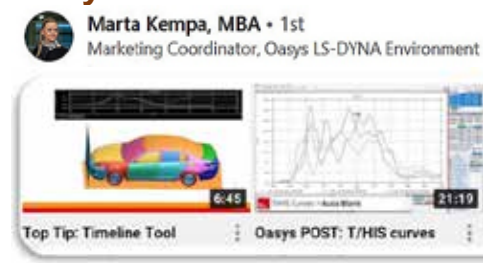


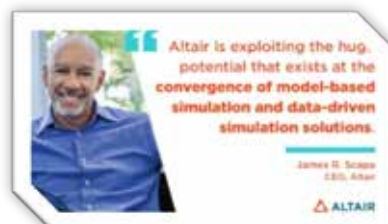
FEA Not To Miss Blog, News & Coffee Break

Issue August 2020 www.feantm.com

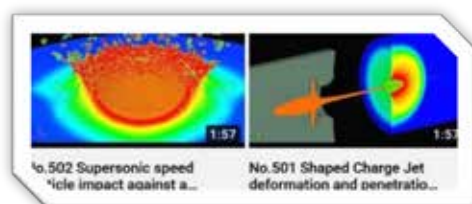
Oasys



Altair



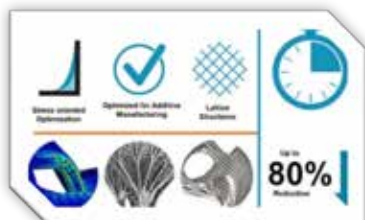
LANCEMORE



DYNAmore Express



MSC.Software



ANSYS



ESI



Rescale



Art's Blog



LLNL



C&R Spaghetti by Corrado



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FEANTM Announcement by Marsha Victory

Bringing a variety of FEA news, software solutions, and articles.

Not to miss our Cofee and Recipe Section (C&R) section this month - We have a great recipe to share by Corrado, AND we will try and get Corrado to send us another one next month

(Corrado - the above was a hint)



On The website (www.feantm.com) for the first week in August we have a paper by Hao Chen

H. Chen [*ALE STRUCTURED FSIThe New S-ALE FSI Solver](#)

AND for August I have some ranch gossip to share (next month I'll be back to a more professional announcement page)



On the ranch, we seem to be in feral baby mode with baby owls, ravens, bobcats, hummingbirds.

All stay to close to my house.

I regret to report I have failed teaching them "my space - your space" - My husband, who is always calm, says, "It's only on the porch. It's only on the railing, it's only in the garden. They'll grow up and leave."

Now on to the quiz!

QUIZ TIME! What was his reaction when I showed him the picture of the baby Owl on the roof of HIS Ford truck?

A) was it calm and saying "It's only my truck, it will grow up and leave." or

B) was it "IT WILL SCRATCH THE PAINT. IT CAN'T PERCH THERE!!!!" (no, he didn't chase it off his truck - but he no longer parks the truck in our driveway, so now it lands on my truck.) When it flew away my husband moved the quickest, he has in months! NO, not to help me weed - it was to look for scratch marks on his truck!

FEANTM - AUGUST - Oasys

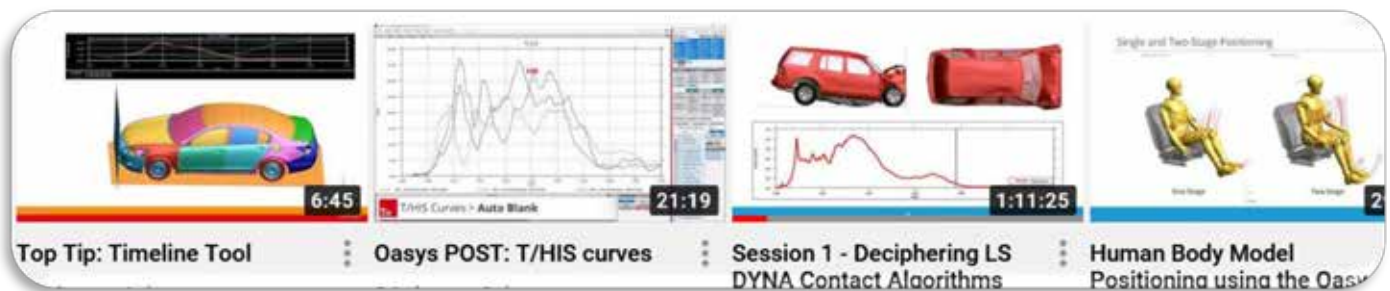
Editor Note: Oasys headquartered in the UK - LS-DYNA distributing and consulting also offers Uploaded Webinars for viewing



Marta Kempa, MBA • 1st
Marketing Coordinator, Oasys LS-DYNA Environment

Did you know that you can customize and save views in Oasys PRIMER making it easy to navigate around a model? Check out our latest Top Tip of the month:

[Not To Miss on YouTube](#)



Previous

Upcoming Webinars

Oasys PRIMER and D3PLOT: composite tools

16 Sep, 2020 - 12:30 BST

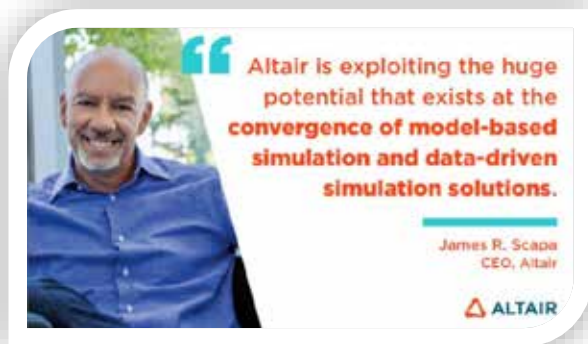
Past webinars are available to watch [Here](#):

- Introduction to the webinar series – Jamie Talbot
- LS-DYNA Updates – Richard Sturt
- Oasys Integrated Solutions – Gavin Newlands and Alasdair Parkes
- New features to accelerate your workflow with the Oasys LS-DYNA Environment – Gavin Newlands and Alasdair Parkes
- Oasys Suite – Latest expert tools for LS-DYNA models – Gavin Newlands and Alasdair Parkes

Tutorials Available to Download

LS-DYNA PRIMER D3PLOT T/HIS REPORTER

Editor Note: The article is located and copyright to the Altair Blog .



