

On operator monotone and operator convex functions

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Abstract

© 2016, Allerton Press, Inc. We establish monotonicity and convexity criteria for a continuous function $f: \mathbb{R}_+ \rightarrow \mathbb{R}$ with respect to any C^* -algebra. We obtain an estimate for the measure of noncompactness of the difference of products of the elements of a W^* -algebra. We also give a commutativity criterion for a positive τ -measurable operator and a positive operator from a von Neumann algebra.

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Keywords

C^* -algebra, commutativity of operators, Hilbert space, measurable operator, measure of noncompactness, operator convex function, operator monotone function, trace, von Neumann algebra, W^* -algebra