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Bubble clouds generated by droplets impacting water

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A liquid jet or stream of droplets impacting a liquid surface and thereby, entraining the surrounding gas to form a bubble cloud is among the most-common daily-life phenomena. Understanding and modeling such bubble clouds is crucial for multi-phase mixing processes in nature and in industrial techniques for pollution control, turbine operation and performance, oxygenation of water resources, among others. From a more fundamental point of view, the physics of such “bubbly” flows is at the margin of classical fluid dynamics. Based on recent studies in our group which provide a strong theoretical basis and large amount of experimental data, there is wide scope to further improve our understanding via direct numerical simulations of such two-phase flows. In this context, the internship aims to characterize the bubble cloud formed by circular jets, and droplet trains, using numerical simulations (Basilisk Flow Solver).

Master

Autre ou non applicable

Laboratoire d'accueil

LMFA

Composante ou Département Composante

MECA

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