Convergence of Simulation and Data Analytics Will Transform All Industries

By James R. Scapa on July 29, 2020

Last month we hosted the Altair Data Analytics Summit, where we gathered a group of customers and data experts – from all industries across the globe – to discuss the latest trends happening in data transformation, machine learning (ML) and artificial intelligence (AI).

Our keynote, Dr. Carsten Bange, founder and CEO of BARC, was particularly compelling as he spoke on data analytics trends affecting enterprises today – no matter what stage of the journey they may be in. He narrowed in on the top areas to invest in and focus on for smarter decision making – data strategy, business intelligence, data architecture, and data literacy. I particularly enjoyed his phrase ‘making order out of chaos’ in reference to data, and the importance of building competencies around data, analysis, technology and collaboration.

His speech really resonated with me, as Altair also understands the true value and importance of data coming together with other disciplines across all business sectors, including product development. In fact, it’s a large part of why we acquired Datawatch more than 18 months ago.

Our vision is to transform customer decision making with simulation, data analytics, and

high-performance computing. Because at Altair, we see a future where the world of data science intersects with high-performance cloud computing, artificial intelligence and IoT. Where seemingly disparate systems work seamlessly together to help businesses succeed. Where pin-point accuracy and speed mean the difference between winning and losing.

In support, we have assembled a unique and powerful software stack that stands up our powerful vision. Our product roadmap includes a tight integration of data preparation, data science, automation deployment, and high-speed data visualization, but with a strong, open philosophy to be able to ingest data from anywhere and export to other solutions.

Altair is exploiting the huge potential that exists at the convergence of model-based simulation and data-driven simulation solutions. Whether defining more effective business workflows, using fleet-wide data acquisition to improve operational efficiency or enabling the predictive maintenance of critical assets, the true potential of combining advanced physics simulations and data science solutions throughout enterprises is just being realized.

Editor Note: The article is located and copyright to the Altair Blog .

Here is how it works. When it comes to engineering, most designers use computer aided engineering (CAE) or computer aided design (CAD) tools during the process to come up with innovative new forms that are lighter, stronger, longer lasting, and better performing. With simulation tools, we can see in a virtual environment how that product will perform in various conditions. But what if we run a huge number of simulations to create “synthetic” data and combine this with sensor data on how that product performs in the real world into the algorithm? That’s where ML and AI come in in the form of digital twins.

Basically, ML and AI harness massive amounts of synthetic and real world data to help make smarter decisions faster, without much emotion; data-driven decisions can be trusted as they take huge amounts of input from many points. In my opinion, it’s as simple as creating an environment where the algorithms will help us make the best decisions. And with Altair’s unique position in the market and software stack, we can help customers create both data-driven digital twins and simulation-driven digital twins.

In fact, we see the combination of data analytics and simulation greatly influencing these five global trends:

- Evolution toward smart, connected everything
- Drive for increased variety of products with higher quality and better aesthetics
- Electronics and controls integrated with mechanical design is driving product value
- Simulation and data-driven digital twins will drive decisions
- Massive exploration of ideas is driving need for advanced HPC and cloud

And these trends span all functions and industries – far beyond just engineering. For example, retailers, financial companies and banks are using our data analytics technology (powered by ML) to drive trade decisions and to identify fraud. Like I mentioned earlier, the limitless potential of what we can do has just begun and we will keep moving forward to find new ways of using ML and AI to help you stay competitive in the race toward the future.



James R. Scapa

Chairman and Chief Executive Officer at Altair

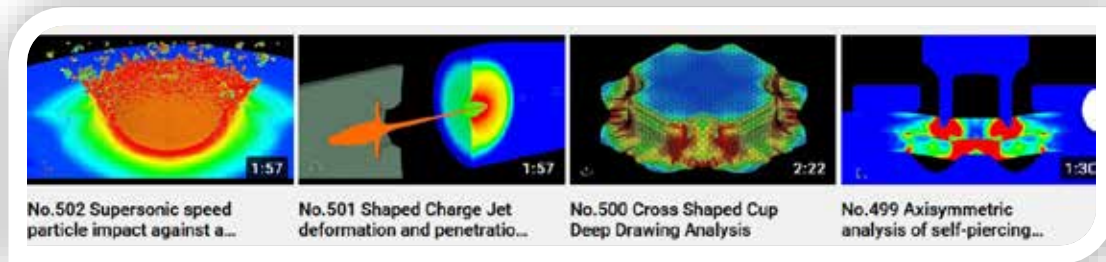
James R. Scapa brings more than 35 years of engineering experience to his role as founder, chairman, and CEO of Altair, a global company focused on transforming product and business decision-making through simulation, data analytics and optimization solutions.

Editor Note: Lancemore does LS-DYNA analysis and consulting.

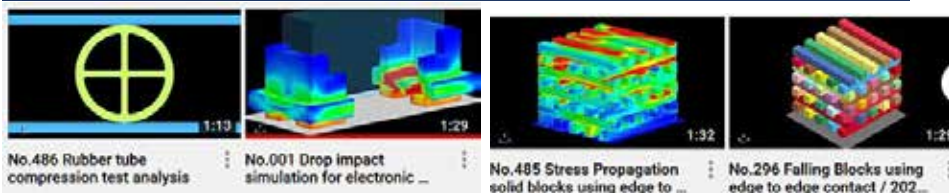
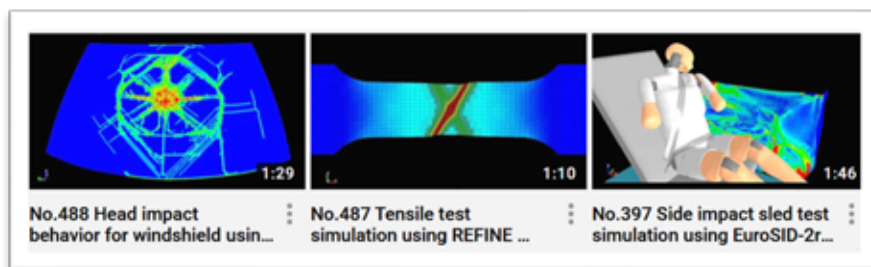
LANCEMORE Co., is one of the most advanced finite element analysis specialists in Japan, including analysis and consulting with LS-DYNA.

