

Infoday, Berlin and online, December 1st 2022

Automotive and Aerospace Applications presented by DYNAmore

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André Haufe, Christian Frech, David Weimar, DYNAmore GmbH Stuttgart

DYNAmore - The People

Who we are - global



- In total more than 150 people from 13 different countries
- Civil and mechanical engineers, mathematicians, computer scientists, etc.



DYNAmore - The Company

Where we are - global



■ Headquarters in Stuttgart

- Nordic – Linköping
- Swiss – Zurich
- Italia – Torino
- France – Versailles
- USA – Dublin, Ohio

■ Further Offices

- Ingolstadt
- Dresden
- Langlingen (Braunschweig)
- Berlin
- Leinfelden-Echterdingen
- Munich

■ Customer-dedicated Offices

- Weissach (Porsche)
- Ingolstadt (Audi)
- Gothenburg (Volvo)



DYNAmore - The Berlin Office

Who we are - local



Daniel Kessler

- Civil Engineer
- Primer
- Occupant Safety
- Projects, Support & Seminars



Guido Pietsch

- Civil Engineer
- Guide for First & Test Users
- Connection Modeling
- Projects & Support



Mathias Merten

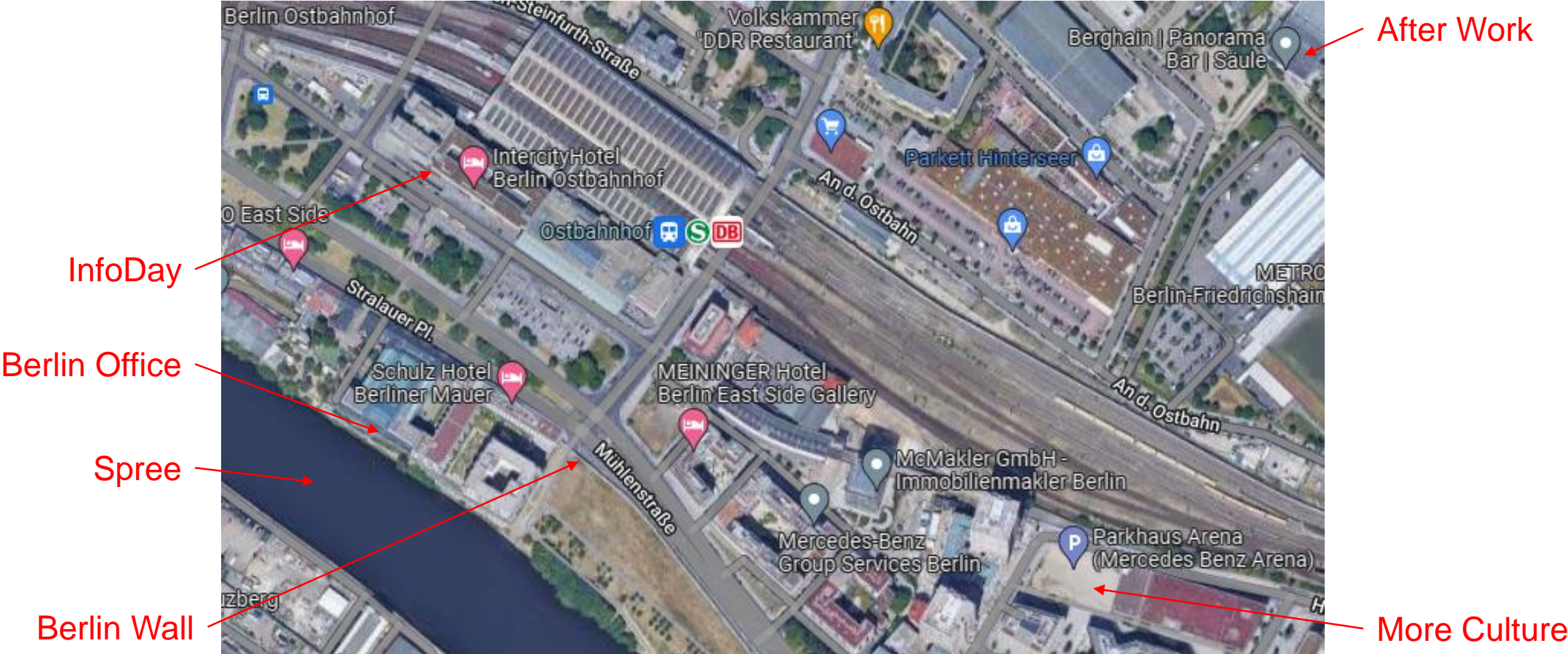
- Mechanical Engineer
- Dynaform
- Process Simulation
- Projects, Support & Seminars



DYNAmore - The Berlin Office



Where we are - local



Map of the Ostbahnhof Berlin with surrounding, coordinates 52.50847303342522, 13.43231842522692, Retrieved November 30, 2022, from www.maps.google.com

DYNAmore - The Mission



What we do

- **Software & Support**

- European Master Distributor for LS-DYNA (w/o UK and France)

