Seminario de Matemática Aplicada

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Linear and nonlinear diffusion with fractional and nonlocal operators

We report on some of the progress made by the author and collaborators on the topic of nonlinear diffusion equations involving long distance interactions in the form of fractional Laplacian operators.

The heat equation is the well-established paradigm for heat transportation and diffusion processes. The probabilistic model behind it is the Brownian motion. Diffusion equations involving non-local effects, hence non-Brownian processes, have been studied for a number of years but only recently they have become the object of intense work in mathematical analysis. Results cover well-posedness, regularity, free boundaries, asymptotics, extinction, and others. Differences with standard diffusion have been specially examined.

We will end the presentation with the problems on bounded domains which offer interesting challenges that we are exploring.

Fecha: martes 17 de enero de 2017
Hora: 11:00 horas
Lugar: Aula 209 (Seminario Alberto Dou)
Facultad de CC Matemáticas, UCM