Oasys



BETA CAE Systems



MSC.Software



Sepp Says "Not To Miss"





Altair



DYNAmore Express



ANSYS





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Expanding, revolutionizing, aspiring to bring a variety of FEA news, software solutions, and articles.

Welcome to June - heat. I've hosed down the horses due to the hot weather, BUT then they just roll in the dirt. That leaves me with hot muddy horses. But happy horses. SO, then I decided to give the dogs a bath - Molly and Romo immediately roll anywhere. Roll on the carpet, jump on the bed.

Now, do they help little Tiki find them? NO, little Tiki is deaf and now blind in both eyes (he is happy and has a great sense of smell - he sure can find the kitchen.) I'd hoped that my Molly and Romo would act as guide dogs for him. WRONG! My Molly is like, let's run, and he can't find us! Okay, back to engineering!

This month we have some great news and information for you.



Marta Kempa, MBA
Marketing Coordinator, Oasys LS-DYNA Environment

May issue of the Oasys LS-DYNA newsletter is now available on our website! One of the exciting news we would like to share is our very first Top Tip video by Rory Bradshaw.

May News Letter

Sepp Says, "Not To Miss"





Don't miss out on the /Marc-2020-E-Book

Bhoomi Gadhia

Structures Product Marketing Manager at MSC Software



Through this ebook, which we have called 'Smart Nonlinear FEA Simulation,' we hope you will gain valuable insights into the usage of nonlinear structural simulations in recent research, development, production, and manufacturing.

Editor Note: Oasys now offers Uploaded Webinars for viewing

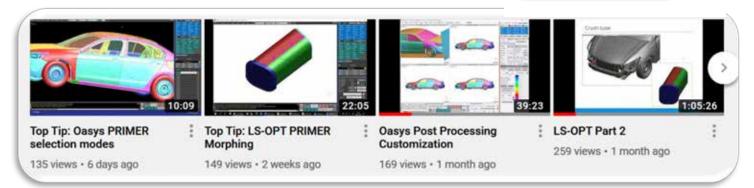


May issue of the Oasys LS-DYNA newsletter is now available on our website! One of the exciting news we would like to share is our very first Top Tip video by Rory Bradshaw.

May News Letter AND Below is our Not To Miss on YouTube

Sepp Says, "Not To Miss"





A series of webinars on line for the Oasys LS-DYNA Environment

We're pleased to bring you this series of webinars that detail the new features of the recently released Oasys Suite 17.0 as well as recent LS-DYNA developments:

The following 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

As a reminder, we recognize that our users enjoy meeting in person so we hope to reschedule our Users' Meetings for later in the year. Please get in touch if you have any queries.

Editor Note: The below article in full is located and copyright to the Altair Blog

By Altair Partner Alliance on May 28, 2020



Simulating High Pressure Die Casting with Full Process

Contributed by Håkan Fransson, Novacast, head of casting process simulation

Historically most simulations of high pressure die casting process have been done with the "biscuit" method. The biscuit method means that you are not simulating the whole process but only the shot (casting + ingate system + the biscuit), meaning that filling starts at the point where the biscuit begins.



Biscuit simulation

This is a simplification that makes the simulation less accurate. The reasons for making simulations like this are:

 Computer memory – A full process would need too many calculation elements and thus too much memory that was not in a normal computer. The full process adds 300-800mm calculation elements in x or y direction because of the length of the chamber.

- Calculations took too long to be practical with a full process.
- Many simulation programs could not properly simulate piston movement just five years ago.

When it became possible to make full process simulations (meaning gravity filling of chamber followed by piston movement) for high pressure diecasting simulations, some things were noticed:

 We could more accurately investigate the effect of different velocities and switch points since they now were set by millimeter piston movement instead of time or trigger points. Along with this, possible waves were detected that could potentially enclose air. Editor Note: The below article in full is located and copyright to the Altair Blog.

By Altair Partner Alliance on May 28, 2020

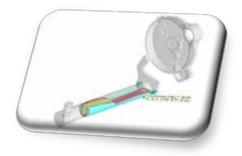


Piston Movement

Most simulation engineers have used too high pouring temperatures for their biscuit simulations. We discovered this when we started to simulate the full process with chamber filling and piston movement that the temperature drop was significantly higher than we thought. We noticed temperature drop in the chamber of up to 100°C and in some cases also over 100°C. This was later also verified at different foundries by thermocouple readings. We also found the same temperature drop in a project by the Swedish Foundry Association.