- **Engineering**

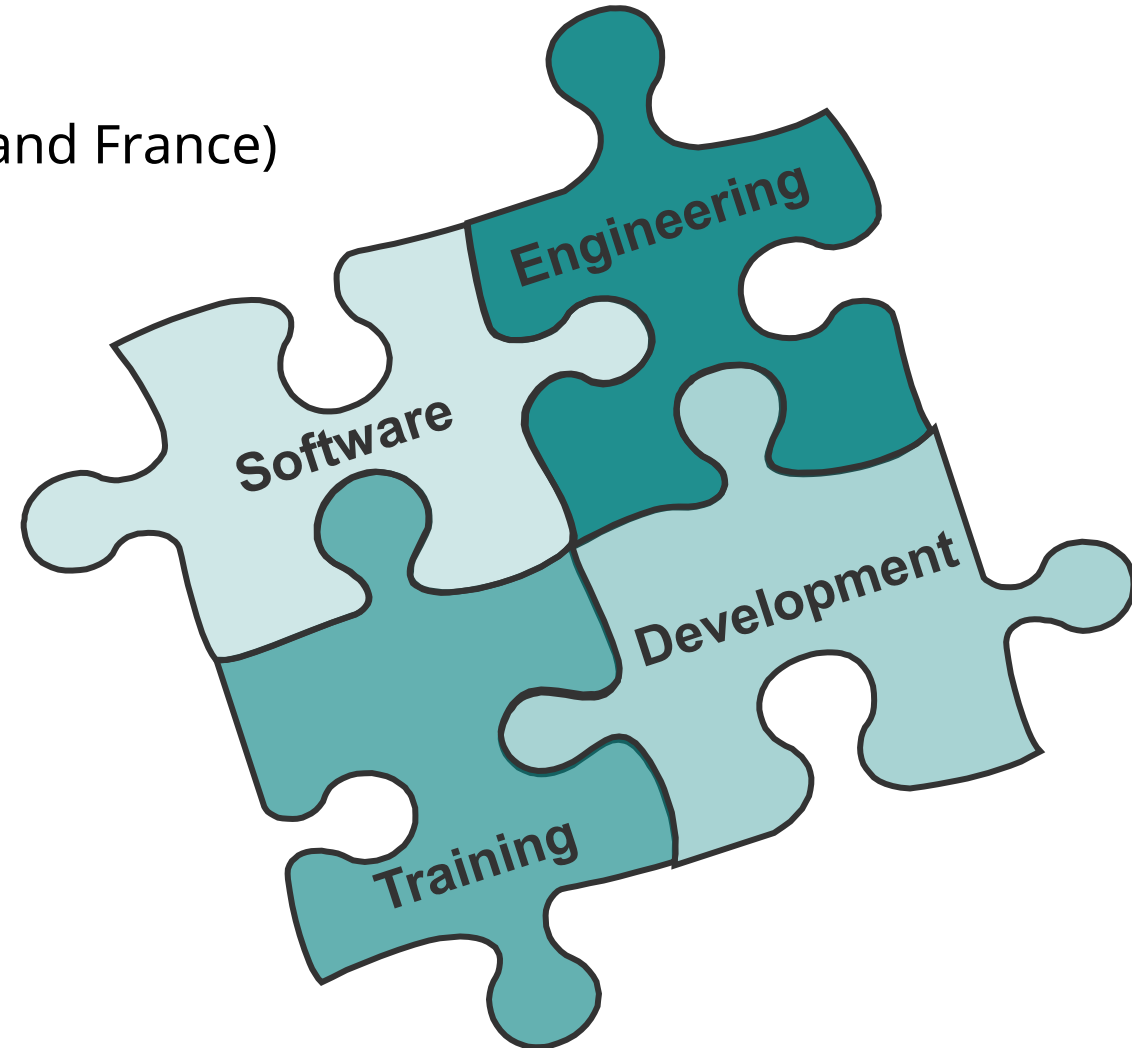
- Benchmarking
- Pilot Projects

- **Development**

- Software Development
- Material & Dummy Models
- System & Process Integration
- Customization & Method Development

- **Training**

- Seminars & On-Site Coaching
- Conferences & Support



DYNAmore - The Mission

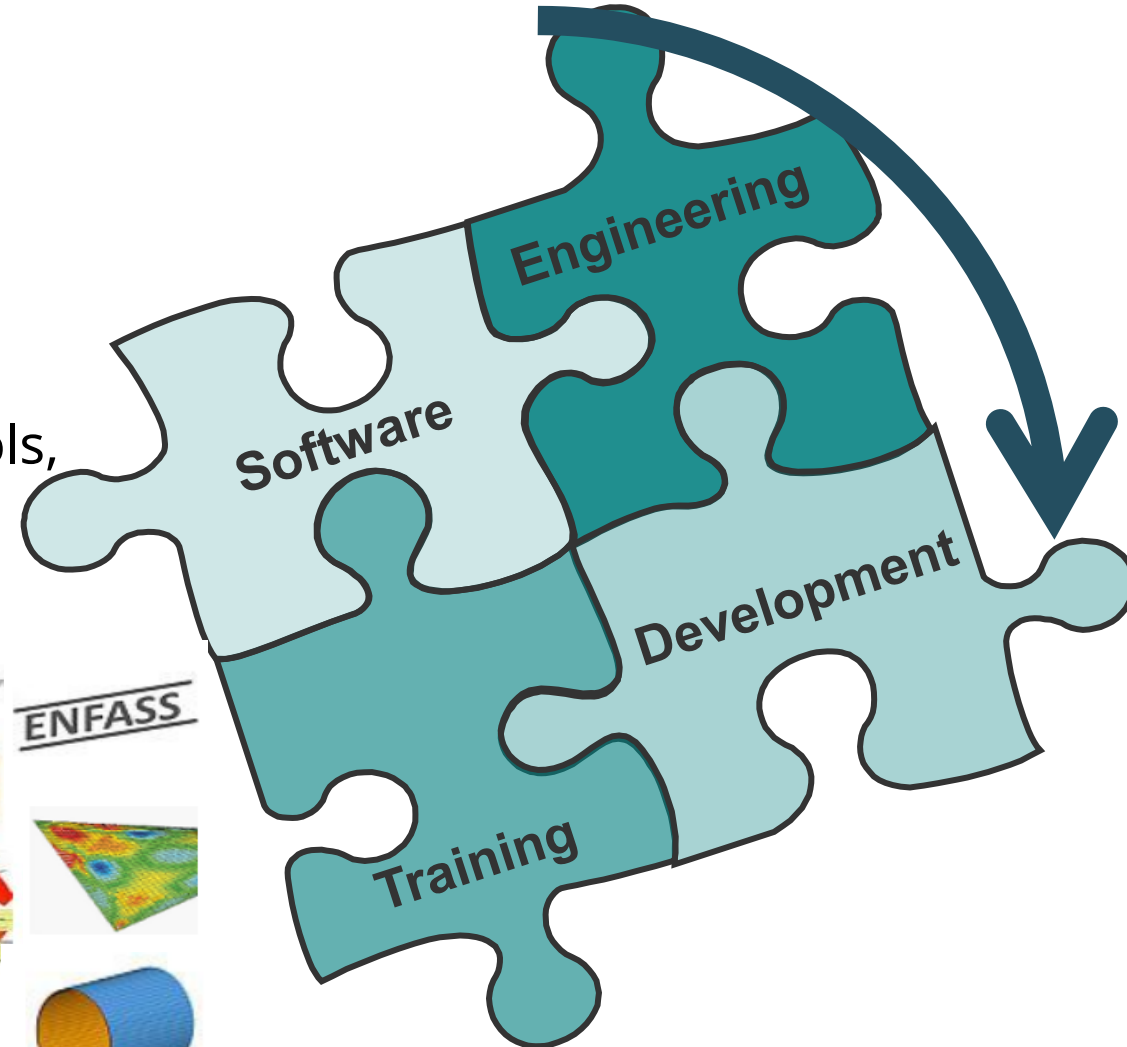
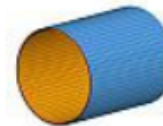
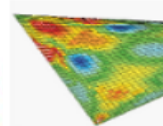
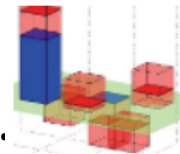
What we do: Engineering

