REGISTRATION FORM GERMAN LS-DYNA FORUM DYNAmore

# DYNA

# I herewith register for the following seminar:

Corpuscular Method – Simulate Airbag Unfolding
October 8, 2012, Stuttgart, Germany
Regular participation fee: 525,– Euro
Fee for LS-DYNA Forum participants: 475,– Euro
ALE and Fluid-Structure Interaction in LS-DYNA
October 11 - 12, 2012, Ulm, Germany
Regular participation fee: 1.050,– Euro
Fee for LS-DYNA Forum participants: 950,– Euro
EFG/SPH – Meshless Methods in LS-DYNA
October 11 - 12, 2012, Ulm, Germany
Regular participation fee: 1.050,– Euro
Fee for LS-DYNA Forum participants: 950,– Euro

#### Sender

First name:
Last name:
Company:
Dept.:
Street:
ZIP-code city:
Tel.:
Fax:
E-Mail:
Date, signature:

Please complete and fax or send to DYNAmore GmbH, Industriestr. 2, D-70565 Stuttgart, Germany Fax: +49 (0)711-459600-29, seminar@dynamore.de

Online registration: www.dynamore.de/forum12-seminars

# German LS-DYNA Forum October 9 - 10, 2012, Ulm, Germany

The German LS-DYNA Forum offers a great opportunity to share your operating experience and latest findings with regard to the LS-DYNA product range with other users. Take advantage of the Forum as an excellent platform for the exchange of expert knowledge in the fields of LS-DYNA, LS-OPT and the associated CAE process chains.

We are certain that you will be able to identify several lectures in the attached agenda which address your own field of application.

In more than 90 overview lectures and technical presentations you will have the opportunity to get inspired by the experiences of other users stemming from various branches of industry.

Moreover, software developers will give an insight into the latest application



Ulm, Germany Image by Courtesy of Ulm/Neu-Ulm Touristik GmbH

possibilities via presentations and live demonstrations, while Prof. Ehlers from the University of Stuttgart will inform you on the latest challenges in the simulation of coupled problems.

This year, there are numerous presentations on the simulation of composites and fiber-reinforced polymers, which were arranged according to their field of application and assigned to the usual core areas of crash and deep drawing simulations as well as material modeling. Furthermore, you will find exciting contributions on the multi-physical simulation abilities of LS-DYNA. Detailed technical presentations on optimization, passenger safety and general CAE processes complete the agenda.

Please find the agenda as well as more information at www.dynamore.de/forum12  $\,$ 

# DYNAmore GmbH Gesellschaft für FEM Ingenieurdienstleistungen

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.

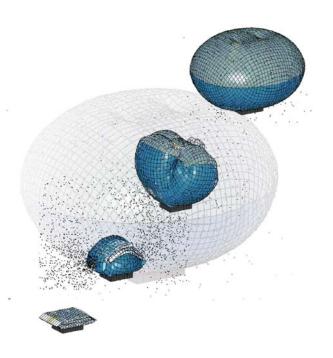
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www.dynamore.de

Invitation to seminars

# Multiphysics Modeling Techniques in LS-DYNA



Corpuscular Method - Airbag Unfolding by R. D'Souza, DYNAmore GmbH

October 8

ALE and Fluid-Structure Interaction by Prof. Dr. M. Souli, Univ. Lille/LSTC October 11 - 12

EFG/SPH - Meshless Methods by Dr. C.-T. Wu, LSTC

October 11 - 12

INVITATION PRE-CONFERENCE SEMINAR POST-CONFERENCE SEMINAR POST-CONFERENCE SEMINAR

Dear LS-DYNA user community,

We are pleased to offer you three English spoken seminars on multiphysics modeling techniques in LS-DYNA:

- Corpuscular Method Simulate Airbag Unfolding
- ALE and Fluid-Structure Interaction in LS-DYNA
- EFG/SPH Meshless Methods in LS-DYNA

The seminars are organized in addition to the German LS-DYNA Forum, which will be held October 9 - 10, 2012, in Ulm, Germany. All seminars can be booked separately from the Forum.

The German LS-DYNA Forum offers a great opportunity to share your operating experiences and latest findings with regard to LS-DYNA, LS-OPT and the associated CAE process chains with other users.

In more than 90 lectures and technical presentations participants get inspired by the experiences of other users stemming from various branches of industry.

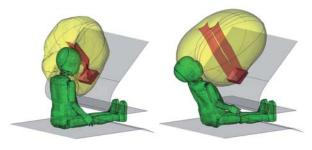
We hope that we have stimulated your interest and are looking forward to seeing you in Ulm.

DYNAmore GmbH



# Corpuscular Method – Airbag Unfolding

sIn addition to the ALE method for the simulation of airbag deployment processes, LSTC developed the Corpuscular Method (CPM), which is based on a particle approach. Due to its numerical efficiency, this method is becoming more and more popular among engineers for the simulation of out-of-position load cases.



The CPM is distinguished by extremely simple handling and reduced computing times compared to the highly variable and widely applicable ALE approach.

Based on this molecule approach, it is now possible to set up simulations for OoP load cases in an extremely simple manner with just a few changes to the uniform pressure input file. Experiences with the patented method are excellent. The accuracy and efficiency of the method in particular are persuasive. It permits realistic calculations of many new load cases and is understood to supplement the established ALE method.

#### Lecturer

R. D'Souza, DYNAmore GmbH

Reuben D'Souza is working since several years for DYNAmore. His main field of activity is development in simulation of occupant safety applications. He is also deeply involved in the development of the DYNAmore dummy models and has many years of experience in industrial car development projects.

#### Date / Duration

October 8, 9:00 am - 5:00 pm

#### Location

DYNAmore headquarters Stuttgart, Germany

#### Language

English

# Costs

525,- Euro

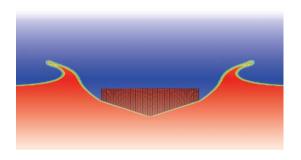
475,- Euro for attendees of the LS-DYNA Forum 2012

#### ALE and Fluid-Structure Interaction

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.



#### Lecturer

Prof. Dr. M. Souli, University of Lille/LSTC

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

#### Date / Duration

October 11 - 12, 9:00 am - 5:00 pm

#### Location

Maritim Hotel Ulm, Germany

### Language

English

#### Costs

1.050,- Euro

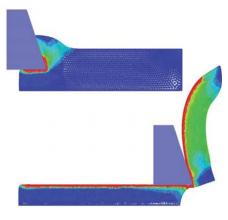
950, - Euro for attendees of the LS-DYNA Forum 2012

#### EFG/SPH – Meshless Methods

This seminar will introduce attendees to the application of the meshless "Element-Free Galerkin" (EFG) and "Smoothed Particle Hydrodynamics" (SPH) methods 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.



# Lecturer

Dr. C.-T. Wu, LSTC

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

#### Date / Duration

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English

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1.050,- Euro

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All prices plus VAT if applicable.