

DIMENSION FREE ESTIMATES FOR THE DISCRETE
HARDY–LITTLEWOOD MAXIMAL FUNCTIONS

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Abstract

The aim of this talk is to discuss recent developments in dimension-free estimates in harmonic analysis. We show that the discrete Hardy–Littlewood maximal functions associated with the Euclidean balls in \mathbb{Z}^d with dyadic radii have bounds independent of the dimension on $\ell^p(\mathbb{Z}^d)$ for every $p \in [2, \infty]$.

This talk is based on joint papers with J. Bourgain, E.M. Stein and B. Wróbel.