LadHyX Seminar – December 3, 14:00

## Yves Pomeau / Christophe Josserand (LadHyX)

## A novel explanation for dissipation in turbulence

A long standing problem in fluid turbulence is the explanation of dissipation. It is known since Newton (and Chézy) that dissipation is independent of viscosity at large velocities. We explain this by the occurrence of finite time localized singularities of the solutions of the inviscid equations of the type predicted by Leray in 1934. This is confirmed by a model of PDE's where finite time singularities occur and where the structure functions show a remarkable similarity with the ones measured with hot wires in the Modane wind tunnel. We shall also introduce the closure for the turbulent stress derived from the mechanism of dissipation by singularities and explain how it works in the case of the mixing layer.