BETA CAE Systems
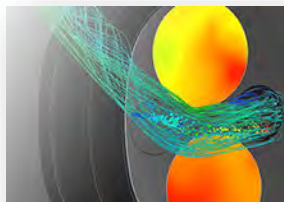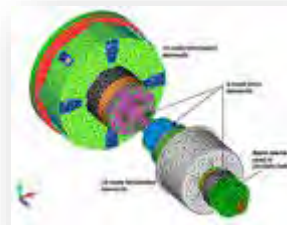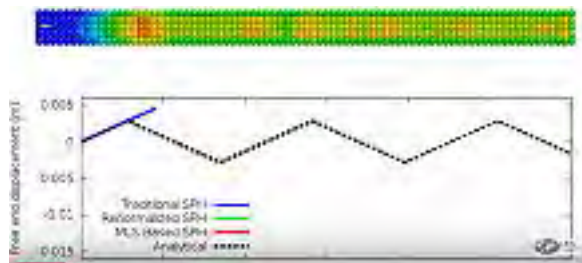
ESI Group

RESCALE

Predictive Engineering

YouTube

GM

FEA Information Inc.

A publishing company founded April 2000 – published monthly since October 2000.
The publication's focus is engineering technical solutions/information.
FEA Information Inc. publishes:

FEA Information Engineering Solutions

www.feapublications.com
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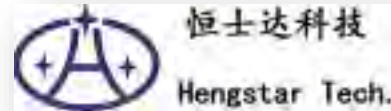
BETA SIMULATION SOLUTIONS

MSC Materials Sciences Corporation

eta

esi get it right®

JSOL

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Oasys
The Software House of Arup

rescale

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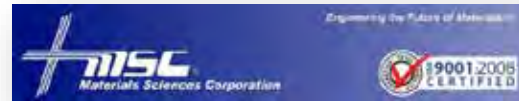
FEA Information News Sections

Articles – Blogs – News

Sections

- Automotive News   Editor: Dilip Bhalsod
- Aerospace News   Editor: Marnie Azadian
- Solutions
- Participants
- Distribution & Consulting
- Cloud/On Demand/Subscription
- ATD – Barrier - THUMS
- Classes & Events will return in Dec. in full for the 2018 term
- Social Media
- LSTC Information   & Apps

New Features: Editor - Yanhua Zhao

A Customized Job Manager for Metal Forming Simulations with LS-DYNA
Yuzhong Xiao, Xinhai Zhu, Li Zhang, Houfu Fan - LSTC

Announcements

NOVEMBER

11/15–17   Conference: 35th CADFEM ANSYS Simulation [www.cadfem.de]

11/24   Class: Material Failure and GISSMO in LS-DYNA [www.hengstar.com]
                             Instructor: Mr. Yanfei Fan (Hengstar)

DECEMBER:

DynaS+ - Charlotte MICHEL
Training Manager - For information E-mail : c.michel@dynasplus.com

· December the 7th and 8th
     "Composite materials" training with Ala Tabiei
· December 14th and 15th
     "NVH Training" with Yun Huang, LSTC

January 2018 -
     LSTC classes are now listed [www.lstc.com]

We will bring back our individual classes and events section starting with the December issue.

Any suggestions please contact Marsha Victory mv@feainformation.com

Over the Years with FEA Information: Special thanks to all of our readers, engineers, consultants, hardware, software, cloud participants, distributors, professors, students and everyone that has helped FEA Information grow and prosper.   Best Regards, Marsha

<table>
<tr><td style="text-align:center">Tay and Cody , Then</td><td style="text-align:center">Tay and Cody, Now</td></tr>
</table>

Thank you for all your reading and input on suggestions over the years
Best regards, Marsha   mv@feainformation.com

June 10-12, 2018

**Edward Hotel &
Convention Center
Dearborn. MI. USA**

Welcome:

The conference will host a forum for engineers, professors, students, consultants, industry leaders, and interested parties to exchange their ideas, and listen to the latest in industry and academic presentations..

The presenter (1) One Presenter of the accepted paper will receive a complimentary (no fee) conference registration, when they register using the "LSTC Conference" group registration code at the Edward Hotel.

Conference Dates:

Sunday	06/10/2018	Registration	Exhibition Area	Reception
Monday	06/11/2018	Registration	Exhibition Area	Banquet
Tuesday	06/12/2018	Registration	Exhibition Area	Closing
Wednesday/Thursday	06/13-14/2018	Training Classes		

Information:

Abstracts & papers   papers@lstc.com

Participation, Registration   conference@lstc.com

Abstract Submission on line:
Deadline: November 15th, 2017
  On line being processed by DYNAmore GmbH
   www.dynamore.de/paper2018

Paper Submission: Deadline: February 14, 2018 FIRM

Notification and templates will be provided by DYNAmore
 For any questions please write papers@lstc.com

Abstracts: www.dynamore.de/paper2018
Registration/Classes: www.ls-dynaconferences.com

Conference Call For Papers
- Acoustics
- Aerospace
- Automotive
    Crashworthiness
    Durability
    NVH
- Ballistics and Penetration
- Biomechanics
- Civil Engineering
- Electromagnetics
- Fluid Dynamics
    Compressible
    ALE (Lagrangian, Eulerian)
    CESE
    Incompressible
- Granular Flow
- Heat Transfer
- HPC & Cloud Services
- Impact and Drop Testing
- Manufacturing Processes
- Material Parameter Identification
- Metal Forming
- Modeling Techniques
- Nuclear Power
- Occupant Safety
- Optimization
- Particle Method
   Airbag Particle Method
   Discrete Elements
   Element Free Galerkin
   Peradynamics
   Smooth Particle Hydrodynamics
   Smooth Particle Galerkin
- PrePost Processing
- Seismic Engineering
- Ship Building

Developing CAE software systems for all simulation disciplines. Products: ANSA pre-processor/ EPILYSIS solver and META post-processor suite, and SPDRM, the simulation-process-data-and-resources manager, for a range of industries, incl. the automotive, railway vehicles, aerospace, motorsports, chemical processes engineering, energy, electronics…
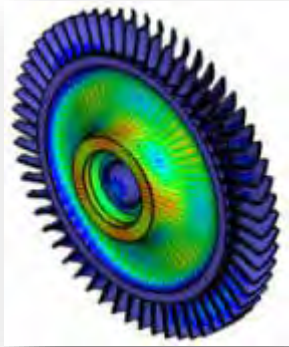
The new FEA solver

The EPILYSIS solver is the new addition to the BETA CAE Systems analysis tools family and is available with the ANSA/EPILYSIS/META suite.

Named after the Greek word for solution, it operates as a solution in the field of Finite Element embodying the accumulated knowledge from 25 years of collaboration with the CAE community. EPILYSIS covers numerous solution types and intends to bridge the gap between pre- and post-processing for disciplines such as Structural, NVH, Optimization, and more.

Structural Linear

- Perform structural linear static analysis on models subjected to static loads when materials do not exceed their yield limit and deformations remain small with respect to overall dimension.
- Perform real symmetric Eigenvalues analysis to evaluate the natural frequencies and the normal modes of structures. The Block-Lanczos and Automated Multi-Level Substructuring (AMLS) methods are supported.

Dynamics

- Execute frequency response analysis using the direct or the modal method to evaluate the behavior of structures in the frequency domain.
- For frequency response analysis the Fluid-Structure interface may also be employed.
- Efficient solution of modal frequency response analysis for large scale models with a relatively high number of normal modes through the implemented Fast FRA algorithm.
- Perform direct or modal transient response analysis to determine the response of structures in the time domain.

Structural non-linear

- Perform quasi-static simulation between rigid and/or deformable structures that have small strains (linear materials) when non linear contacts are present.
- Substructuring
- Reduce large scale models using the static condensation process based on the Guyan method.
- For dynamic problems, dynamic substructuring is also supported based on the Component Mode Synthesis (CMS) method.

