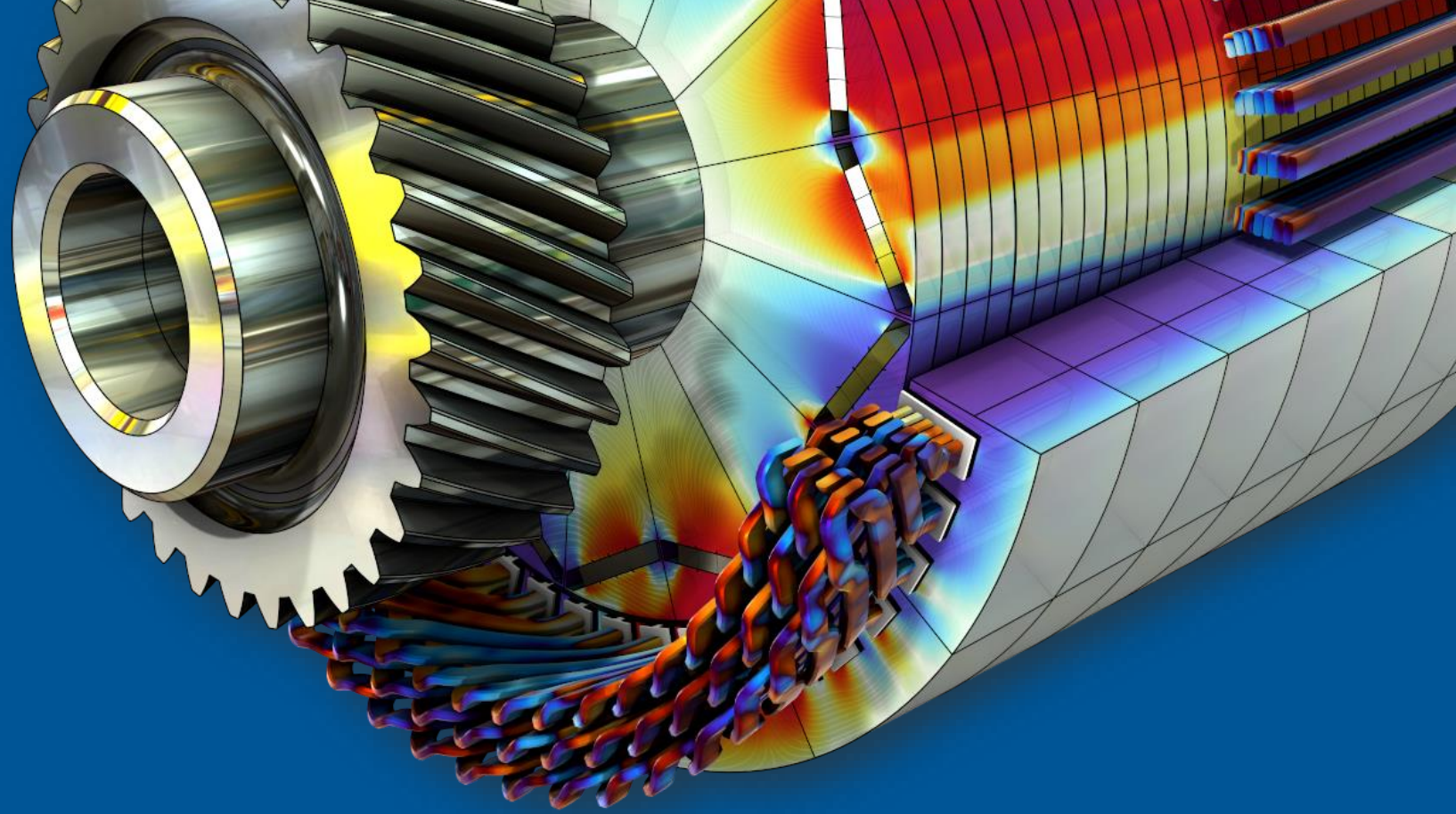


COMSOL Multiphysics News

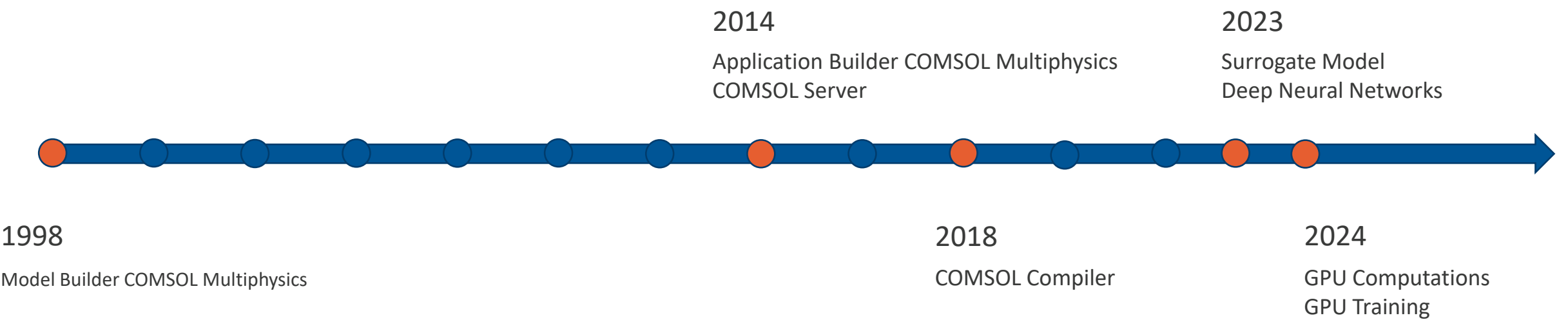


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COMSOL Multiphysics 6.3

