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A BOUNDEDNESS CRITERION FOR GENERAL MAXIMAL OPERATORS

Andrei K. Lerner and Sheldy Ombrosi

Abstract

We consider maximal operators $M_{\mathcal{B}}$ with respect to a basis $\mathcal{B}$. In the case when $M_{\mathcal{B}}$ satisfies a reversed weak type inequality, we obtain a boundedness criterion for $M_{\mathcal{B}}$ on an arbitrary quasi-Banach function space X. Being applied to specific $\mathcal{B}$ and X this criterion yields new and short proofs of a number of well-known results. Our principal application is related to an open problem on the boundedness of the two-dimensional one-sided maximal function M^+ on L^p_w.

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