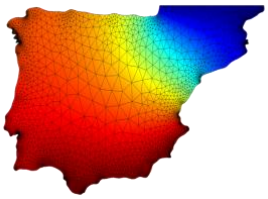
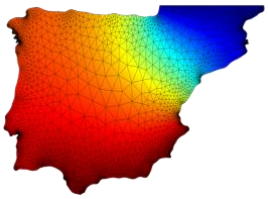
Iberian
COMSOL Multiphysics
CONFERENCE
Málaga. June 26, 2026



Iberian COMSOL Multiphysics Conference 2026 – Friday June 26

Friday morning, June 26, 2026	
9:00	**Registration opens**
9:15 – 9:30	**Welcome and opening remarks**
9:30 – 10:30	**Minicourse 1** COMSOL Multiphysics, version 6.4 Ed González, COMSOL, Stockholm (Sweden)
10:30 – 11:30	**Oral presentations 1**
11:30 – 12:30	**Poster session** (with coffee break)
12:30 – 13:30	**Plenary Session** Unlocking Agentic AI for simulation at scale with Nexus for COMSOL Multiphysics Rui Aguiar, Cosmon, San Francisco, CA (US)
13:30 – 14:30	**Oral presentations 2**
14:30 – 16:00	**Lunch**

Friday afternoon, June 26, 2026	
16:00 – 16:45	**Oral presentations 3**
16:45 – 17:45	**Minicourse 2** Building Simulation Applications in COMSOL Multiphysics with the Application Builder and Java Methods Alejandro Cifuentes López, Addlink Software Científico, Barcelona (Spain)
17:45	**Closing remarks**
21:00	**Gala dinner**



O1 – O4	10:30 – 11:30	Oral presentations 1

O1: *Multiphysics Modelling of Ion Transport in BM-Electrodialysis for Tertiary Wastewater Desalination and Reuse*, Juan Manuel Paz-García, María del Mar Cerrillo-González, José Miguel Rodríguez-Maroto, María Villén-Guzman.

O2: *Multiphysics Simulation of Bipolar Membrane Electrodialysis for Boric Acid Production: Interfacial Surface Dissociation Reactions and pH-Dependent Boron Reactive Transport,* Hesam Bazargan Harandi, Julio López Rodríguez, Ricardo Torres Cámara, Anahita Asadi, José Luis Cortina Pallás.

O3: *Heat Transfer in a New Residential Apartment Considering Moisture Effects in Building Envelopes,* Claudia Săvescu, Adrian Săvescu, Umaru Bongwirnso, Árpád Forberger.

O4: *Coupled Thermo-Hydro-Mechanical Modelling of the CRQ In Situ Heating Test Using COMSOL Multiphysics,* Pablo Sierra, Miquel de la Iglesia, Arnau Pont, Andrés Idiart, Carlos Plúa, Minh Ngoc Vu.

O5 – O8	13:30 – 14:30	Oral presentations 2

O5: *A Simulation Framework for Eddy-Current Reduction in Portable Low-field MRI,* L. Vega Cid, J. Borreguero, E. G. Castanon, R. Bosch Esteve, M. Fernández García, T. Guallart-Naval, P. Benlloch, L.G. de Castro, J. Conejero, P. Moreno, E. Pallás, L. Porcar, J.M. Algarín, F. Galve, J. Alonso.

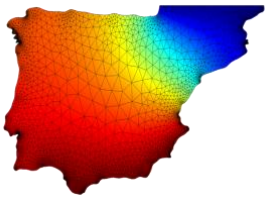
O6: *Plasmonic Simulations of Silver based Nanoparticles on Antiferromagnetic Nanolayers for Spintronic Applications,* Cayetano Hernández Gómez, Emilio Ruiz-Reina, Noemi Carmona, Yolanda Castro, Adrián Quesada, Pilar Prieto, Aida Serrano.

O7: *Axisymmetric Multiphysics Simulation of Convective Drying in a Food Matrix,* Leonardo Machado, Rafael López, Jorge Barriobero, Monica Mendiola.

O8: *Linear Temperature Profile on Silicon Photonic Waveguides for Tunable Optical Dispersion Compensation,* Elio Godoy-Lorite, Alejandro Fernández-Hinestrosa, José Manuel Luque-González.

O9 – O11	16:00 – 17:00	Oral presentations 3

O9: *Effective Thermal Conductivity in Subwavelength Silicon-on-Insulator Waveguides,* Alejandro Sánchez-Sánchez, José Carlos Girela-Gámez, José Manuel Luque-González.



