



Conference
**COMSOL
MULTIPHYSICS**
2025



22. - 23. 5. 2025

Wednesday (21.5.)

- 17:00 Registration and Arranged Personal Meetings
- 18:30 Dinner
- 20:00 Arranged Personal Meetings

Thursday (22.5.)

- 7:30 Breakfast until 9:30
- 8:30 Registration
- 9:30 **Opening Remarks**
Petr Byron, HUMUSOFT
- 9:40 **News in COMSOL 6.3**
Martin Kožíšek, HUMUSOFT
- 10:00 **Keynote: Meshing in CFD Models**
Nancy Bannach, COMSOL
- 10:30 **Keynote: Curvilinear Coordinates for Anisotropic Materials**
Nancy Bannach, COMSOL
- 11:00 **Coffee Break, Digital Poster Session Day 1**
- 11:30 **Transport-Reaction Problems in the Barriers of a Deep Geological Spent Nuclear Fuel Repository**
Milan Hokr, Technical University of Liberec
- 11:45 **Turbulent Fluid Flow in Auricula Sinistra**
Matouš Brunát, Czech Technical University in Prague
- 12:00 **Modeling of the Phase-Change Materials in Civil Engineering Constructions**
Richard Slávik, Mendel University in Brno
- 12:15 **Simulations for Satellite Engineering and Integration**
Tomáš Tichý, HILASE
- 12:30 **Lunch**
- 13:30 **Digital Poster Session Day 1**
- 14:00 **Keynote: Heat Transfers and Solid Mechanics in Microarchitected Materials using Periodic Homogenization**
Frédéric Viry, SIMTEC
- 14:30 **Keynote: Modelling the Heat Dissipation of a Head Lamp within COMSOL Multiphysics**
Frédéric Viry, SIMTEC
- 14:45 **Movement in Electromagnetics: Motors, Actuators and Forces**
Matouš Lorenc, HUMUSOFT
- 15:45 **Random Vibrations in Structural Mechanics**
Tomáš Vrbata, HUMUSOFT
- 16:30 **Coffee Break, Digital Poster Session Day 1**

- 17:00 **Keynote: From Material Characterization to Topology Optimization in Additive Manufacturing**
Giuseppe Petrone, BE CAE & Test
- 18:00 **Acoustic Metamaterials with Negative Stiffness: A Model of a Membrane Absorber**
Jana Vysloužilová, Brno University of Technology
- 18:15 **Plasmonic Enhancements In Metal-Diamond Nanoparticle Complexes**
Bohuslav Rezek, Czech Technical University in Prague
- 18:30 **Simulation of NV Quantum Response**
Josef Souček, Hasselt University IMO IMOMEK
- 18:45 **Computing Hysteresis and Coupling AC Losses in Round High-Temperature Superconductor Cable**
Mykola Soloviov, Slovak Academy of Sciences
- 19:00 **Dinner**
- 20:30 **Social Evening**

Friday (23.5.)

- 7:30 Breakfast until 9:30
- 9:30 **Introduction to Electric Discharge Module**
Matouš Lorenc, HUMUSOFT
- 10:00 **CAD Destructuring in the Design Module**
Martin Kožíšek, HUMUSOFT
- 10:45 **Keynote: Thermo-Mechanical Optics Modelling for Laser-Driven Fusion**
Gavin Friedman, Focused Energy
- 11:30 **Coffee Break, Digital Poster Session Day 2**
- 12:00 **User Presentation 9**
User Guest 9
- 12:15 **User Presentation 10**
User Guest 10
- 12:30 **User Presentation 11**
User Guest 11
- 12:45 **User Presentation 12**
User Guest 12
- 13:00 **Lunch**
- 14:00 **Digital Poster Session Day 2**
- 15:00 **Physics Informed Neural Networks: COMSOL and MATLAB**
Tomáš Vrbata, Martin Kožíšek, HUMUSOFT
- 16:00 **Closing Remarks**

Digital Posters Sessions

Digital Poster Session Day 1

Consultation Opportunity: Heat Transfer, CFD, Chemical Reactions, and Making of Applications

Nancy Bannach, COMSOL

Consultation Opportunity: High-Performance Computing Workstations HeavyHorse

Jiří Šusta, HUMUSOFT

Heat Models for a Deep Geological Repository

Petr Rálek, Technical University of Liberec

Digital Poster Session Day 2

Digital Poster 4

User Guest 16

Digital Poster 5

User Guest 17

Digital Poster 6

User Guest 18

Hotel Galant Lednice

21. dubna 657, 691 44, Lednice



Conference Fee:

Customers with COMSOL License: Free

Guests on the invitation list: Free

Other guests: 1000 CZK

Are you interested in COMSOL software?

Let us know, we will add you on the invitation list.

This event takes place in person only!

www.humusoft.cz/comsol-2025

Keynote Speakers

Frédéric Viry, SIMTEC, France

Frédéric is a modelling expert at SIMTEC. He daily uses COMSOL Multiphysics to efficiently build numerical models and deliver valuable results to his industrial clients. He also develops multi-scale modelling methods for industry specific needs.

Giuseppe Petrone, BeCAE&Test, Italy

Giuseppe Petrone is a co-founder and the sole director of the company BE CAE & Test. He earned a degree in Mechanical Engineering from the University of Catania (Italy) in 2001, followed by a Ph.D. in Energetics and Process Engineering from the University of Paris Est (France) in 2004. He then worked as a contract researcher at the same institution until 2005, before continuing his academic career as a researcher at the University of Catania (Italy) from 2006 to 2012 and later at the University of Florence (Italy) from 2013 to 2014. Since 2014, he has overseen more than 100 technical and industrial projects at BE CAE & Test, collaborating with clients who are global leaders in their respective fields. Over the years, he has gained extensive expertise in numerical modeling, particularly in multiphysics applications using COMSOL software, which he has been working with for over 20 years.

Nancy Bannach, COMSOL, Germany

Nancy Bannach is an accomplished developer at COMSOL, with a focus on porous media flow and transport. Additionally, she brings extensive expertise in Computational Fluid Dynamics (CFD), chemical engineering, and developing customized COMSOL apps aimed at improving engineering solutions. Prior to her current role, Nancy began her journey at COMSOL in 2009 as a technical sales engineer, later diversifying her experience in applications and technical marketing. Before joining COMSOL Germany in 2009, Nancy earned a Diploma in Geophysics from Göttingen University in the same year, focusing on numerical simulations to analyze convection within the Earth's outer core.

Gavin Friedman, Focused Energy, Germany/USA

Gavin Friedman is the Head of Optical Modelling at Focused Energy, creating simulation tools to develop novel laser sources to enable fusion power as a viable energy source. He has over 15 years of experience in thermo-mechanical modelling and is an industry expert on creating minimally-invasive cooling systems for large laser systems. He has been a key contributor on simulations for energy sector products as well as R&D lasers for high-field physics at US/EU national laboratories, including a recent role at ELI-Beamlines in Prague.