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"Weak KAM Theory and homogenization of Hamilton--Jacobi equations"

Abstract:

These series of lectures are focused on the PDE aspects of the weak KAM Theory and its connections with the periodic homogenization. We will present the so called metric approach to Hamilton--Jacobi equations to study a family of eikonal--type equations settled on the N--dimensional torus.

Via a combined used of techniques coming from Viscosity Solution Theory and the Calculus of Variations, many results of the weak KAM Theory can be extended to the case of non--regular convex Hamiltonians. We will then explain the connections with the topic of periodic homogenization and present the main results on the subject, first established by Lions, Papanicolau and Varadhan.

The essential background of the theory of Viscosity Solutions will be presented in the first lecture.

Comienzo: 25 de octubre a las 9:30 h. Se establecerá el horario de las siguientes sesiones (5 sesiones de 90 minutos).
Seminario 222
Facultad de Ciencias Matemáticas, UCM