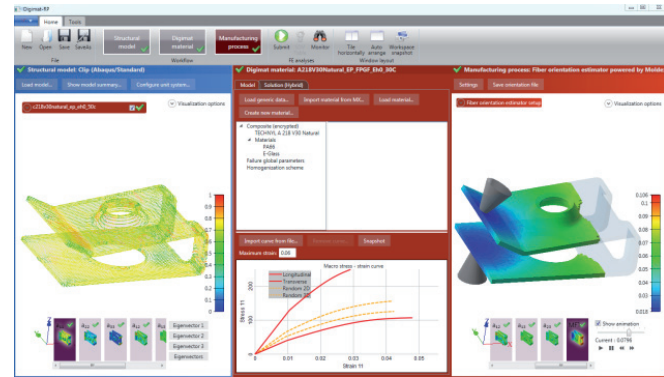


e-Xstream engineering, an MSC Software Company

e-Xstream engineering is a software and engineering services company 100% focused on state-of-the-art multi-scale modeling of complex multi-phase composites materials and structures (PMC, RMC, MMC, nanocomposites, hard metals, etc). e-Xstream engineering helps material suppliers and end-users to:

- Investigate and predict the behavior of a large mix of composite materials
- Design & manufacture innovative high-performance composite parts
- Minimize weight, cost and time-to-market optimal composite industrial parts
- Improve prediction of structural FEA by accounting for manufacturing process
- Reduce material testing and prototyping



e-Xstream develops Digimat, the unique nonlinear multi-scale material and structure modeling platform (winner of JEC Innovation Award 2015 and ACE Award for Excellence in Composites Excellence (SAMPE&ACMA) in 2015) that addresses composite material suppliers' and end users' needs to design and manufacture innovative high-performances products while minimizing their weight, cost and time-to-market.

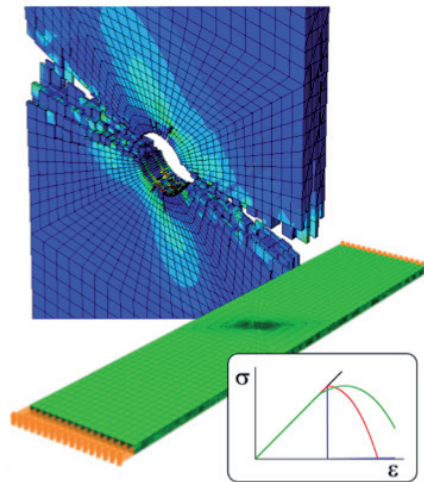
e-Xstream provides its customers with a complete and optimal modeling solution that suits their specific needs and integrates their existing design processes; from the compounding of the raw material (e.g. engineering plastics, rubber, CFRP, hard metals, nanocomposites, sandwich panels, etc.) to the processing (e.g. injection molding) and application in the final product.

Digmat

Digmat is a unique material modeling platform that empowers the users to optimize the design of their composite parts and systems with high accuracy. Digimat enables detailed analysis of composites by linking manufacturing processes to the final performance of a part. It uses the location and direction of the fibres, residual stresses and temperatures predicted by process simulation methods, to build a high fidelity, fully anisotropic nonlinear material that can be used within structural analysis codes such as LS-DYNA to predict the behaviour of a part.

Digmat is fully integrated within the CAE landscape. It deals with different manufacturing processes (injection, compression, drapage, casting, ..), supports major process simulation software, interfaces with leading finite element codes, addresses multiple composite materials (chopped fiber, UD, woven, mucel, MMC, CMC, ...), and different performances (NVH, stiffness, failure, crash, creep, fatigue).

Digmat is considered the standard solution in the market today for composites modeling and design optimization and is used widely by a large community in the automotive industry as well as material suppliers, aerospace, academic and R&D institutions.