Piston movement simulation

- Gas bubbles are created both during gravity filling of the chamber but also by the piston movement. These bubbles continue into the casting and contributes to the gas porosities in the casting.
- Effect of too high or too low filling ratio in the chamber could be studied. For example, a very low filling ratio results in high amount of solidification percent during the filling of the chamber.



NovaFlow&Solid uses "multi-mesh," meaning that different sized mesh can be used for the whole calculation domain during certain times in the simulation making it possible to simulate the gravity pouring of chamber followed by the piston movement just in minutes. In this way you can concentrate the simulation time on the most important part of the simulation – the filling of the casting cavity.

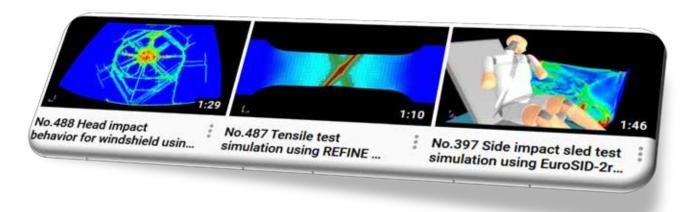
On June 16, a webinar will be held by Johannes Jerg, founder of Jerg Engineering, addressing this part of the simulation process and namely the piston movement simulation. Register here for this webinar.

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

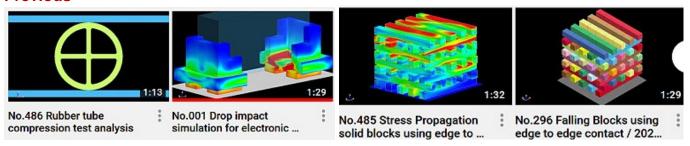
LANCEMORE Co., is one of the most advanced finite element analysis specialists in Japan, including analysis and consulting with LS-DYNA.

Latest Video Simulations Below:

YouTube Channel



Previous

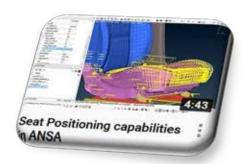


LANCEMORE Co. serves individuals and organizations from various industries including:

- Aerospace, Automobile, Aviation, Architecture, Construction, Electronics,
- Machinery, Military, Medical, Security

LancemoreJP YouTube Channel and Website

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



<u>Seat Positioning capabilities in ANSA</u> - A brief introduction to the Seat Positioning tools and their capabilities in ANSA.

NEERE: Everyone Virtually Anywhere -

NEERE is an on-premises collaboration environment, tailor-made for CAD/CAE engineers. It enables teamwork and boosts productivity through the direct engagement of users from all over the globe, in a secure, enterprise-ready, multi-OS web platform.



Dummy positioning in ANSA

This video demonstrates the tools of ANSA for dummy positioning. More specifically:

- the Articulation tool for positioning the dummy model in ANSA.
- the Marionette tool for creating pre-crash simulation for dummy positioning in LS-DYNA/RADIOSS.

BETA CAE Systems YouTube Video Channel

FEANTM - June - MSC.Software

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



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Bhoomi Gadhia

Structures Product Marketing Manager at MSC Software



Through this ebook, which we have called 'Smart Nonlinear FEA Simulation,' we hope you will gain valuable insights into the usage of nonlinear structural simulations in recent research, development, production, and manufacturing.



US Army Use of MaterialCenter for Metals Additive Manufacturing Data Management PDF

MSC Software's Engineering Reality magazine highlights the best in CAE simulation today, featuring user case studies, return on investment, application and industry commentaries, and the latest stories in design & engineering simulation



MSC.Software YouTube Channel - Video - Webinars - Updates

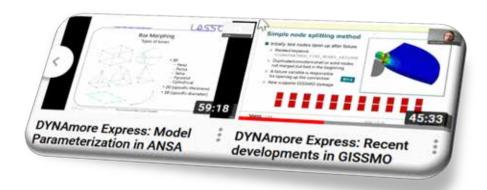


Editor Note - Dynamore Express is part of DYNAmore Germany and DYNAmore Nordic information

DYNAmore Express - Your YouTube Channel for Learning







Editor Note - For full links please visit the ANSYS Blog or YouTube Channel



About every two years, the European New Car Assessment Programme updates and toughens its protocols. As the 2020 assessments significantly differ from previous years, Euro NCAP animated its changes.

