

**OZEN  
ENGINEERING  
NEWSLETTER**

**SEPTEMBER  
2015**

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## **Message from the President**



**By Metin Ozen**

Summer is over! Not officially but for all practical reasons, we are leaving summer behind and gearing up for busy Fall season! We took advantage of summer and had a professional photographer come in and take individual and group pictures of everybody here at Ozen Engineering, Inc.

In this newsletter, you will see our updated pictures. We also had two great "lunch and learn" seminars in August; one on the brand new ANSYS product "[AIM](#)" and the other on "[ANSYS Meshing](#)". In addition, we had Introduction to Mechanical and Introduction to Maxwell classes.

In September, we are going to have a "lunch and learn" seminar on new "[Fracture Mechanics](#)" capabilities in ANSYS. We are also having "[Introduction to ANSYS Mechanical](#)" classes at least once a month for the past few months now. This is a popular class indicating an increase in the number of ANSYS users here in Northern California. So, things are getting busy again. Feel free to contact me/us if we can be of assistance with ANSYS products. Have a great September!

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## Message from the Sales Manager



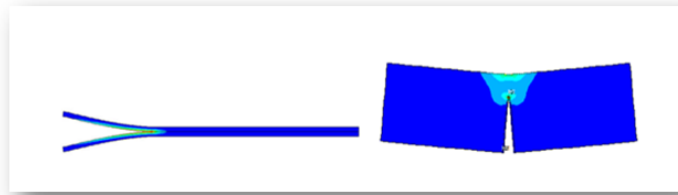
**By Casey Heydari**

### **New Exciting Lunch & Learns in September**

OEI is pleased to announce two upcoming and popular Lunch & Learn events this month. I invite you to come and attend these exciting and informative events to tune up your CAE skills.

### **Fracture Mechanics & Fatigue**

Failure investigations and durability are utmost important considerations in product design to increase quality and reduce warranty costs. OEI has developed comprehensive fracture mechanics and fatigue training material to educate ANSYS users to learn how to conduct an efficient and realistic analysis to predict crack propagation, material failure and fatigue within a user-friendly GUI environment.



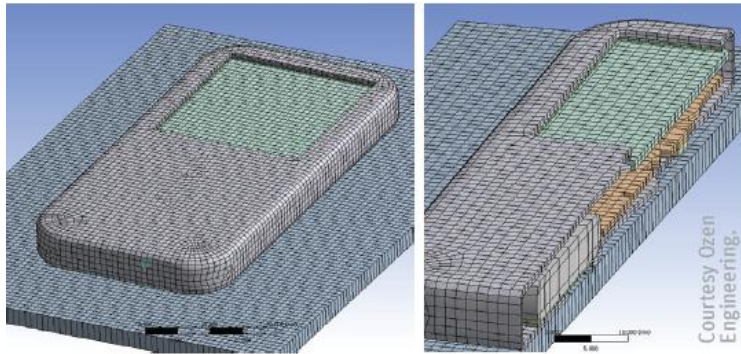
In this seminar you will learn:

- Material behavior (linear, nonlinear, transient, temperature/moist effects, hysteresis due to plasticity or visco-elasticity, anisotropy, crack propagation etc.)
- Determination of material parameters from test data
- Prediction of durability and fatigue life of products (fracture based or failure, stress-strain based fatigue or failure, mechanics based statistics of failure risk, etc.)
- Correct use of failure models and fracture parameters

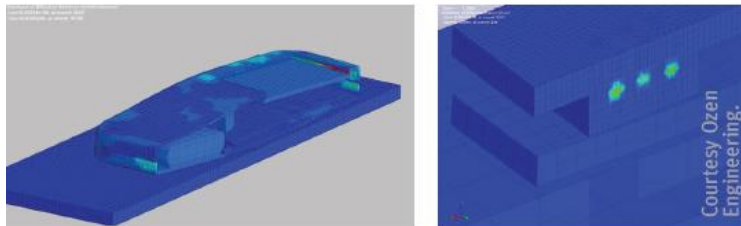
The Lunch & Learn is scheduled on September 17th at Ozen Engineering offices.