O10: *Numerical Simulation of the Tensile Behaviour of AISI 304 Austenitic Stainless Steel Under Sub-Zero Temperatures,* Abdisa Sisay Mekonnin, Antonio Atienza Márquez.

O11: *3D Numerical Simulations of Cathode Flow Field Design Optimization for Single-Pass Conversion in CO_2 Electrolyzers,* Camilo Peralta, Esther Santos, Ángel Irabien.

P1 – P10	11:30 – 12:30	Poster session

P1: *Omnidirectional Loudspeaker Driver with Sectors Membrane,* Michele Pontillo, Rubén Picó, Paco Castells.

P2: *3D COMSOL Multiphysics Modelling of Catalytic CO_2 Methanation in a Steam-Cooled Tubular Reactor,* Jose Antonio García, Maria del Mar Cerrillo-González, María Villén-Guzman, José Miguel Rodríguez-Maroto, Juan Manuel Paz-García.

P3: *Dielectric Waveguide Miniaturization: A Comparison of Frequencies and Materials,* Alberto Frisa-Rubio.

P4: *An Efficiently Fed Non-Reciprocal Patch Antenna*, Miguel Estrada-Grijalba, Mario Pérez-Escribano y Elena Abdo-Sánchez.

P5: *Thermal Inertia Effects in Au/h-BN/Ti RRAM Devices under Repetitive Voltage Pulses: A COMSOL–MATLAB Multiphysics Study,* Enrique Manuel Moreno Pérez, Juan Bautista Roldán Aranda, Pedro González Rodelas.

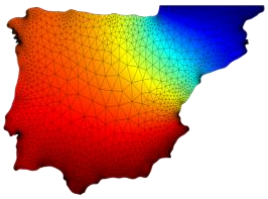
P6: *Study on the Influence of Reinforcement Elements in Water-Flow Glazing Facades,* Luis J. Claros-Marfil, David Muñoz-Rodríguez, José Francisco-Velázquez Navarro, Alberto J. Perea-Moreno.

P7: *Simulation and Inverse Characterization of Thermal Profiles in Roman Concrete Slabs for Volcanic Environments,* Amílcar José Cabrera García, Víctor Manuel Cabrera García, Emilio Ruiz-Reina.

P8: *Microwave Plasma Simulation of H_2S Decomposition Using COMSOL Multiphysics,* Jordi Folch Eguren, Alberto Ruiz Rodríguez, Marcel Janer Angelet, Beatriz Rodriguez Díez.

P9: *Modeling and Optimizing Honeycomb-like Active Mechanical Metamaterials Using COMSOL Multiphysics,* Ander Abadín, Jose F. Gómez-Cortés, Luis Corcuera, Eduardo González, Emilio Ruiz-Reina, José M. San Juan, María L. Nó.

P10: *Ultra-High Mechanical Damping in Cu–Al–Ni Nanopillar Arrays: Experimental and COMSOL Multiphysics Modeling,* Jose F. Gómez-Cortés, Ander Abadín, Emilio Ruiz-Reina, Eduardo González, Maria L. Nó, José M. San Juan.



Minicourse 1:

COMSOL Multiphysics, version 6.4

Dr. Ed González

COMSOL Multiphysics, version 6.4, introduces new and updated functionality as well as the new Granular Flow Module, based on the discrete element method (DEM), for simulating grain and powder flow.

The update also introduces explicit structural dynamics for nonlinear dynamic analysis of high-speed events such as impacts and blasts.

Solver performance has been significantly improved with the NVIDIA CUDA® direct sparse solver (cuDSS) for NVIDIA® GPUs, providing several-fold speedups for a wide range of applications.

In this talk, you will get an overview of the new modeling capabilities, performance improvements, and productivity enhancements in the release.

Dr. Ed González

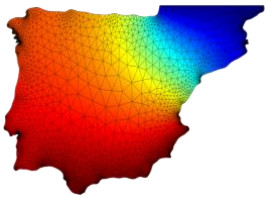
Director of Development, Structural Mechanics, at COMSOL AB, Stockholm (Sweden)

PhD in Physics from the Ludwig-Maximilians-Universität of Munich, Germany. He is currently the Director of Development for the Structural Mechanics products.

He regularly presents the numerical capabilities of COMSOL Multiphysics at multiple conferences, courses, and webinars.