Among the Latest Video Simulations Below:

[YouTube Channel](#)



Previous



[LancemoreJP YouTube Channel](#) and [Website](#)

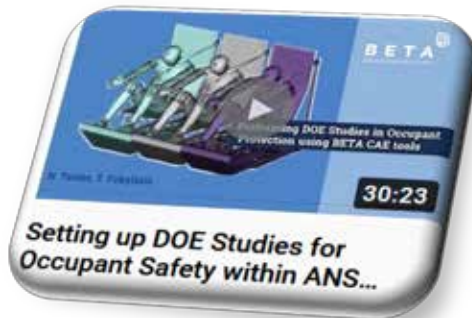
FEANTM - August - BETA CAE Systems

Editor Note: BETA CAE has a YouTube Channel with videos & webinars

[New Software Version](#)



[Setting up DOE Studies](#)



[Ansa & Meta Solutions on YouTube](#)



[BETA CAE Systems YouTube Video Channel](#)

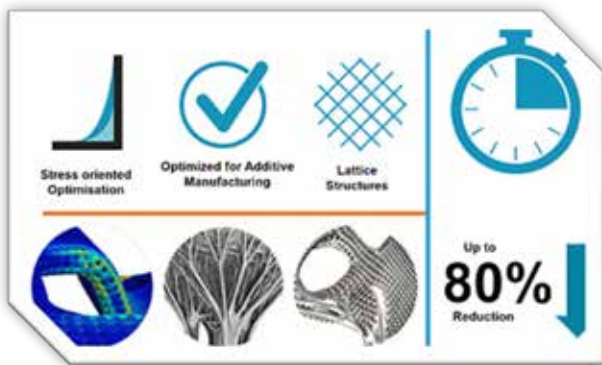
Editor Note - MSC Software develops simulation software technology that enables engineers to validate and optimize their designs using virtual prototypes <https://www.mscsoftware.com/>



Generative design habit 3: Design for productivity by Gereon Deppe

Bhoomi Gadhia

Structures Product Marketing Manager at MSC Software



Product complexity is forever increasing, while time-to-market is continuously decreasing. This puts greater pressure on achieving complete designs ever faster. Generative Design can be a game changer at this point. Built for more efficiency in product development, it alters the way we operate, and supports designers to increase their performance.

For engineers, MSC Apex Generate Design is a disruptive technology that sweeps away the traditional design cycle and replaces it with recognizably superior attributes. It significantly reduces the time to conceive, create and develop a viable engineering solution and paves the way for a 3D printed product that is right first time. A key aspect is the high-speed calculation of simulation results, some of which can be ready in minutes, and achieve the final design extremely quickly.

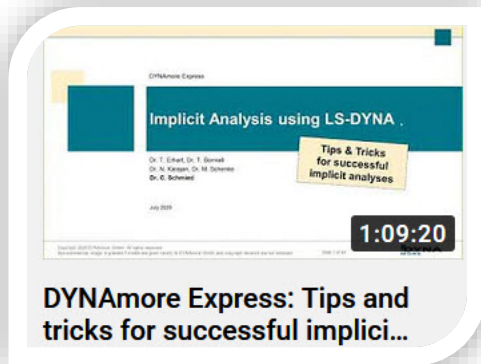
That's because the optimization engine takes advantage of the latest computing technologies for fast performance, enabling multi GPU and cloud computing, if desired. This means users can explore the design space in a time-efficient manner, ensuring the design process is not a bottleneck, and it becomes feasible to make decisions based solely on design criteria.

This blog series will explain briefly “The 7 habits of highly effective Generative Design”. Follow us in the coming weeks to learn more about it!



[MSC.Software YouTube Channel - Video](#)
[- Webinars - Updates](#)

[DYNAmore Express - Your YouTube Channel for Learning](#)



[DYNAmore Express: Tips and tricks for successful implicit analysis with LS-DYNA](#)

**Speaker: Christoph Schmied
(DYNAmore GmbH)**

In addition to the state of the art explicit finite element analysis, LS-DYNA has considerable strengths in implicit analysis where success is mostly based on good convergence behavior. With a focus on structural analysis, possible reasons for convergence difficulties and practical recommendations to improve convergence as well as accuracy are summarized and accompanied by selected examples and keyword options.

The course is suited for users with some previous experience from using LS-DYNA, or for experienced users of other implicit FE-programs.



Top 5 Features in Ansys Mechanical in 2020 R2

Our latest release, Ansys 2020 R2, continues the tradition of constantly improving our simulation solutions in response to your requests and our goals to lead the world in engineering simulation. In Ansys Mechanical, we have made significant enhancements in the areas of intelligent, advanced nonlinear structural solvers with a focus on automotive, reliable electronics and overall improved workflows. Here we highlight the top 5 new features that can help you solve your engineering challenges faster and easier.

1. Contact Detection Technique

Simulating assemblies can be challenging. Snap fits, interference and changes in loading cause parts to come into contact with each other in various ways. Ansys Mechanical features updates in its solver that increase simulation convergence success with a reduced number of iterations. These updates allow for faster and more robust solving of challenging contact problems.

2. Electronics Reliability and Modeling

With the increasing electrification and digitalization of every part of our society, electronics reliability is critical. To help with this, we have made it possible for you to open several electronic CAD file types

directly in Ansys Mechanical and control the degree of detail in components of the model. By simplifying the representation of complicated components that are not pertinent to your analysis, you can reduce setup time, start solving sooner and achieve quicker solve times.

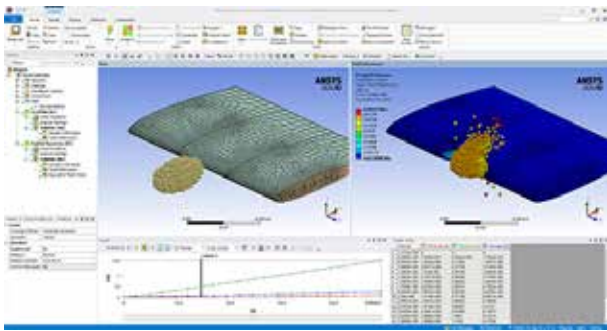
We have made the pre-processing of electronics even easier by incorporating the reinforcements workflow from Ansys Sherlock into Ansys Mechanical. This will help you to model layout and via structures at every level efficiently and accurately, including die metal layers, substrates and printed circuit boards. Sherlock now also features trace reinforcements, enabling more accurate electronic models and meshes that consist almost entirely of hexahedral (brick) elements.