Journey for Democratization of Multiphysics Simulation

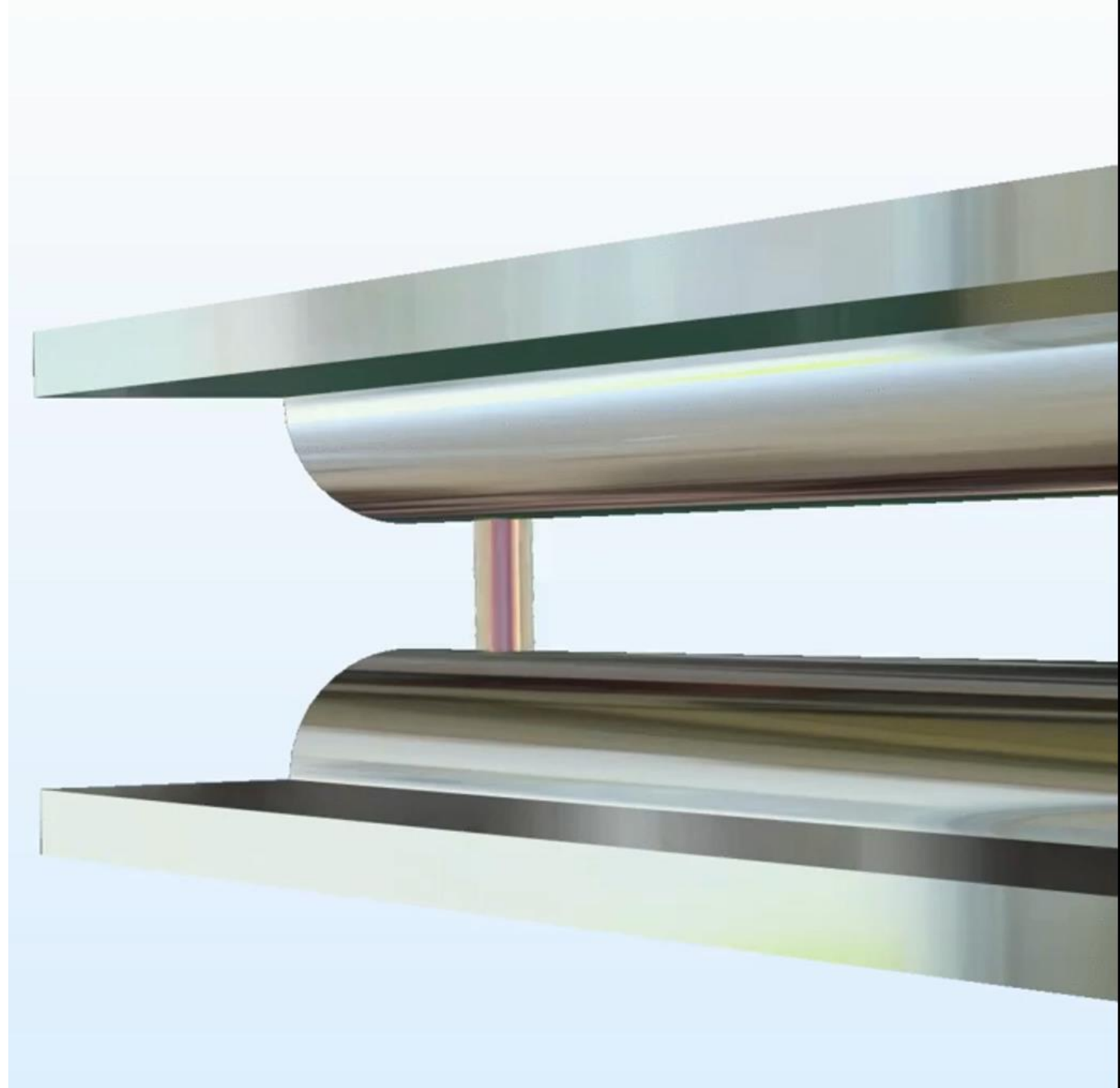


Top 5 COMSOL Multiphysics News

1. New Electric Discharge Module
2. Automatic Geometry Cleanup
3. Interactive Java and Chatbot Interfaces
4. GPU acceleration for faster transient acoustics simulation and surrogate model training
5. New Efficient Global Optimization Method