High Performance Computing

- Shared memory parallel process technology that utilizes all the available system processors to reduce solution times
- Designed to solve analyses on large scale models with sophisticated in-and-out of core capabilities.
- Applications
- A wide range of FEA problems that are often addressed by engineers require a structural analysis. EPILYSIS solver can cover several structural simulation scenarios effortlessly in combination with the several pre-processing tools of ANSA.
- In Safety analysis it is a common practice to depenetrate the dummy from the seat. Making use of a predefined scenario, the seat depenetration tool is based on the EPILYSIS solver to perform depenetration automatically.
- The NVH Console in ANSA is a powerful tool to conduct the NVH analyses of multi-component assemblies. In collaboration with the EPILYSIS solver, it is able to calculate in the same environment the required modal reduced models (components) and beam stiffeners and continue with a FRF based assembly analysis.
- Several optimization tasks can be set within the Task manager of ANSA and invoke the use of the EPILYSIS solver. The solver provides the necessary results as input data for the optimizer according to which it will continue its optimization cycle.
- The ANSA and META products offer the perfect environment for composite modeling by introducing unique features that make the whole process more efficient. The EPILYSIS solver can drive this process one step further with the analysis of several loadcases in composite structures.
- EPILYSIS can support a streamlined process from ANSA to META that is able to provide an optimized mesh based on the results of discretization error in critical areas of a structure.

Features

- Thoroughly tested for robustness and accuracy with respect to NAFEMS other well-known benchmark tests
- Advanced tools for early detection of modeling errors
- Available solution error messages show the root of the problem
- Can be run in batch mode without any user interaction
- Designed to solve large scaled models efficiently
- The analyses are using a shared memory parallel process (multi threading)
- Features several solution types applicable in many industry sectors

Benefits

- Decreases costs through less physical prototyping
- Explores a variety of "What-if" scenarios with minimal cost
- Completes the analysis process from pre to post processing in an efficient and intuitive way
- Maximizes the return on software investments
- Being in a pre-processing environment makes complex processes easier
- A solver that is integrated in a well known pre-processor environment with numerous assistant tools

A leading innovator in Virtual Prototyping software and services. Specialist in material physics, ESI has developed a unique proficiency in helping industrial manufacturers replace physical prototypes by virtual prototypes, allowing them to virtually manufacture, assemble, test and pre-certify their future products.

ESI's new Human Models for the Disaled, Elderly and Overweight

ESI Releases Virtual Seat Solution 2017 to Address the Challenges of Automotive and Aircraft Seat Manufacturing - Latest software capabilities help engineers deliver safer, lighter and more comfortable seats at first try-out

Paris, France – October 3, 2017 – ESI Group is a leading innovator in Virtual Prototyping software and services for manufacturing industries, announces the release of ESI Virtual Seat Solution 2017, the only software on the market specifically designed for the virtual prototyping of seats in the aeronautics and ground transportation industries. The software solution empowers OEMs (Original Equipment Manufacturers) and seat suppliers to design, test, improve and pre-certify their seat prototypes, fully and virtually, without the need for costly physical prototypes. Not only do these industrial clients save cost and time, they are also able to deliver highly innovative lightweight seats, while ensuring all aspects of their performance.

Seat quality requirements are higher than ever before, and engineers must meet those demands by offering seats that are safe, lightweight, and comfortable. In the latest release of Virtual Seat Solution 2017, ESI has extended the software's capabilities to support important safety standards and help engineers take into consideration a rich diversity of seat occupants.

Certification and comfort of aircraft seat
"When you design and engineer a disruptive seating solution in the aeronautic industry, ensuring the 16G EASA and FAA certification is one of the main challenges. Using ESI Virtual Seat Solution is a powerful way for us to evaluate the performance of our seat and anticipate the issues at a lower cost and much faster than any usual time-consuming test with expensive prototypes. We can virtually test different designs and material alternatives, and iterate as many times as necessary to succeed in the virtual pre-certification of the seat. By avoiding the time loss and the associated cost to correct an unsuccessful real test, we have managed to drastically reduce the time to market of our TiSeat," commented Benjamin Saada, CEO of Expliseat.

The dedicated aeronautic version of Virtual Seat Solution 2017 offers a fully guided Head Impact Criteria (HIC) process, addressing one of the most challenging pre-certification tests. This 2017 version not only simplifies the dynamic testing set-up and analysis, but it also gives more precise results, thanks to accurate positioning of the Hybrid II dummy and new functionalities such as harness definition. All this enables seat and interior engineers to perform in a few clicks the virtual design iterations they need to succeed in their seat certification.

Aside from seat certification, Virtual Seat Solution 2017 offers dedicated functionalities and human models for the assessment of comfort and living space. In this version, ESI has extended its human model library to include elderly, overweight, and disabled people and thereby enables evaluation of the comfort of the seat for a wide range of passengers. ESI presented these new models and their application on a virtual prototype of Zodiac Seat Z301 at the Digital Human Modeling Symposium last June in Bonn, Germany.

Thermal Comfort and H-Point Optimization for automotive seats

While heated and cooled seats used to be integrated only in luxury cars, a wider range of carmakers now provide such seats for their midrange market as well. For electric and hybrid vehicles, manufacturers increasingly use these types of seats to help manage total energy consumption. The design of heated seats, as well as their optimization to effectively increase the thermal comfort of the occupant, can be very complex. Each of the interactions between the occupant, the seat cover, the cushion foam, and the heating system has to be taken into account. Furthermore, it is necessary to address the perceived and highly subjective thermal comfort of the occupant. Human models embedded in Virtual Seat Solution 2017 include human thermal modeling and thermal comfort criteria, which are needed to evaluate the effect of a heated seat on the comfort of its occupant. This version also incorporates dedicated functionalities for the heating pad and thermostat design of the seat.

Though it is now standard, H-Point prediction and its optimization are still challenging, especially for innovative seat designs. This latest release of Virtual Seat Solution makes it easier, thanks to dedicated foam material optimization tools.

Seat engineers are now able to design more innovative products by quickly and efficiently exploring creative concepts. The core of this new version is to maintain cost and time effectiveness while offering the best possible seat for every passenger.

For more information on Virtual Seat Solution, please visit: www.esi-group.com/virtual-seat

For more ESI news, visit:[www.esi-group.com/press]

ESI Group – Media Relations - Delphine Avomo Evouna

Offering industry-leading software platforms and hardware infrastructure for companies to perform scientific and engineering simulations. Providing simulation platforms that empower engineers, scientists, developers, and CIO and IT professionals to design innovative products, develop robust applications, and transform IT into unified, agile environments.
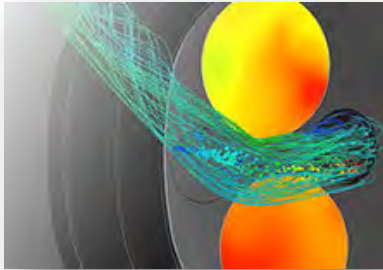
Dinex Reduces Time to Market of Exhaust Systems by 25%

Dinex chose Rescale's ScaleX platform for its ease-of-use and scalability.

Background and Challenge Dinex is a Danish designer and manufacturer of exhaust and emissions systems for trucks, buses, and off-road equipment with production and sales facilities in 16 countries across four continents. Their design process relies heavily on simulation of exhaust parts and subsystems, including CFD simulations of conjugate heat transfer from fluid to structure; FEA simulations of thermal stresses on thermal parts; and FEA simulations of structural static and dynamic forces. They run CFD on AVL FIRE and FEA on ANSYS Mechanical. At 4-5 million cells per model, these models are large and typically run for three weeks on their 32-core in-house server.

