

Cospectral Vertices and Quantum State Transfer

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One area in which graph inverse eigenvalue problems have found application is in the transfer of a quantum state between locations in a network of interacting qubits. This problem has been reduced to the construction of (possibly weighted) graphs with certain spectral properties. Fundamental to this problem is the construction of cospectral vertices, which arise from pairs of graphs with the same spectrum. I will give an overview of this application of inverse eigenvalue problems, and discuss various constructions.

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