



DEPARTAMENTO
DE ANÁLISIS
MATEMÁTICO,
MATEMÁTICA
APLICADA



COLLOQUIUM DE ANÁLISIS MATEMÁTICO

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Directional singular integrals and maximal averages in two and higher dimensions

I will give a brief overview of the area of directional singular integrals and maximal averages on \mathbb{R}^n . More precisely I will give an account of the problem of bounding the maximal function along sets of directions, starting from the natural two-dimensional point of view. I will discuss the important special cases of lacunary sets of directions, and equispaced (uniform) directions. I then move to the discussion of the companion directional Hilbert transform where, even in two dimensions, the boundedness properties are not fully understood.

In higher dimensions our understanding of this problem is much more rudimentary. I will sketch some proofs of new results in three dimensions obtained recently in collaboration with Francesco Di Plinio (University of Virginia). Our focus is on lacunary sets of directions in \mathbb{R}^3 for the Hilbert transform, and equispaced directions for the directional maximal averages.

Organizado por el Departamento de Análisis Matemático, Matemáticas Aplicada y el Instituto de Matemática Interdisciplinar (IMI)

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Lugar: Aula 222

Facultad de CC Matemáticas, UCM