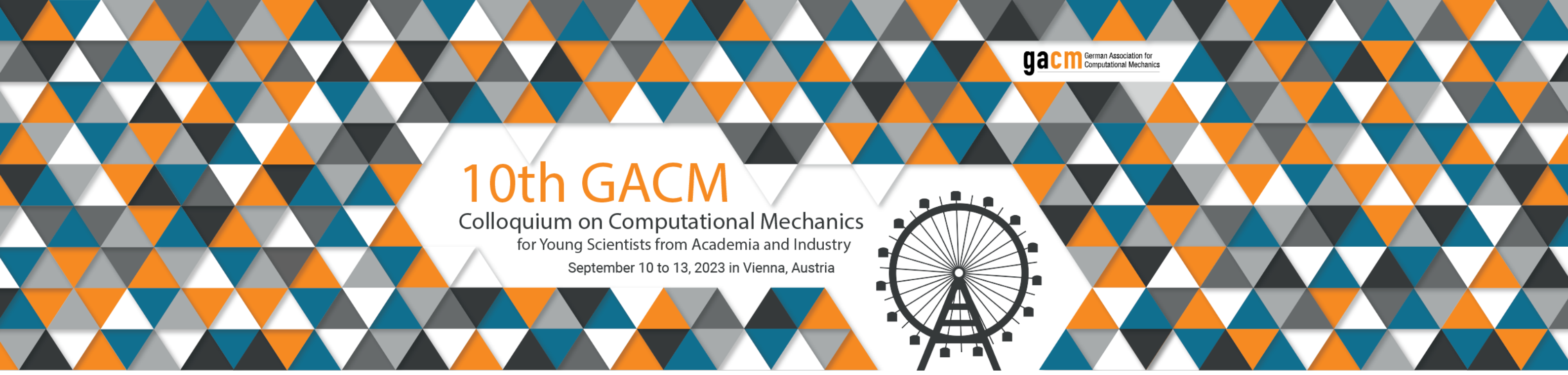

Droplets, bubbles and interfaces in turbulent flows

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Turbulent multiphase flow of immiscible fluids characterizes a wide range of environmental and industrial phenomena, such as liquid fragmentation, emulsification, or bubbly flows. These flows are also called interfacial flows due to the presence of a deformable interface, which evolves in the flow in a very complex manner, being modulated by the turbulent structures, while modifying them at the same time. Such interactions between the turbulence and the interface also control the characteristics and the evolution of interfacial events such as breakup and coalescence. Since these physical mechanisms occur at different spatiotemporal scales, the accurate investigation of these flows poses several challenges both to the experimental and the numerical techniques. Nevertheless, many physical aspects can be disclosed through direct numerical simulations (DNS) and in particular with high-resolution interface-resolved simulations. Some recent studies carried out detailed simulations of drop/bubble-laden flows, spray atomization or emulsification, in different configurations such as homogeneous isotropic turbulence as well as wall-bounded turbulence, and have contributed to answering fundamental questions about turbulence modulation, breakup and coalescence or characteristic scales in terms of Hinze scale and drop size distribution. These research questions are still the subject of ongoing investigation in the research community.

This mini-symposium aims at providing a platform for scientific exchange between researchers interested in turbulent interfacial flows. Contributions from all types of computational multiphase flow techniques are equally invited including, but not limited to, the volume of fluid (VOF), level-set (LS), phase field method (PFM), front tracking methods as well as interface tracking techniques within the realm of mesoscopic approaches such as lattice-Boltzmann method (LBM). Research studies with the following physical core phenomena are encouraged for contribution:

- *turbulence-interface interactions*
- *bubble-laden flows*
- *droplet-laden flows*
- *breakup and coalescence*
- *heat and mass transfer in drop/bubble-laden flows*

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