The reinforcements workflow from Ansys Sherlock has been incorporated into Ansys

3. Smooth Particle Hydrodynamics (SPH) in the Ansys Mechanical UI

With our acquisition of LSTC, we have introduced LS-DYNA solver capabilities for simulating high-speed impacts, blasts or explosions in Ansys Mechanical. Our latest integration of Smooth Particle Hydrodynamics (SPH), which enables you to control the elasticity and other properties of simulated colliding particles, is now available with LS-DYNA and Mechanical. This will make your analysis of the effects of collisions easier and faster, and will enable you to perform advanced fluid-structure interaction simulations.



Ansys Mechanical now has more integration of LS-DYNA

4. Cycle Jumping to Reduce Solve Times for Thermo-Mechanical Fatigue

Cyclic-loading (fatigue) analysis is important in a variety of industries such as automotive, aerospace, nuclear power, chemical, electronics and others

where the life analysis of components is an essential part of the design procedure.

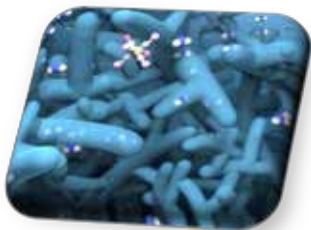
Performing a fatigue life evaluation for every load cycle of a machine or component is too time-consuming, even when using simulation. The new cycle jump feature in Mechanical reduces solve times for thermo-mechanical fatigue problems where plastic deformation accumulates over repeating load cycles. In a cycle jumping scenario, simulation results from previous cycles are used to update the fatigue state of the material after a larger number of cycles. Substituting the results of a few cycles for many (i.e. cycle jumping) dramatically reduces solve times.

5. New Parameter Fitting for Plasticity Models

Understanding material properties is key for engineers who want to minimize thermo-mechanical fatigue in gas turbines, engines and electronics, just to name a few applications. To better fit empirical test data to material models, we have added a new parameter fitting capability to improve matching for plasticity models used in these applications. We have also added artificial intelligence (AI) technology to simulations that use the Chaboche material model. The AI assumes isothermal conditions and considers only a small strain framework for modeling material behavior, which accelerates the simulations.

These are just the top 5 of many enhancements to Ansys Mechanical in the latest release.

	<p>07/20/2020 - Phalanx - The Raytheon Phalanx Close-In Weapon System is a rapid-fire, computer-controlled, radar-guided gun system designed to defeat close-in air and surface threats. Spoiler alert: this is computer graphics arama3.com.</p>
	<p>07/13/2020 - Cars in 1940 had about 15,000 parts and weighted 3,000 pounds. The B-24 Liberator Bomber had 450,000 parts, 360,000 rivets and weighed 18 tons. Ford was up for the challenge and produced 1 aircraft per hour at the Willow Run assembly plant helping to win World War II.</p>
	<p>06/29/2020 - An interesting article by By Peter Holderith who advises "The Chrysler Corporation (yes, the car company) used to have an aerospace department."</p>
	<p>06/22/2020 - A video created by minutephysics illustrates "The Astounding Physics of N95 Masks" It is informative and interesting to realize the physics behind the mask</p>
	<p>06/15/2020 - Lear Corp. created a Standard Operating Procedure (SOP) Covid-19 book for their company. It is comprehensive and can be used by many companies or as a starting point for you own SOP</p>



Mimicking the structure of the kidney, a team of scientists from Lawrence Livermore National Laboratory (LLNL) and the University of Illinois at Chicago

A schematic illustration of a 3D nanometer-thin membrane for ultra-fast selective mass transport. Illustration by Tongshuai Wang/University of Illinois

(UIC) have created a three-dimensional nanometer (nm)-thin membrane that breaks the permeance-selectivity trade-off of artificial membranes.

Highly permeable and selective membranes are useful for a wide range of applications, such as dialysis, water purification and energy storage. However, conventional synthetic membranes based on two-dimensional structures suffer from the trade-off limitation between permeability and selectivity, arising from their intrinsically limited surface area and long complex pore geometries.

Taking a cue from biological systems that achieve a highly selective and rapid

trans-membrane mass transport by employing efficient 3D functional structures, the team developed a self-supportive 3D membrane composed of two 3D interconnected channels, which are separated by a nanometer-thin porous titanium-oxide (TiO₂) layer.

This unique biomimetic 3D architecture dramatically increases the surface area, and thus the filtration area, by 6,000 times, coupled with an ultra-short diffusion distance through the 2-4-nm-thin selective layer. These features provide the 3D membrane's high separation performance with fast mass-transfer characteristics.

“Our study suggests that the 3D membrane design has great potential for overcoming the limitations of conventional synthetic membranes” said LLNL materials scientist Jianchao Ye, one of the corresponding authors of a paper appearing in the journal Materials Horizons

“The results of this work also provide fundamental design criteria for the development of high-performance nanoporous membranes,” said Sangil Kim, former LLNL scientist now at the University of Illinois at Chicago.

The team said the new 3D membrane exhibits promising applications in biomedical engineering and the energy storage area, such as membranes for lithium-sulfide and lithium-oxide batteries.

“The 3D biomimetic membrane design demonstrated in this work will ultimately enable the development of high-

performance implantable hemodialysis systems and artificial membrane lungs, thus changing the life of hundreds of thousands of Americans with total and permanent kidney failure and lung failure,” LLNL scientist and co-author Juergen Biener said.

The team also pointed out that the performance can be further improved by geometrical optimizations using 3D printing and machine learning techniques, which leads to tremendous research opportunities in the membrane field.

Other LLNL scientists include Siwei Liang, Zhen Qi, Monika Biener, Thomas Voisin, Joshua Hammons, Ich Tran, Marcus Worsley, Tom Braun, Morris Wang and Theodore Baumann. Doctoral student Tongshuai Wang (a former LLNL summer intern) from the University of Illinois at Chicago contributed to the membrane performance tests.

The research was funded by the Laboratory Directed Research and Development program, Institutional Scientific Capability Portfolio program and the National Science Foundation.

Editor Note: ESI Group is a leading innovator in Virtual Prototyping software and services.

New, lighter materials not only bring about great advances and better products, but also new problems. Read on to see how Kirchhoff Polska transformed their die design and forming process with simulation.

By Mark Vrolijk



Combating Springback with Virtual Prototyping Makes Cutting-Edge Materials Possible for Kirchhoff Polska

Kirchhoff Polska's Challenge

For Kirchhoff Polska, the use of ultra-high-strength steel (UHSS) for their parts created a springback issue that forced them to rethink how they designed and validated their die design and forming process.

