Shaun M. Fallat and Xavier Martinez-Rivera* (xaviermr@auburn.edu). The almost-principal minors and ap-rank of symmetric matrices.

An almost-principal minor of a given matrix is the determinant of a (square) submatrix whose row and column indices differ in exactly one index. The almost-principal rank characteristic sequence (apr-sequence) of a symmetric matrix $B \in F^{n\times n}$ is $a_1a_2\cdots a_{n-1}$, where $a_k$ is A (respectively, N) if all of (respectively, none of) the almost-principal minors of order $k$ are nonzero; if some but not all are nonzero, then $a_k = S$. The almost-principal rank of a symmetric matrix $B$, denoted by ap-rank($B$), is the size of a largest nonsingular almost-principal submatrix of $B$. Results regarding apr-sequences will be presented, and particular attention will be given to the relationship between the rank and ap-rank of a symmetric matrix. (Received September 12, 2018)