

SHARP MULTIDIMENSIONAL MULTIPLICATIVE INEQUALITIES FOR WEIGHTED L_p SPACES WITH HOMOGENEOUS WEIGHTS

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Abstract. Let Ω be an arbitrary cone in \mathbb{R}^n with the origin as a vertex. A multidimensional multiplicative inequality for weighted $L_p(\Omega)$ -spaces with homogeneous weights is proved. The inequality is sharp and all cases of equality are pointed out. In particular, this inequality may be regarded as a weighted multidimensional extension of previous inequalities of Carlson, Beurling and Levin.

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