
DALE OLESKY, University of Victoria

Sign Patterns with a Nest of Positive Principal Minors

A matrix $A \in M_n(\mathbb{R})$ has a nest of positive principal minors if PAP^T has positive leading principal minors for some permutation matrix P . A sign pattern is a matrix with entries $\in \{+, -, 0\}$. A sign pattern \mathcal{A} requires a nest of positive principal minors if every real matrix B with that sign pattern has a nest of positive principal minors, and \mathcal{A} allows a nest of positive principal minors if there exists such a matrix B that has a nest of positive principal minors. Motivated by the fact that a matrix A with a nest of positive principal minors can be positively scaled so all its eigenvalues lie in the open right-half-plane, conditions are investigated so that a square sign pattern either requires or allows a nest of positive principal minors. This is joint work with Michael Tsatsomeros and Pauline van den Driessche.