

SOS relaxations for detecting quantum entanglement

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Positive maps which are not completely positive (PNCP maps) are of importance in quantum information theory, in particular they can be used to identify entanglement in quantum states. PNCP maps can naturally be associated to non-negative polynomials which are not sums of squares (SOS). An algorithm for constructing such maps is given in “There are many more positive maps than completely positive maps” by Klep et al.

In this talk we will present a summary of their construction and discuss theoretical and numerical issues that arise in practice.