Maps preserving absolute continuity of positive operators

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Motivated by their measure theoretic analogues, Ando introduced in [1] the notions of absolute continuity and singularity of positive operators, and proved a Lebesgue-type decomposition theorem. Since then, similar results have been proved in more general contexts [3, 4, 5, 7, 8], just to mention a few. Molnár in [6] described the structure of bijective maps on the cone of positive operators that preserve the Lebesgue decomposition in both directions. It turned out that the cone is quite rigid in the sense that these maps can be always written in the form $A \mapsto SAS^*$ with a bounded, invertible, linear- or conjugate linear operator $S$. A natural question arises: is it possible to weaken the preserver property, and to characterize those bijections that preserve absolute continuity only? The aim of this talk to answer this question in the affirmative.

References


