The last of Mesh generation in Barcelona

Barcelona Supercomputing Center (BSC) is represented in the organizing committee of the **26th International Meshing Roundtable** that will take place in Barcelona on September 18-21th.

The International Meshing Roundtable focuses on bringing together researchers and developers from academia, national labs and industry in a stimulating open environment to share technical information related to mesh generation and general pre-processing techniques. Computational engineers and scientists use Mesh generation methods in a daily basis to obtain numerical predictions on discrete approximations of complex geometrical configurations.

Sandia National Laboratories organize this event with the collaboration of other stakeholders like **Xevi Roca**, Geometry and Meshing for Simulations Group Manager at BSC who is the Papers Chair and member of the Organization panel. Other international institutions and companies that are present in the Organization Committee are Siemens, University of Kansas, Cambridge Flow Solutions, INRIA, Computer Simulation Technology CST and University of Chile.

What is Mesh generation?

Meshes are a key ingredient to perform computer simulations with unstructured methods such as the finite element method and the finite volume method.

Mesh generation aims to decompose highly complicated domains by filling them with distributions of different types of elements such as triangles, quadrilaterals, hexahedra, tetrahedra, pyramids, and prisms. These geometrical decompositions, referred as mesh, are used to simulate physical phenomena. The size of the mesh elements can be locally adapted to obtain more accurate simulations.

International Meshing Roundtable History

In 1992, Sandia National Laboratories started the Meshing Roundtable as a small meeting of like-minded companies and organizations striving to establish a common focus for research and development in the field of mesh and grid generation. Sandia National Laboratories continues to organize the International Meshing Roundtable, which has become recognized

as an international focal point annually attended by researchers and developers from dozens of countries around the world.

About Xevi Roca research

Xevi Roca is the Geometry and Meshing for Simulations Group Manager at Barcelona Supercomputing Center (BSC). The current research of his team on meshing deals with: quality-based framework for mesh validation and optimization, automatic mesh generation for wind farm simulations, mesh based representation of urban areas for forecast simulation, reduction and measurement of the geometrical error and curved mesh generation for unstructured high-order methods.

"Best Curved Adapted Meshes for Space-Time Flow Simulations (Tesseract)" is an ERC Starting Grant awarded to Xevi Roca, also a Ramon y Cajal fellow. This is one of the seven ERC projects that has been awarded to the BSC. ERC grants are generally considered to be Europe's most prestigious research awards.

More information: 26th International Meshing Roundtable website