

**Proposal for a post-doctoral position**

**THEORY and SIMULATIONS of TURBULENCE**

**Where:** *Ecole Normale Supérieure de Lyon - Laboratoire de physique* (ENSL-CNRS, Lyon, France)

**Directed by:** Krzysztof GAWEDZKI and Freddy BOUCHET

**Description:**

The aim of this project is to develop the theoretical and mathematical aspects of turbulence. The studied problems are motivated by important physical phenomena: energy-spectrum of turbulent flows, self-organization of largest scales, or transport of particles. In the last few years, members of the project have obtained complementary results in this field.

We will consider issues related to statistics of solutions to the two-dimensional stochastic Navier-Stokes equations (relevant for its analogy to geophysical fluid dynamics), the 2D Navier-Stokes turbulent cascades in curved geometry, and stochastic models of turbulent transport of inertial particles.

The candidate will contribute to analytic studies of qualitative properties of solutions, and/or perform numerical simulations of the hydrodynamical equations.

The requested skills are either in mathematics/theoretical physics or in numerical computations in hydrodynamics. A good training in either turbulence, statistical physics, stochastic dynamics, or partial differential equations, even if not necessary, would be appreciated.

- PhD. in physics or in mathematics is required.
- This position provides a one year appointment that may start any time in 2012, with a preference for the beginning in the fall of 2012.
- Applicants should send their CV and two recommendation letters to Krzysztof Gawedzki (kgawedzk@ens-lyon.fr) and Freddy Bouchet (Freddy.Bouchet@ens-lyon.fr)

This project is a part of ANR STOSYMAP, that gathers three French teams (involving profs. Anne DEBOUARD, Arnaud DEBUSCHE, Eric GAUTIER, Sergei KUKSIN, Yves LE JAN, and Armen SHIRIKYAN) working on mathematical or theoretical physics aspects of turbulence in various physical media.