

Graphs with minimum eigenvalue for the number of vertices and edges

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Abstract

We consider the problem of identifying graphs with the minimal smallest eigenvalue of its adjacency matrix, among all simple undirected graphs with n vertices and k edges. The structure of such a graph is strongly connected with partition of the graph. In the bipartite case we characterize minimizing graphs for a particular choice of n and k .

Keywords

Adjacency matrix, Bipartite graph, Minimum eigenvalue, Perron root, Single additional row matrix, Singular value.