Inclusion Relations of Certain Graph Eigenspaces

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Abstract

Motivated by the fact that there exists an inclusion relation between the eigenspace for eigenvalue λ of a graph and the eigenspace for eigenvalue $-1-\lambda$ of its complement, one may ask if for some given λ there exist graph classes such that the direction of this inclusion is the same for all its members. The main result of this paper is that the eigenspace for eigenvalue 0 of a tree always contains the eigenspace for eigenvalue -1 of its complement.

Keywords: tree, complement, kernel, eigenspace

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