DNS of turbulent bubbly downflow with a front-capturing method

Marcel Kwakkel, Wim-Paul Breugem (presentation) and Bendiks Jan Boersma
Delft University of Technology
W.P.Breugem@tudelft.nl

We present results of a Direct Numerical Simulation (DNS) of a turbulent downward flow in a vertical plane channel laden with finite-size bubbles. The DNS is based on the Coupled Level-Set / Volume-of-Fluid (CLSVOF) method [1,2,3,4] for capturing the bubbles. This method combines the sharp interface representation of the Level-Set method with the mass-conserving interface representation of the Volume-of-Fluid method. The aim of this study is to assess the feasibility of the CLSVOF method for simulating the motion of O(1000) deformable bubbles in a turbulent vertical plane channel.

References