The Story

In the ever-changing automotive world, the one thing that never seems to change is the pressure suppliers and OEM's are under to build lighter vehicles in shorter timeframes. Responding to the need to reduce weight, the automotive industry is making better use of ultra-high-strength steels (UHSS). They offer a lightweight option to traditional steels and can thereby contribute to reduced CO2 emissions.

Of course, it comes as no surprise that great new products bring new challenges. For UHSS, the main challenge is the springback that occurs

after forming and trimming operations – a phenomenon with which Kirchhoff Polska became all too familiar. Historically, the company designed tooling using physical trial and error and relied on their designers' experience. Facing the challenge of UHSS, they recognized this approach was not sustainable and that it was necessary to turn to virtual prototyping to address the problematics and arrive at the correct parts.

"The PAM-STAMP software has allowed us to reduce the time of reducing the springing effect several times compared to the current trial and error method. The compensation process determines the relaxed surface of the tool, which minimizes the costs associated with additional structural changes and additional machining"

Paweł Bałon, Ph.D, Senior Tooling Designer & Simulation Engineer, Kirchhoff Polska

Editor Note: ESI Group is a leading innovator in Virtual Prototyping software and services.

Kirchhoff Polska began using ESI PAM-STAMP for their tooling design and forming processes. With models of the stamping process, they were able to predict the springback of the blank after each press cycle and automatically correct the tool's surface to compensate. They were quickly able to refine tooling design and avoid delay until the start of production. Parts could be stamped without cracks and wrinkles and be produced on the assigned press line within tolerance specifications. The number of physical try-outs was drastically reduced.



Checking
part on
controlling
devices on
the shop
floor

The team at Kirchhoff Polska found PAM-STAMP beneficial not only in producing their part without flaws and within tolerances but also in exploring and predicting forming possibilities. They were able to achieve optimal and robust manufacturing processes and benefiting from process engineering. They were able to deliver parts in a shorter timeframe and with fewer resources than ever before.



Mark Vrolijk - Senior Industry Marketer - ESI Solutions

After completing his masters at the faculty of Aerospace Engineering at the Delft University of Technology, Netherlands, Mark Vrolijk started his career with ESI in June of 2000 as a technical support engineer for ESI's Virtual Manufacturing Portfolio. His specialty focus was on the sheet metal forming processes. After holding various positions in the sheet metal forming trade, including technical product manager, product marketing manager, and strategy manager, he is now currently working as a senior industry marketer for all ESI's solutions.



Rescale hacks its way into a fully distributed company culture

Garrett VanLee

Hack day events have long been part of Rescale's culture of breaking out of patterns to pursue creative problem solving. Whether intended to drum up new product ideas or encourage the cross-pollination of ideas between different teams, interdepartmental hackathons give employees the opportunity to collaborate and learn from each other. Earlier this year at Big Compute we even saw how hackathons are a great way to foster community around the question of "what problems could we solve if compute power was virtually unlimited?".



Judging hackathon presentations at [Big] Compute 20 Clash hosted by Rescale

This summer Rescale tried something new – Instead of a single day dedicated to this creative

collaboration, we dedicated a full week to hacking – and we did it as a distributed team. Similar to many other technology and cloud-based organizations, 2020 has meant transitioning Rescale employees to a fully distributed collaboration model. And we're happy to report that the first ever Rescale Hack Week, based on a first ever fully distributed Rescale team, has been nothing short of an exciting success!

With the goal of unleashing disruption, this summer's Rescale Hack Week focused on brainstorming, collaboration, and innovation, without constraints on how work or teams should be structured. Nearly 40 different project proposals were submitted, with 12 making the cut for teams to double down on. Most of these ideas were inspired by the needs of our customers or novel ideas from our engineers looking at problems with fresh eyes. Hack week teams were comprised of Rescalers from engineering, product, design, security, and HPC teams all working together to build features that have the potential to create 10 times more value for the customer. Mixing up teams sparked new conversations, challenged assumptions, and changed up routines which generated promising new solutions and ideas.

Editor Note: Rescale is a technology company that builds cloud software and services

“This was an inspirational event that challenged everyone’s creativity,” said Romain Klein, Technical Direct of Rescale’s EMEA team and hack week participant. “It’s important to collaborate on ideas outside of the norms of formal account requests. This way we can consider solutions that the customer may not have thought to request of yet.”

Rescale has talent in many corners of the globe, many of whom previously worked in an office with teammates and frequently spent time on-site with customers to understand their challenges. Hack day-like events are critical to bridging the divide of our home office spaces and invigorate the way we work.

Serge Sidorov, Rescale Application Engineer and member of this hack week’s winning team leveraged the visualization technology of a small Norwegian company to enhance Rescale’s visualization capabilities. Unique insights like this, paired with reimagining the user experience can lead to exciting things. “During my first week at Rescale it occurred to me that our product could be more transparent and interactive and ultimately give users insight and catch errors faster,” Serge said. He didn’t expect to win, but hoped his idea would gain some traction eventually.

Without regular customer interaction, you have to work harder and smarter to stay connected to the user experience. Without regular side conversations passing through hallways, you have to put in extra effort to ensure that valuable

anecdotal feedback is captured and shared, not lost in the crossfire of ceaseless chat notifications. Once product roadmaps are set, should we put blinders on in separate teams to sprint through a roadmap of set requirements? Of course not! Our hypotheses need to be tested, teams shuffled, constraints removed, and ideas refreshed on a continuous basis. Hack Week reminds us why agility and customer focus sometimes require a break from the norm.

Rescale front-end engineer, Steven Snyder, found that the inaugural hack week delivered both internal and external value. “We have to have unique processes to tease out important ideas,” he said, “and having a week gave us enough time to bring the best ones closer to fruition.”



It wouldn’t be a hackathon without some downtime for fun, so midweek the team got together for a virtual baking class to make dumplings from scratch.

FEANTM - August- Rescale Blog

Editor Note: Rescale is a technology company that builds cloud software and services

In the end, three winning teams took the podium, which means their ideas will quite possibly be woven into Rescale's product feature roadmap. Not only are engineer ideas being recognized across the company, but they will start to show up in the very product updates rolled out to customers in the future. This is no surprise, as many Rescalers first started using the Rescale platform as engineers working for other organizations.