■ Benchmarking & Pilot Projects

- Connection Modeling
- Material Development
- Mapping
- Occupant and Pedestrian Safety
(Development of Dummy Models & Positioning Tools, Application of CPM-Method & Human Models)
- Thermal Forming

■ Research Projects national & international

- WING, IMAUF, TISTRAQ, AIMM, ...
- FAT, IDDRG, DLR, FOSTA, EFB, VDA, ..
- INVITER, ROSETTA, ENFASS, TWIP4EU



DYNAmore - The Mission

What we do: **Development**

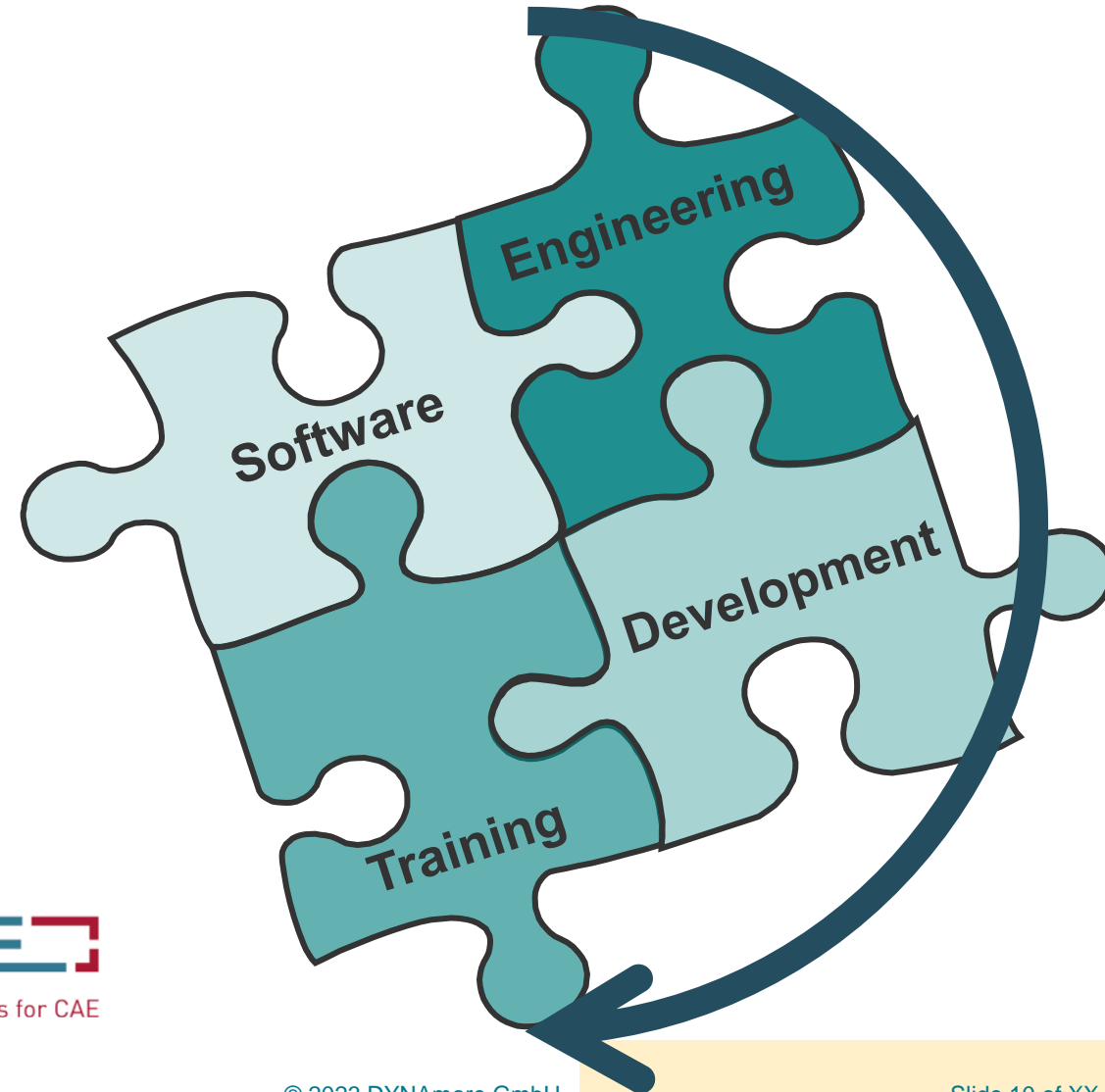
■ **Software Development**

- 6 Devs for LS-DYNA
- 3 Devs for LS-OPT
- 1 Dev for LS-PrePost
- 3 Devs for the DYNAmore ECO SYSTEM

