DYNAmore GmbH
Industriestr. 2
D-70565 Stuttgart
Germany

DYNAmore GmbH

DYNAmore is dedicated to support engineers to solve non-linear mechanical problems numerically. Our tools to model and solve the problems are the finite-element software LS-DYNA as solver and LS-OPT for optimization.

We sell, teach, support, and co-develop the software LS-DYNA and LS-OPT. In addition we provide engineering services for numerical analysis and integrate simulation software in your CAE environment.

The majority of our customers are from the automotive and aerospace industry. Many companies value the services of DYNAmore. Some examples

- 13 of the 15 biggest car companies
- 11 of the 15 world wide biggest automotive suppliers
- All OEMs located in Germany
- 9 of the 10 largest German automotive suppliers
- The vast majority of German engineering services companies for crash simulation
- Almost all OEMs world wide use the dummy models developed by DYNAmore

The majority of suppliers for crash relevant parts in the automotive industry use LS-DYNA. LS-DYNA is likely to be the most frequently used explicit finite element code.

DYNAmore GmbH
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www.dynamore.de

Organization of Two-day Seminars

Fees
1,100 € per participant
50% academic discount
Students free of charge, provided there are vacancies
All prices are subject to VAT, if applicable

Duration
9:00 AM - 5:00 PM

Location
DYNAmore GmbH, Headquarter Stuttgart

Registration
Please use the registration form or register online:
EFG/SPH: www.dynamore.de/meshless13e
ALE/FSI: www.dynamore.de/ALE13e

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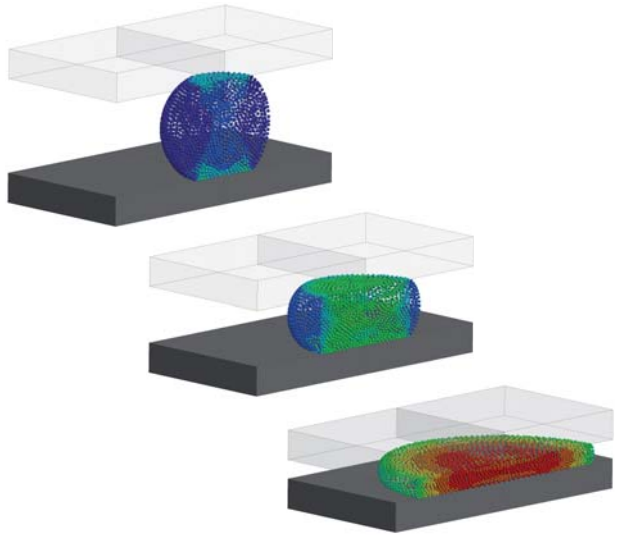
Invitation to seminars

Advanced Modeling Techniques in LS-DYNA

Stuttgart, Germany

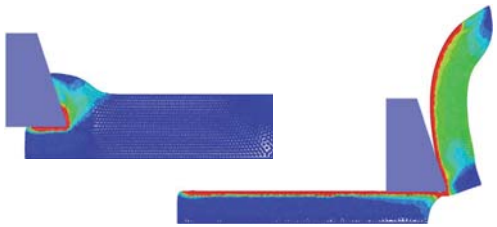


EFG/SPH – Meshless Methods in LS-DYNA
12-13 September

ALE and Fluid-Structure Interaction in LS-DYNA
26-27 September

EFG/SPH – Meshless Methods in LS-DYNA

This seminar will introduce attendees to the application of the meshless methods "Element-Free Galerkin" (EFG) and "Smoothed Particle Hydrodynamics" (SPH) in LS-DYNA. The seminar will outline the theoretical bases and thoroughly refer to the settings required in the LS-DYNA input deck in order to carry out an EFG/SPH simulation. Examples will be used to get an even better understanding of how to use these methods. The seminar is recommended for engineers already experienced in the use of LS-DYNA who intend to apply meshless methods.



Contents

EFG (Day 1)
- Overview of current meshless methods
- Non-linear EFG formulation
- Advantages and limitations of the method
- Coupling EFG with the finite-element method
- Scientific developments in mesh-free methods
- Current status and future plans

SPH (Day 2)
- Development (history) of the method
- General possibilities/applications
- Coupling SPH with finite elements
- Principle of the method
- Neighbor search
- Input parameters using an example
- Pre- and postprocessing with LS-PrePost

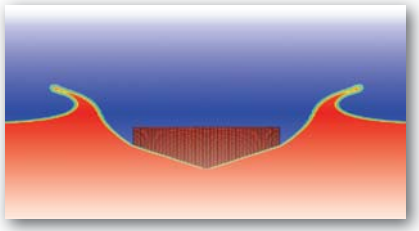
Lecturer

Dr. C.-T. Wu is working for LSTC as a senior software developer and was significantly involved in the development and implementation of the meshless methods in LS-DYNA. He received his PhD from the Northwestern University with Prof. Ted Belytschko.

Date:	12 - 13 September, 9:00 - 17:00
Location:	Stuttgart, Germany
Language	English
Costs	1.100 Euro plus VAT
Registration:	www.dynamore.de/meshless13e

ALE and Fluid-Structure Interaction in LS-DYNA

This course covers the features in the solver provided to analyse fluids and, in particular, the interaction of fluids and structures using the Arbitrary Lagrangian Eulerian (ALE) capabilities. The theoretical background to fluid modeling in LS-DYNA is presented and illustrated with several practical applications. Problems solved during the workshop include tank sloshing, tank dropping (partially and completely filled), viscous flow in a channel, underwater explosion, bird strike, ship collision and acoustics in air and water. There is no deep knowledge of fluid dynamics required.



Contents

- Lagrangean formulation (relevant mathematical equations, discretization and numerical solution)
- Eulerian formulation of one material (relevant mathematical equations, operator-split technique, advection ratio)
- ALE formulation of one material (algorithm for mesh smoothing)
- Eulerian formulation of several materials (tensions weighted according to volume fractions, transition reconstruction)
- ALE formulation of several materials (functioning of a moving Eulerian mesh)
- Fluid-structure interaction (method with constraints), penalty-based method, problem of leakage and solution
- Examples of application

Lecturer

Dr. M. Souli is professor for numerical modeling of non-linear problems at the University of Lille. His main research topics are fluid dynamics and FSI. He is a senior developer at LSTC since many years and contributed significantly to the ALE implementation in LS-DYNA.

Date:	26 - 27 September, 9:00 - 17:00
Location:	Stuttgart, Germany
Language:	English
Costs:	1.100 Euro plus VAT
Registration:	www.dynamore.de/ALE13e

I herewith register for the following seminar:

☐ EFG/SPH – Meshless Methods in LS-DYNA
12 - 13 September 2013, Stuttgart, Germany
☐ Industry: 1,100 € ☐ University: 550 €

☐ ALE and Fluid-Structure Interaction in LS-DYNA
26 - 27 September 2013, Stuttgart, Germany
☐ Industry: 1,100 € ☐ University: 550 €

Students free of charge, provided there are vacancies.

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Fax: +49 (0)711-459600-29, seminar@dynamore.de

All prices are subject to VAT, if applicable.

Data protection and competition law declaration of consent:

With your registration you allow us the use and the processing of your data for the seminar organization and for contact for our own promotional purposes. You may at any time revoke these commitments. For this, please contact DYNAmore GmbH by telephone or in writing.