

# **Computational modeling of turbulent and complex flows with applications.**

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The computational modeling of extremely complex flows requires an important amount of computational resources but also very sophisticated models and numerical methods. The main difficulty of these flows is the presence of multiple temporal and spatial scales which can be generated from the geometrical definition of the problem but can also be intrinsic multiscale phenomena such as turbulence and/or the coupling with other physical phenomena like chemical reaction, multiple phases, porous media, magnetohydrodynamics, etc. The multiscale nature of these problems can be described at the physical and/or numerical level using different techniques. Among them, the variational multiscale approach has demonstrated great potential for the numerical simulation of turbulent and reactive flows. The connection of these techniques with classical stabilization methods and large eddy simulation models is also of primal importance. This minisymposium aims to be a forum to present and discuss current trends in the development of modeling and computational simulation of turbulent and complex flows. Therefore contributions related to the development of new methods as well as the application of these methods to the simulation of complex flows of any kind, e.g. turbulent flows, reactive flows, multiphase flows, etc., are welcomed.