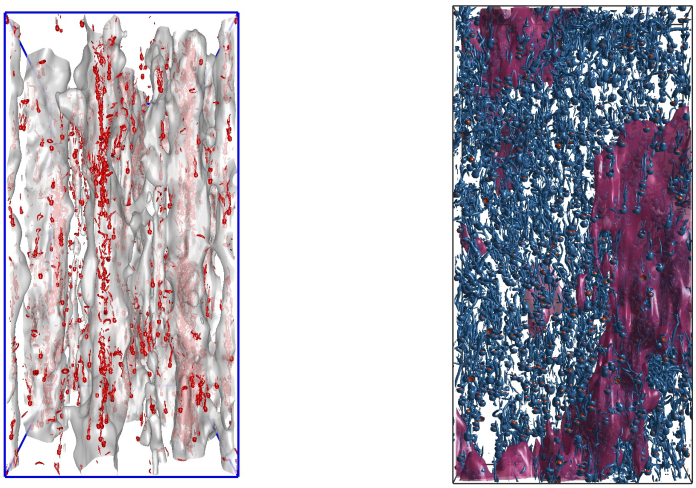
Finite-size particle dynamics in non-homogeneous turbulence (PhD studentship or Post-Doc)

We are looking for a motivated person to work in a funded research project in the area of turbulent particulate flow. We will investigate the interaction between weakly inhomogeneous turbulence and sedimenting particles which are larger than the smallest flow structures. The objective is to determine the influence of particle size and concentration on both the particle motion and the fluid flow. The study, which will be carried out in collaboration with a partner team in France performing laboratory experiments, can be expected to generate unprecedented data-sets allowing for new insight into long-standing problems.

In our research group we are using numerical methods to investigate large-scale particulate flow systems with relevance to various technical and natural applications. The approach relies on massively-parallel simulations, leading to large amounts of raw data which need to be explored and efficiently analyzed in order to reveal the underlying physics.



Particles settling in ambient fluid (left) and in homogeneous turbulence (right).

The present activity involves method and code development, design of numerical experiments, data analysis, physical modeling and scientific writing/presentation.

The candidate should:

- hold a university degree in engineering, physics or applied maths;
- have very good knowledge in fluid mechanics and turbulence;
- have acquired programming skills in Fortran, C or C++;
- possess good communication skills and motivation to work in a team.

The position is to be filled as soon as possible. The funding will run for three years (full time, salary according to public pay grade “TVL E13”). We offer the following benefits:

- working in a stimulating scientific environment;
- access to top-notch super-computing facilities;
- research at the frontier of turbulent multi-physics;
- cutting edge numerical approaches.

Contact:

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