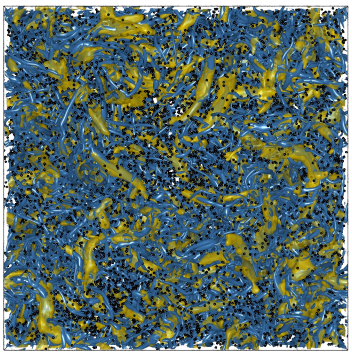
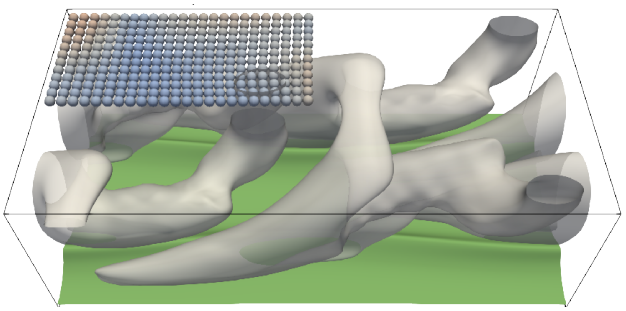
Turbulent particulate flow and invariant solutions (PhD studentship)

We are looking for a motivated person to work in a funded research project at the intersection between (multi-phase) fluid mechanics and dynamical systems theory. The goal of the project is to investigate the interaction between finite-size particles and turbulence with the aid of so-called invariant solutions. This should provide insight into the fundamental mechanisms, and eventually help us to understand the intricacies of particle dynamics in turbulence.

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.





(Left) Homogeneous-isotropic turbulence. (Right) Travelling wave in channel flow.

The 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. 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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