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Minimal apolar subsest to homogeneous polynomials

We will briefly recall some basic facts about sum of powers decompositions, Waring rank, and apolarity. Then we will explore some recent results with Bhat-Dubey-Masuti on minimal apolar subsests to some reducible quartics. In particular, we will see how spiders and butterflies can explain the geometry of sum of powers decompostions of $x^2(z_1^2 + \ldots + z_m^2)$ and of $(x^2 + y^2)(z_1^2 + \ldots + z_m^2)$.