilities. In the accompanying exhibition, numerous hardware and software manufacturers will offer an insight into the latest news and trends around LS-DYNA.

Moreover, we are pleased to offer you several English spoken seminars in the week before, during and after the Forum, which will be either held by LS-DYNA developers or experienced consulting engineers

Presentation topics are:
Crashworthiness, passenger and pedestrian safety, metal forming, optimization and robustness, materials (composites, polymers, ...), joining techniques, implicit, impact, droptest, ballistics and penetration, fluid-structure interaction, computational fluid dynamics (CFD), heat transfer, electromagnetics, multiphysics, manufacturing processes, CAE process integration,…

from the industry areas:

- automotive,
- aerospace,
- mechanical engineering,
- shipbuilding/offshore,
- transportation,
- biomechanics,
- civil engineering,
- medical engineering,
- packaging, ...

Seminars

We offer pre and post conference seminars in English language on:

- Meshless Methods in LS-DYNA - EFG
- Meshless Methods in LS-DYNA - SPH
- NVH & Frequency Domain Analysis
- ALE und Fluid-Structure Interaction
- Concrete and Geomaterial Modeling
- Blast Modeling with LS-DYNA
- Penetration with LS-DYNA
- Explosives Modeling for Engineers

We hope that we have stimulated your interest and are looking forward to receiving your abstract and to seeing you in Bamberg.

International CAE Conference 2014

October 27-28, Turin – Italy

Your opportunity
to be part of the future!

The International CAE Conference is the main event in Italy and one of the most important ones in Europe regarding numerical simulation and its role in shaping the future of industrial R&D. It is a key platform for engineers, analysts, designers, IT managers, professors, researchers and students. Those who wish to share their knowledge and ideas or are interested in learning more about computer simulation tools and related technologies will benefit hugely from attending the 2-day program.

This year's Conference will take place in Turin, Northern Italy. The program will feature multiple parallel sessions on a variety of industrial verticals including: Aerospace & Defence, Automotive and Transportation, Naval, Oil & Gas and Energy, Processing and Production, Consumer goods, and more. The International CAE Conference is also an annual appointment for dedicated users' meetings on specific and emerging technologies.

Moreover, opinion leaders and experts will explore topics in Civil Engineering & Construction, Biomechanics and High Performance Computing. Several CAE-oriented complementary sessions and workshops will complete the diverse and exciting agenda.

In the frame of the International CAE Conference, the 3rd edition of the "Poster Award" will be presented. The Award honours the most outstanding and innovative research work by students and researchers in the year 2014.

For further information about the conference, to submit a presentation and/or become an exhibitor and sponsor, please contact :

info@caeconference.com - Tel. +39 0461 979 474

Stay tuned to: www.caeconference.com

AUTHORS
Olek C Zienkiewicz (Author), Robert L Taylor (Author), J.Z. Zhu J.Z. Zhu (Author)

The Finite Element Method for Fluid Dynamics, Seventh Edition

Book Description
Publication Date: November 28, 2013 | ISBN-10: 1856176355 | ISBN-13: 978-1856176354 | Edition: 7

The seventh edition of these seminal books delivers the most up to date and comprehensive reference yet on the finite element method for engineers and mathematicians. Renowned for their scope, range and authority, the new editions have been significantly revised and developed. Each book is now complete in its own right and provides self-contained reference, while together they provide a formidable resource covering the theory and the application of the universally used FEM.

*** World leading author team of the highest stature, drawn from the academic, research and software applications communities**
*** A proven standard in the library of any engineer concerned with finite elements**
*** Significant changes include a clearer presentation of the development of the finite element fundamentals and six major new chapters**

The Finite Element Method for Solid and Structural Mechanics, Seventh Edition

Book Description
Publication Date: November 7, 2013 | ISBN-10: 1856176347 | ISBN-13: 978-1856176347 | Edition: 7
The Finite Element Method for Solid and Structural Mechanics is the key text and reference for engineers, researchers and senior students dealing with the analysis and modeling of structures, from large civil engineering projects such as dams to aircraft structures and small engineered components.

The Finite Element Method: Its Basis and Fundamentals, Seventh Edition

Book Description
Publication Date: September 5, 2013 | ISBN-10: 1856176339 | ISBN-13: 978-1856176330 | Edition: 7
The Finite Element Method: Its Basis and Fundamentals offers a complete introduction to the basis of the finite element method, covering fundamental theory and worked examples in the detail required for readers to apply the knowledge to their own engineering problems and understand more advanced applications.

Finite Elements in Fracture Mechanics	Prof. Dr. Meinhard Kuna
Time-Domain Finite Element Methods for Maxwell's Equations in Metamaterials (Springer Series in Computational Mathematics	*Jichun Li*
Finite Element Analysis: A Primer (Engineering)	*Anand V. Kulkarni - V.K. Havanur*
Finite Element Methods for Engineers	Roger T. Fenner
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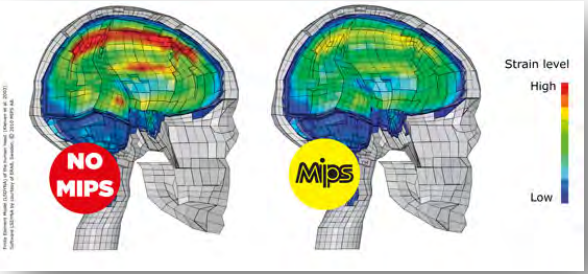
Biomechanical Systems Technology: Computational Methods **Cornelius T. Leondes**	Numerical response of steel reinforced concrete slab subjected to blast and pressure loadings in LS-DYNA. **Vivek Reddy**	Formulas for Mechanical and Structural Shock and Impact **Gregory Szuladziniski**

The Finite Element Method **Thomas J. R. Hughes**	Computational Fluid Dynamics **T. J. Chung**	

PAST ARTICLES NOT TO HAVE MISSED

MIPS **Helmets – New Generation** **MIPS**

- http://mipshelmet.com/home



Finite Finite Element model (LS-DYNA) of the human head showing the maximum principal strain in the sagittal plane (Kleiven et al. 2003).

Software: LS-DYNA by courtesy of ERAB, Sweden, now DYNAmore Sweden.

Test results that speak for themselves http://mipshelmet.com/how-it-works/test_results

DES **Discrete Element Sphere** **DES**

For information contact sales@lstc.com

The DES (Discrete Element Sphere) is a particle-based solver that implements the Discrete Element Method (DEM), a widely used technique for modeling processes involving large deformations, granular flow, mixing processes, storage and discharge in silos or transportation on belts.

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MSC Software **The Jury Has Spoken** **MSC Software**

NEWPORT BEACH, CA. - Business Wire - (April 14, 2014) http://www.mscsoftware.com/node/3345

"The jury has spoken," stated Dominic Gallello, President & CEO of MSC Software. "We welcome vigorous competition in the market. Every company has a right to innovate, but no company should be allowed to misappropriate a competitor's intellectual property. We continue to make significant investments in the Adams technology to serve our customers and maintain our market leading position."