Dinex had a project for a Chinese truck manufacturer to design a new selective catalytic reduction (SCR) exhaust system that would allow the manufacturer's trucks to meet the China 5 emission standards.

The project required a very large model but also had a tight deadline. With only a few weeks to complete the project, Dinex turned to the cloud for big compute resources. The Rescale Solution Dinex considered both investing in a larger in-house server and using Microsoft Azure's cloud.

They decided against the in-house server because it would have taken too long to build, been too expensive, and may not have met their future requirements. Azure provided the flexibility of the cloud, but was too complicated to implement. In contrast, Rescale provided a turnkey solution for both on-demand hardware and pay-per-use software, plus had an easy-to-use workflow. All in all, Dinex chose Rescale's ScaleX platform for its ease-of-use and scalability.

For the project, Dinex ran six design optimizations of a multiphase urea spray simulation to improve ammonia uniformity and reduce risk of deposits using AVL FIRE. Each optimization included two simulations in parallel. At four to five million cells, the simulations ran on about 100 cores each. Using Rescale's cloud big compute platform to scale out horizontally, each optimization now takes about three days to run, down from three weeks on their on-premise cluster.

"Our higher productivity will enable us to handle more projects. The Rescale platform makes us more efficient and more attractive to our customers, which then brings us more business and more development projects." Kasper Steen Andersen CAE Manager, Dinex

Results and Benefits Using Rescale's ScaleX platform, Dinex was able to reduce the turnaround time for each optimization from four weeks to one week, equivalent to a 75% reduction in turnaround time. (Each iteration includes making design changes, generating the mesh, setting up the model on ScaleX, running it, viewing results, and making decisions). In

total, this reduced simulation time for the total project by 18 weeks.

Results and Benefits

Using Rescale's ScaleX platform, Dinex was able to reduce the turnaround time for each optimization from four weeks to one week, equivalent to a 75% reduction in turnaround time. (Each iteration includes making design changes, generating the mesh, setting up the model on ScaleX, running it, viewing results, and making decisions). In total, this reduced simulation time for the total project by 18 weeks.

Accelerated simulation had many material benefits to Dinex's business, including:

• 25% reduction in time-to-market for an exhaust treatment system. The Rescale platform reduced total project time from 18 months to 13.5 months. This allowed Dinex to meet a tight deadline and exceed client expectations.

• Higher project throughput and higher revenue, resulting from their ability to take on additional projects.

• More productive staffing. Simulation engineers began to work more efficiently and have greater output when the simulation bottleneck was removed. Dinex leadership plans to hire additional simulation engineers to keep up with higher simulation throughput.

• Increased marketability to customers. Their use of Rescale's cloud solution demonstrates that Dinex is at the forefront of simulation trends, using the industry's latest technologies to yield optimized designs in record time.

Events

November 2 @ 8:00 am - 9:00 am PDT
Total Cost of Ownership of Cloud Big Compute vs. On-Premise

November 8
Aerospace Simulation Engineering:
The Big Issues
National Center for Aviation Training, Wichita, KS United States

November 8 - November 9
SIMULIA German Regional User Meeting
FourSide Hotel, Braunschweig, Germany

November 8 - November 9
3rd Symposium Driving Simulation
Deutsches Zentrum für Luft- und Raumfahrt (DLR), Braunschweig, Germany

November 13 - November 16
SC17
Colorado Convention Center, 700 14th Street
Denver, CO 80202 United States

Predictive Engineering provides finite element analysis consulting services, software, training and support to a broad range of engineering companies across North America. We strive to exceed client expectations for accuracy, timeliness and knowledge transfer. Our process is both cost-effective and collaborative, ensuring all clients are reference clients.
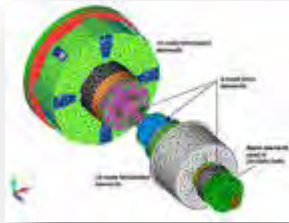
FEA Consulting Services

Predictive Engineering brings to bear more than 20 years of finite element analysis FEA consulting experience

We have direct and validated experience in detailed stress analysis, linear dynamics (normal modes, sin sweep, PSD or seismic analysis), ASME Section VIII, Div. 2 pressure vessel analysis from heat exchangers to NQA-1 nuclear and likewise, from construction to transportation, nonlinear contact analysis for complicated assemblies and plastic thread design, high-power transmissions and gear assemblies, off-shore oil patch winches, top drives, and many other fields.

We have also been active in the renewable energy field with complete mechanical stress and dynamic analysis of wind turbine systems, solar panels and photovoltaic systems. We live and breathe FEA analysis and our experience has been earned the hard way by having our models validated in test and in service for over 20 years.

Our work portfolio ranges from deep-diving submarines to large motor home chassis analysis to USAF satellites. The only commonality in our FEA consulting work is that every project has passed our clients' requirements with flying colors.

Among the many FEA Case Studies on our website

Seismic Analysis of Stationary Mechanical Equipment
  Analysis: FEA
  Objective:
      A seismic study of the base frame for a 20,000 lb electron microscope (see Figure 1) was performed to ensure that the structure would meet ASCE 7 (American Society of Civil Engineers) and IBU (International Building Code) seismic standards.

Cold-Spinning of Engines via the Perfect Drivetrain: Static and Eigenvalue Analysis
  Analysis: FEA
  Objective:
      When new car or truck engines are manufactured, a cold spin-up test is often performed. During this test, the engine is spun while vibration transducers, accelerometers and pressure gauges measure the engine's performance.

Providing engineering services to the composites industry since 1970. During this time, we have participated in numerous programs that demonstrate our ability to: perform advanced composite design, analysis and testing; provide overall program management; work in a team environment; and transition new product development to the military and commercial sectors.

MAT162 Workshop Courses: Wednesday, Nov 15, 2017 - 9am – 5pm

Short Course: Progressive Composite Damage Modeling in LS-Dyna Using MAT162
Presented: Bazle Z. (Gama) Haque, PhD, Senior Scientist,
Univ. of Delaware Ctr for Composite Materials (UD-CCM)
Assistant Prof. of Mechanical Engineering, Univ. of Delaware, Newark, De
Center for Composite Materials - Univ. of Delaware
www.ccm.udel.edu/software/mat162/

MAT162 is a material model for use in LS-DYNA that may be used to simulate the onset and progression of damage in unidirectional and orthotropic fabric composite continua due to 3D stress fields. This failure model can be used to effectively simulate fiber dominated failures, matrix damage, and includes a stress-based delamination failure criterion. This approach to predicting interlaminar failure is advantageous in cases when locations of delamination sites (i.e., interlaminar crack initiation surfaces) cannot be anticipated.

Examples are located at   www.ccm.udel.edu/software/mat162/examples /
Example 1:
Sphere Impact on a Composite Laminate
Example 2:
Sphere Impact on a Perfectly Clamped Composite Plate
Example 3:
Sphere Impact on Elliptical Carbon/Epoxy Tube
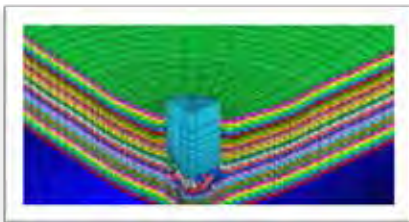
High Velocity Impact of Square Plate using MAT161/162

www.youtube.com/watch?v=NgjncjfLKGw

www.eta.com

www.flotrend.com.tw

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Hengstar Tech.
www.hengstar.com

AutoCAE
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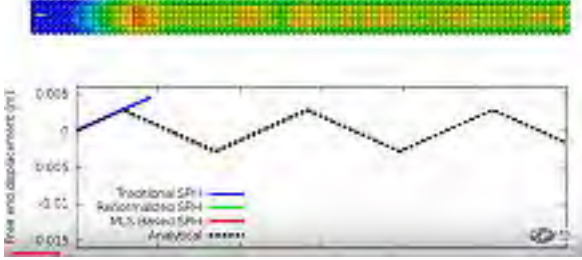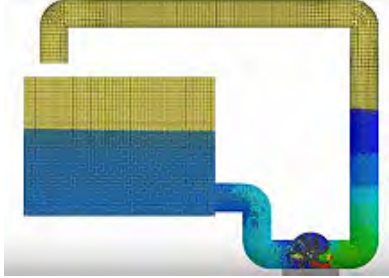
FEA Information China - For Sign Up or to offer Articles Contact:
Editors: Yanhua Zhao - Yanhua@feainformation.com

YouTube Choices for the Month & Gallery

Author: Marsha Victory   mv@feainformation.com

If you upload an LS-DYNA YouTube video please let me know so I can showcase it.

