GENERALIZED REVERSE CAUCHY INEQUALITY AND APPLICATIONS TO OPERATOR MEANS

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Abstract. Let $\sigma$ be an operator mean in the sense of Kubo-Ando and let $\nabla_\alpha$ be a weighted arithmetic mean. If $\text{Tr}(A\sigma B) \geq \text{Tr}(A\nabla_\alpha B - \max\{\alpha, 1 - \alpha\}|A - B|)$ holds for all positive semidefinite matrices $A, B$, then there exists $\beta \in [0, 1]$ such that $\sigma = \nabla_\beta$.


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REFERENCES