

1 On the spectra of some graphs like weighted rooted trees

By *Rosário, Helena Gomes and Enide Andrade Martins*.

Let G be a weighted rooted graph of k levels such that, for $j \in \{2, \dots, k\}$

1. each vertex at level j is adjacent to one vertex at level $j - 1$ and all edges joining a vertex at level j with a vertex at level $j - 1$ have the same weight, where the weight is a positive real number.
2. if two vertices at level j are adjacent then they are adjacent to the same vertex at level $j - 1$ and all edges joining two vertices at level j have the same weight.
3. two vertices at level j have the same degree.
4. there is not a vertex at level j adjacent to others two vertices at the same level.

In this talk we give a complete characterization of the eigenvalues of the Laplacian matrix of G (analogous characterization can be done for the adjacency matrix of G). By application of the these results, we derive an upper bound on the largest eigenvalue of a graph defined by a weighted tree and a weighed triangle attached, by one of its vertices, to a pendant vertex of the tree.