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Lovasz-Saks-Schrijver ideals and coordinate sections of determinantal varieties

In this work (joint with A. Conca) we study two classes of ideals associated to a graph G . The Lovasz-Saks-Schrijver (LSS) ideals and ideals of minors of generic (symmetric) matrices with 0s in positions prescribed by the graph G . The goal of this paper is to link the combinatorial structure of G to algebraic properties of the ideals. In particular, we are interested in asymptotic behavior. We show that LSS ideals are asymptotically prime complete intersections. We show that radicality or primality of LSS ideals implies the same property for the ideals minors associated to the same graph. Several of our results are inspired by geometric results from the work of Lovasz, Saks and Schrijver and by results of Giusti and Merle.