

SEMINARIO DE ANÁLISIS Y APLICACIONES

Viernes, 3 de diciembre de 2021

12:30 h., Módulo 17 - Aula 520 (Depto. Matemáticas UAM),

y además ONLINE - URL: <https://us06web.zoom.us/j/81202374309>

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Threshold bases for maximal operators
on the infinite-dimensional torus

Resumen:

We study maximal operators $\mathcal{M}^{\mathcal{B}}$ associated with various differentiation bases \mathcal{B} on the infinite-dimensional torus \mathbb{T}^{ω} . For the so-called *Rubio de Francia basis* \mathcal{R} the operator $\mathcal{M}^{\mathcal{R}}$ is unbounded on $L^p(\mathbb{T}^{\omega})$ for every $p \in [1, \infty)$. On the other hand, the operator determined by the restricted (dyadic) basis \mathcal{R}_0 is of weak type $(1, 1)$, hence bounded on $L^p(\mathbb{T}^{\omega})$ for every $p \in (1, \infty)$.

We try to understand the interplay between the structure of a given basis \mathcal{B} and the behavior of $\mathcal{M}^{\mathcal{B}}$. To this end, we look for intermediate bases $\mathcal{R}_0 \subset \tilde{\mathcal{R}} \subset \mathcal{R}$ which produce operators with more peculiar mapping properties. In particular, for given $p_0 \in (1, \infty)$ we construct $\tilde{\mathcal{R}}$ such that $\mathcal{M}^{\tilde{\mathcal{R}}}$ is bounded on $L^p(\mathbb{T}^{\omega})$ if and only if $p \in (p_0, \infty]$.

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