

Regularity of minimal schemes apolar to a given form.

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Given a symmetric tensor F of order d over a finite-dimensional vector space V (or equivalently a homogeneous degree- d polynomial on V), we consider the apolar action of V^* on V and look for the minimal schemes of points annihilating F . Computing such minimal schemes is usually challenging, but their Castelnuovo–Mumford regularity seems to be controlled by d , independently on the dimension of V . In this talk, we precisely state this observation and we prove it for special families of minimal schemes, such as those evincing Waring and tangential decompositions, and those whose length is bounded by $2d + 1$. We also highlight the role played by minimal generalized (additive) decompositions of (extensions of) F for detecting such schemes, which provides us with a concrete tool for generating minimal candidates. This is joint work with Alessandro Oneto and Alessandra Bernardi.