SEMINARIO DE ANÁLISIS Y APLICACIONES

Viernes, 23 de Noviembre de 2018

10:30 h., Aula Gris 1 (ICMAT)

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Multilinear Hardy space estimates for singular integrals and multipliers

Resumen:

We discuss recent work with Kabe Moen and Hanh Nguyen on multilinear Hardy space estimates. We prove weighted estimates for multilinear Calderón-Zygmund operators acting from

$$H^{p_1}(w_1) \times \cdots \times H^{p_m}(w_m)$$

into either $L^p(\bar{w})$ or $H^p(\bar{w})$, where $0 < p_i < \infty$,

$$\frac{1}{p} = \frac{1}{p_1} + \cdots + \frac{1}{p_m}$$

$w_i \in A_\infty$, and $\bar{w} = \prod_{i=1}^m w_i^{p/p_i}$. Our results generalize weighted estimates in the linear case due to Strömberg and Torchinsky, and in non-weighted multilinear results due to Grafakos and Kalton. We then extend these results to a large class of multilinear multipliers with sharp regularity conditions on the multipliers in terms of product Sobolev space conditions.

As an application of our weighted theorems, we prove the corresponding estimates in the variable exponent Hardy spaces $H^{p(\cdot)}$. Our main tools are generalizations of a multilinear Rubio de Francia extrapolation theorem due to myself and Naibo.