During his extensive tenure at COMSOL AB, Sweden, where he served as both Product Manager and Technology Manager, he successfully led a multitude of projects across diverse disciplines. These included acoustics, fluid dynamics, electromagnetism, structural mechanics, mass transport, and heat transfer.

He is also member of the teaching staff of the Multiphysics Modeling School, University of Málaga.



Plenary Session:

Unlocking Agentic AI for simulation at scale with Nexus for COMSOL Multiphysics

Rui Aguiar, M.Sc.

Artificial intelligence is changing how engineers discover designs, validate ideas, and deliver results. In this plenary, we will show how Nexus augments COMSOL Multiphysics to accelerate model setup, exploration, and decision making, without disrupting the workflows teams already trust. Attendees will see how AI assistance reduces repetitive tasks, improves model robustness, and shortens iteration cycles from hours to minutes.

We will walk through end-to-end scenarios that start with natural language intent and move into structured COMSOL models. Nexus helps select appropriate physics interfaces, propose meshing and study settings, and generate parameterized variants for rapid trade off analysis. The result is a faster path from a first idea to a validated result, while preserving full user control and traceability inside COMSOL.

Beyond speed, Nexus enables new ways of working across teams. We will demonstrate how templated “AI playbooks” capture best practices, how guardrails and verification steps keep results reliable, and how automatic documentation creates clear, reproducible records for peers and customers. We will also share performance benchmarks and lessons learned from pilot users, highlighting where AI adds the most value today and where it does not.

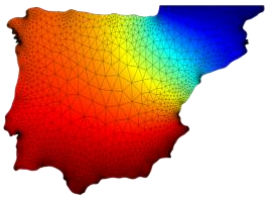
We will close with a practical roadmap so attendees can evaluate AI safely in their own environments. This includes recommended pilot use cases, metrics to track impact, and integration options that respect data governance. Participants will leave with concrete ideas to bring AI into their COMSOL based workflows and a clear view of what to expect in the next release cycle.

Rui Aguiar, M.Sc.

Co-founder of Cosmon, San Francisco, CA (US)

Master's Degree in Artificial Intelligence by Stanford University. Co-founder of Cosmon, where he leads product strategy for Nexus, an AI platform that accelerates multiphysics simulation workflows. He has spent his career building tools that bridge advanced computation and real-world engineering, collaborating with teams in academia and industry across energy, microfluidics, and electronics.

At Cosmon, Rui focuses on trustworthy AI, human in the loop workflows, and measurable productivity gains for engineering teams. Before his work at Cosmon, Rui worked in in the Machine Learning group at Stanford University at the intersection of reinforcement learning and scientific computing.



Minicourse 2:

Building Simulation Applications in COMSOL Multiphysics

with the Application Builder and Java Methods

Dr. Alejandro Cifuentes López

This minicourse introduces how custom simulation applications can be created in COMSOL Multiphysics using the Application Builder. Participants will learn the basic workflow for transforming a COMSOL model into an interactive app, including the design of the user interface, the definition of inputs and outputs, and the connection between app components and model settings. Through a practical demonstration, the session will show how an application can be built to simplify model execution, guide users through a simulation workflow, and present relevant results in an accessible way.

The second part of the minicourse introduces methods in COMSOL, with a focus on Java-based scripting inside the Application Builder environment. Attendees will see how methods can be used to automate actions, control model parameters, customize app behaviour, and extend the functionality of a simulation application beyond the standard graphical interface. The goal is to show how the Application Builder and Java methods can be combined to create flexible, user-friendly, and reusable simulation tools for engineering analysis and research workflows.

Dr. Alejandro Cifuentes López

Technical Engineer at Addlink Software Científico, Barcelona (Spain)

PhD in Chemical Process Engineering from the Polytechnic University of Catalonia, and Master's Degree in Renewable Energies and Energy Sustainability from the University of Barcelona. He has been an associate professor at the Polytechnic University of Catalonia, teaching the course on Computational Simulation in Fluid Mechanics and Heat Transfer. At Addlink Software Científico, he has conducted numerous seminars and courses on various aspects of the COMSOL Multiphysics simulation platform. The training content included a general introduction to the main platform, the use of CFD, heat transfer and chemical engineering modules, as well as the application builder.

He specializes in the simulation of reactive transport of chemical species with surface reactions or in porous media, such as in the case of a fluidized bed reactor. These are complex models as there is a strong coupling between different physics, making convergence challenging. Additionally, he has conducted numerous optimization studies and parameter tuning in various areas.

He is also member of the teaching staff of the Multiphysics Modeling School, University of Málaga.