

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.

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Organization

Fees
 Free of charge

Location
 DYNAmore GmbH, headquarter Stuttgart

Registration
 Please use the registration form or register online:
www.dynamore.de/2013-bio-e

DYNAmore GmbH
 Industriestr. 2
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Invitation to the information day

Biomechanics with LS-DYNA

12 November 2013, Stuttgart, Germany



Courtesy of Simpleware, Inc.

In cooperation with

simpleware 



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Biomechanics with LS-DYNA

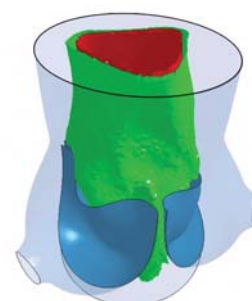
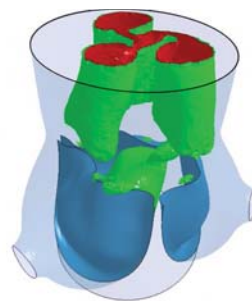
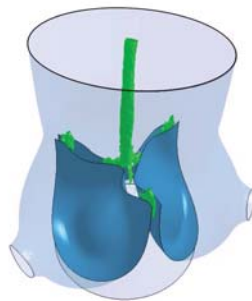
Regardless of whether you work at a research institute or in industry, the topic of biomechanics is of growing interest. However, from a historical point of view, biomechanics is not a new subject at all because nature has been inspiring engineers for many years, as illustrated by the example of stress-driven structural optimization according to the paradigm of the trabecular structure in bones. Driven by an ever-increasing lifespan, the desire to better understand processes inside humans has emerged to allow engineering expertise to be used for medical purposes.

Combined with coupled multiphysical simulation methods, there are numerous application possibilities, such as modeling skeletal muscles and heart muscles which can be stimulated electrically, heart valves in circulating blood flows, the interaction between vessel-widening stents and arteries, among many other tasks. However, typical problems associated with the purely-mechanical design of implants under the effect of the constantly-changing system „man“ continue to be of great interest.

The aim of the information day is to discuss modeling difficulties in biomechanics and also to demonstrate the various solutions offered by LS-DYNA. Besides the simulation possibilities, a powerful pre-processor is also required to geometrically capture and discretize irregular biological structures. The software package Simpleware supplies a user-friendly solution to this and also has an interface to LS-DYNA.

We are looking forward to welcoming you in Stuttgart.

DYNAmore GmbH



Fluid-structure interaction of a heart valve. Courtesy of H. Mohammadi, McGill University.

Agenda

- 13:30 Welcome and Introduction
Dr. N. Karajan (DYNAmore)
- 13:45 Gait Analysis on a Virtual Human Dummy Based on Patient Anthropometry
E. Ramasamy, Dr. B. Dorow,
F. Dennerlein, F. Blab,
Prof. O. Röhrle, Dr. U. Schneider
(Biomechatronic Systems, Fraunhofer IPA)
- 14:15 A Variable Finite Element Model of the Human Masticatory System for Different Loading Conditions
S. Martinez Choy, Prof. K. Schweizerhof,
Dr. J. Lenz, Prof. H. J. Schindler
(Karlsruhe Institute of Technology KIT)
- 14:45 Coffee Break
- 15:15 THUMS User Community
T. Fuchs, K. Zhou (Institut für Rechtsmedizin,
Ludwig-Maximilians-Universität München);
Prof. S. Peldschus (Campus Tuttlingen-
HS Furtwangen/Ludwig-Maximilians-
Universität München)
- 15:45 Overview on Biomechanical Material Models in LS-DYNA
Dr. N. Karajan, C. Liebold (DYNAmore)
- 16:15 Image Based Modeling for Realistic Human Simulation using Simpleware
R. Bryan (Simpleware)
- 17:00 End

Registration

- I herewith register for the information day (free of charge): „Biomechanics with LS-DYNA“, 12 November 2013, Stuttgart, Germany

Sender

First Name: _____

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Online registration at www.dynamore.de/2013-bio-e

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