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Kevin Pratt* (kpratt@andrew.cmu.edu). *The Waring Support Rank of the Elementary Symmetric Polynomials.*

Given nonnegative integers n and d , where $n \gg d$, what is the minimum number r such that there exist linear forms $\ell_1, \dots, \ell_r \in \mathbb{C}[x_1, \dots, x_n]$ so that $\ell_1^d + \dots + \ell_r^d$ is supported exactly on the set of all degree- d multilinear monomials in x_1, \dots, x_n ? In this talk I'll show how this question provides a new approach to obtain faster algorithms for approximately counting subgraphs. Then I'll discuss upper and lower bounds on this quantity, and connections to the exponent of matrix multiplication and the Waring rank of the determinant. (Received March 09, 2021)