



UNIVERSITÀ DEGLI STUDI DI GENOVA

Dottorato in Fluidodinamica e Processi dell'Ingegneria Ambientale
Progetto Marie Curie EST "FLUBIO"

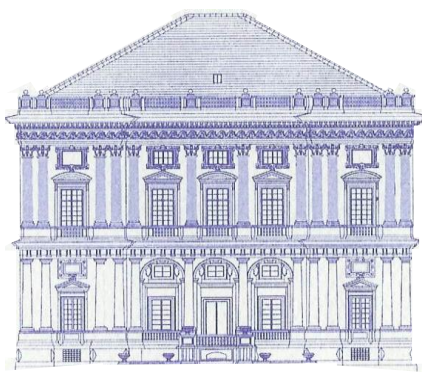
AVVISO DI SEMINARIO

"HURRICANES IN A SOAP BUBBLE"

Prof. Hamid Kellay

Università di Bordeaux
France

Martedì 1 Dicembre, 2009 – ore 15.00
Facoltà di Ingegneria
Aula A11
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Hurricanes in a soap bubble

I will describe a set of experiments to examine thermal convection in a novel two dimensional cell: a soap bubble. This bubble, actually a half bubble is used, is heated at the equator and cooled at the pole. This temperature differential gives rise to thermal convection and thermal plumes near the equator. This state of agitation is examined using measurements the velocity, the thickness, and the temperature fluctuations and the results are compared to existing theoretical and numerical studies. A surprising phenomenon occurs once in awhile: the emergence of single isolated large scale vortices. These vortices resemble cyclones or hurricanes and their movement shows considerable fluctuations. The mean square displacement of the vortices turns out to obey a universal scaling law versus time. Similar results are also obtained for the movement of hurricanes. Some consequences of these observations will be discussed.

Biographical sketch of Hamid Kellay

Hamid Kellay obtained his bachelor's degree in 1988 from Harvard University, and the Ph.D. in 1993 from Ecole Normale Supérieure and Université Paris Sud. He carried out postdoctoral studies in W. Goldburg's Lab at the Physics Department of the University of Pittsburgh. Appointed Maitre de Conférences at the University of Bordeaux in 1994, he is Full Professor since 2002.