LS-DYNA

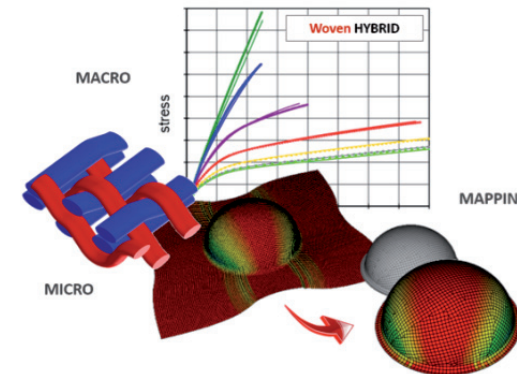
LS-DYNA is one of the world's leading finite element software systems and is perfectly suited to perform numerical simulations of highly nonlinear problems encountered in industry and research. Typical applications include crashworthiness, metal forming, impact and drop tests, detonations, penetration/perforation and fluid-structure interaction as well as thermomechanically and electromagnetically coupled problems.

With LS-DYNA, the Livermore Software Technology Corporation (LSTC) offers a well-equipped toolbox that includes explicit and implicit time integration schemes and spatial discretization methods such as FEM, BEM and ALE as well as meshfree methods like EFG, SPH and DEM. The primary focus of the developers at LSTC lies on the one code strategy to integrate different solution algorithms within a single software environment which includes coupling abilities of the structural solver with the solvers for incompressible and compressible fluids, temperature and electromagnetism.

This allows different simulation stages to be joined together within LS-DYNA without the need to define a time-consuming transition to other software packages. And this in turn means that LS-DYNA can be used to efficiently perform simulations across multiple processes.

Besides LS-DYNA and LS-OPT, LSTC also develops the free pre- and postprocessor known as LS-PrePost. The programs support the Linux, Windows and Unix operating systems as well as various cluster architectures and HPC systems.

A coupling to the Digimat software suite is available for various element formulations for solid as well as shell structures and can be used for a static analysis with the Digimat-to-LS-DYNA implicit coupling as well as for highly dynamic simulation problems such as full car crashes with the Digimat-to-LS-DYNA explicit coupling.



Invitation to the free information day

Fast and Efficient Simulation of Fiber Reinforced Plastics Components and Systems using Digimat-to-LS-DYNA

27 June, Stuttgart, Germany



In cooperation with



Printed on paper made from 60% FSC certified recycled fibres and 40% FSC certified pulp.

Fast and Efficient Simulation of Fiber Reinforced Plastics Components and Systems using Digimat-to-LS-DYNA

The use of composites and reinforced plastics is dramatically increasing today and the requirements for designing high performance, lightweight and cost-effective components and vehicles are becoming tighter than ever in the automotive industry

Numerical simulations used early in the design stage help engineers to come up with the optimum design in a reasonable timeframe. However, when it comes to predicting the behaviour of fiber reinforced plastics and composite materials, unless these methods are able to take into account the anisotropy of the part and its process dependency, it is difficult to rely on the results for design optimization.

Digimat is a Multi-scale modeling tool that takes into account the impact of manufacturing process and the local microstructure of the material in the final performance of a part. Digimat uses the location and direction of the fibres, residual stresses and temperatures predicted by process simulation methods, to build a fully anisotropic nonlinear material that can be used within structural analysis codes such as LS-DYNA to predict the behaviour of a part. Digimat Material models cover multiple material performances: NVH, stiffness, crash, failure, creep and fatigue.

Digimat coupled to LS-DYNA empowers the engineers to reduce the number of prototype iterations and to accurately model the crash behaviour of fiber reinforced plastics components and systems. This solution helps them to optimize the cost of toolings and the performance of their design.

This seminar aims at providing an overview of how Digimat bridges the gap between process simulation and crash analysis with LS-DYNA through anisotropic material characterization. It will cover injection molding processes, chopped fibers reinforced plastics components and systems and will demonstrate the efficiency of Digimat to LS-DYNA analysis solution through real-life customers applications in the automotive industry.

