**NAFEMS**

The International Association for the Engineering Modelling, Analysis and Simulation Community

## Invitation and preliminary conference agenda

# 1ST INTERNATIONAL CONFERENCE ON CAE INTEROPERABILITY 2020

**VMAP** 15-16 Oct 2020 | Munich-Taufkirchen

We invite you to attend the 1st VMAP International Conference on CAE Interoperability 2020 which will be held from 15 - 16 October 2020 in Munich, Germany, following directly on from the NAFEMS DACH Regional Conference at the same venue.

Interoperability is a significant topic for much of the Computer-Aided Engineering (CAE) simulation and analysis sector. Improving accuracy and speed in both product and process design is a constant requirement. A critical factor in this is enabling seamless collaboration between teams, often in different organisations, addressing different simulations and physics. This, however, presents a significant barrier.

Focusing on the many aspects, problems and possible solutions in interoperability including software implementation, simulation process integration, data transfer, standards, ontologies, and collaboration, this will be the first independent, international gathering focussing solely on interoperability.
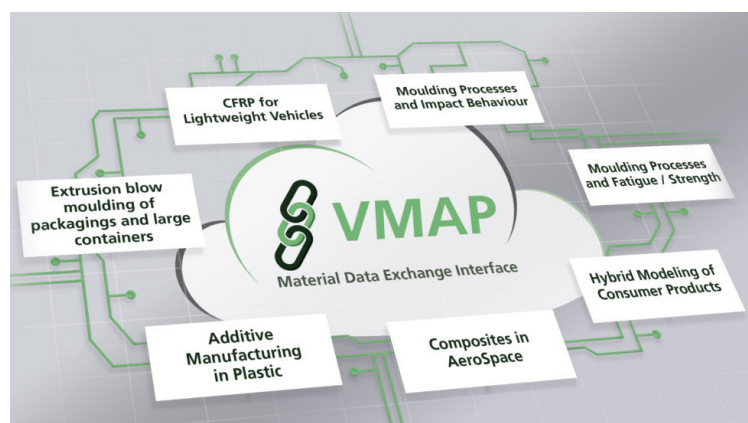
### Conference websites:

www.vmap.eu.com/vmap-conference-2020/

### ITEA 3 VMAP Project

VMAP is a vendor-neutral standard for CAE data storage to enhance interoperability in virtual engineering workflows.

The project is funded by national research agencies from Austria, Netherlands, Germany and Canada.

More information: www.vmap.eu



Industrial Use Cases will show the need and benefits of a standardised Material Exchange Interface.

# Agenda (preliminary) – Thursday, 15 October

**Room P (Plenary room „Hegelsaal")**

| | Session 1 A – Keynote - VMAP / Final session NAFEMS DACH 2020 Conference |
|---|---|
| 13:15 | **VMAP Enabling Interoperability in Integrated CAE Simulation Workflows**<br>K. Wolf, P. Gulati (Fraunhofer SCAI); G. Duffett (NAFEMS) |
| 13:45 | **Modern Forecasting for Weather and Climate**<br>**– Using and Predicting Uncertainty, Distribution and Risk**<br>R. Potthast (Deutscher Wetterdienst (DWD)) |
| 14:15 | **Transformation of the CAE Organization at Opel**<br>T. Pohl (Opel Automobile) |
| 14:45 | **Summary of Key Outcomes from NAFEMS DACH 2020 Conference**<br>M. Zehn (TU Berlin – Vice Chairman of NAFEMS) |
| 15:00 | **Coffee break for VMAP conference participants in the**<br>**„Hegelsaal" foyer / end of NAFEMS DACH conference** |

**NAFEMS20 DACH CONFERENCE**
Fachkonferenz für Modellierung, Berechnung & Simulation
11.–13. Mai, Bamberg, Deutschland
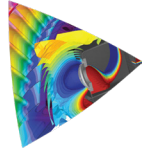
**Room A**

| | Session 2 A |
|---|---|
| 15:45 | **Welcome and Introduction**<br>K. Wolf, P. Gulati (Fraunhofer SCAI); G. Duffett (NAFEMS) |
| 16:00 | **Boeing's View on Digital Twin and CAE Interoperability**<br>J. Dong (The Boeing Company) |
| 16:25 | **The VMAP Material Data Interface Standard**<br>**– A New Approach to Unify Information Transfer in Virtual Manufacturing Workflows**<br>P. Gulati (Fraunhofer SCAI) |
| 16:50 | **Integration of VMAP into the Open Source Library PYLIFE**<br>G. Kiss, D. Kreuter, J. Müller (Robert Bosch) |
| 17:15 | Coffee Break |