For a 30-day, no obligation to purchase contact sales@lstc.com

	LS-DYNA SPH: Performance of different SPH formulations for wave propagation The traditional (form 0), renormalized (form 1) and MLS-based (form 12) SPH formulations implemented in LS-Dyna are compared to an analytical solution.
	LS-DYNA SPH: Flexible impeller pump simulation, Blender visualization. https://www.youtube.com/watch?v=HHbZfzxeXGE SPH simulation performed in LS-Dyna, surface generated in Paraview, and rendered in Blender through VisualSPHysics. In order to find the input decks, please visit : http://www.dynaexamples.com/ See all DYNA conference publications at : http://www.dynalook.com/

Educational Institutions - LS-DYNA

LS-DYNA® Conferences

Published Conference Papers from participants of the following educational institutions.

Papers are located at www.dynalook.com

- Aalborg University
- Bergen University College
- Brown University
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- Gazi University
- Gdańsk University of Technology
- George Mason University
- Glasgow Caledonian University
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- Kazan State University, Russia
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- King Mongkut's University of North Bangkok
- King Saud University
- Konkuk University
- Konkuk University
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- Luleå University of Technology
- Marquette University
- Michigan State University
- Moscow State University
- National Research Nuclear University
- North Carolina A & T State University
- Norwegian University of Science and Technology
- Nottingham Trent University
- Ohio State University
- Ohio University
- Padova University
- Queen Mary University of London
- Russia Saint Petersburg State Polytechnical University, Russia
- RWTH Aachen/University of Agder
- Ryerson University
- Second University of Naples
- Shanghai Jiaotong University
- South-Ural State University
- St.Petersburg State Polytechnical University
- Strasbourg University

Educational Institutions - LS-DYNA

- Technical University Munich
- Technical University of Koszalin
- Technical University, Riga
- Texas A&M University
- The George Washington University
- The Johns Hopkins University Baltimore
- The Ohio State University
- The University of Bolton, UK
- The University of British Columbia
- The University of British Columbia
- The University of Mississippi
- The University of Texas at Austin
- TOBB University of Economics and Technology
- Universite de Lille
- University Edinburgh
- University of Akron
- University of Alabama at Birmingham
- University of Applied Sciences, Aalen
- University of Bristol
- University of California at Berkeley
- University of California, San Diego
- University of Central Florida, Orlando
- University of Cincinnati
- University of Kassel
- University of Liverpool
- University of Liverpool
- University of Maribor
- University of Maribor, Slovenia
- University of Massachusetts Lowell
- University of Missouri
- University of Naples "Federico II
- University of Nebraska-Lincoln
- University of Nizhniy Novgorod
- University of Pittsburgh
- University of Pretoria
- University of Sheffield
- University of Surrey
- University of Toronto
- University of Turin
- University of Warwick
- University of Waterloo
- University of Windsor
- University of Wolverhampton
- Washington State University
- Wayne State University

AUTOMOTIVE NEWS & EVENTS

Editor: Dilip Bhalsod

The purpose of this section is to provide a place, for our automotive readers, to share news and events relative to their company and/or products.

The criteria for submitting information is as follows:

- · It has to be public information
- · Published on the Internet
- · Be automotive informational, or human interest.
- · We do not accept financial quarterly information

We would welcome the opportunity to share information about your company with our readership.

You may send Title to your information and the accompanying URL to agiac99@aol.com - Subject Line please use " Automotive News"

Submissions should be received by the 15th of each month, of the month you want your article placed

Submission publications is at the sole discretion of FEA Information Inc.

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GM Outlines All-Electric Path to Zero Emissions

DETROIT — General Motors announced today how it is executing on a major element of its vision of a world with zero crashes, zero emissions and zero congestion, recently announced by GM Chairman and CEO Mary Barra.

"General Motors believes in an all-electric future," said Mark Reuss, General Motors executive vice president of Product Development, Purchasing and Supply Chain. "Although that future won't happen overnight, GM is committed to driving increased usage and acceptance of electric vehicles through no-compromise solutions that meet our customers' needs."

In the next 18 months, GM will introduce two new all-electric vehicles based off learnings from the Chevrolet Bolt EV. They will be the first of at least 20 new all-electric vehicles that will launch by 2023.

Given customers' various needs, getting to a zero emissions future will require more than just battery electric technology. It will require a two-pronged approach to electrification — battery electric and hydrogen fuel cell electric depending on the unique requirements.

GM also introduced SURUS — the Silent Utility Rover Universal Superstructure — a fuel cell powered, four-wheel steer concept vehicle on a heavy-duty truck frame that's driven by two electric motors. With its capability and flexible architecture, SURUS could be used as a delivery vehicle, truck or even an ambulance — all emissions free.

General Motors Co. (NYSE: GM, TSX: GMM), its subsidiaries and joint venture entities produce and sell vehicles under the Chevrolet, Cadillac, Baojun, Buick, GMC, Holden, Jiefang and Wuling brands. GM has leadership positions in several of the world's most significant automotive markets and is committed to lead the future of personal mobility. More information on the company and its subsidiaries, including OnStar, a global leader in vehicle safety, security and information services, can be found at http://www.gm.com.

-
Kevin Kelly.
GM Advanced Technology Communications
[kevin.m.kelly@gm.com]

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Advanced Technology Communications,
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AEROSPACE NEWS & EVENTS

Editor: Marnie Azadian

The purpose of this section is to provide a place, for our aerospace readers, to share news and events relative to their company and/or products.

The criteria for submitting information is as follows:

- · It has to be public information
- · An internet URL
- · Be technical, informational, or human interest.
- · We do not accept financial quarterly information

We would welcome the opportunity to share information about your company with our readership.

You may send Title to your information and the accompanying URL to agiac99@aol.com - Subject Line please use "Aerospace News"

Submissions should be received by the 15th of each month, of the month you want your article placed. For example: We would need the title of the news or event by December 15th, 2015 to be featured in the December 2015 FEA newsletter.

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Mysterious Dimming of Tabby's Star May Be Caused by Dust

EXCERPT:
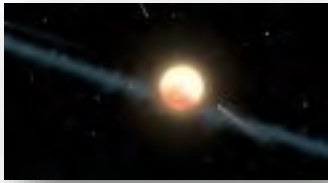
This illustration depicts a hypothetical uneven ring of dust orbiting KIC 8462852, also known as Boyajian's Star or Tabby's Star.

One of the most mysterious stellar objects may be revealing some of its secrets at last.

Called KIC 8462852, also known as Boyajian's Star, or Tabby's Star, the object has experienced unusual dips in brightness -- NASA's Kepler space telescope even observed dimming of up to 20 percent over a matter of days. In addition, the star has had much subtler but longer-term enigmatic dimming trends, with one continuing today. None of this behavior is expected for normal stars slightly more massive than the Sun. Speculations have included the idea that the star swallowed a planet that it is unstable, and a more imaginative theory involves a giant contraption or "megastructure" built by an advanced civilization, which could be harvesting energy from the star and causing its brightness to decrease.

