The algebra of the principal minor assignment problem.
by
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Abstract

The principal minors of a matrix form a vector of length 2^n. The so-called principal minor assignment problem is to determine, given a real of complex vector of length 2^n, whether a matrix exists that realizes it as the vector of its principal minors. I will describe an algebraic solution of this problem in the symmetric case, i.e., when the realizing matrix is required to be symmetric, and its connections to tensors and hyperdeterminants. This talk is primarily based on my joint work with Bernd Sturmfels (see arXiv math.RA/0604374).