



## The Conference for Engineering Simulation and Analysis

25 - 26 October 2022 | Göteborg | Sweden

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

### Invitation and preliminary conference agenda

- ▶ Keynote presentations from Aker Solutions, Siemens Gamesa Renewable Energy and Volvo Cars
- ▶ Technical presentations from industry, research and academic
- ▶ Workshops on PCB and Uncertainty Quantification (UQ)
- ▶ Short courses in CFD
- ▶ Hardware and software exhibition
- ▶ Networking, exchange of experiences, discussions
- ▶ Open for all, free for NAFEMS members (\*)

### Conference sponsors

Gold



Silver



**HEXAGON**



# Invitation

NAFEMS, the independent international association for the engineering modelling, analysis and simulation community, is holding its Nordic conference from 25 - 26 October in Göteborg, Sweden. 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.

The conference welcomes participation from every type of organisation – large and small, across all industry sectors. It is open to both, members and non-members of NAFEMS, with members able to attend the event for free towards using four seminar credits, as part of their membership benefits package.

We are looking forward to welcome you in Göteborg, Sweden.

NAFEMS Nordic Steering Committee

## NAFEMS NORDIC

### Steering Committee members

- A. Johansson (Altair Engineering, SWE)
- M. Hermodsson (Corebon, SWE)
- J. Granlund (Dassault Systemes, SWE)
- L. Pilgaard Mikkelsen (DTU, DEN)
- M. Redhe (DYNAmore Nordic, SWE)
- B. Isaksen (Dynova, NOR)
- C.-F. Stein (FS Dynamics Sweden, SWE)
- J. Vernersen (Grundfos Holding, DEN)
- M. Andreasson (MSC.Software Sweden, SWE)
- T. Hansen (Novo Nordisk, DEN)
- F. Santandrea (RISE, SWE)
- A. Ptchelintsev (Stressfield, FIN)
- P. Poskiparta (Valmet Automotive, FIN)
- T. Frondelius (Wärtsilä, FIN)



Radisson Blu Scandinavia Hotel



Conference room

## Hardware and software exhibition

If you are interested in participating as an exhibitor or sponsor, you can find an information brochure at [www.nafems.org/nordic22](http://www.nafems.org/nordic22).



Exhibition area in front of the conference rooms

## Venue and hotel accommodation

Radisson Blu Scandinavia Hotel  
Södra Hamngatan 59  
401 24 Göteborg, Sweden  
Tel.: +46 31 758 5000  
Fax: +46 31 758 5001  
www.radissonblu.se/hotell-goteborg

NAFEMS NORDIC conference registrants can reserve a discounted room at the hotel. Please find a booking link on our conference website. The group code is: „NAFEMS“.

## Conference registration

Please register by completing the attached registration form or online at [www.nafems.org/nordic22](http://www.nafems.org/nordic22)

## Conference language

English

## Delegate fee (per person)

- Not-NAFEMS members: 620 Euro (6,355 SEK)
- NAFEMS members using 4 seminar credits: free\*
- NAFEMS member with no seminar credits: 390 Euro (4,000 SEK)

All costs plus 25% Swedish VAT.

These fees include attendance at the conference, one copy of the proceedings, lunches and break refreshments on each day and beverages and snacks in the evening of the first day. Hotel accommodation is not included.

### \* NAFEMS membership fee for companies/institutes

A standard NAFEMS site membership costs 1.240 Euro per year. An academic site membership costs 775 Euro per Jahr. Beneath many others, NAFEMS members will get eight seminar credits (1 credit = 1/2 seminar/conference day) per year.

NAFEMS members can use seminar credits towards free attendance at this event. This event will charge four seminar credits per delegate. You can register 2 delegates included in your membership to this conference! Please consider becoming NAFEMS member before registering!



## Cancellation policy

- Up to 6 weeks before the start: 100% refund
  - Up to 1 week before the start: 25% refund, no seminar credits refunded
  - Later and in the event of no-show: no refund
- Substitute participants can be provided. The cancellation must be made in writing.

## Format

Scheduled as a face-to-face seminar, the event will be conducted in accordance with local Covid-19 regulations. If an on-site event is not possible, we will either postpone the event or switch it to a purely online event.

## Hardware and software exhibition / sponsoring

We would like to extend an invitation to your company to be part of the conference as exhibitor and/or sponsor. Please request further information or download the exhibition and sponsorship opportunity brochure (pdf) at [www.nafems.org/nordic22](http://www.nafems.org/nordic22).