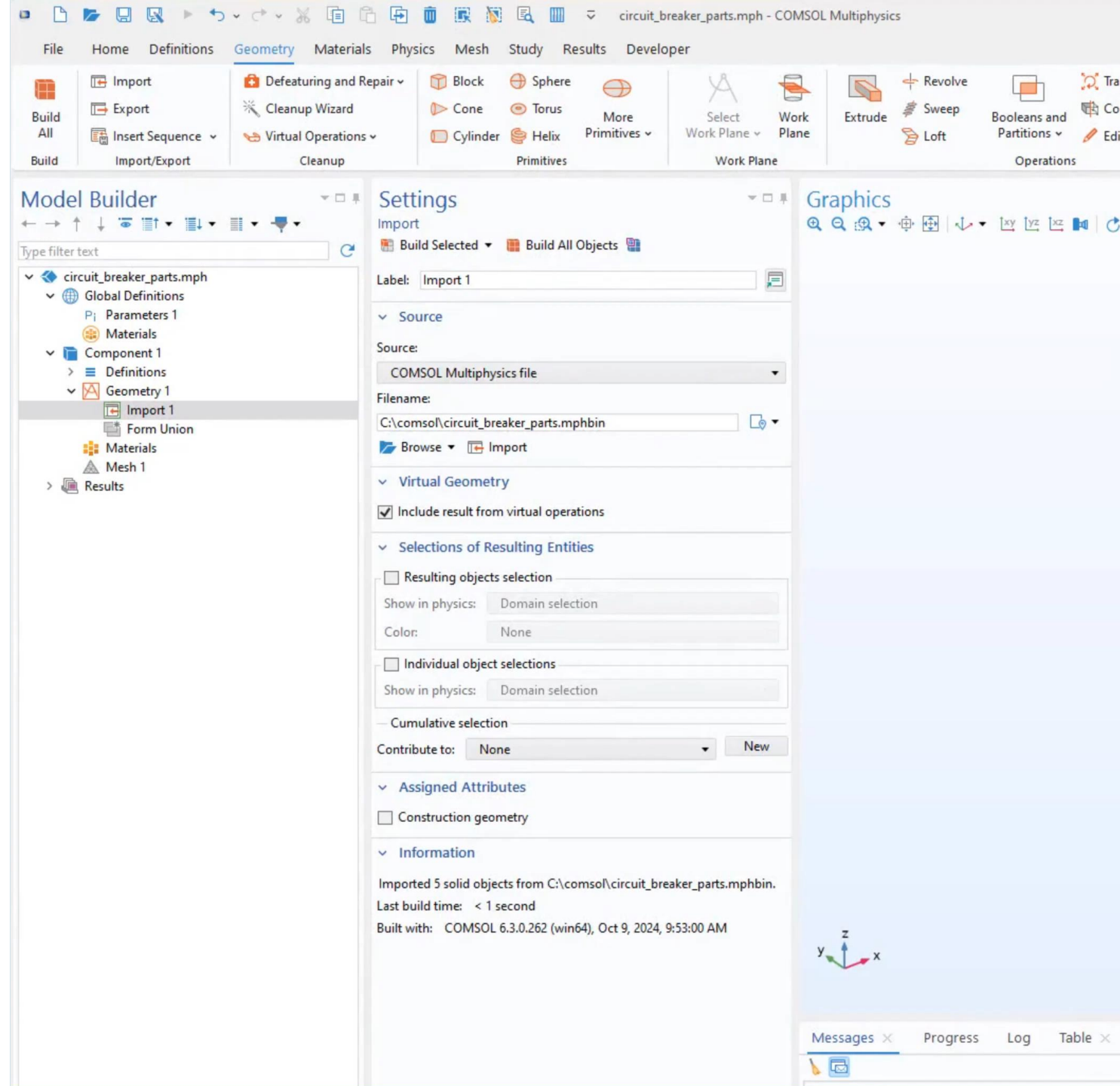
New Electric Discharge Module

- **Webinar Modeling Electric Discharge in COMSOL Multiphysics – 25.9. 2025**
- For simulating discharges in gases, liquids and solid dielectrics.
- Discharges and electric breakdown prediction
 - Streamer Discharges
