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Pure matrix states on operator systems

An operator system is a complex matricially ordered vector space that is completely order isomorphic to a unital selfadjoint subspace of a unital C*-algebra. A matrix state on an operator system V is a unital completely positive linear map of V into a full matrix algebra. Pure matrix states will be discussed, and a new and somewhat simplified proof of a Krein–Milman-type theorem of Webster and Winkler will be mentioned. If V is 3-dimensional, then the matrix state space of V is matrix-affinely homeomorphic to the matricial range of some Hilbert space operator. With the aid of this representation, pure matrix states on 3-dimensional operator systems are examined—and in some cases completely determined.