Sharp bounds of the A_α-spectral radii of mixed trees

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Abstract

A mixed tree is a tree in which both directed arcs and undirected edges may exist. Let T be a mixed tree with n vertices and m arcs, where an undirected edge is counted twice as arcs. Let A be the adjacency matrix of T. For $\alpha \in [0, 1]$, the matrix A_α of T is defined to be $\alpha D^+ + (1 - \alpha)A$, where D^+ is the the diagonal out-degree matrix of T. The A_α-spectral radius of T is the largest real eigenvalue of A_α. We will give a sharp upper bound and a sharp lower bound of the A_α-spectral radius of T

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