Special Issue

Modelling of Reactive and Non-reactive Multiphase Flows

Message from the Guest Editors

Multiphase flows are found in a large number of industrial processes including power generation, pharmaceutical and the chemical or agriculture industry. Key challenges associated with the modelling of multiphase flows include their multiphysics and multiscale nature involving interactions of turbulence, interface physics, phase change and chemical reactions on temporal and spatial scales spanning several orders of magnitude. In the last two decades, progress in numerical methods and computing power have enabled impressive direct numerical simulations (DNS) of multiphase flows that considerably improved our physical understanding of such flows. However, as DNS is limited to academic configurations in the foreseeable future, the development of next-generation models for large-scale, or averaged multiphase flows is an important challenge. The purpose of this Special Issue is to collect state-of-the-art results related to the simulation of non-reactive or reactive multiphase flows as well as their analysis and modelling.

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