YouTube Euro NCAP
Illustrates New Protocols of 2020



With Ansys <u>VRXPERIENCE</u> Perceived Quality, you can improve the final quality of your product by detecting lighting issues and unwanted reflections early in the design process. Virtually experience your product thanks to 360 VR offline simulation with dynamic lighting control

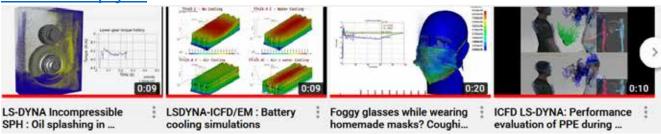




ANSYS Uploads to YouTube Not To Miss



LS-DYNA Multiphysics



Previous

By Levity

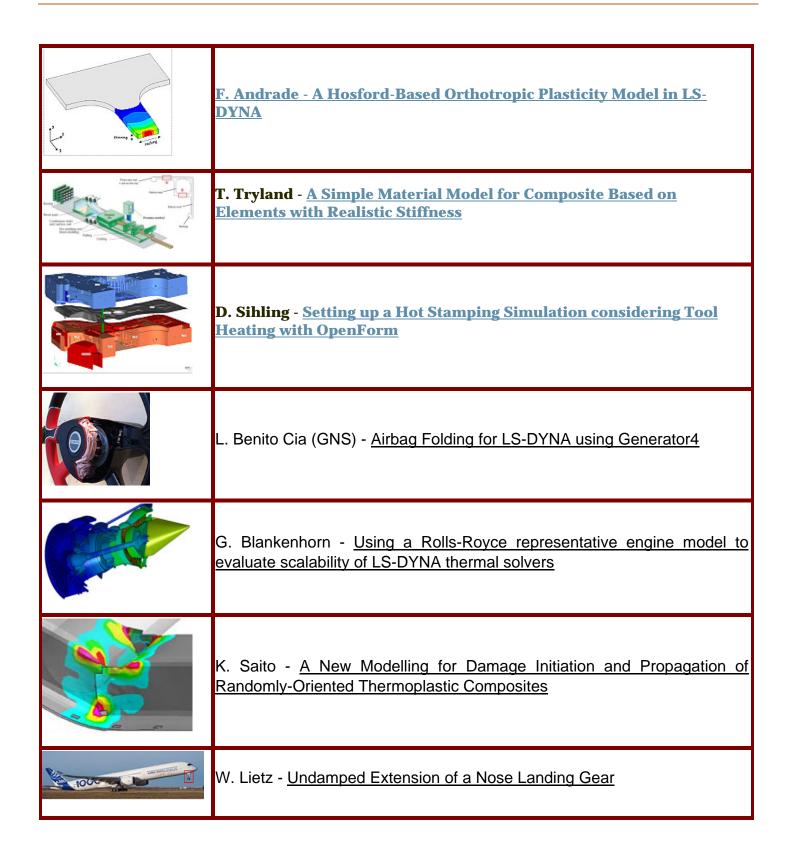


By DaveCADFEA



By Ameen Topa





	M. Schill - <u>Simulation of Sheet Metal Forming using Elastic Dies</u>
FEA Information Magazine	March FEA Information News Magazine Issue
	D. Aggromito - <u>Application of Impact Simulation for Protective</u> <u>Barrier Design</u>
Procedure, you want from your of the state of the first	T. Klöppel - <u>LS-DYNA Developments in the Structural Conjugate Heat</u> <u>Transfer Solver</u>
	A. Rühl, - <u>Bolted Joint Connections of FRP-Components in</u> <u>Submarines Subjected to Underwater Shock</u>
Oasys PRIMER Bolt & Adhesive Connections	03/30/2020 - Gavin Newlands - <u>Oasys PRIMER</u> <u>Connections – Bolt and Adhesive Modelling</u>
L 3424	03/23/2020 -Ameen Topa - <u>Tensile Test with Solid Elements and Variable Thickness Shells</u>
COCCOCA POSS William and Auditoriam and Marketina and Mar	03/08/2020 - Total CAE - <u>Submit LS-DYNA to HPC Clusters and Cloud with TotalCAE</u>

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

06/01/2020 I want an electric vehicle - tractor, wheelbarrow, etc. AND coffee holder on all. by Peiran Ding, Ph.D - <u>How to Make Electric Vehicles Safer and Cheaper? Start by Analyzing the Battery</u>
05/25/2020 - I make two cups of coffee, so if I spill one I still have one that's the same. ANSYS - Manufacturing Digital Twins Can Help Prevent Line Change Disruptions
05/18/2020 Mooo! I read this to the cows in the next pasture, they were very grateful for Altair's blog! Mooo



05/04/ - I will name a coffee Formula 1 - a very fast blend.

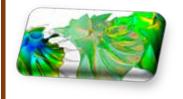
Altair - Digital Debunking: Could a Tornado Make a Cow Fly?

From BETA CAE Systems - Webinar - CFD geometry preparation of a Formula-type car



04/20 - This is to important to miss.

