

# SEMINARIO DE ANÁLISIS Y APLICACIONES

Viernes, 5 de febrero de 2021

11:30 h., ONLINE - URL: <https://conectaha.csic.es/b/jos-vqj-olj-lpt>

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Pointwise convergence of  
noncommutative Fourier series

## Resumen:

In this talk I will present some recent progress on the study of pointwise convergence of Fourier series for compact groups, group von Neumann algebras and quantum groups. It is well-known that a number of approximation properties of groups can be interpreted as some summation methods and mean convergence of the associated noncommutative Fourier series. Based on this framework, we study the refined counterpart of pointwise convergence of these Fourier series. In particular, we prove that for any countable discrete amenable group, there exists a sequence of finitely supported Fourier multipliers on the associated noncommutative  $L_p$ -spaces satisfying the pointwise convergence for all  $1 < p < \infty$ . Our approach also yields new results for the classical Fourier series on Euclidean spaces and compact groups. As a by-product, we also obtain the dimension free bounds of the noncommutative Hardy-Littlewood maximal inequalities associated with convex bodies.

This is joint work with Guixiang Hong and Xumin Wang.

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