[Fracture Mechanics Event Registration](#)

**Explicit Dynamics using ANSYS LS-DYNA**



Automatic body-by-body meshing for analyzing cell phone assembly via explicit drop testing



Cell phone with solder connection submodel

ANSYS LS-Dyna is a powerful explicit dynamics product and allows you to run simulations for highly nonlinear, transient and short duration events such as droptest, impact and collision, bird strike, nonlinear contact and many more applications.

ANSYS LS-Dyna is integrated inside ANSYS Workbench environment that will allow you to create automatic, high-quality mesh - a necessity for explicit dynamics applications.

The lunch & Learn for ANSYS LS-Dyna is scheduled for September 24th at Ozen Engineering.

[ANSYS LS-DYNA Event Registration](#)

**ANSYS Release 16.2 Roadshow**



We have scheduled and visited many of our customers to introduce the latest ANSYS Release v16.2.

The release of ANSYS 16.2 includes dramatic new technologies in the areas CFD, electromagnetics, composites, meshing and additional capabilities to ANSYS AIM - the new multiphysics package.

We will continue to contact our customers to set up meetings to introduce you to the new capabilities in ANSYS 16.2. The new release was available for download as of August 7th in ANSYS customer portal.

If you are interested to reserve a time slot to learn more about this release please contact me at:

[casey.heydari@ozeninc.com](mailto:casey.heydari@ozeninc.com)  
(408) 732-4665

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## **Paper of the Month!**

**Using LS-DYNA from ANSYS Workbench Environment**

## Workflow in Figures

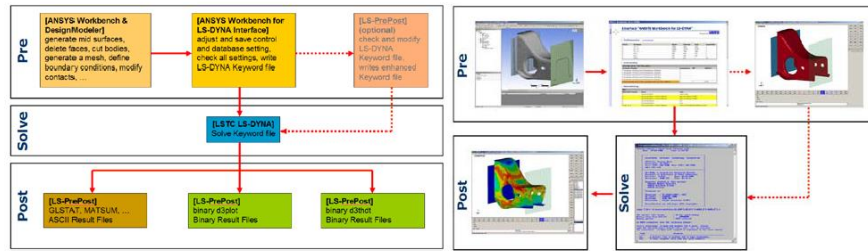


Figure 1: Workflow using ANSYS Workbench, Interface “ANSYS Workbench for LS-DYNA”, LS-DYNA and LS-PrePost

## [Download Paper](#)

## Tip of the Month!



## Speed Up Mechanical Solutions

By Chris Cowan

### 1. Take advantage of parallel processing

ANSYS Mechanical/Structural solvers allow users to solve on 2 cores. If you have access to additional solvers through a High-Performance Computing (HPC) license, activate them through: Tools -> Solve Process Settings -> Advanced -> Max Number of Utilized Cores. Specify the number of cores on your CPU (excluding Hyperthreads).

### 2. Activate the Distributed Solver (DMP)

Activate the DMP to improve parallel performance in comparison to the Shared-Memory Solver (SMP). On the same menu as above, set Distribute Solution (if possible) = checked.

### 3. Determine if your hardware speed is limited

Determine if your hardware speed is limited by CPU speed or by input/output (I/O) operations in RAM and storage. At the bottom of your Solution Output file (solve.out), locate the values for "Total CPU time for main thread" and "Elapsed time

spent computing solution". If Elapsed Time  $\gg$  Total Time, your machine is I/O bound. Performance can be improved by adding RAM or a faster hard drive configuration. If Elapsed Time  $\approx$  Total Time, your machine is compute bound. Consider upgrading to faster processors or adding a graphics-processor unit (GPU).



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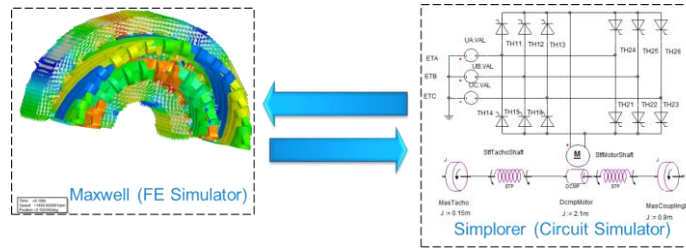
## Tip of the Month!