From ESI Blog: Computers Unite: Fighting Back Against COVID-19
What's faster than the top seven supercomputers in the world, combined?



04/13 - I think a molding process for my coffee cups is important - NOT!

From Altair Blog: Dr. Wolfgang Korte for Better Simulation of the Vibration Behavior of Structural Parts

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



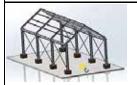
03/30 - I use tasting techniques to get my coffee to the correct results.

<u>Predictive will show you projects that involve nonlinear analysis</u> techniques to arrive at the correct result.



03/23 - Now I just need one for a tractor and I am set for the ranch.

<u>GM's all-new modular platform and battery system</u> (Photo by Steve Fecht for General Motors)



03/08 - I live on a ranch and I can use this to build a shed for hay, grain, saddles, tractor, COFFEE!

Kaizenat Support - Factory Shed design using Solidworks 2020



03/02 - I am SO glad my coffee machine does not give off emissions.

Keith Hanna - You can save the planet with design & engineering simulation



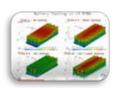
02/24 - And when we don't want a cup of coffee, how about some wine? BUT, keep in mind aeration.

Bill Kulp - Can You Aerate Wine by Pouring it From the Bottle?



02/17 Recommended by J.Racso. Personally, I (Marsha) wish I kept my Chevy S-10.

Crash Test 2019 Pickup Trucks – F150, Ram, Tundra, Titan



Monday 06/01/2020 - Being on the ranch battery cooling is important - then again anything I use that has a battery. SO we will have BC - battery coffee without the battery SO we will add chocolate! I bet you all knew I'd add chocolate.

LS-DYNA -ICFD/EM: Battery cooling simulations



Monday 05/25/2020 - Now while munching the cake, at least two slices, we are going to watch oil in a gear box on YouTube monitor. LS-DYNA Incompressible SPH: Oil splashing in gearbox

Let's grab a cup of coffee and start with a pdf of an article by Art Shapiro,

Covid-19: An Engineer Trying to be an Epidemiologist



May 18 - Next we join with another Covid-19 solution below:

Foggy glasses while wearing homemade masks? Coughing through a homemade mask, an ICFD/FSI solution



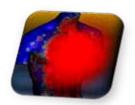
Monday 05/11/2020 -I just need to figure a mask with a straw through it where it is safe. Then I can have Mask Ala Mode Coffee flavor! I like it! NO, you can't use the straw for beer! It is only a coffee drinking idea.

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!

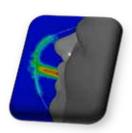
<u>LS-DYNA® simulation vs. real LEGO® crash</u> - Porsche (42056) vs. Bugatti (42083) view from left behind
This video shows the crash of the Porsche and Bugatti LEGO® models from a view left behind.



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 repel 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 04/20/2020 - To enter my coffee shop you MUST have on your masks. If you can remember to put on a shirt, or tie, or skirt, or spike heels, you can certainly remember a mask. NOW, YES you can sip coffee by picking up the mask and not breathing at someone! I AM MAD at people breathing without masks! GRRRRRR, snarl, snap, bite!

LS-DYNA ICFD Solver is used to simulate porous flow through masks.

For more information contact: support@kaizenat.com



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

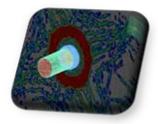
Ameen Topa - LS-DYNA Rollover Analysis. In the starting part of the simulation, the vehicle rolls and falls to the ground due to the gravity load.



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!

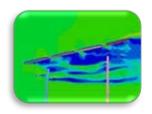
Self-controlling pinball simulation using LS-DYNA

Sensors in LS-DYNA are used to activate or deactivate other entities, such as boundary conditions and contacts, during an ongoing simulation. You can use sensors to add complexity to your model and make the model more self-controlling.



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 missle to YouTube. (oh stop groaning, I liked the missle reference)

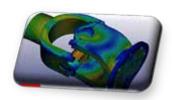
Yuri Novozilov <u>Simulation of a soft missile impact on reinforced</u> concrete slab - Sugano impact test



Monday 03/23/2020 - Today we have Blue Tokai Coffee AND another great video from Kaizenat Support. AND since I live in California Solar is important.

FSI(Fluid Structure Interaction) Simulation performed to study the Solar Panel structure Response for the Cyclone Wind load.

Monday 03/16/2020 - I apologize, but I'm exhausted and can't post. Tiki had major eye removal surgery on one eye. 03/30/2020 - He does amazing with one eye - he touches a wall, backs up and goes a different direction - Dog great, I am a nervous wreck wanting to keep guiding him.



