1011-15-117 **Luz M. DeAlba*** (`luz.dealba@drake.edu`), MATH/CS, Drake University, 2507 University Avenue, Des Moines, IA 50311, and **Timothy L. Hardy**, **Irvin R. Hentzel**, **Leslie Hogben** and **Amy Wagsness**. *Minimum Rank and Maximum Eigenvalue Multiplicity of Symmetric Tree Sign Patterns.* Preliminary report.

For a real matrix, B, $\mathcal{Z}$ is the sign pattern $(\mathcal{Z})_{ij} =$ sgn (b_{ij}). For a combinatorially symmetric matrix, B, $\mathcal{G}(B)$ is the graph with vertices the indices of B, and ij is an edge of $\mathcal{G}(B)$ if and only if $i \neq j, b_{ij} \neq 0$. The minimum rank and eigenvalue multiplicity of the classes $\mathcal{S}^\ell(Z) = \{A : A = A^T, Z \text{ symmetric }, \mathcal{Z}^\ell(A) = Z\}$ (ℓ indicates the diagonal is restricted), and $\mathcal{S}(G) = \{A : A = A^T, \mathcal{G} = G\}$ have been extensively studied.

In this talk we unify these two approaches, we study the minimum rank and eigenvalue multiplicity for a cohort, that is, any family of matrices having the same graph (allowing loops). We introduce new terminology, and an algorithm that allows the computation of the maximum of the multiplicities of eigenvalues of any matrix in a cohort whose graphs is a tree. (Received August 20, 2005)