 - Trichel Pulses
 - Electrostatic Discharges
 - Arch Discharges
 - Positive Glow Corona
 - Dielectric Barrier Discharges
 - Solid Dielectrics
 - Lightning-Induced Voltage



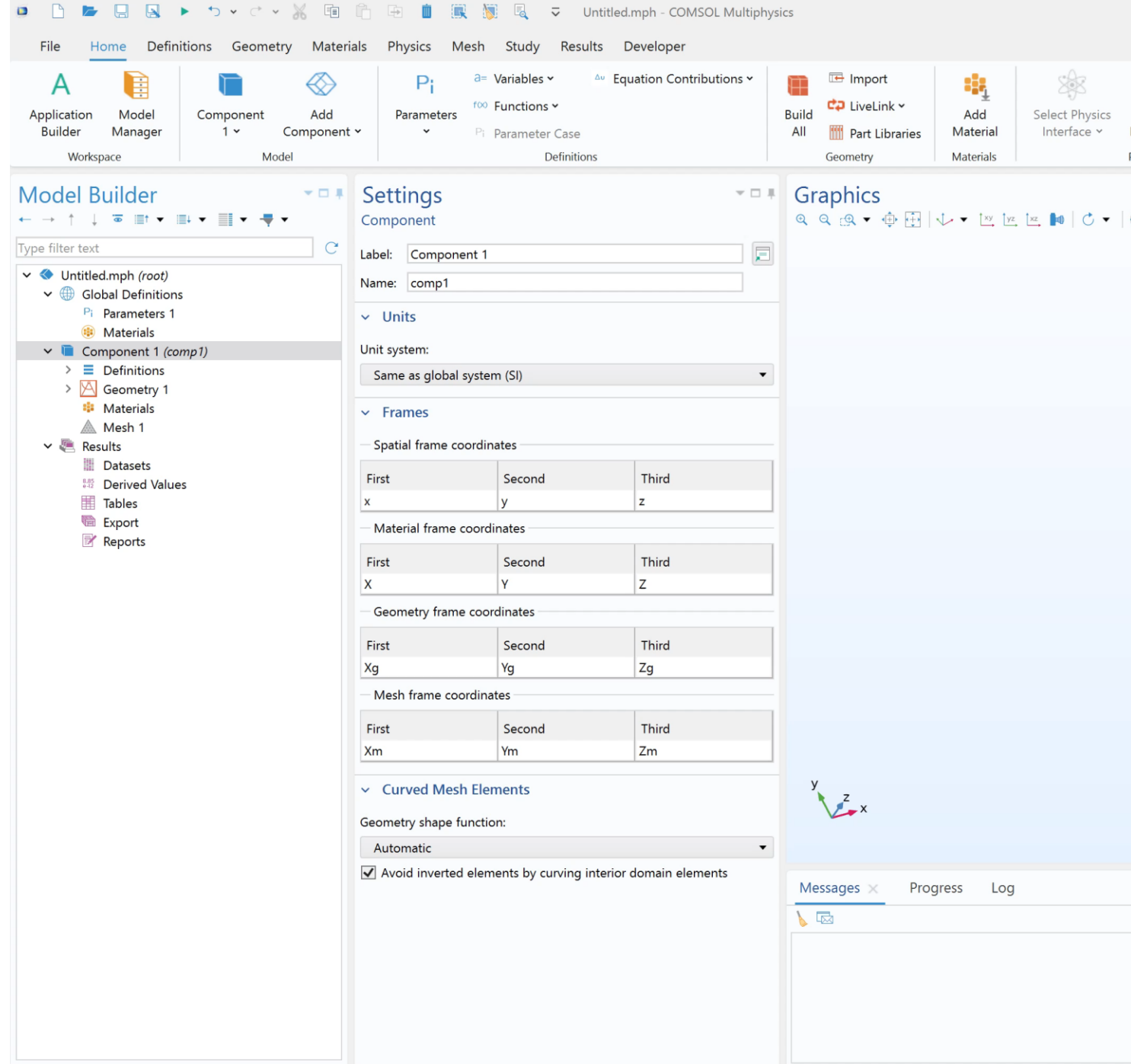
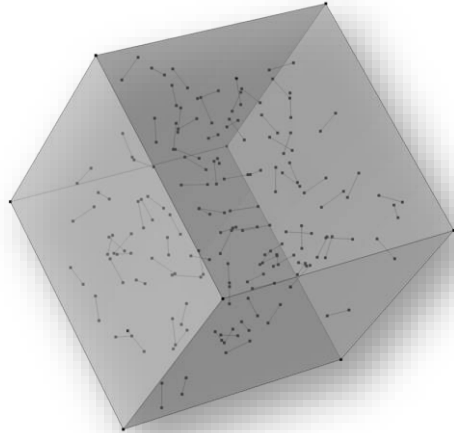
Automatic Geometry Cleanup

