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Sinopsis

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Written by one of the founders of the theory of positive linear maps
First and only book in the literature devoted entirely to positive maps
Contains the necessary background to study the operator algebra part of quantum information theory ?
This volume, setting out the theory of positive maps as it stands today, reflects the rapid growth in this area of mathematics since it was recognized in the 1990s that these applications of C*-algebras are crucial to the study of entanglement in quantum theory. The author, a leading authority on the subject, sets out numerous results previously unpublished in book form. In addition to outlining the properties and structures of positive linear maps of operator algebras into the bounded operators on a Hilbert space, he guides readers through proofs of the Stinespring theorem and its applications to inequalities for positive maps.

The text examines the maps' positivity properties, as well as their associated linear functionals together with their density operators. It features special sections on extremal positive maps and Choi matrices. In sum, this is a vital publication that covers a full spectrum of matters relating to positive linear maps, of which a large proportion is relevant and applicable to today's quantum information theory. The latter sections of the book present the material in finite dimensions, while the text as a whole appeals to a wider and more general readership by keeping the mathematics as elementary as possible throughout.

Content Level » Research

Keywords » Choi matrices - Jordan Algebras - Positive maps - completely positive maps - mapping cones

Related subjects » Algebra - Analysis - Applications - Theoretical, Mathematical & Computational Physics