A new study using NASA's Spitzer and Swift missions, as well as the Belgian AstroLAB IRIS observatory, suggests that the cause of the dimming over long periods is likely an uneven dust cloud moving around the star. This flies in the face of the "alien megastructure" idea and the other more exotic speculations.

The smoking gun: Researchers found less dimming in the infrared light from the star than in its ultraviolet light. Any object larger than dust particles would dim all wavelengths of light equally when passing in front of Tabby's Star.

"This pretty much rules out the alien megastructure theory, as that could not explain the wavelength-dependent dimming," said Huan Meng, at the University of Arizona, Tucson, who is lead author of the new study published in The Astrophysical Journal. "We suspect, instead, there is a cloud of dust orbiting the star with a roughly 700-day orbital period."

Why Dust is Likely: We experience the uniform dimming of light often in everyday life: If you go to the beach on a bright, sunny day and sit under an umbrella, the umbrella reduces the amount of sunlight hitting your eyes in all wavelengths. But if you wait for the sunset, the sun looks red because the blue and ultraviolet light is scattered away by tiny particles. The new study suggests the objects causing the long-period dimming of Tabby's Star can be no more than a few micrometers in diameter (about one ten-thousandth of an inch).

From January to December 2016, the researchers observed Tabby's Star in ultraviolet using Swift, and in infrared using Spitzer. Supplementing the space telescopes, researchers also observed the star in visible light during the same period using AstroLAB IRIS, a public observatory with a 27-inch-wide (68 centimeter) reflecting telescope located near the Belgian village of Zillebeke….

BETA CAE Systems.   www.beta-cae.com

BETA CAE Systems - ANSA

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 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

Solutions for:

Process Automation - Data Management – Meshing – Durability - Crash & Safety NVH   - CFD - Thermal analysis - Optimization - Powertrain
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DatapointLabs

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.

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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**
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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

Latest Release is ESI Visual-Environment 12.0

ESI Group   **www.esi-group.com**

Visual-Environment is an integrative simulation platform for simulation tools operating either concurrently or standalone for various solver. Comprehensive and integrated solutions for meshing, pre/post processing, process automation and simulation data management are available within same environment enabling seamless execution and automation of tedious workflows. This very open and versatile environment simplifies the work of CAE engineers across the enterprise by facilitating collaboration and data sharing leading to increase of productivity.

Visual-Crash DYNA provides advanced preprocessing functionality for LS-DYNA users, e.g. fast iteration and rapid model revision processes, from data input to visualization for crashworthiness simulation and design. It ensures quick model browsing, advanced mesh editing capabilities and rapid graphical assembly of system models. Visual-Crash DYNA allows graphical creation, modification and deletion of LS-DYNA entities. It comprises tools for checking model quality and simulation parameters prior to launching calculations with the solver. These tools help in correcting errors and fine-tuning the model and simulation before submitting it to the solver, thus saving time and resources.

Several high productivity tools such as advanced dummy positioning, seat morphing, belt fitting and airbag folder are provided in **Visual-Safe,** a dedicated application to safety utilities.

Visual-Mesh is a complete meshing tool supporting CAD import, 1D/2D/3D meshing and editing for linear and quadratic meshes. It supports all meshing capabilities, like shell and solid automesh, batch meshing, topo mesh, layer mesh, etc. A convenient Meshing Process guides you to mesh the given CAD component or full vehicle automatically.

Visual-Viewer built on a multi-page/multi-plot environment, enables data grouping into pages and plots. The application allows creation of any number of pages with up to 16 windows on a single page. These windows can be plot, animation, video, model or drawing block windows. Visual-Viewer performs automated tasks and generates customized reports and thereby increasing engineers' productivity.

Latest Release is ESI Visual-Environment 12.0

ESI Group www.esi-group.com

Visual-Process provides a whole suite of generic templates based on LS-DYNA solver (et altera). It enables seamless and interactive process automation through customizable LS-DYNA based templates for automated CAE workflows.

All generic process templates are easily accessible within the unique framework of Visual-Environment and can be customized upon request and based on customer's needs.

Visual*DSS* is a framework for Simulation Data and Process Management which connects with Visual-Environment and supports product

engineering teams, irrespective of their geographic location, to make correct and realistic decisions throughout the virtual prototyping phase. Visual*DSS* supports seamless connection with various CAD/PLM systems to extract the data required for building virtual tests as well as building and chaining several virtual tests upstream and downstream to achieve an integrated process. It enables the capture, storage and reuse of enterprise knowledge and best practices, as well as the automation of repetitive and cumbersome tasks in a virtual prototyping process, the propagation of engineering changes or design changes from one domain to another.

JSOL

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.
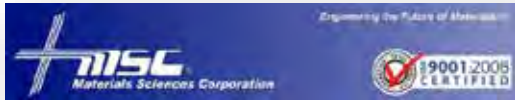
Material Sciences Corporation

info@materials-sciences.com

Materials Sciences Corporation has provided engineering services to the composites industry since 1970. During this time, we have participated in numerous programs that demonstrate our ability to: perform advanced composite design, analysis and testing; provide overall program management; work in a team environment; and transition new product development to the military and commercial sectors. MSC's corporate mission has expanded beyond basic research and development now to include transitioning its proprietary technologies from the research lab into innovative new products. This commitment is demonstrated through increased staffing and a more than 3-fold expansion of facilities to allow in-house manufacturing and testing of advanced composite materials and structures

Materials Sciences Corporation (MSC) MAT161/162 - enhanced features have been added to the Dynamic Composite Simulator module of LS-DYNA.

This enhancement to LS-DYNA, known as MAT161/162, enables the most effective and accurate dynamic progressive failure modeling of composite structures to enable the most effective and accurate dynamic progressive

failure modeling of composite structures currently available.

MSC/LS-DYNA Composite Software and Database -
Fact Sheet: http://www.materials-sciences.com/dyna-factsheet.pdf
· MSC and LSTC have joined forces in developing this powerful composite dynamic analysis code.
· For the first time, users will have the enhanced ability to simulate explicit dynamic engineering problems for composite structures.
· The integration of this module, known as 'MAT 161', into LS-DYNA allows users to account for progressive damage of various fiber, matrix and interply delamination failure modes.
· Implementing this code will result in the ability to optimize the design of composite structures, with significantly improved survivability under various blast and ballistic threats.

MSC's LS-DYNA module can be used to characterize a variety of composite structures in numerous applications—such as this composite hull under blast

Oasys Ltd. LS-DYNA Environment

The Oasys Suite of software is exclusively written for LS-DYNA® and is used worldwide by many of the largest LS-DYNA® customers. The suite comprises of:

Oasys PRIMER

Key benefits:

·   Pre-Processor created specifically for LS-DYNA®

·   Compatible with the latest version of LS-DYNA®

·   Maintains the integrity of data

·   Over 6000 checks and warnings – many auto-fixable

·   Specialist tools for occupant positioning, seatbelt fitting and seat squashing (including setting up pre-simulations)

·   Many features for model modification, such as part replace

·   Ability to position and depenetrate impactors at multiple locations and produce many input decks

automatically (e.g. pedestrian impact, interior head impact)

·   Contact penetration checking and fixing

·   Connection feature for creation and management of connection entities.

·   Support for Volume III keywords and large format/long labels

·   Powerful scripting capabilities allowing the user to create custom features and processes

Oasys D3PLOT

Key benefits:

·   Powerful 3D visualization post-processor created specifically for LS-DYNA®

·   Fast, high quality graphics

·   Easy, in-depth access to LS-DYNA® results

·   Scripting capabilities allowing the user to speed up post-processing, as well as creating user defined data components

Oasys T/HIS

Oasys REPORTER

Key benefits:

- Graphical post-processor created specifically for LS-DYNA®
- Automatically reads all LS-DYNA® results
- Wide range of functions and injury criteria
- Easy handling of data from multiple models
- Scripting capabilities for fast post-processing

Key benefits:

- Automatic report generation tool created specifically for LS-DYNA®
- Automatically post-process and summarize multiple analyses
- Built-in report templates for easy automatic post-processing of many standard impact tests

Predictive Engineering provides finite element analysis consulting services, software, training and support to a broad range of engineering companies across North America. We strive to exceed client expectations for accuracy, timeliness and knowledge transfer. Our process is both cost-effective and collaborative, ensuring all clients are reference clients.

