

## Refined inertia of fully positive patterns, hollow positive patterns, and everything in between

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The refined inertia of a  $(0, +, -)$ -sign pattern matrix  $\mathcal{A}$  is the collection of 4-tuples  $\text{ri}(\mathcal{A}) = \{\text{ri}(A) = (n_+, n_-, n_z, 2n_p)\}$ , where  $A$  runs over all matrix realizations of  $\mathcal{A}$ ,  $n_+$  and  $n_-$  give the number of eigenvalues of  $A$  with positive and negative real part (respectively),  $n_z$  is the number of eigenvalues of  $A$  equal to zero, and  $2n_p$  is the number of nonzero pure imaginary eigenvalues of  $A$ . This talk focuses on classifying the refined inertia sets of  $n \times n$  non-negative patterns which are full positive, hollow positive (0 diagonal), and all those in between.

Keywords: sign pattern, refined inertia, full positive pattern, hollow positive pattern