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Aula Petita del CRM

Capacities associated with Calderón-Zygmund kernels

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ABSTRACT:

The analytic capacity is associated with the Cauchy kernel $1/z$ and the L^∞-norm. One has likewise capacities associated to other homogeneous Calderón-Zygmund kernels. We are interested in characterizing the homogeneous kernels K whose related capacity is comparable to analytic capacity and in the relation of this problem to the characterization of the homogeneous Calderón-Zygmund operators whose boundedness in $L^2(H^1|E)$ implies the rectifiability of E.

As Vassilis explained in the seminar, for $n \in \mathbb{N}$, L^2-boundedness of the operators related to the kernels $K_i(x) = x_i^{2n-1}/|x|^{2n}$, $1 \le i \le 2$, $x = (x_1, x_2) \in \mathbb{R}^2$, implies rectifiability. Therefore, we are left to talk about the comparability of analytic capacity and the capacities associated with the vectorial kernel (K_1, K_2). This is joint work with V. Chousionis, J. Mateu and X. Tolsa.