- Automatically and transparently detects and removes small details and gaps in your geometry.
- User has full control of the process!
- Requires CAD Import Module (or products containing it).



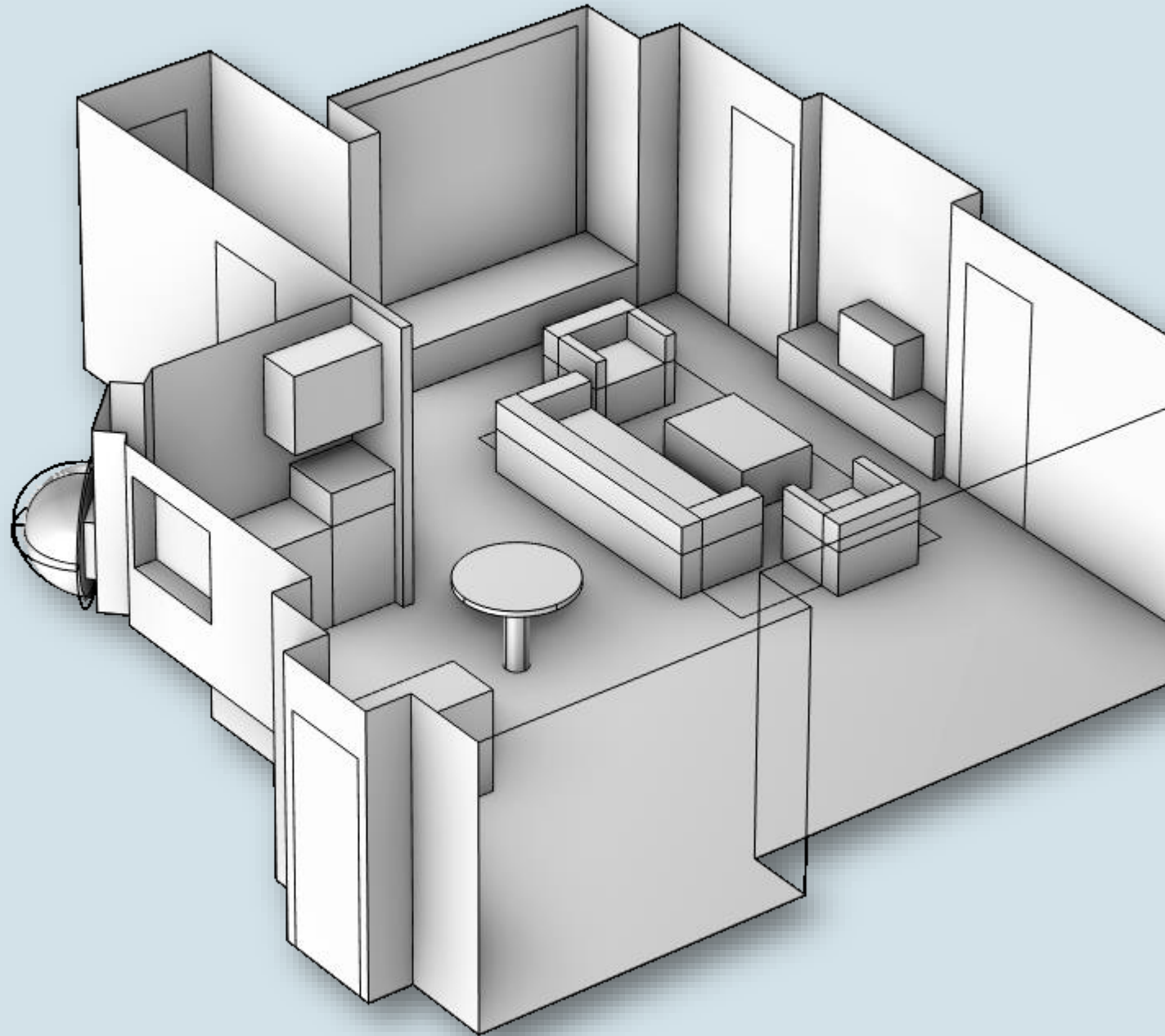
Interactive Java and Chatbot Interfaces

„Create 100 randomly positioned line segments with length 0.01 m. All line segments has to be enclosed in a cube with center in point 0,0,0 and side length 0.1 m. Check carefully that all line segments points are inside the cube.“



GPU Accelerated Computing

- Graphics cards with computation capability develop fast.
- GPU Acceleration in COMSOL 6.3:
 - Deep Neural Network training
 - Pressure Acoustics, Time Explicit simulations
- Compatibility and Requirements
 - A NVIDIA® graphics card, with *Compute Capability* 6.0–9.0
 - Windows® or Linux®
 - CUDA® Toolkit 12.4



