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SEMINAR OF ANALYSIS

FRIDAY 6TH DECEMBER 2024 - ROOM: MA B1 11 at 2.15 pm

Martin Donati (Univ. Grenoble - Alpes)

will present a seminar entitled:

“Localization of helical vortex filaments

Abstract:

In the wake of a moving object immersed in a fluid, such as wind turbines, helicopters, and airplanes, singular vortex structures called vortex filaments are created. Moreover, the rotating-translating movement creates a very specific structure: helical vortex filaments. The motion of general filaments is the subject of the so-called "vortex filament conjecture" which is still open in most cases. Vortex filaments are too singular to be taken as an initial datum in the 3D Euler equations, so the movement of filaments is understood as the limit of smooth solutions concentrating near it. At the limit, it is known that the motion should be given by the binormal flow equation, however, it was only rigorously proved in very specific cases, including vortex rings. We prove the vortex filament conjecture in another specific situation: helical vortex filaments..