Matrix patterns and the inertia $\mathbb{S}_n$

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The inertia of a zero-nonzero pattern or sign pattern $\mathcal{A}$ is the collection of 3-tuples $i(\mathcal{A}) = \{i(A) = (n_+, n_-, n_0)\}$, where A runs over all matrix realizations of $\mathcal{A}$ and n_+, n_-, n_0 give the number of eigenvalues of A with positive, negative, and zero real part (respectively). This talk focuses on $n \times n$ patterns whose inertia contains $\mathbb{S}_n = \{(0, n, 0), (0, n-1, 1), (1, n-1, 0)\}$, and we discuss some results pertaining to both zero-nonzero patterns and sign patterns. We also give a construction for an infinite family of patterns whose refined inertia contains $\mathbb{S}_n$.

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