Seminario de Análisis y Aplicaciones

Viernes, 11 de abril de 2014

11:30 h., Módulo 17 (antiguo C-XV) - Aula 520 (Depto. Matemáticas UAM)

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Smooth Fourier multipliers on group algebras via Sobolev dimension

Resumen:

Given a topological group G we can define certain classes of unbounded operators generalizing in the noncommutative setting the L_p spaces over the dual group. In this talk we will present the concept of a bounded Fourier multiplier between those L_p spaces. The case of $p = \infty$ has been studied since the 70's by Haagerup, Cowling, Bożejko and others in connection with the approximation properties of G. In the L_p case with $1 < p < \infty$ not much is known. We will present some recent results for smooth Fourier multipliers generalizing the spectral Hörmander-Mikhlin theorem of Alexopoulos. Compared to the recent work of Junge-Mei-Parcet, the main difference is that these theorems give bounded L_p multipliers when the symbol has a finite number of, suitably bounded, derivatives even if the multipliers do not lift through a finite dimensional 1-cocycle. In this respect, a crucial novelty is that we use the Sobolev notion of dimension instead of the Hilbert cocycle dimension to evaluate the smoothness of our multipliers, which gives a more intrinsic approach.

Joint work with Marius Junge and Javier Parcet.