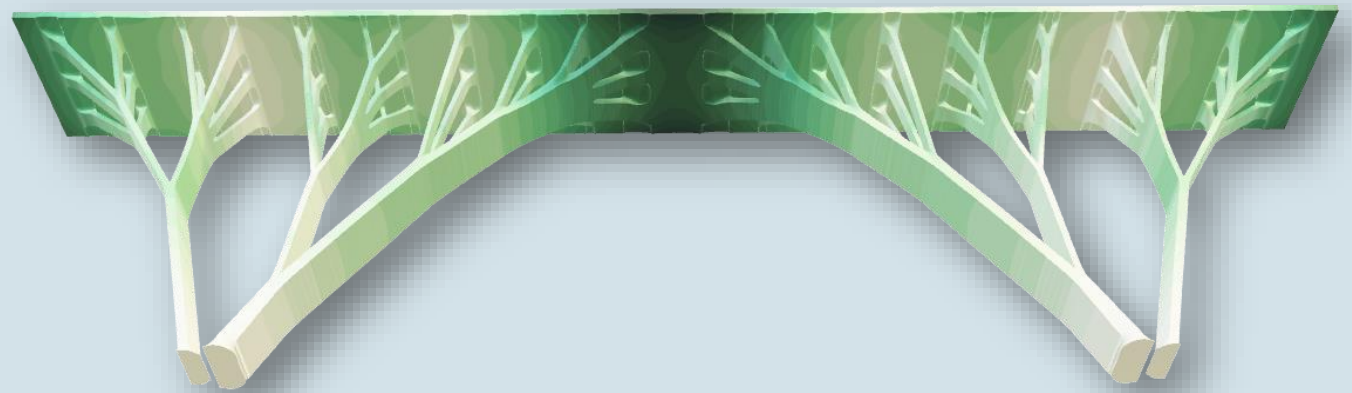
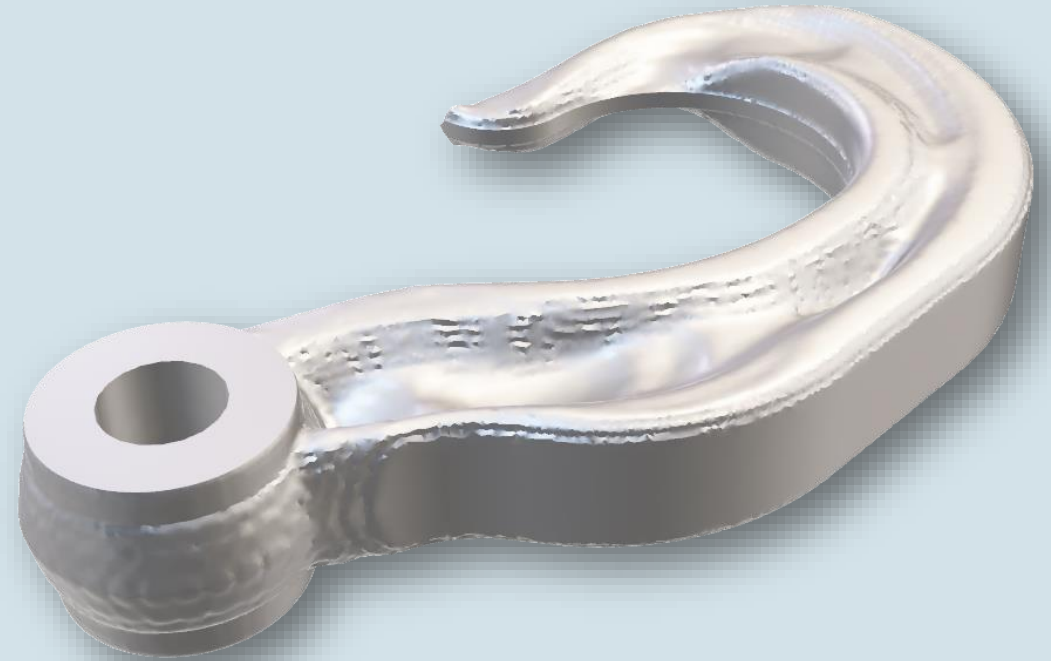
GPU Accelerated Computing

- <https://youtu.be/bfyDNQipnew?si=38FchpSxMODfv9S1>
- Our webinar on Neural Networks Training and Acoustics Simulations on GPU in COMSOL Multiphysics
- Can COMSOL beat sitcom logic?
 - How come Ross and Monica can discuss secrets speaking loudly without their parents overhearing?