With such strong participation in this year's Rescale Hack Week, this will not be the last. In fact, the spirit of this event has sparked other internal programs encouraging rotating collaboration and mentorship across Rescale. This can only contribute to the resilience of the company and adaptation to a new working style that is likely here to stay. We are excited to see the fruits of these programs.

Rescale is committed to hiring the most talented and curious minds around the globe who care about the future of computational problem solving. We are constantly growing our now distributed team and invite anyone interested in our careers to apply to join our team here. We look forward to meeting you and hope to see your bright ideas entered into future hackathon events!

In the end, a company is only as good as its people, and we're grateful to work amongst great people.

Hack week not only showed us that we don't have to be working in the same office to do something great as a team, but by empowering our engineers to be creative and innovative with their own ideas, we can become even greater.

FEANTM - August- YouTube Channel Showcase

Dyna Forming Engineering & Technology DFETECH



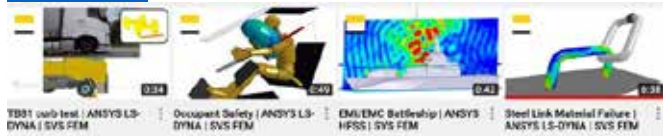
Modeling RC Column using LS-Prepost

Dynaform - LS DYNA Based Die System Simulation...

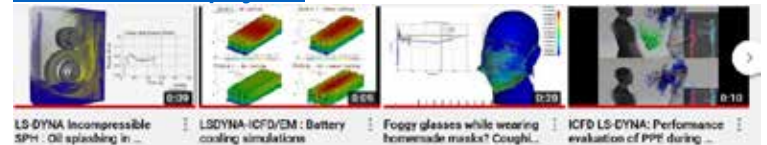
VPG Pedestrian Protection (PedPro) Analysis

Previously Showcased

SVS FEM



LS-DYNA Multiphysics



By Levy


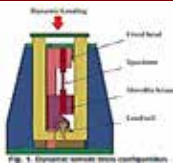
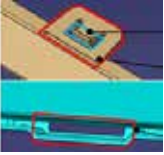


By DaveCADFEA


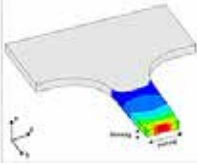
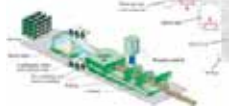
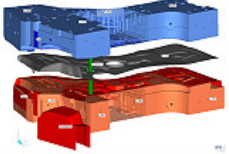
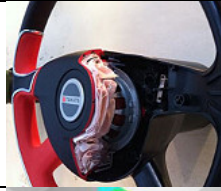
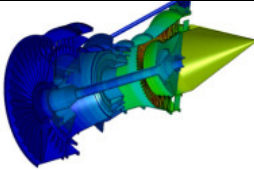
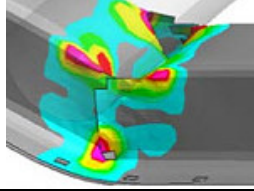



By Ameen Topa







	E. Irmak - Modeling the Energy Absorption Characteristics of Wood Crash Elements
	H. Abdulhamid - Ballistic Behaviour of UHMWPE Composite Material: Experimental Characterization and Numerical Simulation
	N. Matsuura - Development of Simple Connection Model for Plastic Parts in Low-Speed Crash Simulation




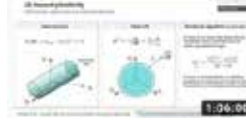

Previous

	B. Fröhlich - Virtual Testing of Curved Vehicle Restraint Systems		F. Andrade - A Hosford-Based Orthotropic Plasticity Model in LS-DYNA
	T. Tryland - A Simple Material Model for Composite Based on Elements with Realistic Stiffness		D. Sihling - Setting up a Hot Stamping Simulation considering Tool Heating with OpenForm
	L. Benito Cia (GNS) - Airbag Folding for LS-DYNA using Generator4		G. Blankenhorn - Using a Rolls-Royce representative engine model to evaluate scalability of LS-DYNA thermal solvers
	K. Saito - A New Modelling for Damage Initiation and Propagation of Randomly-Oriented Thermoplastic Composites		M. Schill - Simulation of Sheet Metal Forming using Elastic Dies

FEANTM - August - Tutorials

	<p>07/27/2020 - Maruthi Kotti - Oasys Ltd</p> <p>Session 1 - Deciphering LS DYNA Contact Algorithms</p>		<p>07/20/2020 - DYNAmore</p> <p>Setting up DOE Studies for Occupant Safety within ANSA and META</p>
	<p>07/13/2020 - Kaizenat</p> <p>Tutorial on LS-DYNA ICFD Flow Analysis</p>		<p>07/06/2020 - Peter Reithofer</p> <p>Modeling plastics in LS DYNA (Part 2) - Anisotropic Modelling of Thermoplastics</p>

Previous

	<p>06/29/2020 Peter Reithofer</p> <p>Modeling Plastics in LS DYNA - Isotropic Modelling of Thermoplastics</p>		<p>06/22 - Ameen Topa A short tutorial on how to generate solid mesh of a simplified bullet model from scratch.</p>
	<p>06/15 - Gavin Newlands Oasys Suite – Latest expert tools for LS-DYNA models</p>		<p>06/08 - Filipe Andrade MAT 024 Review of LS DYNA's popular material model</p>
	<p>06/01 - Martin Helbig</p> <p>Introduction to Material Characterization</p>		

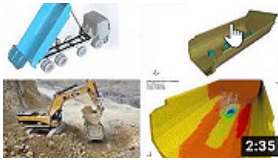
FEANTM - August- Guest Section

Editor Note - Marsha, our resident coffee drinker, is Editor of the guest Section.

