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Transformations on density operators preserving generalised entropy of a convex combination. (English) Zbl 1393.15037

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Summary: We aim to characterise those transformations on the set of density operators (which are the mathematical representatives of the states in quantum information theory) that preserve a so-called generalised entropy of *one* fixed convex combination of operators. The characterisation strengthens a recent result of *M. Karder* and *T. Petek* [Linear Algebra Appl. 532, 86–98 (2017; Zbl 1370.15028)] where the preservation of the same quantity was assumed for *all* convex combinations.

MSC:

15A86 Linear preserver problems
15A60 Norms of matrices, numerical range, applications of functional analysis to matrix theory

Keywords:

entropy; quantum state; preserver; convex combination

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