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*Completely positive completely positive maps (and a resource theory for non-negativity of quantum amplitudes)*

We examine quantum states which are non-negative mixtures of pure states with non-negative amplitudes (in a fixed basis) and the channels which preserve them. These states are exactly those that are completely positive (CP), and we show how several standard properties of CP matrices, such as the CP-rank, correspond to physical properties of these states. We also introduce the family of quantum channels that preserve CP states, which we call *completely positive completely positive (CPCP)*, since quantum channels are also (very confusingly) called completely positive. We show that CP quantum states and the CPCP maps that preserve them constitute a (physically well-motivated) quantum resource theory analogous to that of quantum entanglement. Finally, we investigate several ways of measuring how resourceful a state is in this theory (which roughly means how far away it is from being CP).