Monday 03/08/2020 - Well, since I just replaced my transmission and driveshaft in my Ford Sport Trac, the below is crucial to me! This week we will have UJV. That stands for Universal Joint Coffee and as always with a tad of chocolate! NOW, let's get jogging to YouTube for aerobics for that chocolate calorie intake! OH like an intake manifold?

<u>LS-DYNA - Failure simulation of a universal joint</u> Simu-K-Inc



Monday 03/02/2020 - I like this filling simulation because my coffee cups fill like that! It would be nice to see the coffee swirl into a cup. SO off we go to YouTube at a jog, for cardio, and then we can drink coffee and have a muffin!

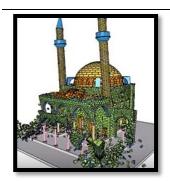
3D Mold filling in Ls-Dyna using level set



Monday 02/24/2020 - At times I think my coffee needs a protective screen! But it tastes so good I drink it to quickly so I guess we can just visit Simu-K Inc and their below simulation.

Simu-K Inc. - Simulation of a protective screen for tank fail

A multiphysique simulation with LS-Dyna. Liquid is modeled with SPH and the protective screen use finite element with material plasticity.



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!

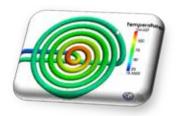
<u>LS-DYNA Simulation of the collapse of Takiyya al Sulaymaniyya</u> under earthquake loads has been done in LS-DYNA.



Monday 02/10/2020 - Well, now I know what my car will look like if I run into one of the below wires. But my vehicle starts yelling at me if I go off the line it wants. It shakes the wheel; it screams - COFFEE USE BRAKE! COFFEE WATCH LANE - you would think it wants to own a coffee shop and has its flavors picked out!

Car impact into wire rope safety barrier

Simulation of an impact of a 900 kg car to wire rope safety barrier.



Monday 02/03/2020 - Cafe Coil is our new product. It is small and will heat your coffee which is why I have the below simulation. Pop Quiz - What software rules Heat Transfer? No coffee for you if you didn't answer LS-DYNA.

LS-DYNA conjugate heat transfer in a coil heated by an electric current

Predicting the temperature of the coil to which a current is applied.

FEANTM - June - C&G coffee & gossip

Editor Note - Good news is Marsha is done with clouds but not the varmints!



06/01/2020 - HOW the heck did we get to half a year is gone. Well, I guess welcome to June! This will be the last squirrel picture (yes, I heard someone yell "About Time!")

BUT they were too cute not to take a picture of. And, what will we do for the second half of this year? DIET!!! AHAHAHA The same weight I made a new year's resolution about and OOPS didn't lose it.



05/25/2020 - My squirrels have to shelter in place and social distance - I call this swim day. Sitting on the edge of the water bowl, leaning down to take a drink of the water. Hawk can't swoop down since Ranch Mom is cleaning horses. No Hawk - No Squrriel COVID - no little COVID squirrel mask needed today. Yep, good day!



05/18/2020 -Now since you're engineers, I have a pop quiz. The first clue - is the old blue 10 cu ft. Wheelbarrow. Second is my happy new green one that is only 4.5 cu ft. Third

- Picture them filled with horse manure (I didn't want to gross anyone out with horse manure filled bins)

Okay now, 1) steep hill 2) Me at 70 3) Which one can I push further up the hill? 4) How dumb was this quiz! Grin!



05/11/2020 Okay, I am into the baby squirrels, BUT I now noticed 3 bobcats on the property. SO, guess what they like for dinner! UGH

Editor Note - Good news is Marsha is done with clouds but not the varmints!





05/04/2020 - It is BABY bunny time of year and baby squirrel. Okay, baby rattlesnakes but not in the pictures, and they meet a terrible ending, if they come on the property, sad but true. SO back to bunnies, and squirrels!



04/27/2020 - SEE, even the cattle can do social distancing! They moo to each other and have grazing togethether BUT at a safe MOOOO distance.

NOW on a scale of 1-10 how dumb was this post? NO, I don't want to know your answer to the question!



04/13/2020 - Okay, due to the information about clouds and the question of why all the cloud pictures you will be pleased that I have a picture of Romo trying his Virus Mask or his look of What Is She Trying To Put On My NOSE?

FEANTM - June - YES, it is my sky pictures & Gossip

Editor Note - We still have no choice - she likes looking at clouds!

















Coffee & Recipes

Marsha Victory, Molly Zhao & Friends

Welcome to recommended recipes by FEANTM friends - picked from

YouTube. - If you have a favorite recipe please send it to Marsha Victory

and Molly Zhao

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