

Difusión no lineal en Madrid

Seminario conjunto de las universidades: UAM, UC3M, UCM, UPM y URJC

*Nonlocal heat equations: regularizing effect,
decay estimates and Nash inequalities*

Prof. **Arturo de Pablo**
Univ. Carlos III de Madrid

Jueves 27 de abril, 12:30

Seminario del Departamento de Matemáticas, aula C-17-520
U. Autónoma de Madrid

Resumen. We study the short and large time behaviour of solutions of nonlocal heat equations of the form $\partial_t u + \mathcal{L}u = 0$. Here \mathcal{L} is an integral operator given by a symmetric nonnegative kernel of Lévy type, that includes bounded and unbounded transition probability densities. We characterize when a regularizing effect occurs for small times and obtain $L^q - L^p$ decay estimates, $1 < q < p < \infty$, when the time is large. These properties turn out to depend only on the behaviour of the kernel at the origin or at infinity, respectively, without need of any information at the other end. An equivalence between the decay and a restricted Nash inequality is shown.

Finally we deal with the decay of nonlinear nonlocal equations of porous medium type $\partial_t u + \mathcal{L}\Phi(u) = 0$.

Joint work with C. Brändle

Organizado por los proyectos: MTM2014-52240-P, MTM2014-53037-P y Fundación BBVA para Investigadores y Creadores Culturales 2016

Comité organizador: Matteo Bonforte, Mar González, Arturo de Pablo y Fernando Quirós