Characteristic center of a tree

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Abstract

Let G be a simple, undirected finite graph and $L(G)$ be its Laplacian matrix. The second smallest eigenvalue $\mu(G)$ of $L(G)$ is called the algebraic connectivity of G and an eigenvector corresponding to $\mu(G)$ is known as a Fiedler vector. For a Fiedler vector Y, by $Y(v)$ we mean the co-ordinate of Y corresponding to the vertex v. A vertex of G is called a characteristic vertex if $Y(v) = 0$ and there exists a vertex w adjacent to v such that $Y(w) \neq 0$. An edge $\{u, w\}$ is called a characteristic edge of G if $Y(u)Y(w) < 0$. The characteristic set of G is the collection of all characteristic vertices and characteristic edges of G.

In this talk, we shall discuss the behaviour and postion of the characteristic set in a tree and its closeness with different middle parts like center and centroid in it.

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