■ **IT Services**

- Process Integration of LS-DYNA
- CAx Data Management
 - Simulation Data Management (SDM)
 - Load Case Composer (LOCO)
- Process Monitoring (Status.E)
- Report Generation (CAViT)

Since 2014:
SCALE GmbH



DYNAmore - The Mission

What we do: Training

■ Seminars & Webinars

- Introductory Courses
- Crashworthiness
- Process Simulation
- Materials
- and many more...

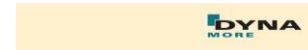


■ Conferences

- European LS-DYNA Conference
- LS-DYNA Forum

■ Infodays & Express Webinars

- Focus on one specific Topic
- Free of Charge



2022

- Seminars
- Information days
- Webinars
- Support days



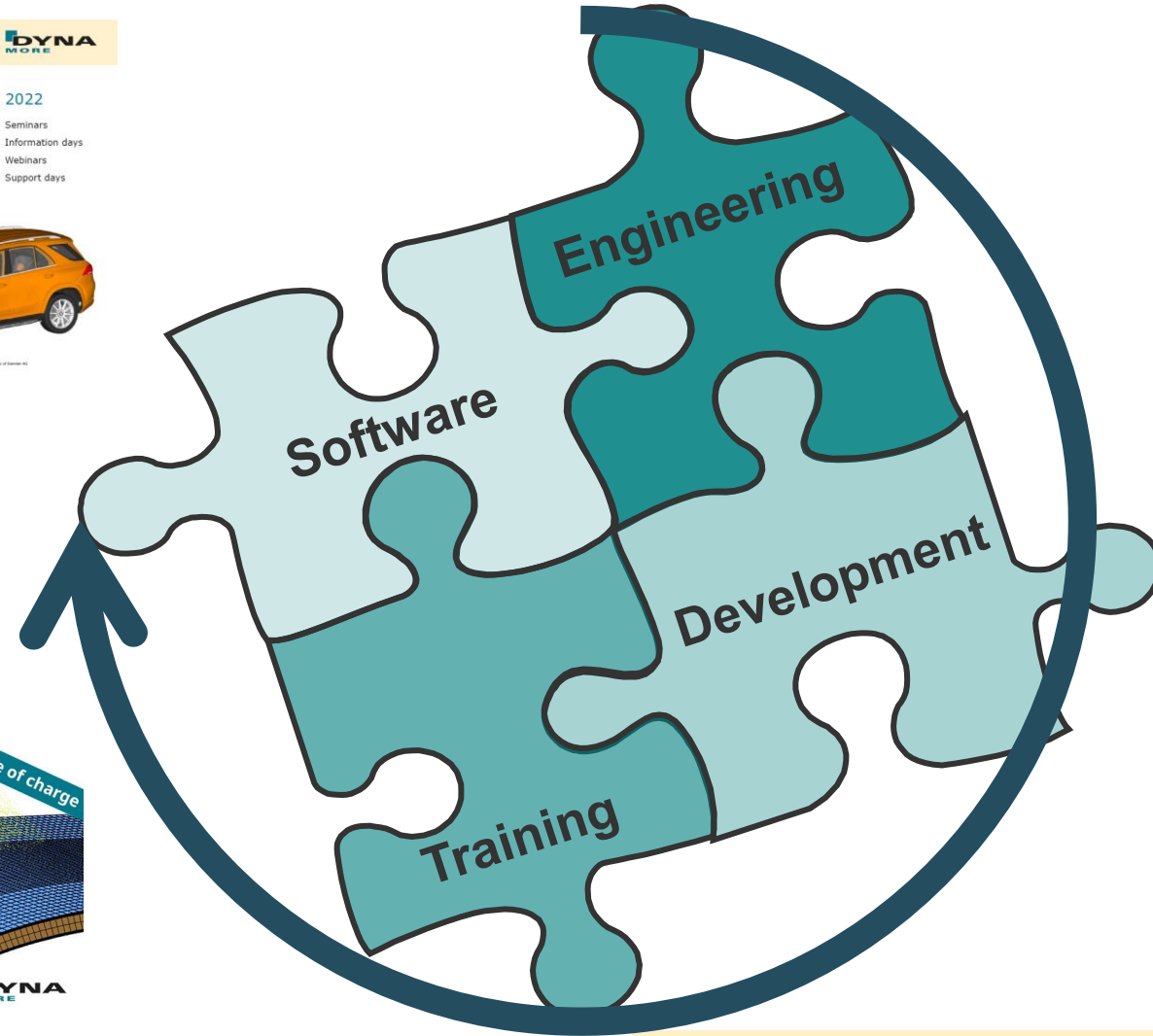
AUTOMOTIVE AND AEROSPACE APPLICATIONS

1st December 2022,
Berlin and online.

REGISTER
NOW!