## Conference organization

NAFEMS Deutschland, Österreich, Schweiz GmbH  
Griesstr. 20, 85567 Grafing b.M., Germany  
Tel. +49 176 217 984 01  
e-mail: [nordic@nafems.org](mailto:nordic@nafems.org)  
[www.nafems.org](http://www.nafems.org)

## About NAFEMS

NAFEMS is the International Association of the Engineering Modelling, Analysis and Simulation Community. Our principal aims are to:

- Improve the professional status of all persons engaged in the use of engineering simulation
- Establish best practice in engineering simulation
- Provide a focal point for the dissemination and exchange of information and knowledge relating to engineering simulation
- Promote collaboration and communication
- Act as an advocate for the deployment of simulation
- Continuously improve the education and training in the use of simulation techniques
- Be recognised as a valued independent authority that operates with neutrality and integrity

We focus on the practical application of numerical engineering simulation techniques such the Finite Element Method for Structural Analysis, Computational Fluid Dynamics, and Multibody Simulation. In addition to end users from all industry sectors, our stakeholders include technology providers, researchers and academics. Please find more information at [www.nafems.org](http://www.nafems.org).

## Conference website:

[www.nafems.org/nordic22](http://www.nafems.org/nordic22)

Room A

**Session 1 A – Keynote Presentations**

- 10:30 **Welcome and NAFEMS Introduction**  
NAFEMS NORDIC Steering Committee, T. Morris, A. R. Oswald (NAFEMS)
- 10:40 **Using CAE to Lead the Way through the Energy Transition**  
H. Alfredsson (Aker Solutions)
- 11:15 **Wind Turbine Failure Analysis - Based on the Upcoming EN1993-1-14: Design Assisted by Finite Element Analysis**  
I. van Dijk (Siemens Gamesa Renewable Energy)
- 11:50 **The Role of CAE in Safe, Durable and Sustainable Automotive Development**  
R. Gutkin (Volvo Car Corp.)
- 12:25 Lunch break

Room A

**Session 2 A – CFD**

- 13:30 **Coupling of a Complex Chemistry Model and a Size Distribution Model to Accurately Predict Glass Quality**  
L. Thielen, J. van der Dennen (CelSian Glass & Solar)
- 13:55 **CFD Application of Environmental Control for 3D Printers**  
M. Hutchinson, T. May, C. Gonzalez, B. Eslami, K. Fouladi (Widener University Chester)
- 14:20 **The Use of Graphical Processing Units (GPUs) for CFD Simulations**  
T. Berg (Ansys)

14:45 Break

**Session 3 A – ML / AI / Autonomous Things**

- 15:30 **Machine Learning in Feature Detection and Treatment of Automotive Parts**  
N. Drivakos, P. Floratos (BETA CAE Systems); E. Doulgerakis (BETA CAE Nordic)
- 15:55 **Deep-Learning for Enhanced Engineering: Real-Time Design of City Buildings**  
G. Vieira, L. Zampieri, L. D'Alvise (Neural Concept); G. Pedro, J. Bergstrom (RWDI)
- 16:20 **Can Numerical Simulation Supplement Real Tests? Preliminary Results for a Self-Driving Shuttle**  
B. Soualmi, H. Souki, V. Honnet (Institute of Research and Technology System X); L. Bonic (boulevard Thomas Gobert)
- 16:45 **Automatic Hot-Zone Detection For Squeak and Rattle Risk Analysis**  
M. Bayani (Volvo Car Corporation) T. Fokylidis, S. Porikis (BETA CAE Systems)
- 17:10 End of presentation day 1

Exhibition

17:10 **Get Together: networking and discussion with beverages and snacks**

18:40 End of day 1

Room B

**Session 2 B – Workshop PCB**

- Challenges in PCB Analysis**  
Moderated by B. Isaksen (Dynova)
- Discussion topics:
- How important is the correct representation of the PCB?
  - The electronic components will alter the mass and the stiffness of the PCB. Which detail is required for modelling the PCB?
  - A PCB can consist of several layers of Glass Fibre and the stiffness is dependent of no. of layers. When is it required to model the anisotropy of the PCB?
  - Details of modelling?
  - Clamping of PCB edges?
  - How can we discretize a PCB to arrive at Steinberg results in a complete system?

**Session 3 B – Short Course CFD**

- Introduction to Practical CFD**  
Trainer: K. Fouladi (NAFEMS)
- Through a simple and moderately technical approach, this course covers topics such as the role of CFD, basic formulation, governing equations and use of model equations, steps in CFD process, need for turbulence modeling, and CFD best practices.