### Enhanced Circuit Coupling Performance

**By Mehrnoosh Khabiri**

Electric machine designs require appropriate electric drive circuits. ANSYS Maxwell Finite Element Analysis (FEA) has co-simulation with the Simplorer circuit simulator to evaluate how nonlinear behavior of the motor affects the drive circuit and vice versa. Now Maxwell R16.x 2D/3D Transient solvers support larger time-steps ensuring a good convergence (applying roll-backs) when external circuit coupling is present. This capability enables users to analyze complex interactions between power electronics, control and magnetic component.




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## Lunch & Learn - Fracture Mechanics & Fatigue

**September 17th, 2015**  
**11:30AM to 1:00PM (lunch provided)**

With the release of ANSYS R16, the Fracture Mechanics section was rewritten to include the new features in Mechanical APDL and Workbench. In this seminar, we are going to cover the fracture mechanics analysis tools in Workbench as well as in Mechanical APDL. The presentation topics will include crack initiation, crack propagation, unstructured mesh (UMM), J-Integral, VCCT method, Stress Intensity Factor, T-Stress, Material Force, C\* Integral, Cohesive zone elements and contact elements, XFEM Method, Fatigue.

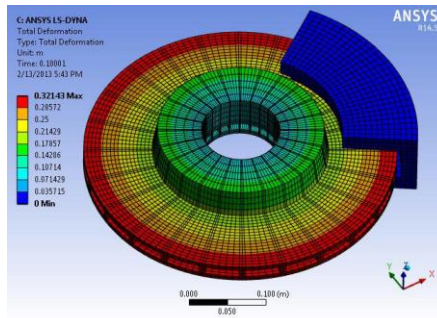


[Register Now](#)

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## Lunch & Learn - ANSYS LS-DYNA





**September 24th, 2015  
11:30AM - 1:00PM (lunch provided)**

Join us for this upcoming Lunch & Learn featuring ANSYS LS-DYNA! In this seminar, we will present ANSYS/LS-DYNA inside Workbench environment and show you how easy it is to run LS-DYNA from inside ANSYS Workbench through the new ACT implementation of LS-DYNA in Workbench. Drop test examples will be covered. In addition, pre and post-processing inside or outside of Workbench will be discussed.

[Register Now](#)

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## Online Webinar - September 30th



### Scale Up Your ANSYS Workloads

**"The experience with your cloud Service has been very positive (our first test with Cloud computing), the System is ready to work and has no problems. The scalability and speed is very good compared to other test case with in house clusters/workstations." -Carlos**

Is your compute environment too small to handle your ANSYS workloads?

Join our webinar this month as we discuss OzenCloud and its unparalleled performance. This webinar will offer a step-by-step guided presentation to performing ANSYS simulations on our private and secure ANSYS servers. To register for this webinar, please visit our registration page.

Online webinar - September 30th at 11:00 AM PST

[Register Now](#)

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## Upcoming ANSYS Training In August



[ANSYS Mechanical Basic Structural Nonlinearities](#)

[ANSYS AIM Multiphysics](#)

[ANSYS Mechanical Advanced Connections](#)

[Lunch & Learn: Fracture Mechanics & Fatigue](#)

[Introduction to ANSYS Simplorer](#)

[Introduction to ANSYS Mechanical](#)

[Introduction to ANSYS BladeModeler](#)

[Lunch & Learn: ANSYS LS-DYNA](#)

[Introduction to ANSYS DesignModeler](#)

[Introduction to ANSYS DesignXplorer](#)

[Browse and sign up for classes directly on our website, no phone call or email needed.](#)

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## Promotions



**September Promotional Code:**  
**OEI0915-2000**

Use the promotion code above to learn about our exclusive offers!

Every month, Ozen Engineering offers a special promotion on ANSYS products and/or training classes. Please visit our [promotions page](#) to learn more about our exclusive promotional pricing.

[Learn More](#)

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Ozen Engineering, Inc. provides ANSYS simulation software sales, training, technical support and consulting services.

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