

Title: Extension of some log-majorization inequalities to Lie groups

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Abstract

log-majorization inequalities of matrices have been studied extensively in matrix theory. In 1973 the concept of log-majorization for matrices was extended to the Lie groups by Bertram Kostant [1]. In fact, Kostant defined a preorder on noncompact semisimple Lie groups. We will look at some recent results on log-majorization inequalities including the geometric mean of two positive definite matrices and show their extension to the context of Lie groups using Kostant preorder.

[1] B. Kostant, On convexity, the Weyl group and the Iwasawa decomposition, *Ann. Sci. École Norm. Sup.*, (4) **6** (1973), 413–455.