

SEMINAR

Grupo de Análise Funcional e Aplicações Functional Analysis and Applications Group

Regularity Estimates for Zeroth Order Operators

Héctor Chang-Lara
Universidade de Coimbra

Abstract

A very interesting limit case of the fractional Laplacian in \mathbb{R}^d is given by

$$Lu(x) := \int_{B_1(x)} \frac{u(x) - u(y)}{|y - x|^d} dy,$$

which serves as a principal example of a zeroth-order integro-differential operator. This operator arises naturally as the leading term of the logarithmic Laplacian which has been studied in recent years. In contrast with the fractional Laplacian, the scaling properties in this scenario are very delicate, in particular the dilation of the kernel leads to a non-integrable tail which represents a challenge for the regularity theory of solutions of equations governed by L . In this talk, I will present interior continuity estimates for solutions to a family of operators comparable to the one above, obtained in collaboration with Alberto Saldaña.

Room Sousa Pinto
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