

Seminari Informal de Matemàtiques de Barcelona

Speaker: Robert Cardona Aguilar.
University: Universitat Politècnica de Catalunya.

Date: Wednesday, 4th of December.
Schedule: 12:00, *coffee break*; 12:20, talk.
Place: B1 classroom, *Facultat de Matemàtiques* of UB.
Language: English.

Title: The philosophy of the h -principle

Abstract: The homotopy principle (or h -principle) is a very general way to solve partial differential equations and relations which frames ideas of Smale and Nash. It is a far-reaching tool with applications in a lot of different topics as PDE's, foliations, cobordisms, symplectic topology or Riemannian geometry. Gromov's work was a revolution in geometry even if the h -principle has been known as "the hardest part of Gromov's work to popularize". In this talk, we will present a very informal approach to these ideas and comment some of its applications. Time permitting, we will mention shortly how it is used in a recent paper in the context of contact topology, and prove a conjecture concerning the Euler equations for ideal fluids in Riemannian manifolds. This last part is a joint work with E. Miranda, D. Peralta-Salas and F. Presas.

About us: The SIMBa is a young seminar organized by the PhD students of the Faculties of Mathematics and Computers of Barcelona. It is aimed at doctoral, master's degree students and, also, for those who are in the last grade courses. Our goal is that each one can make known the research which they are doing, as well as, to get new knowledge of other areas of mathematics than his own..

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