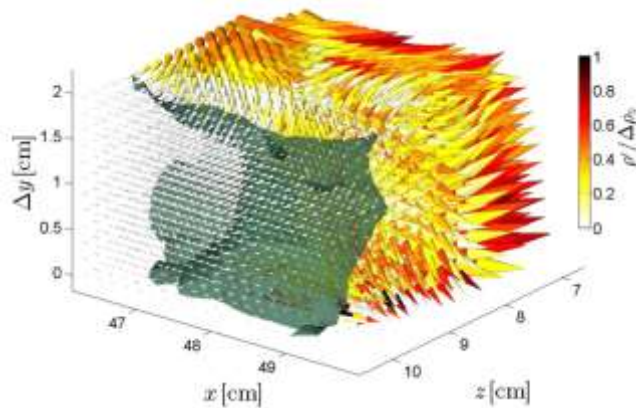


Ph.D. Positions in Turbulence and Coherent Structures at ETH Zurich

The Institute of Environmental Engineering (Prof. M. Holzner), and the Institute of Mechanical Systems (Prof. G. Haller), has a joined opening for **two Ph.D. positions** in a DACH/SNSF funded, multidisciplinary research project entitled **Coherent Superstructures in Stably Stratified Turbulence**.



The project aims to develop objective Lagrangian detection algorithms for large coherent structures (*superstructures*) in stratified turbulence, determine fluxes of mass, momentum and enstrophy across their evolving boundary surfaces, and assess their overall impact on mixing. This effort will join theory, experiments and simulations to (a) develop efficient algorithms for unsteady three-

dimensional Lagrangian coherent structure detection in large data sets, (b) obtain three-dimensional Lagrangian velocity data in stably stratified turbulence using 3D particle tracking velocimetry and (c) apply the detection algorithms to the obtained experimental and available numerical data sets. One of the two Ph.D. positions will be more focused on experimental aspects, the other one more on theoretical aspects. Strong numerical skills are required for both positions.

Requirements:

- MSc in engineering, applied mathematics or physics (or equivalent)
- Research interest and background in turbulent flows and dynamical systems
- Demonstrated experience with numerical methods. Background in advanced data analysis (image processing, statistical data analysis etc.) is an advantage.
- Interest in a scientific career and in interdisciplinary project collaboration
- Working knowledge of English

Starting date: Autumn 2016

Contract duration: 3 years

How to apply: Applications should include a CV and a motivation letter along with two contacts for reference letters. Please send your application by e-mail to SNSF Prof. Markus Holzner (holzner@ifu.baug.ethz.ch) and Prof. George Haller (georgehaller@ethz.ch).

Contact: For questions about the positions please contact Prof. Holzner or Prof. Haller.