Our mission is to be honest brokers of information in our consulting services and the software we represent.

Our History

Since 1995, Predictive Engineering has continually expanded its client base. Our clients include many large organizations and industry leaders such as SpaceX, Nike, General Electric, Navistar, FLIR Systems, Sierra Nevada Corp, Georgia-Pacific, Intel, Messier-Dowty and more. Over the years, Predictive Engineering has successfully completed more than 800 projects, and has set itself apart on its strong FEA, CFD and LS-DYNA consulting services.
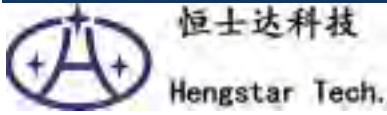
Shanghai Hengstar

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 in China, Hengstar Technology will continue to organize high level training courses, seminars, workshops, forums etc., and will also continue to support CAE events such as: China CAE Annual Conference; China Conference of Automotive Safety Technology; International Forum of Automotive Traffic Safety in China; LS-DYNA China users conference etc.

On Site Training: Hengstar Technology also provides customer customized training programs on-site at the company facility. Training is tailored for customer needs using LS-DYNA such as material test and input keyword preparing; CAE process automation with customized script program; Simulation result correlation with the test result; Special topics with new LS-DYNA features etc..

www.hengstar.com

Distribution & Support: Hengstar distributes and supports LS-DYNA, LS-OPT, LS-Prepost, LS-TaSC, LSTC FEA Models; Hongsheng Lu, previously was directly employed by LSTC before opening his distributorship in China for LSTC software. Hongsheng visits LSTC often to keep update on the latest software features.

Hengstar also distributes and supports d3View; Genesis, Visual DOC, ELSDYNA; Visual-Crash Dyna, Visual-Process, Visual-Environment; EnkiBonnet; and DynaX & MadyX etc.

Consulting

As a consulting company, Hengstar focuses on LS-DYNA applications such as crash and safety, durability, bird strike, stamping, forging, concrete structures, drop analysis, blast response, penetration etc with using LS-DYNA's advanced methods: FEA, ALE, SPH, EFG, DEM, ICFD, EM, CSEC..

Lenovo   www.lenovo.com

Lenovo is a USD39 billion personal and enterprise technology company, serving customers in more than 160 countries.

Dedicated to building exceptionally engineered PCs, mobile Internet devices and servers spanning entry through supercomputers, Lenovo has built its business on product innovation, a highly efficient global supply chain and strong strategic execution. The company develops, manufactures and markets reliable, high-quality, secure and easy-to-use technology products and services.

Lenovo acquired IBM's x86 server business in 2014. With this acquisition, Lenovo added award-winning System x enterprise server portfolio along with HPC and CAE expertise.

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		

Mexico   **COMPLX**   Armando Toledo
          www.complx.com.mx /   armando.toledo@complx.com.mx

LS-DYNA   LS-OPT   LS-PrePost

LS-TAsc Barrier/Dummy Models

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   **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	

Distribution/Consulting	US/Canada	Distribution/Consulting

United States

ESI Group N.A   info@esi-group.com

www.esi-group.com

PAM-STAMP

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VA One	CFD-ACE+	ProCAST	
	Weld Planner	Visual-Environment	IC.IDO

United States

Engineering Technology Associates – ETA   etainfo@eta.com   www.eta.com

INVENTIUM/PreSy	NISA	VPG	LS-DYNA
LS-OPT	DYNAform		

United States

Predictive Engineering   george.laird@predictiveengineering.com
www.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
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	DSDM Products		LSTC Dummy Models	FEMZIP
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	www.cadfem.de		
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Distribution/Consulting		Europe	Distribution/Consulting

Germany   **DYNAmore GmbH**   uli.franz@dynamore.de

www.dynamore.de

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Primer	FEMZIP	GENESIS	Oasys Suite
TOYOTA THUMS		LSTC Dummy & Barrier Models	

The Netherlands   **Infinite Simulation Systems B.V**   j.mathijssen@infinite.nl

www.infinite.nl

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Russia   **STRELA**   info@dynarussia.com

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			LSTC Barrier Models	
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	REPORTER	SHELL	FEMZIP	HYCRASH
	DIGIMAT	Simpleware	LSTC Dummy Models	
			LSTC Barrier Models	

China	**ETA – China**		lma@eta.com.cn	
	www.eta.com/cn			
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			LSTC Barrier Models	LS-TaSC

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	LS-PrePOST	LS-OPT	LSTC Dummy Models	
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	Visual-Crahs DYNA	Visual-Proeces		DynaX & MadyX
	Enki Bonnet	Visual Environement		

Distribution/Consulting	Europe	Distribution/Consulting

India   **Oasys Ltd. India**   lavendra.singh@arup.com

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PRIMER   D3PLOT   T/HIS

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

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://www.fujitsu.com/jp/solutions/business-technology/tc/sol/

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	

Distribution/Consulting	Asia Pacific	Distribution/Consulting	

Korea	**THEME**	wschung7@gmail.com		
	www.lsdyna.co.kr		Oasys Suite	
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	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			
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	LSTC Dummy Models	LSTC Barrier Models	eta/VPG	FCM
	eta/DYNAFORM	DIGIMAT	Simuform	Simpack
	AxStream	TrueGrid	FEMZIP	

Distribution/Consulting	Asia Pacific	Distribution/Consulting

Taiwan   **AgileSim Technology Corp.**

www.agilesim.com.tw

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

Taiwan   **Flotrend**

www.flotrend.com.tw

LS-DYNA	LS-OPT	LS-PrePost	LS-TaSC
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Taiwan   **SiMWARE Inc..**

www.simware.com.tw

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

Contact: JSOL Corporation Engineering Technology Division cae-info@sci.jsol.co.jp

**Cloud computing services
for
JSOL Corporation LS-DYNA users in Japan**

**JSOL Corporation is cooperating with chosen
cloud computing services**

JSOL Corporation, a Japanese LS-DYNA distributor for Japanese LS-DYNA customers.

LS-DYNA customers in industries / academia / consultancies are facing increased needs for additional LS-DYNA cores

In calculations of optimization, robustness, statistical analysis, we find that an increase in cores of LS-DYNA are needed, for short term extra projects or cores.

JSOL Corporation is cooperating with some cloud computing services for JSOL's LS-DYNA users and willing to provide short term license.

This service is offered to customers using Cloud License fee schedule, the additional fee is less epensive than purchasing yearly license.

**The following services are available
 (only in Japanese). HPC OnLine:**

NEC Solution Innovators, Ltd.
http://jpn.nec.com/manufacture/machinery/hpc_online/

Focus
Foundation for Computational Science
http://www.j-focus.or.jp

Platform Computation Cloud
CreDist.Inc.

PLEXUS CAE
Information Services International-Dentsu, Ltd.
(ISID) https://portal.plexusplm.com/plexus-cae/

SCSK Corporation
http://www.scsk.jp/product/keyword/keyword07.html

Rescale Cloud Simulation Platform

www.rescale.com

Rescale: Cloud Simulation Platform

The Power of Simulation Innovation
We believe in the power of innovation. Engineering and science designs and ideas are limitless. So why should your hardware and software be limited? You shouldn't have to choose between expanding your simulations or saving time and budget.