Free of charge

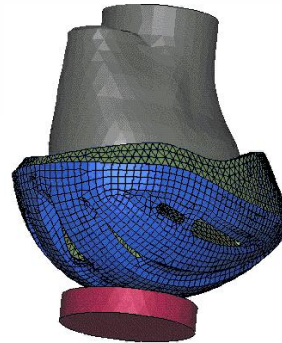
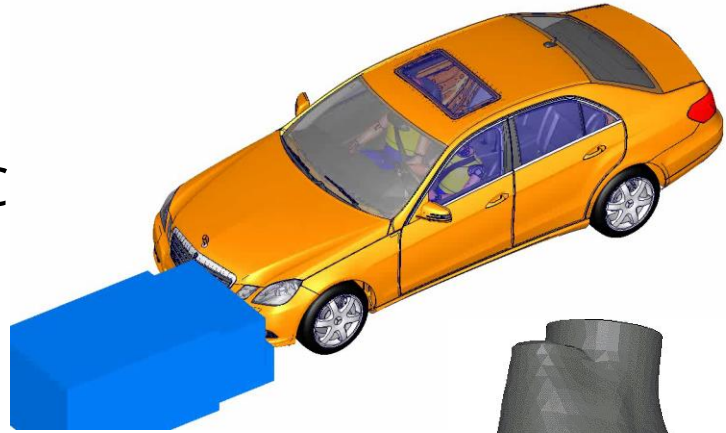
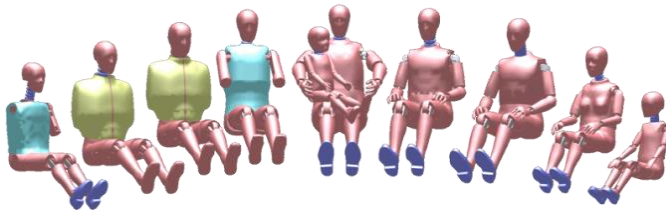


DYNAmore - The Mission

What we do: **Software & Support**

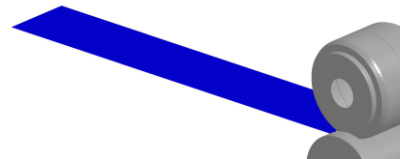
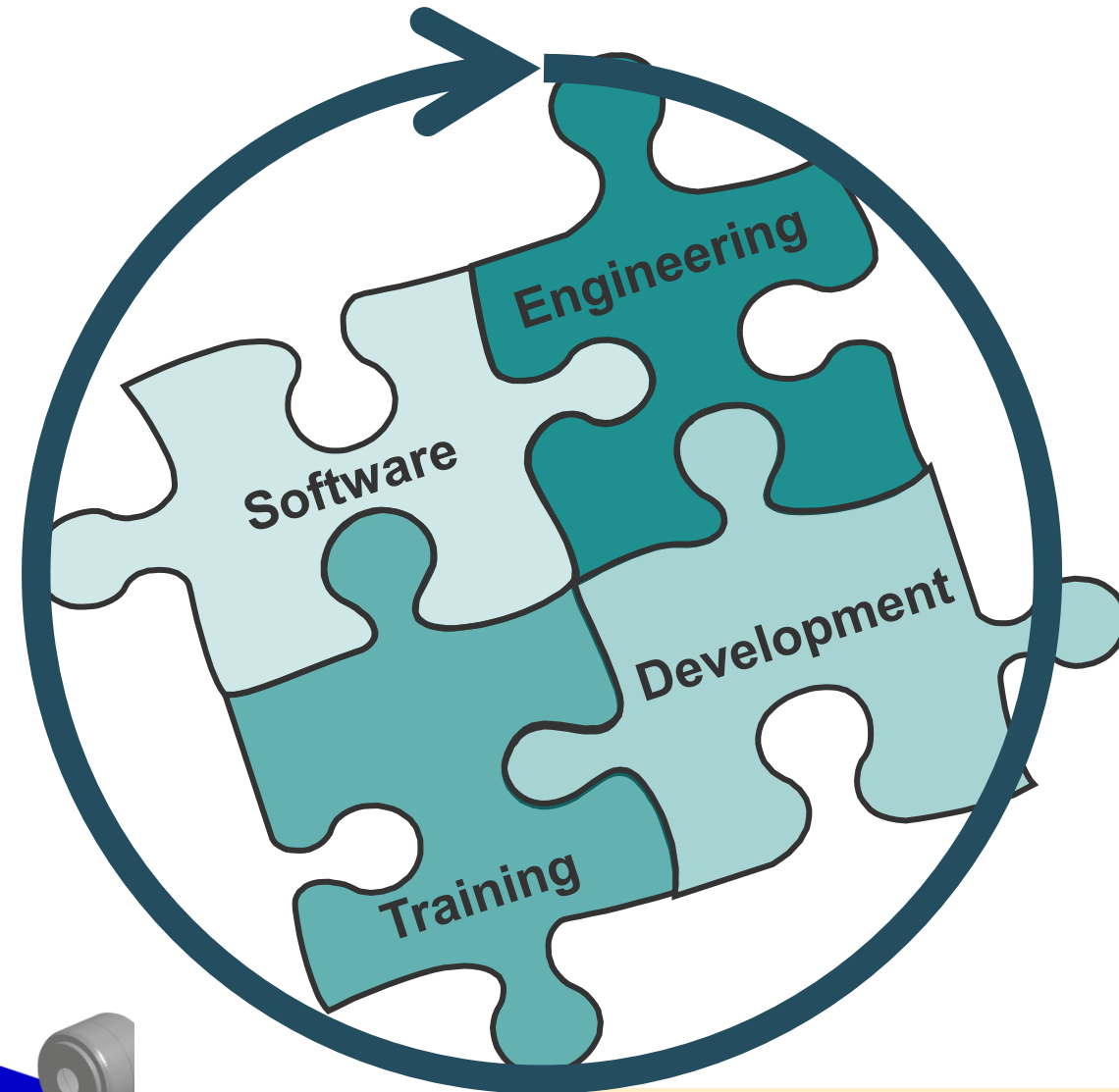
■ Software

