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Eigenvalues of the Schrödinger operator on infinite combinatorial and metric graphs

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We consider estimates and asymptotics for negative eigenvalues of the Laplacian on infinite combinatorial and quantum graphs, perturbed by a potential with a large coupling constant. The geometry of the graph influences the results via the properties of the heat semigroup corresponding to the combinatorial Laplacian. In particular, we show that under certain geometrical conditions imposed on the graph one can construct a potential with any prescribed behavior of Schrödinger eigenvalues.

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