Using the power of cloud technology combined with LS-DYNA allows you to:
·   Accelerate complex simulations and fully explore the design space
·   Optimize the analysis process with hourly software and hardware resources
·   Leverage agile IT resources to provide flexibility and scalability

True On-Demand, Global Infrastructure
Teams are no longer in one location, country, or even continent. However, company data centers are often in one place, and everyone must connect in, regardless of office. For engineers across different regions, this can cause connection issues, wasted time, and product delays.

Rescale has strategic/technology partnerships with infrastructure and software providers to offer the following:
·   Largest global hardware footprint – GPUs, Xeon Phi, InfiniBand
·   Customizable configurations to meet every simulation demand
·   Worldwide resource access provides industry-leading tools to every team
·   Pay-per-use business model means you only pay for the resources you use
·   True on-demand resources – no more queues

ScaleX Enterprise: Transform IT, Empower Engineers, Unleash Innovation
The ScaleX Enterprise simulation platform provides scalability and flexibility to companies while offering enterprise IT and management teams the opportunity to expand and empower their organizations.

Rescale Cloud Simulation Platform

ScaleX Enterprise allows enterprise companies to stay at the leading edge of computing technology while maximizing product design and accelerating the time to market by providing:
· Collaboration tools
· Administrative control
· API/Scheduler integration
· On-premise HPC integration

Industry-Leading Security
Rescale has built proprietary, industry-leading security solutions into the platform, meeting the needs of customers in the most demanding and competitive industries and markets.
· Manage engineering teams with user authentication and administrative controls
· Data is secure every step of the way with end-to-end data encryption
· Jobs run on isolated, kernel-encrypted, private clusters
· Data centers include biometric entry authentication
· Platforms routinely submit to independent external security audits

Rescale maintains key relationships to provide LS-DYNA on demand on a global scale. If you have a need to accelerate the simulation process and be an innovative leader, contact Rescale or the following partners to begin running LS-DYNA on Rescale's industry-leading cloud simulation platform.

LSTC   - DYNAmore GmbH   JSOL Corporation

Rescale, Inc. - 1-855-737-2253 (1-855-RESCALE) - info@rescale.com

 944 Market St. #300, San Francisco, CA 94102 USA

ESI Cloud Based Virtual Engineering Solutions

www.esi-group.com

ESI Cloud offers designers and engineers cloud-based computer aided engineering (CAE) solutions across physics and engineering disciplines.

ESI Cloud combines ESI's industry tested virtual engineering solutions integrated onto ESI's Cloud Platform with browser based modeling,

With ESI Cloud users can choose from two basic usage models:

· An end-to-end SaaS model: Where modeling, multi-physics solving, results visualization and collaboration are conducted in the cloud through a web browser.

· A Hybrid model: Where modeling is done on desktop with solve, visualization and collaboration done in the cloud through a web browser.

Virtual Performance Solution:

ESI Cloud offers ESI's flagship Virtual Performance Solution (VPS) for multi-domain performance simulation as a hybrid offering on its cloud platform. With this offering, users can harness the power of Virtual Performance Solution, leading multi-domain CAE solution for virtual engineering of crash, safety, comfort, NVH (noise, vibration and harshness), acoustics, stiffness and durability.

In this hybrid model, users utilize VPS on their desktop for modeling including geometry, meshing and simulation set up. ESI Cloud is then used for high performance computing with an integrated visualization and real time collaboration offering through a web browser.

The benefits of VPS hybrid on ESI Cloud include:

· Running large concurrent simulations on demand

· On demand access to scalable and secured cloud HPC resources

· Three tiered security strategy for your data

· Visualization of large simulation data sets

· Real-time browser based visualization and collaboration

· Time and cost reduction for data transfer between cloud and desktop environments

· Support, consulting and training services with ESI's engineering teams

ESI Cloud Based Virtual Engineering Solutions

www.esi-group.com

VPS On Demand

ESI Cloud features the Virtual Performance Solution (VPS) enabling engineers to analyze and test products, components, parts or material used in different engineering domains including crash and high velocity impact, occupant safety, NVH and interior acoustics, static and dynamic load cases. The solution enables VPS users to overcome hardware limitations and to drastically reduce their simulation time by running on demand very large concurrent simulations that take advantage of the flexible nature of cloud computing.

Key solution capabilities:

- Access to various physics for multi-domain optimization
- Flexible hybrid model from desktop to cloud computing
- On demand provisioning of hardware resources
- Distributed parallel processing using MPI (Message Passing Interface) protocol
- Distributed parallel computing with 10 Gb/s high speed interconnects

Result visualization

ESI Cloud deploys both client-side and server-side rendering technologies. This enables the full interactivity needed during the simulation workflow along with the ability to handle large data generated for 3D result visualization in the browser, removing the need for time consuming data transfers. Additionally ESI Cloud visualization engine enables the comparisons of different results through a multiple window user interface design.

Key result visualization capabilities:

- CPU or GPU based client and server side rendering
- Mobility with desktop like performance through the browser
- 2D/3D VPS contour plots and animations
- Custom multi-window system for 2D plots and 3D contours
- Zooming, panning, rotating, and sectioning of multiple windows

Collaboration

To enable real time multi-user and multi company collaboration, ESI Cloud offers extensive synchronous and asynchronous collaboration capabilities. Several users can view the same project, interact with the same model results, pass control from one to another. Any markups, discussions or annotations can be archived for future reference or be assigned as tasks to other members of the team.

Key collaboration capabilities:

- Data, workflow or project asynchronous collaboration
- Multi-user, browser based collaboration for CAD, geometry, mesh and results models
- Real-time design review with notes, annotations and images archiving and retrieval
- Email invite to non ESI Cloud users for real time collaboration

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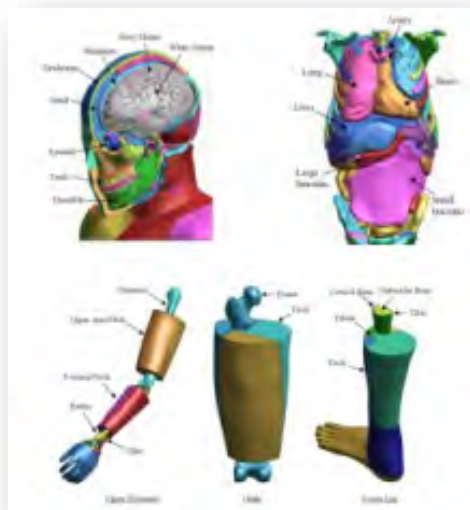
The Total Human Model for Safety, or THUMS®, is a joint development of Toyota Motor Corporation and Toyota Central R&D Labs. Unlike dummy models, which are simplified representation of humans, THUMS represents actual humans in detail, including the outer shape, but also bones, muscles, ligaments, tendons,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

Each of the different sized models is available as sitting model to represent vehicle occupants

and as standing model to represent pedestrians.
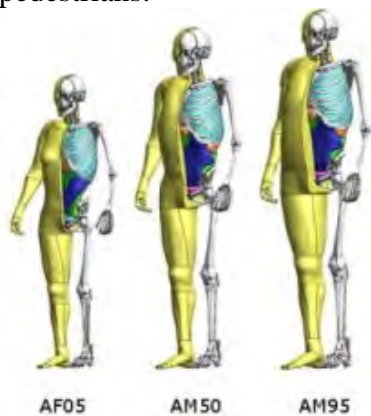
The internal organs were modeled based on high resolution CT-scans.

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

LSTC is the US distributor for THUMS. Commercial and academic licenses are available.

For information please contact: THUMS@lstc.com

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

LSTC – Dummy Models

LSTC Crash Test Dummies (ATD)

Meeting the need of their LS-DYNA users for an affordable crash test dummy (ATD), LSTC offers the LSTC developed dummies at no cost to LS-DYNA users.