- LS-DYNA
- LS-OPT und LS-TASC
- LS-PrePost
- eta/DYNAFORM
- FEMZIP
- Digimat
- Primer



■ Models

- Dummy Models (FAT/ PDB/ Humanetics)
- Human Model (THUMS)
- Various Barrier and Impactor Models of Arup, Daimler, Porsche, LSTC



DYNAmore - The Mission

Selection of Customers



What we do: **MORE**

■ Services

- Static, dynamic and cyclic, tensile and compression, puncture and bending Testing
- Component Testing and Sample Conditioning
- Sample Processing and Collection from Components
- Optical 3D Strain Measurement detailed
- Evaluation of local Distortion

■ Benefits

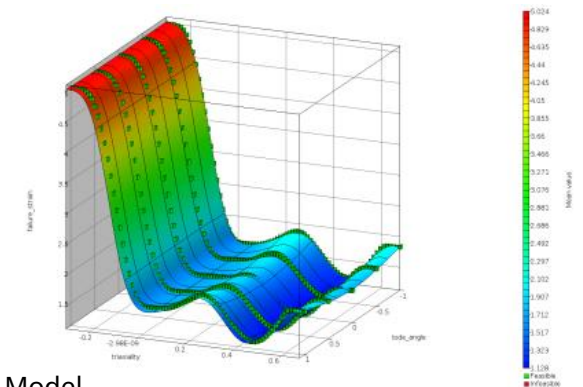
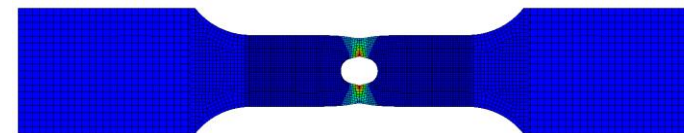
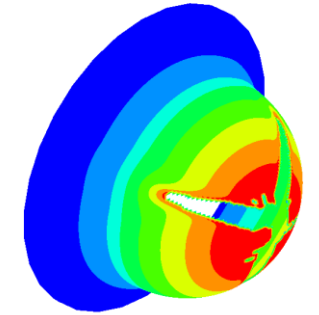
- Parameter Identification from a single Source
- Minimize Time and Costs
- The LS-DYNA Developer Team is always available

■ Deformation Behavior

- Viscoelastic and viscoplastic
- Isotropic and anisotropic
- Tensile and compressive-asymmetric

■ Damage and Failure Modeling

- GISSMO* and DIEM**
- Calibration of Damage Evolution via cyclic Loading



*General Incremental Stress State dependent damage Model

**Damage Initiation and Evolution Model

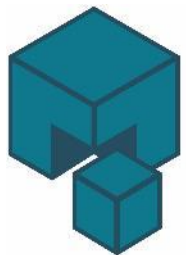
DYNAmore - The DYNAmore ECO SYSTEM



What we do: **MORE**

■ Prior to 2022 known as LS-DYNA-Tools

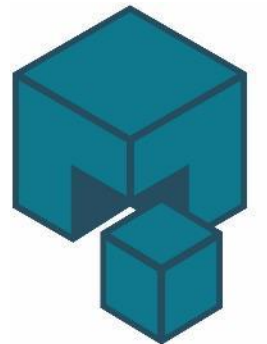
- Support your everyday Work with slim Command-Line based Tools
- Handle LS-DYNA related Files to
 - Prepare Input Files
 - Collect Model Information
 - Reduce Size of Output Files
- Developed and maintained by DYNAmore
- Origin: German Automotive OEM



DYNAmore
ECO SYSTEM

■ With July 2022: DYNAMORE ECO SYSTEM

- Commercial Licensing to ensure a stable funding for Support and Maintenance
- Integration of new Tools
 - DM.inspect
 - Envyo
 - DM.binout2isomme
- Relaunch under new Licensing Model
- 5 separately bookable Packages for Flexibility
 - DYNAmore.pre
 - DYNAmore.post
 - DYNAmore.quality
 - DYNAmore.testing
 - DYNAmore.mapping



DYNAmore - DynaXtend

What we do: **MORE**

- **Flexible License and Hardware Leasing**

- Special License Model from DYNAmore
- Short-term LS-DYNA Leasing
- Booking at Short-Notice
- Optional Hardware on a HPC

