FACULTAD DE CIENCIAS
FÍSICAS Y MATEMÁTICAS
UNIVERSIDAD DE CHILE

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Mathematical
Modeling

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SEMINARIO EDP

- 16:00 HRS.
EXPOSITOR
Francesco Fanelli
Institut Camille Jordan, Lyon-1, Francia

TITLE
Well-posedness for viscous compressible fluids with only bounded density

Abstract:
In this talk, we consider the well-posedness issue for the barotropic Navier-Stokes equations. We consider initial velocity fields which have (slightly) sub-critical regularity, and initial densities which are (essentially) only bounded; in particular, we can consider densities having discontinuities across an interface. We are able to establish a local in time existence and uniqueness result in any space dimension, generalising previous results due to Hoff.

The proof combines a maximal regularity approach with the study of propagation of geometric structures, in the same spirit of striated regularity \textsl{\`a la Chemin}.

- 17:00 HRS.

EXPOSITOR
Ariane Trescases
Institut de Mathématiques de Toulouse, Francia

TITLE
Cross-diffusion and entropy in population dynamics

Abstract: In Population dynamics, reaction-cross diffusion systems model the evolution of the populations of competing species with a segregation effect between individuals. For these strongly coupled, often nonlinear systems, a question as basic as the existence of solutions appears to be extremely complex. We introduce an approach based on duality and entropy methods. We prove the existence of weak solutions in a general setting of reaction-cross diffusion systems, as well as some qualitative properties of the solutions. This is a joint work with L. Desvillettes, Th. Lepoutre and A. Moussa.

El lunes 11 de marzo a las 16:00 en la sala John Von Neumann del CMM, séptimo piso CMM, Torre Norte de Beauchef 851.

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