SEMINARIO DE ANÁLISIS Y APLICACIONES

Viernes, 20 de noviembre de 2020

16:00 h., ONLINE - URL: https://conecta.csic.es/b/jos-ajp-qp4

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Variation bounds for spherical averages

Resumen:

Variational estimates are refinements of maximal function estimates, in which the ℓ^∞ norm is replaced by a larger V^r norm, $1 \leq r \leq \infty$. In 2008, Jones, Seeger and Wright proved that the r-variation operator associated to the spherical averages $\{f * \sigma_t\}_{t>0}$ is bounded on $L^p(\mathbb{R}^d)$ if $d/(d-1) < p \leq 2d$ and $r > 2$ or $p > 2d$ and $r > p/d$, and this is sharp except for the endpoint case $r = p/d$, which remains open. In this talk I will present $L^p(\mathbb{R}^d) \to L^q(\mathbb{R}^d)$ bounds for the local r-variation operator, that is, the associated with $\{f * \sigma_t\}_{1 \leq t \leq 2}$. The bounds are sharp up to endpoints (except in dimension 3), and some positive results also hold in some endpoints cases. In particular, it can be established the interesting endpoint bound $L^{q/d}(\mathbb{R}^d) \to L^q(\mathbb{R}^d)$ for $r = q/d$, $q > (d^2+1)/(d-1)$ if $d \geq 3$. Our results imply associated sparse domination and weighted inequalities. This is joint work with Richard Oberlin, Luz Roncal, Andreas Seeger and Betsy Stovall.

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