



Mercredi 12 mars 2014 à 11h15

Orme des Merisiers SPEC, Salle Itzykson, Bât.774

From two-dimensional to rotating turbulence

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In the absence of large-scale dissipation, forced two-dimensional turbulence in a square box leads to the accumulation of energy in the largest available scale: after some transient, a global circulation fills the entire box. I will present numerical simulations of this phenomenon, before introducing a quasilinear approximation that gives an analytic prediction of the amplitude of the large-scale flow at high Reynolds number. Somewhat surprisingly, this amplitude depends sensitively on the form of the dissipation, even in the undamped limit.

In the second part of the seminar I will present some experimental results on forced rotating turbulence. Rotation tends to two-dimensionalize the flow while favoring cyclonic vorticity. Combining the phenomenologies of 2D and 3D turbulence, I will explain the different scaling regimes observed in the experiment.

A coffee break will be served at 11h00. The seminar will be given in English.