Colloquium ICMAT-UCM

GEOMETRIC CONTROL AND SUB-RIEMANNIAN PROBLEMS

SPEAKER: Fátima Silva Leite (University of Coimbra)

DATE: Thursday, November 28th 2019 - 12:00

VENUE: Aula Naranja, ICMAT

ABSTRACT: The first part of this talk introduces the basic concepts of geometric control theory, namely controllability and optimal control. A control system is a family of dynamical systems parameterized by the controls, evolving on a manifold (the state space). Controllability is related to the ability to reach a state from any other state, using the available controls. Optimal control deals with the possibility to do it in the best possible way. These concepts will be illustrated with simple examples.

The second part of the talk focus on recent results about sub-Riemannian structures on Lie groups and homogeneous spaces, using tools from optimal control, with particular emphasis on sub-Riemannian geodesics.