**Room A**

| | Session 3 A |
|---|---|
| 17:45 | **How to make an Interoperability Standard a Tool for Performance?**<br>J. M. Crepel (Citran) |
| 18:10 | **Digital Thread to Capture and Exchange Content and Intent Across the Product Lifecycle**<br>**– The Key to Effective Management of Ever-Increasing Product Complexity**<br>M. Nicolich (ARAS) |
| 18:35 | **Implementation Insight and Demonstration of the Advantages of the VMAP Standard for CAE Engineers**<br>T. Usta, C. Liebold, A. Haufe (DYNAmore) |
| 19:00 | **Get Together with Beverages and Snacks** |
| 21:30 | End of day 1 |



**VMAP**

Preliminary agenda subject to alteration.

| Room A | Room B |
|---|---|

### Session 4A

**08:20** — **Generative Design for Digital Fabrication**
G .Sundar Dutta, J. Kottmann, L. Steuernagel, D. Meiners (Technical University Clausthal)

**08:40** — **Enhancing Interoperability of BETA Products within Complex CAE Workflows by Adopting and Integrating the VMAP Standard**
A. Fassas, G. Mokios (BETA CAE Systems)

**09:00** — **Sheet-Metal Manufacturing Simulations Coupled to Structural Simulations for an Improved Structural Static and Fatigue Response**
N. Laue, A. Jensen (Grundfos Holding)

**09:20** — **Simulation Chain for Fatigue Strength Assessment of Short-Fiber Feinforced Plastic Parts in the Presence of Weld Lines**
M. De Monte (Robert Bosch)

**09:40** — Coffee Break

### Session 5A

**10:00** — **3D Deep-Learning Based Surrogate Modeling and Optimization**
L. Zampiere, P. Baqué, S. Baset, T. Allard, T. von Tschammer (Neutral Concept)

**10:20** — **An Integrated Design-Process Optimization Methodology – With Two Industrial Cases**
V. Tsai, F. Buchy (SimpaTec)

**10:40** — **Structural Pile-Cap and Pile Layout Parametric Modeling and Optimization Across Multiple Software Platforms**
R. Villena (Thornton Tomasetti)

**11:00** — **DisMoSim – A Visionary Research Project for Web-Based Team-Oriented Modelling, Simulation, Optimization and Evaluation of Modular Mechanical Systems**
W. Witteveen, H. Jetter, J. Schönböck, C. Leitner, P. Lonauer, S. Oberpeilsteiner, S. Pöchacker (University of Applied Sciences Upper Austria)

**11:20** — **Minimizing the Weld Distortion by Optimizing the Weld Sequence Using Genetic Algorithm**
D. Jeyaganesh (UAE University)

**11:40** — Lunch Break

### Session 6A

**12:40** — **The eCl@ss Standard as Semantic Basis for CAE Product Data Exchange**
C. Block (eCl@ss)

**13:00** — **Tailored Data Exchange Processes in Automotive Bodywork Engineering**
A. Kreis, M. Hirz (Graz University of Technology); M. Prenner, S. Stadler (Magna Steyr Fahrzeugtechnik)

**13:20** — **QUIMDI Quality in Machining Digitalization**
H. Sehrschön, S. Haslinger (Fill)

**13:40** — **CAE Software Interoperability: Impact of In-Use Properties of a Welded Part on Crash Analysis**
L. Gaston (Transvalor)

**14:00** — Coffee Break

Room A

### Session 7A

**14:20** — **A Robust Approach Towards Prediction of Reflective Image Stability for a Passenger Vehicle ORVM**
P. Mishra , S. Ganeshan (Daimler India)

**14:40** — **Automotive Mechatronics Systems Validation and Performance Evaluation using Coupled Simulation**
S. Chikkur, P. Mishra (Daimler India)

**15:00** — **Qualitative Study for Energy Consumption of Domestic Appliances**
A. Naiknawarea, S. Sahoo, J. Chhatre, A. Shukla (Whirlpool)

**15:20** — **Conference Wrap-Up**
K. Wolf, P. Gulati (Fraunhofer SCAI); G. Duffett (NAFEMS)

**15:30** — End of Conference

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### Session 4B

**Free-form CAD Geometry Morphing Driven by Simulation Results**
N. Bergemann (ITI Group)

**Data Exchange and Software Interoperability Based on MOSSEC Standard. Application to a Cabin Aircraft Architecture Process**
A. Munck, X. Dugros, D. Sauvage (Digital Product Simulation)

**A Value-Focussed Approach to the Deployment of Simulation Data Management to Support Multidisciplinary Simulation and Interoperability**
M. Norris (theSDMconsultancy); G. Neveu (DPS)

**Severstal Engineering Portal: Steel Properties for Computer-Aided Engineering**
D. Nushtaev, A. Shiryaev (Severstal)

Coffee Break

### Session 5B

**Reliable Meshing of 10000 Parts**
M. Lautsch (Lautsch Finite Elemente)

**An Approach Towards Interoperability of CSM Models in the Virtual Structural Sizing and Testing of Lightweight Composite Structures**
M. Rädel (German Aerospace Center DLR)