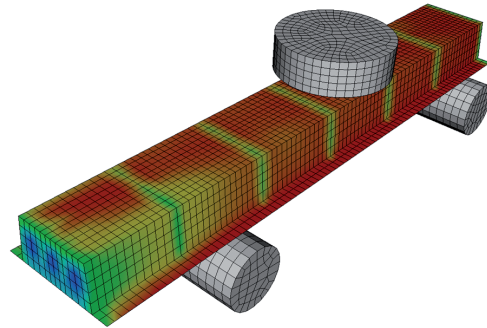
We would be pleased to welcome you at the seminar.

DYNAMore in cooperation with e-Xstream engineering



Agenda

- 13:00 Welcome
- 13:15 Metal to Plastics Conversion, Plastics to Plastics Optimization: Reduce the Weight of your Component with Confidence!
 - Characterization of Chopped Fiber Reinforced Polymers
 - End-to-End Solution using Digimat and LS-DYNA
- B. Altseens (e-Xstream engineering)
- 14:15 Industrial Applications from Real-life Customers Projects
 - S. Calmels (e-Xstream engineering)
- 15:15 Coffee break
- 15:45 Calibration and Evaluation of Digimat Elastic-Viscoplastic Material Model on Coupon Level
 - C. Liebold (DYNAMore)
- 16:15 Digimat for Short Fiber Reinforced Plastics Modeling at Volvo Car Corporation
 - M. Landervik (DYNAMore Nordic)
- 17:00 Questions & Answers



Courtesy of e-Xstream engineering / Rhodia

Organization

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 DYNAMore GmbH
 Industriestr. 2, D-70565 Stuttgart, Germany
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 Fax +49 (0)711 - 459600 - 29
 E-Mail: info@dynamore.de
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Registration
 Please use the registration form or register online at
 www.dynamore.de/info-comp.

DYNAMore GmbH

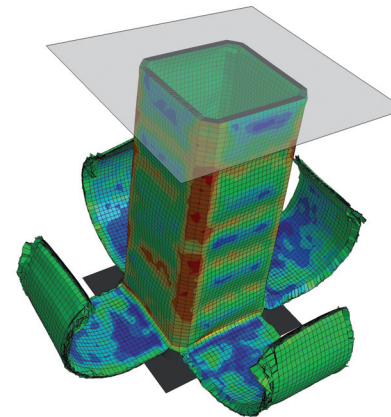
DYNAMore is dedicated to support engineers in solving non-linear mechanical as well as multiphysical problems numerically. Our product portfolio includes the finite element solver LS-DYNA, the pre- and postprocessor LS-PrePost and the optimization software LS-OPT as well as numerous finite element models needed for crash worthiness simulation (dummies, barriers, pedestrian and human models,...).

Furthermore, we provide and support the link to the Digimat software suit developed by e-Xstream (an MSC Software company) to fully support the modeling of fiber reinforced plastic components from the process simulation until the structural analysis within LS-DYNA. In addition, we provide engineering services for numerical analysis and integrate simulation software in your CAE environment.

Our advanced training offer includes classical seminars, workshops, webinars, support and information days as well as LS-DYNA user conferences. More detailed information can also be found on our support and tutorial web sites: www.dynasupport.com and www.dynaexamples.com.

We are one of the first addresses for pilot studies and development projects with respect to the simulation of nonlinear dynamic problems. We are always at your disposal to answer your questions on specific application as well as test licenses.

You will find DYNAMore in Stuttgart, Dresden, Ingolstadt, Berlin, Langlingen, Zurich (CH), Linköping (S), Gothenburg (S), Torino (I) and Versailles (F).



I herewith register for free of charge information day

"Fast and Efficient Simulation of Fiber Reinforced Plastics Components and Systems using Digimat-to-LS-DYNA" on 27 June in Stuttgart, Germany.

Sender

First name: _____

Last name: _____

Company/University: _____

Dept.: _____

Street: _____

Zip-code, city: _____

Phone: _____

Fax: _____

E-Mail: _____

Date, Signature: _____

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