Seminario de Análisis y Aplicaciones

Viernes, 26 de marzo de 2021

11:30 h., ONLINE - URL: https://zoom.us/j/96082403168

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Vector-valued extensions of operators through sparse domination and a multilinear UMD condition.

Resumen:

Vector-valued extensions of important operators in harmonic analysis have been actively studied in the past decades. A centerpoint of the theory is the result of Burkholder and Bourgain that the Hilbert transform extends to a bounded operator on $L^p(\mathbb{R}; X)$ if and only if the Banach space X has the so-called UMD property. In the specific case where X is a Banach function space, it is a deep result of Bourgain and Rubio de Francia that the UMD property is equivalent to the Hardy-Littlewood maximal operator having a bounded extension to both X and X'. In turn, this leads to power vector-valued extrapolation methods. In this talk I will place these ideas in the context of the more modern technique of domination by sparse forms. These forms are intimately related to Muckenhoupt weight classes and the multilsubinear Hardy-Littlewood maximal operator. Moreover, I will discuss some of the current progress in extending the UMD property to a multilinear setting.

This talk is based on joint work with Emiel Lorist.

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