Room A

Session 4 A – Material

- 08:30 **Fatigue Strength Assessment on a Gearbox Cover Made of Fiber-Reinforced Plastic**  
D. Hofmann, H. Dannbauer, K. Hofwimmer, S. Fischmeister (Magna Powertrain, Engineering Center Steyr)
- 08:55 **FatigueMap - A System to Predict Material Fatigue Failure**  
 B. Isaksen (Dynova)
- 09:20 **Can FEA Simulation Accurately Predict Material Flow in Compression Molding?**  
 H. Sandberg (Seal Engineering)

09:45 Break

Session 5 A – Optimization / Multiphysics

- 10:30 **Ultra Lightweight Components by Multiscale Topology Optimization of TPMS-Based Lattice Structures**  
 N. Strömberg (Örebro University)
- 10:55 **Shape Optimization of Assemblies under Static and Dynamic Loads**  
 R. Helfrich (Intes)
- 11:20 **Numerical Simulation of the Seismic Response of Buried Pipelines using Different Finite Element Methods**  
 G. Banushi (HafenCity Universität Hamburg (HCU))

11:45 Lunch break

Session 6 A – Verification / Strategy / Farewell

- 12:45 **Transitioning CAE Workloads to the Cloud in the Path to Digital Maturity**  
M. Lopez-Quiroga, I. Fernandez (Gompute/ Gridcore)
- 13:10 **Challenges of Verification of FPSO Design Modification**  
 O. Ishchuk (SDC Verifier)
- 13:35 **Standardization Experiments for Quality Assurance of Engineering Simulations (Project STEERING)**  
F. Santandrea (RISE); M.Eriksson (Validus Engineering)
- 14:00 **Level Up Your Software Negotiation Skills through Analysis and Simulation**  
 L. Enrico (OPEN IT Norge)
- 14:25 **Summary of Key Outcomes from the NAFEMS NORDIC 2022 Regional Conference / Farewell NAFEMS Nordic Steering Committee**
- 14:30 End of conference

Room B

Session 4 B – Workshop UQ

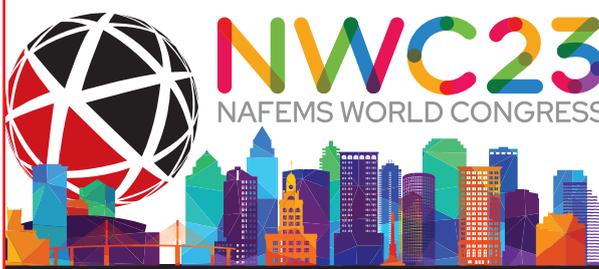
**A Human Friendly Introduction to Uncertainty Quantification in Engineering Simulations**  
 Moderated by F. Santandrea (RISE)

In this interactive participants will have the opportunity to familiarize with the main steps of uncertainty quantification (i.e., input modelling, propagation, output analysis) by jointly analysing an example model under the guidance of the instructor. Constructive criticism and active participation to the discussion are strongly encouraged. No prior knowledge about UQ is required to attend this training but, if available, it will be appropriately updated in conformity with Bayes' theorem.

Session 5 B – Short Course CFD

**Elements of Turbulence Modelling**  
 Trainer: K. Fouladi (NAFEMS)

This course is focused on understanding turbulence, need for turbulence modeling, and various modeling approaches. Discussions on the advantages and limitations of various models should help CFD users in selecting appropriate turbulence models for their simulations.



**NAFEMS WORLD CONGRESS**  
 A WORLD OF ENGINEERING SIMULATION  
 15-18 May 2023 Tampa | Florida | USA

**See you in Tampa?**

**Abstract submission deadline:  
 25 November 2022**

**[www.nafems.org/congress](http://www.nafems.org/congress)**

Want become a NAFEMS company member?

[www.nafems.org/](http://www.nafems.org/)

## Registration

Please complete and fax to +49 3 22 11 08 99 13 41, e-mail to [nordic@nafems.org](mailto:nordic@nafems.org) or send to NAFEMS GmbH, Griesstraße 20, 85567 Grafing b. München, Germany.

**I herewith register for the NAFEMS Nordic Regional Conference, 25 - 26 October 2022 in Göteborg, Sweden:**

- My company is not NAFEMS member: 620 Euro (6.355 SEK) plus VAT
- My company is NAFEMS member – free attendance using 4 seminar credits
- My company is NAFEMS member – no more seminar credits available: 390 Euro (4,000 SEK) plus VAT
  
- Please send me the exhibition and sponsoring opportunities brochure.**
- I am interested in NAFEMS membership. Please contact me.**

### Sender

Company / University: \_\_\_\_\_

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Signature: \_\_\_\_\_

By registering, you allow us to use and process your information in accordance with our privacy policy: [www.nafems.org/about/privacy/](http://www.nafems.org/about/privacy/)

**Online registration at [www.nafems.org/nordic22](http://www.nafems.org/nordic22)**



# NWOC23

NAFEMS WORLD CONGRESS



A WORLD OF ENGINEERING SIMULATION

15-18 May 2023

Tampa | Florida | USA

**Abstract submission deadline:  
25 November 2022**

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