

Asymptotic Schur Decomposition of Veronese Syzygy Functors

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The syzygies of Veronese embeddings are functors in the underlying vector space. We are interested in their Schur decompositions. We show that they have very rich structures in various asymptotic situations.

In particular, by a convex geometric inspired study of the decomposition of $\otimes^p \text{Sym}^d$ and various plethysms, we give an exact estimate of the scale of growth of the number of distinct Schur functors and the total number counting multiplicities when we look at a fixed syzygy functor and let the degree of the embedding increase.

In this talk, I will discuss the various asymptotic results and how we can draw conclusions from the study of asymptotic plethysms.