 <p>07/20/2020 - I need to save time - Generative Design will help you save time. Me? I have to go back to grinding beans.</p> <p>MSC.Software - Gereon Deppe - Design for Exploration</p>	 <p>07/27/2020 - My coffee maker has visual block diagrams to make the coffee and save time. I wish!!</p> <p>Altair - Peter Darnellon - Real-Time Freedom for Motor Control</p>
 <p>07/06/2020 - Free coffee like Toyota. Not. But you can buy my coffee and they are offering THUMS!</p> <p>Toyota - Offers Free Access to THUMS Virtual Human Body Model Software</p>	 <p>07/13/2020 - Top 5 reasons for coffee? I like coffee! Below are 5 reasons for Discover.</p> <p>ANSYS - J. Hendrickson - The top-5-reasons to use ANSYS Discovery</p>
 <p>06/29/2020 - Marsha is intellectual - Okay all of you can stop laughing now!</p> <p>G. Laird - ITAR - Data Security For All Our Clients</p>	 <p>06/22/2020 - Response time of serving coffee is important but Man Bus is more important!</p> <p>E. Kam - ESI Talk - MAN Bus Reduces Response Time From Days to Hours</p>
 <p>06/15/2020 - Yes, I know I need to brew the coffee in half the time!</p> <p>MSC (James Pura) - MSC Apex makes hexahedral meshes practical and cuts the entire workflow time in half</p>	 <p>05/18/2020 Moo! I read this to the cows in the next pasture, they were very grateful for Altair's blog! Moo</p> <p>Altair - Digital Debunking: Could a Tornado Make a Cow Fly?</p>

FEANTM - August Month News

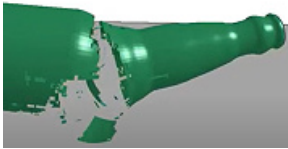
Editor Note - Our weekly website reviews, of course, with coffee references.



[Monday 07/27/2020](#) - I SO love dump trucks! I can drive one and own one. Okay, believe that lie and I will try a few more. BUT I do really love trucks and pretend my small wheelbarrow is one when I dump the horse manure in the pasture. That sentence was actually the truth.

[LS DYNA\(4K\) - Tipper Body | Mild steel vs Wear/High strength steel \(HARDOX\)](#)

DaveCADFEA



[Monday 07/20/2020](#) - First - head on over to Art's blog. Yes, you have to pay for coffee even though he's my brother! No, he won't pay for your coffee. NOW, below is why I don't put your coffee in glass bottles! OH Okay, I will discount your coffee this week five cents - yes, that was only five cents.

[Glass Bottle Breaking using| ANSYS LS-DYNA](#)

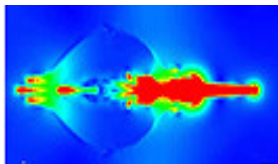
SVS FEM



[Monday 07/13/2020](#) - And it is coffee day! Well, to me, every day is coffee day. I can't have sloshing in any cup or the coffee pot. OH WAIT - let's take our coffee to YouTube and see their sloshing.

[Tank slosh - LS-Dyna Coincident Node FSI](#)

Vortex Engineering Group



[Monday 07/06/2020](#) - Sitting drinking my cafe chocolate ala supreme chocolate (just made that long name up) I was wondering about a cavitation bubble inside a coffee drop - Don't I sound impressive? Okay, I was really wondering about how many calories I put into this coffee with the chocolate! SO on to YouTube where the engineers have the real simulations and don't count the calories.

[Cavitation bubble behavior simulation inside a water drop using Structured ALE method](#)

FEANTM - August Month News

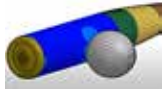
Editor Note - Our weekly website reviews, of course, with coffee references.

A few of my favorite past news



Monday 06/29/2020 - We have wind turbines here in Livermore, CA SO in honor of that we are having Turbine Chocolate Coffee all day at no fee. (well, no fee was an exaggeration but the coffee is good)

[Rotating wind turbine problem with sliding mesh using the incompressible LS](#)



Monday 06/08/2020 - Gotta love Predictive Engineering with their video below. SO, that said we will serve this week CC - Conference Coffee!!! GO US! AND now let's go watch the video

[ANSYS LST Conference 2020 LS-DYNA Exhibition Video - Predictive Engineering FEA Consulting Services](#)



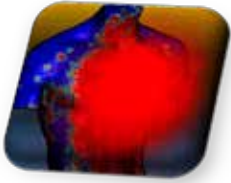
Monday 05/11/2020 -I just need to figure a mask with a straw through it where it is safe. Then I can have Mask Ala Mode Coffee flavor! I like it! NO, you can't use the straw for beer! It is only a coffee drinking idea.

[ICFD LS-DYNA: Coughing flow through porous commercial masks: FSI model adjustment around the face](#)



Monday 05/03/2020 - I'm not sure what I like most - lego's, dreaming that I own a Porsche, or dreaming of owning a Bugatti. Well since I can rule out owning a Porsche or Bugatti I will name this week's coffee Dreaming with a hint of mocha almond! I can afford Coffee - Life is good!

[LS-DYNA® simulation vs. real LEGO® crash](#) - Porsche (42056) vs. Bugatti (42083) view from left behind This video shows the crash of the Porsche and Bugatti LEGO® models from a view left behind.



Monday 04/27/2020 - OUCH! Even watching this video makes me yell OUCH and hold my coffee cup up for protection. That will work - it is magical coffee called Kevlar repell with our chocolate magical repell blast spell.

[Blast on human torso with SPH Method in the LS-DYNA](#) -

Cihan SAVAŞ - Did you ever think that what would happen if blast on human torso is performed ?



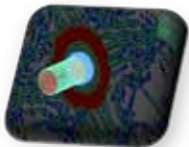
Monday 04/13/2020 - Guess where I'm NOT taking my truck on our hill! WHY you ask? Fine, grab your Coffee To Go and we'll drive, flat terrain, over to YouTube to visit Ameen.

[Rollover Analysis of Pickup Truck](#) - Ameen Topa - LS-DYNA Rollover Analysis.



Monday 04/06/2020 - AND this week's coffee is called, Pin Ball Wizard with chocolate! and MORE chocolate so grab that to go cup and let's go play!

[Self-controlling pinball simulation using LS-DYNA](#) - Sensors in LS-DYNA are used to activate or deactivate other entities, such as boundary conditions and contacts, during an ongoing simulation.



Monday 03/30/2020 - AND this week's coffee is called, Yuri with a hazlenut impact flavor! Grab that to go cup and we will head like a missile to YouTube. (oh stop groaning, I liked the missile reference)

Yuri Novozilov [Simulation of a soft missile impact on reinforced concrete slab - Sugano impact test](#)



Monday 02/17/2020 - I know where I don't want to be standing drinking my coffee! The simulation below is earthquake - All I can think of is RUN! Now, that is scary!

[LS-DYNA Simulation of the collapse of Takiyya al Sulaymaniyya](#) under earthquake loads has been done in LS-DYNA.



