

Operator inequalities involving real convex functions

(Talk)

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(joint work with Mohammad Sal Moslehian and Mohsen Kian)

We establish a general convexity operator inequality involving real convex functions. Some special cases, examples and a variety of its consequences are also given. In particular, we prove that the inequality $f(A) + f(B) \leq f(A+B)$ holds for a real convex function f and positive operators A, B with $A, B \leq MI \leq A+B$ for some scalar $M > 0$. Also, we show that if f is a real convex function and A, B, C, D are self-adjoint operators with $A \leq mI \leq C, D \leq MI \leq B$ for some scalars $m \leq M$, then $f(C) + f(D) \leq f(A) + f(B)$.

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