

Speaker: **Martin Donati** (Université Grenoble Alpes)

Title: *Fast relaxation of a viscous vortex in an external flow*

Summary: We try to give a mathematical description of the phenomenon, observed in experiments, of the fast deformation of an initially radially symmetric vortex in an external flow. We show that the solution of the Navier-Stokes equations in a divergence free external flow starting from a Gaussian vortex relaxes very quickly, due to enhanced dissipation, and up to some controlled error, to a well-known semi-explicit expression. This expression is itself computed as an approximate solution of the Navier-Stokes equations in the same external flow that started in the past from a Dirac mass of vorticity.