**Digital Twins in Technical Product Development: Definitions and Insights from an Industrial Case Study**
J. Trauer, S. Schweigert-Recksiek, M. Zimmermann (Technical University of Munich); C. Engel, K. Spreitzer (Viessmann)

**Enhanced Simulation of Shrinkage and Warpage of Extrusion Blow Molded Parts Using the VMAP Interface Standard**
O. Bruch (Dr. Reinold Hagen Stiftung/ TREE Institut); P. Michels, D. Grommes (Dr. Reinold Hagen Stiftung)

**Considering the Local Anisotropy in Simulation Process Chain for Short and Long Fiber Reinforced Thermoplastics**
P. Reithofer, B. Jilka, H. Pothukuchi (4a engineering)

Lunch Break

### Session 6B

**Interoperability in Multiphysical Development Processes**
D. Friedemann, J. Rademann (HTW Berlin); B. Näser (BMW Group)

**Mapping of Microstructure Information to FE-Meshes by Means of Computed Tomography**
B. Lauterbach, P. Pinter (Volume Graphics)

**FlexMM: A Standard Method for Material Descriptions in FEM**
J. Post, (Philips Consumer Lifestyle/University of Groningen); M. Groen (Philips Consumer Lifestyle); S. Solhjoo, A. Vakis (University of Groningen)

**Interfacing Altair MotionView/MotionSolve and CM-Labs Vortex**
C. Verheul (Sayfield), A. Free (CMLabs Simulations); R. Rampalli (Altair)

Coffee Break

## Organization

### Conference venue
IABG Industrieanlagen-Betriebsgesellschaft mbH
Einsteinstraße 20
85521 Ottobrunn
Germany

### Hotels nearby
Hotel Aigner
  Rosenheimer Landstraße 118
  85521 Ottobrunn
  www.hotelaigner.de
Stay2Munich
  Zusestraße 1
  85649 Brunnthal
  www.stay2munich.de

### Conference language
English

### Delegate Fee
The VMAP project subsidised a number of participants (experts, engineers, developers and practitioners in the field) and this has now been exceeded. Additional registrations are still welcome but these do not benefit from VMAP subsidy and are thus requested to pay a small participation fee of 250 Euro + VAT. This includes entrance, coffee breaks and lunch, but does not included hotel accommodation.

### Exhibition
We would like to extend our invitation to your company to be part of the conference as exhibitor. The costs for a small exhibition space are 300 Euro + VAT. Please request further information by e-mail to roger.oswald@ nafems.org.

### NAFEMS Membership
If you are interested in membership please contact Mr. Paul Steward (paul.steward@nafems.org). Please find also information at www.nafems.org/join.

### Conference Organisation
NAFEMS Deutschland, Österreich, Schweiz GmbH
Griesstraße 20, 85567 Grafing b. München, Germany
Phone: +49 176 217 984 01
Fax: +49 3 22 11 08 99 13 41
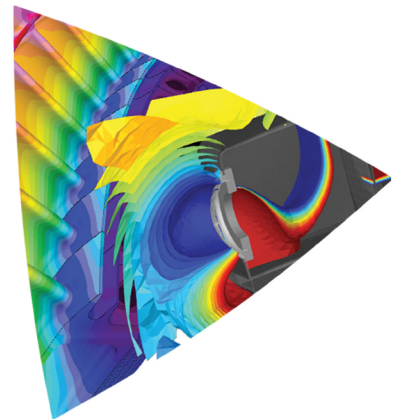info@nafems.de, www.nafems.org

### Conference website and online registration
www.vmap.eu.com/vmap-conference-2020



# NAFEMS20
# DACH KONFERENZ
## Fachkonferenz für Berechnung & Simulation im Engineering
### 12.–15. Oktober, München–Taufkirchen

THE INTERNATIONAL ASSOCIATION FOR THE ENGINEERING ANALYSIS, MODELLING, AND SIMULATION COMMUNITY   NAFEMS

NAFEMS, the independent international association for the engineering modelling, analysis and simulation community, is holding its DACH Conference 2020 from 12 - 15 October in Munich, Germany. This two-day conference will focus on existing best practices as well as state-of-the-art in FEA, CFD and associated technologies – ensuring delegates receive a fully comprehensive overview of the technology available to them.

The conference will increase awareness and provide a discussion forum for topics that are vital to engineering industrialists and academics, offering attendees an unrivalled combination of industrial knowledge, expertise and forward-thinking to aid their deployment of CAE over the next few years.

### Overview
- Plenary presentations:
  IABG, Mendler Engineering Technologys, Opel Automobile, ZF, Deutscher Wetterdienst DWD, Future Matters, Charité Berlin, Technical University Munich
- +100 technical presentations in 34 sessions
- Short trainings and workshops: Multiphase Flow, Introduction to SPDM
- Comprehensive software exhibition
- Networking - exchange of experiences and information
- For non-NAFEMS members and free for NAFEMS members towards using seminar credits

Please find more information at
www.nafems.org/dach20