Coffee & Gossip By Marsha & Molly



07/27/2020 - Do you know what it's like having coffee and the owl lands on the porch post, next to you? Then the owl looks at you like, "HEY, stopping to catch a lizard. You can just drink your coffee and ignore me." So, I ignored owl and drank my coffee and took a picture. Sure enough he started staring at something on the ground and jumped down off the porch onto the ground, then flew back to their nest. The scary thing I find with the owl is that I can't hear him at all. Like silent flying! Also I can't seem to get my ferals to respect my territory, their territory. It's like they all say, "Hey, Gramma, we need to borrow your space! Go drink coffee."



07/20/2020 - Owl Baby time! Of course Owl Baby has to sit above the bobcat play cavaletti's SO, we moved the play rails down a couple of yards. Then I was worried Mom Bobcat would catch it while it was asleep so I took my coffee and sat out there an hour until it flew up to the nest. AND look at those feet - it is going to be a big owl!

07/13/2020 - I am too mad to gossip. The bobcat AFTER I do all that babysitting ate my two favorite squirrels - well at least they are missing and actually so are all the bunnies and other squirrels.

07/06/2020 - Great, now I get to worry about baby bobcats. They are next to our house in a large garden area - They play, Mom stalks, they all catch things. I am beginning to feel like one big dysfunctional feral family. Not the best focused pictures but I stay on my side - they stay on theirs.

Baby



Mom Stalking Me



Mom sitting while I have coffee





Coffee & Recipes - Marsha Victory, Molly Zhao & Friends

Welcome to recommended recipes by FEANTM friends - - If you have a favorite recipe please send it to [Marsha Victory](#) and [Molly Zhao](#)

Italian Cuisine by Corrado Tumminelli ©

corradot.blogspot.com - Contact for questions, or to say hello - corrado.tumminelli@yahoo.it

Foreword - To reproduce a dish of Italian cuisine out of Italy is simple. It's sufficient to use exactly the listed ingredients (no substitutions, no changes, no additions) with the listed quantity, and to respect the listed cooking time.



Spaghetti with sweet red pepper and crumbs of walnuts

Vegetarian - Serving: 2 - Total time: 2 hours

Ingredients...

- 10-11 oz Sweet red pepper, well mature (300 grams)
- 10-11 oz Red onion (300 grams)
- 1/2 cup of Olive oil (120 milliliters)
- 4/5 cup of Tomato sauce, the "Passata di pomodoro" (200 milliliters)
- 7 1/2 oz of spaghetti (220 grams)
- 2 walnuts



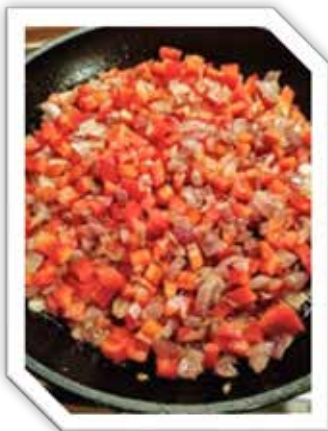
Pictures left to right.

1. Get a sweet red pepper
2. Cut off the top to open it.
3. Clean it out, throwing away the seed and the white parts.
4. Cut it in strips/Then cut into little squares (more or less like the nail of the little finger.)



Pictures Left to right.

1. Chop the red onion in little pieces.
2. Get a large pan, 10-12 inches, pour in the olive oil and the chopped onion>
Cook at medium heat until the onion is almost transparent, not colored.
To avoid burning the onion add a glass or two of water.
3. The final onion should be transparent, not colored.



Pictures Left to Right

1. Now pour in the pan all the chopped sweet red pepper and mix together
Let cook until the sweet red pepper is tender (yes, you have to taste it).
Here also you can add a glass or two of water to prevent the burning.
When all is tender move in a blender and get a cream. Just add water to get a fluid cream.
2. And now? Move the cream in the pan and add the "Passata".
Continue the cooking for 10 minutes. The cream has to be well fluid, so add water to get fluidity. Taste the result and adjust with salt. The salt has always to be added at the end of every cooking. If you are tired of all these operations, you can move the sauce in the refrigerator, covering with plastics. No more than a night, please.

Italian Cuisine by Corrado Tumminelli

corrado.blogspot.com - corrado.tumminelli@yahoo.it

OK, and now at the spaghetti. Twenty minutes before to serve the spaghetti you have to cook the spaghetti. The pasta (spaghetti, farfalle, fusilli, penne or whatever) has to be cooked **AL DENTE!!!**

The ones that throw the pasta on a wall to evaluate the “perfect” cooking should be shot at sunrise.

The pasta has to be “al dente”, so quite hard, for a good reason: the pasta has **ALWAYS** to be stir-fried.

When you stir-fry the pasta within your sauce you get two benefits: one, you enrich the pasta flavor at maximum, and, two, you can get the pasta tender as you want. So, never pour a sauce over a white pasta in the dish (the ones doing that deserve to be shot... etc. etc).



Pictures Left to Right

1. OK, put 3 gallons of water in a pot and add a pinch of salt. When the water is boiling, not before, add the spaghetti and cook until the pasta is “al dente”. Yes, you can taste, but to be sure you can simply watch how much the spaghetti bend. Take a fork of spaghetti and watch: if the spaghetti reluctantly bends they are “al dente” just to be stir-fried.
2. If the spaghetti appears so completely relaxed and glued to each other, you have overcooked the spaghetti (we say the pasta is “scotta”). Also, in the case you deserve to be shot... etc. etc.



Pictures Left to Right

1. Drain the spaghetti and pour them in the pan with the sauce.
Stir-fry the spaghetti at high heat for 4 or 5 minutes, continuously mixing.
If there is not sufficiently fluid add some water.
2. Now admire the result,



Chop the walnuts, not so little, just some coarse crumbs.



Strew the crumbs over your dish

And

good appetite!!!!



Next Month we're hoping Corrado will share his recipe he mentioned below:






"Spaghetti with yogurt, saffron and peas", very delicate and ready in 20 minutes."

corradot.blogspot.com - corrado.tumminelli@yahoo.it



Coffee & Recipes - Marsha Victory, Molly Zhao & Friends

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	Recommended By
	07/01 - Marnie Azadian - Chocolate Cake
	06/01 Harland - Low Carb Cloud Bread 3 ingredients
	05/25 Noi Sims - THAI PAD KRA PAO GAI
	05/18 Molly Zhao - Pork and Cabbage Chinese Dumplings
	05/18 Anna Danilova - Russian Shuba Salad