- **Collaboration of**

- DYNAmore GmbH
- T-Systems
- High Performance Computing Cluster Stuttgart

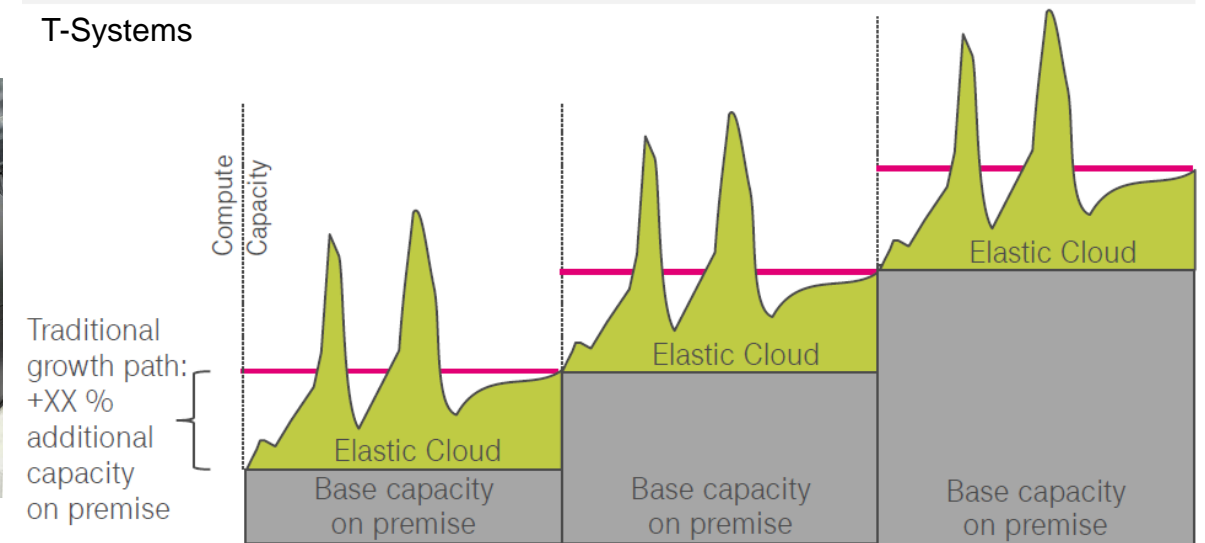
- **Ideal for:**

- Covering Peaks
- Project Sprints
- Hardware Failures



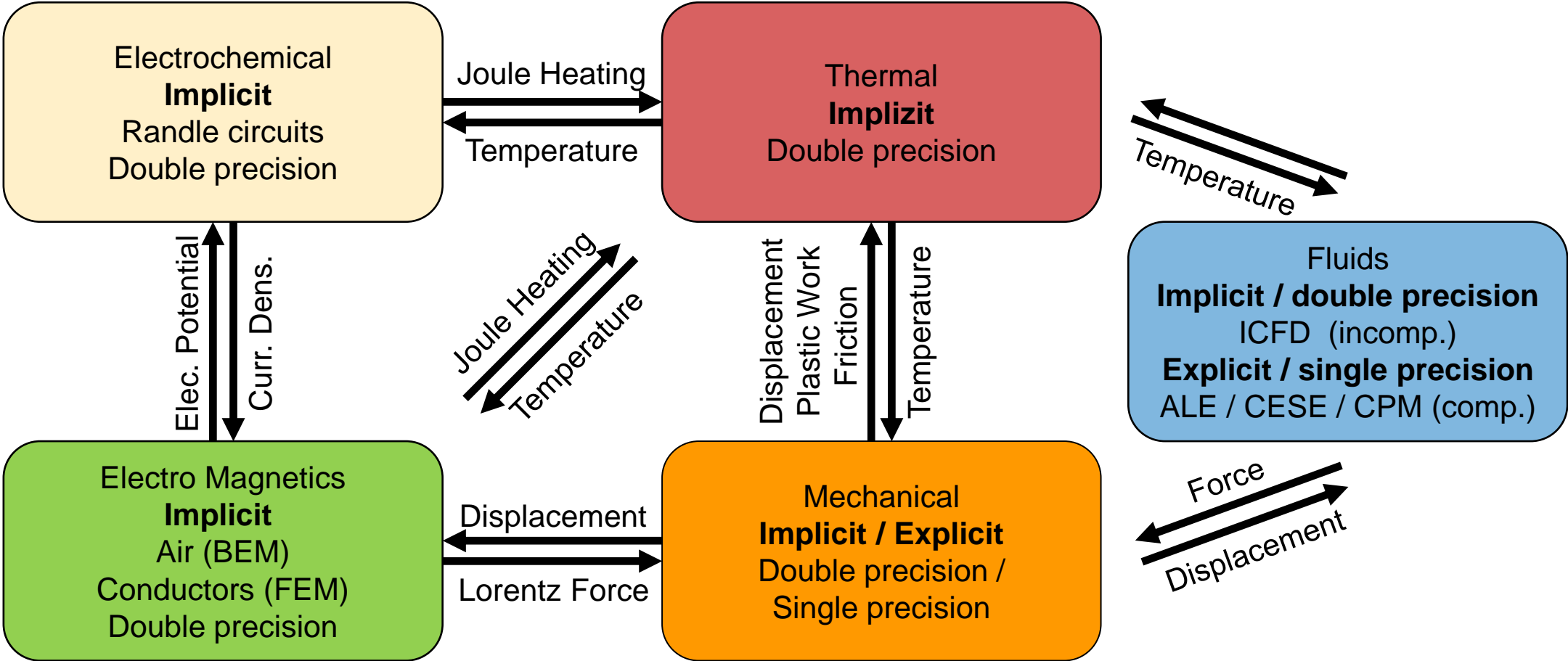
Courtesy of HPC Stuttgart

T-Systems



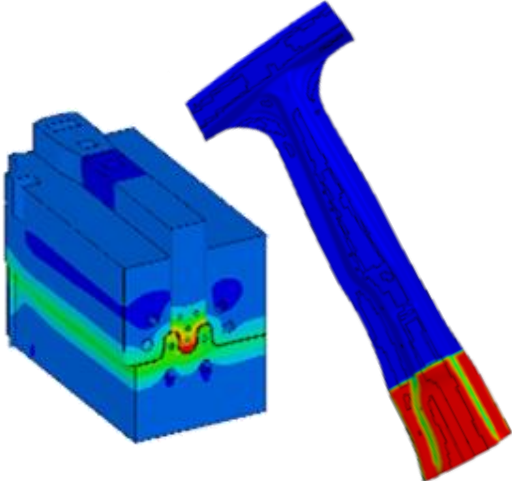
LS-DYNA - The Code

„The scalable Code for Multi-Stage and Multi-Physics“

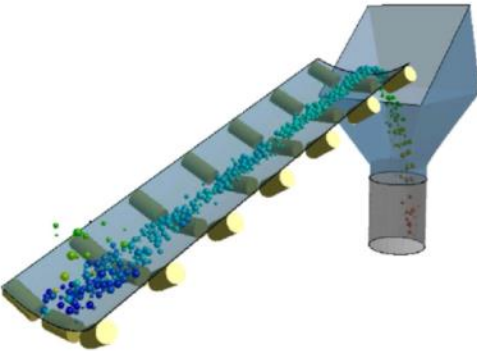
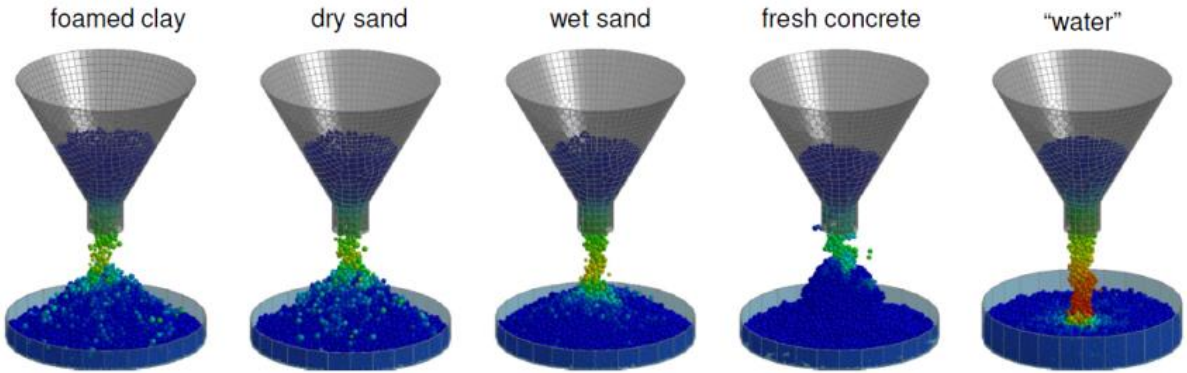


LS-DYNA - The Code

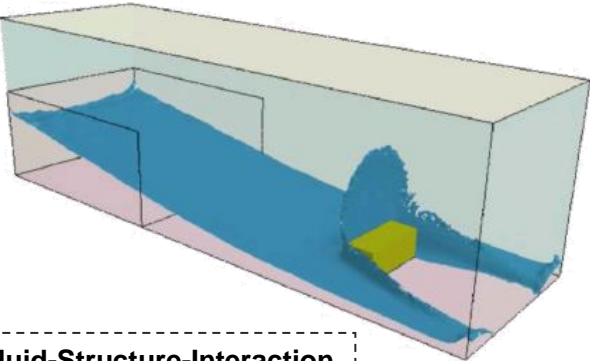
Selected Multiphysic Applications