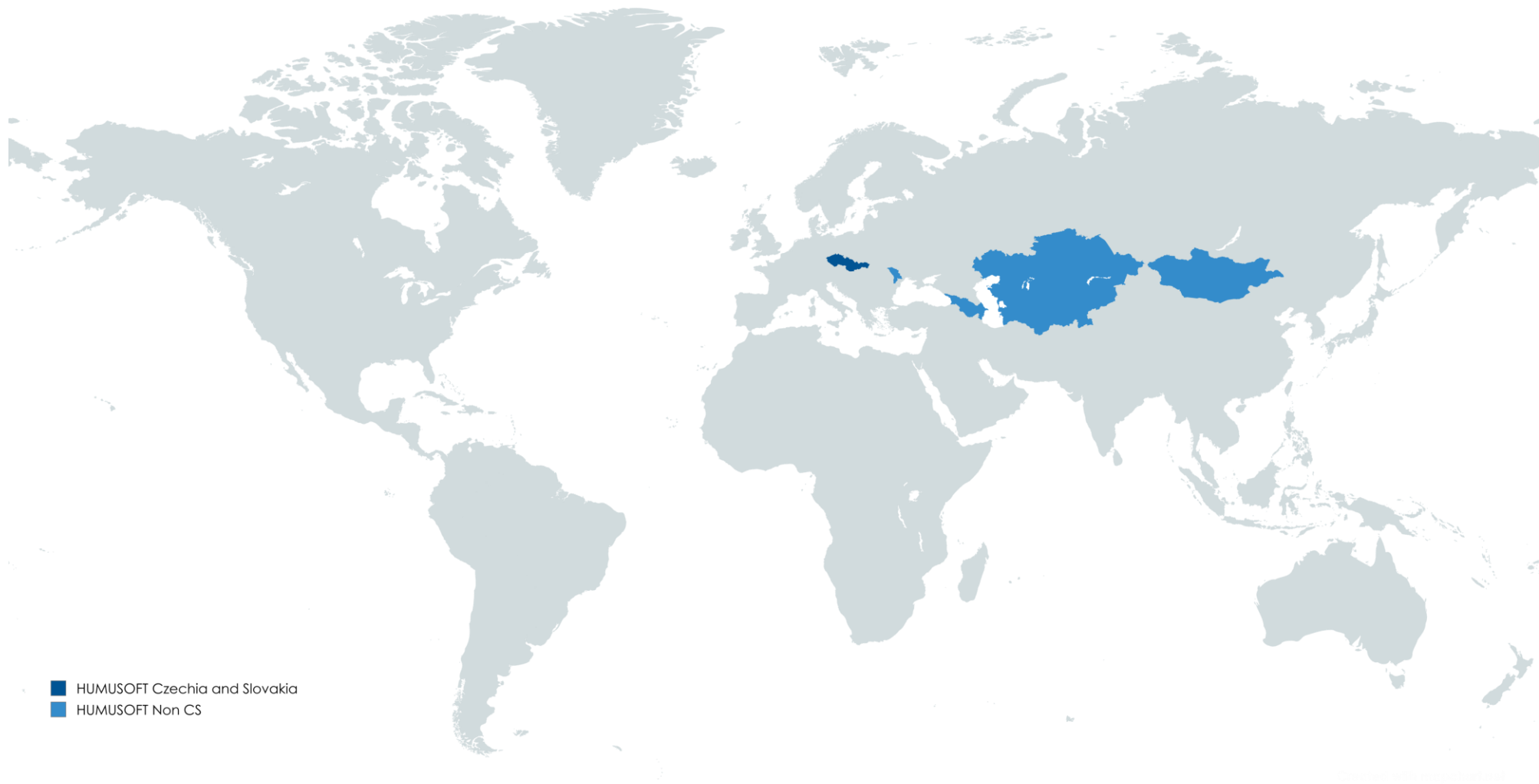
New Efficient Global Optimization Method

- EGO (Efficient Global Optimization) is new gradient-free optimization study step.
- EGO uses Bayesian optimization to construct a surrogate model.
- The result can be further improved by switching to another (local) gradient-free solver.
- Parameter Optimization,




Other News

Humusoft Territory Expansion



Join the COMSOL Multiphysics Course

- Semester course
- Content inspired by modern simulation courses at TU Munich and TU Eindhoven
- 3 Credits
- Still free seats



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DETAIL PŘEDMĚTU

Základy simulací v COMSOL Multiphysics

FEKT-XPC-SCM • Ak. rok: 2022/2023

Základy simulací v COMSOL Multiphysics je kurz, který je určen pro začátečníky. Je připraven firmou HUMUSOFT s.r.o., kteří se profesionálně věnují tomuto simulačnímu nástroji. Proškolou které tento nástroj používají a spolupodílí se na složitých simulacích reálných dějů řešených připraven podle výukových materiálů švédské společnosti COMSOL, obsahuje také ukázkové týmem z fy HUMUSOFT a v neposlední řadě také již reálné řešení simulací z praxe

GARANT PŘEDMĚTU [doc. Ing. Jana Kolářová, Ph.D.](#)

ZAJIŠŤUJE ÚSTAV [Ústav biomedicínského inženýrství \(UBMI\)](#)

LITERATURA

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M. Kožíšek a kol.: Základy simulací v COMSOL Multiphysics, prezentace k výuce (CS)