

## STUDY OF DROPLET DYNAMICS AND TURBULENCE MODIFICATION IN TWO-PHASE FLOWS BY MEANS OF DNS

### PROJECT AIM

The goal of this project is on understanding droplet dynamics and turbulence modification in the clustering regime  $St \sim 1$ . We will consider droplets whose characteristic size is significantly larger than the Kolmogorov length scale, whence they can not be modeled as point droplets. In particular we are interested in situations leading to break-up and coalescence of these droplets. Besides the goals given above, these simulations also allow us to validate closure models that appear in continuum models.

### PROGRESS

A literature survey is performed on the subject of droplet dynamics, especially on the coalescence of deformable droplets. Besides this survey, also a start is made to speed up the existing source code. This is done by the implementation of a local marker method to capture the interfaces, multi-dimensional parallelization and the use of an improved ICCG solver. If this is done, an investigated coalescence model will be implemented and validated against existing experimental results.

### DISSERTATIONS

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### SCIENTIFIC PUBLICATIONS

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### PROJECT LEADERS

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### RESEARCH THEME

Complex dynamics of fluids

### PARTICIPANTS

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### COOPERATIONS

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### FUNDED

TU Delft  
1<sup>st</sup> 100% 2<sup>nd</sup> - 3<sup>rd</sup> -

### START OF THE PROJECT

2008

### INFORMATION

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