

**SHARP MULTIDIMENSIONAL MULTIPLICATIVE
INEQUALITIES FOR WEIGHTED LEBESGUE SPACES WITH
HOMOGENEOUS WEIGHTS**

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ABSTRACT. The talk will be based on my joint paper with S. Barza, J. Pečarić and L.-E. Persson. For an arbitrary cone in the n -dimensional Euclidean space with the origin as a vertex there will be presented a multidimensional multiplicative inequality for weighted Lebesgue spaces with homogeneous weights. Necessary and sufficient conditions on such weights ensuring the validity of this inequality will be formulated. Moreover an explicit expression for the sharp constant in this inequality and description of all possible extremal functions will be given. This inequality may be regarded as a weighted multidimensional extension of inequalities due to Carlson, Beurling and Levin.