Joan Hernández García

On the semi-additivity of the 1/2-symmetric caloric capacity

Universitat Autònoma de Barcelona

e-mail: `joan.hernandez@uab.cat`

Abstract: In this talk we will introduce a variant of the 1/2-caloric capacity, called 1/2-symmetric caloric capacity, associated simultaneously with the 1/2-fractional heat equation and its conjugate. We will present some of its most important features such as its semi-additivity in $\mathbb{R}^2$ and its value for typical corner-like Cantor sets in a general $\mathbb{R}^{n+1}$ setting. We will briefly discuss how to obtain the previous results, which are essentially inspired by Tolsa's and Volberg's arguments when studying Cauchy and vector Riesz kernels respectively, once adapted to a non anti-symmetric setting by means of general Tb-like-theorems. Moreover, we will give an explicit formula for the 1/2-symmetric caloric capacity of a rectangle, which will illustrate its anisotropic behaviour.

This talk is based in a recent joint work carried out with Joan Mateu and Laura Prat, also from Universitat Autònoma de Barcelona.

References:

[1] Tolsa, X. (2014). *Analytic Capacity, the Cauchy Transform, and Non-homogeneous Calderón-Zygmund Theory.* Birkhäuser, Cham.

[2] Volberg, A. (2003). *Calderón-Zygmund Capacities and Operators on Nonhomogeneous Spaces.* Volume 100, CBMS Regional Conference Series in Mathematics. Providence, Rhode Island: American Mathematical Society.