LSTC continues development on the LSTC Dummy models with the help and support of their customers. Some of the models are joint developments with their partners.

e-mail to: atds@lstc.com

Models completed and available (in at least an alpha version)
- Hybrid III Rigid-FE Adults
- Hybrid III 50th percentile FAST
- Hybrid III 5th percentile detailed
- Hybrid III 50th percentile detailed
- Hybrid III 50th percentile standing
- EuroSID 2
- EuroSID 2re
- SID-IIs Revision D
- USSID
- Free Motion Headform
- Pedestrian Legform Impactors

Models In Development
- Hybrid III 95th percentile detailed
- Hybrid III 3-year-old
- Hybrid II
- WorldSID 50th percentile
- THOR NT FAST
- Ejection Mitigation Headform

Planned Models
- FAA Hybrid III
- FAST version of THOR NT
- FAST version of EuroSID 2
- FAST version of EuroSID 2re
- Pedestrian Headforms
- Q-Series Child Dummies
- FLEX-PLI

LSTC – Barrier Models

Meeting the need of their LS-DYNA users for affordable barrier models, LSTC offers the LSTC developed barrier models at no cost to LS-DYNA users.

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

•ODB modeled with shell elements
•ODB modeled with solid elements
•ODB modeled with a combination of shell and solid elements

•MDB according to FMVSS 214 modeled with shell elements
•MDB according to FMVSS 214 modeled with solid elements

•MDB according to ECE R-95 modeled with shell elements
•AE-MDB modeled with shell elements

•IIHS MDB modeled with shell elements
•IIHS MDB modeled with solid elements
•RCAR bumper barrier

•RMDB modeled with shell and solid elements

e-mail to: atds@lstc.com.

ESI Group User Forums

ESI User Forums

7 Nov 2017 - 9 Nov 2017
  ESI Forum in Germany 2017
    Weimar, Germany

15 Nov 2017 - 16 Nov 2017

PUCA FORUM 2017
    Hilton Hotel Tokyo, Japan

22 Nov 2017
  ESI Forum in India 2017
    Pune, India

Participant's Training Classes

Webinars

Info Days

Class Directory

Class Directory

Arup	www.oasys-software.com/dyna/en/training
BETA CAE Systems	www.beta-cae.com/training.htm
DYNAmore	www.dynamore.de/en/training/seminars
ESI-Group	https://myesi.esi-group.com/trainings/schedules
ETA	www.eta.com/support2/training-calendar
KOSTECH	www.kostech.co.kr/
LSTC - (corporate)	www.lstc.com/training
LS-DYNA OnLine - (Al Tabiei)	www.LSDYNA-ONLINE.COM

FACEBOOK

BETA CAE Systems   CADFEM

ESI Group   Lenovo

TWITTER

BETA CAE Systems   ESI Group

ETA   CADFEM   Lenovo

LINKEDIN

BETA CAE Systems   CADFEM

DYNAmore Nordic   ETA

ESI Group

YOUTUBE

YOUTUBE Channel	WebSite URL
BETA CAE Systems	www.beta-cae.com
CADFEM	www.cadfem.de
ESI Group	www.esi-group.com
ETA	www.eta.com
Lancemore	www.lancemore.jp/index_en.html
Lenovo	

GOOGLE+

BETA CAE Systems	

LS-DYNA Resource Links

LS-DYNA	Multiphysics	YouTube	Facundo Del Pin

https://www.youtube.com/user/980LsDyna

FAQ	LSTC	Jim Day

ftp.lstc.com/outgoing/support/FAQ

LS-DYNA Support Site

www.dynasupport.com

LS-OPT & LS-TaSC

www.lsoptsupport.com

LS-DYNA   EXAMPLES

www.dynaexamples.com

LS-DYNA   CONFERENCE   PUBLICATIONS

www.dynalook.com

ATD –DUMMY   MODELS

www.dummymodels.com

LSTC   ATD   MODELS

www.lstc.com/models   **www.lstc.com/products/models/mailinglist**

AEROSPACE   WORKING   GROUP

http://awg.lstc.com/tiki/tiki-index.php

LS-DYNA®, LS-OPT®, LS-PrePost, LS-TASC®,
  LSTC ATD and Barrier Models

- · 12 – 6 - 3 months/1 or 2 core license available
- · Students, Engineers.
- · NON-COMMERICAL USE

For Information contact: sales@lstc.com

LS-Run – A standalone application - a new graphical control center to start LS-DYNA simulations with either SMP or MPP - LS-Run has a parametric LS-DYNA command line builder making it easy to create the command and change the most common arguments such as "memory", "ncpu" and the solver executable.

For information contact: nik@dynamore.de

A mobile & web application which is built to help LS-DYNA Users to get instant answers for technical query from global experts.

For information contact: ramesh@kaizenat.com

For the complete paper please visit: [http://www.lstc.com/new_features]

A Customized Job Manager for Metal Forming Simulations with LS-DYNA
       Yuzhong Xiao, Xinhai Zhu, Li Zhang, Houfu Fan - LSTC

Introduction

Generally the simulation time of the metal forming analysis is relatively short, but several numerical tryouts would be expected, due to the iterative modification of the forming tools based on the simulation results. Therefore it would be nice to provide a Graphic User Interface (GUI) for the user to manage the simulation jobs effectively (e.g. simplified submission procedures and quick file operations on the results), so that the total time cost could be further reduced. Also among various metal forming simulations, in addition to those with a single keyword file input, jobs that consist of several (e.g. the progressive die forming) or even dozens of sequential simulations (e.g. the iterative springback compensation process), are increasing. Based on these traits, a simple application (Job Manager) has been customized for our metal forming users with the intention to help them manage the simulation jobs.

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September
       Improvement of Mesh Fusion in LS-DYNA   -
          H.Fan, X. Zhu, L. Zhang and Y. Xiao
       A 3D bond-based peridynamics model for dynamic brittle failure analysis in LS-DYNA®
           B. Ren, C.T Wu
August
       Conversion between FLD and Stress Triaxial Limit Curve
          X. Zhu, L. Zhang, Y. Xiao
       A non-orthogonal material model of woven composites in the preforming process -
         W. Zhang, H. Ren, B. Liang, D. Zeng, X.Su, J. Dahl, M. Mirdamadi, Q. Zhao, J. Cao
July
       Best Fit GUI for Metal Forming in LS-PrePost® 4.5
          Q. Yan, X. Zhu, P. Ho, L. Zhang, Y. Xiao   -   LSTC
       Modeling and Numerical Simulation of Afterburning of Thermobaric Explosives In a Closed
       Chamber
             KS Im, G. Cook, Jr., and ZC Zhang   -   LSTC

Editor: Yanhua Zhao - yanhua@feainformation.com

June

Improvement of Sandwich Structure Part Adaptivity in LS-DYNA
Xinhai Zhu, Houfu Fan, Li Zhang and Yuzhong Xiao - LSTC
New Inflator Models in LS-DYNA®
Kyoung-Su Im, Zeng-Chan Zhang, and Grant O. Cook, Jr. - LSTC

May

Improvement of Mesh Fusion in LS-DYNA
Houfu Fan, Xinhai Zhu, Li Zhang and Yuzhong Xiao - LSTC
Representative Volume Element (RVE) analysis using LS-DYNA
C.T. Wu, W. Hu   LSTC

April

New features of 3D adaptivity in LS-DYNA -
W. Hu LSTC
New Feature: Defining Hardening Curve in LS-DYNA® -
X. Zhu, L. Zhang, Y. Xiao

March

Improvements toOne-Step Simulation in LS-DYNA
Xinhai Zhu, Houfu Fan, Li Zhang,

February

LS-DYNA Smooth Particle Galerkin (SPG) Method
C.T. Wu, Y. Guo, W. Hu   -   LSTC

January

Lancing features in LS-DYNA
Quanqing Yan, Li Zhang, Yuzhong Xiao, Xinhai Zhu, Philip Ho - LSTC