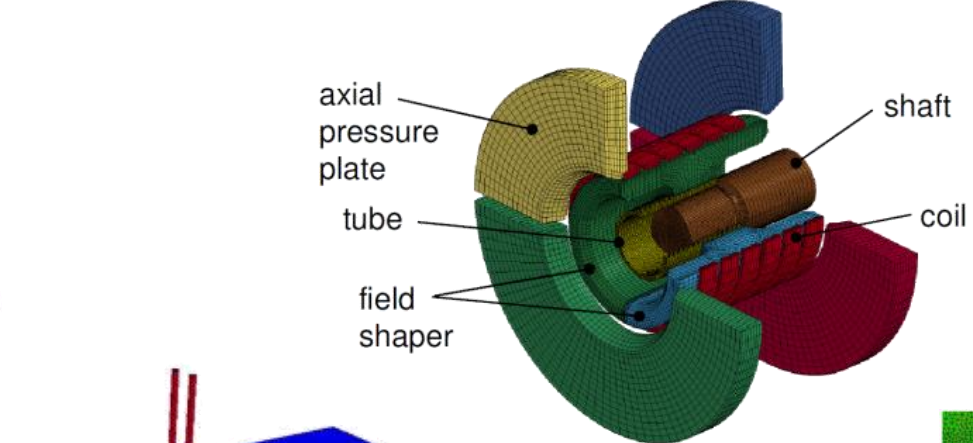
Thermo-mechanical Coupling
(Hardness Prediction by GSTAMP)



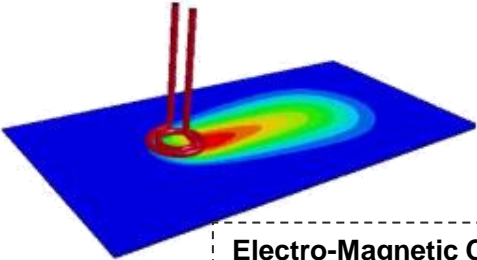
Production
(Discrete Elements)



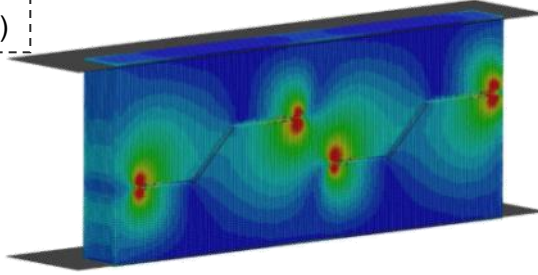
Fluid-Structure-Interaction
(ALE Solver)



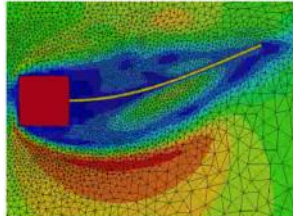
Electro-Magnetic Coupling
(by Fraunhofer IWU)



Electro-Magnetic Coupling



Crack Propagation
(Bonded Particles)



Incompressible-Fluid-Dynamics

Thank You



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Free of charge



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