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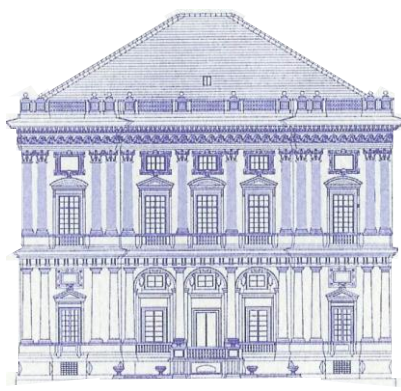
Dottorato in Fluidodinamica e Processi dell'Ingegneria Ambientale

AVVISO DI SEMINARIO

“A simple model for the synchronization of eucariotic cilia”

Mercoledì 6 Luglio, 2011 – ore 14.30
Facoltà di Ingegneria,
Aula A11, Villa Giustiniani Cambiaso

Dott. Filippo De Lillo
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Abstract

Swimming and fluid stirring are fundamental functions in all kinds of organisms. In the microscopic world, both multicellular and unicellular organisms make use of cilia and flagella to swim (eucariota, protozoa) or to move fluid for their functioning (e.g., in the ciliated tissues of higher animals, including mammals). Hydrodynamic interactions are thought to be fundamental in determining stroke pattern, mutual synchronization and, finally, the overall efficiency of ciliary motion. We present analytical and numerical results for a simplified model aimed at clarifying some aspects of synchronization in eucariotic cilia.

Biographical sketch of Filippo De Lillo

Filippo De Lillo holds a PhD in Physics from the University of Torino (2005) , and has been a postdoctoral fellow first at INLN-CNRS, Valbonne (Francia) with A. Celani, and then at Philipps-Universitat, Marburg (Germany) with B. Eckhardt. During his research career, Filippo De Lillo carried out theoretical and numerical research in turbulence as well as Lagrangian transport in turbulence and complex fluids. Current research activity covers homogeneous and convective turbulence, and the synchronization and transport in micro-biological systems, with emphasis on systems of cilia and micro-swimmers.