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RECENT TRENDS IN OPENFOAM-BASED NUMERICAL MODELS FOR REAL WORLD APPLICATIONS

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ABSTRACT

OpenFOAM is a Finite Volume C++ library which is nowadays the leading free, open-source software for computational fluid dynamics and is widely used in many research and development projects carried on in a variety of sectors: industrial (automotive, aerospace, naval, chemical, energy), environmental (numerical weather predictions, ocean currents, vulcanology) and biomedical (cardiovascular biomechanics, medical devices).

This Invited Session aims at gathering academic and experiences coming from real-world problems in which the OpenFOAM library has been used as computational core in the development of numerical models applied to different applications.

The invited talks will cover different numerical methodologies including reduced order modeling, multiphysics coupling, immersed boundary method, inverse and optimal control problems including shape and topology parametrization, as well as a wide range of CFD application featuring complex phenomena such as fluid-structure interaction, aero-acoustics, turbulence and free-surface.