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Spectral Inequalities for Factor Width of a Matrix

A Hermitian matrix X is called k -locally positive semidefinite if every $k \times k$ principal submatrix of X is positive semidefinite. We develop some bounds on the possible spectra of k -locally PSD matrices, and present a method for numerically constructing a k -locally PSD matrix with a given spectrum. We explore the connection to the concept of k -incoherent states from quantum information theory. This is joint work with Nathaniel Johnston, Shirin Moein, and Rajesh Pereira.