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*Better Evaluation Points for the Interpolation of Sparse Symbolic Polynomials*

Symbolic polynomials, whose exponents themselves are integer-valued multivariate polynomials, arise often in algorithm analysis. Unfortunately, modern computer algebra systems do not provide ample support for said algebraic structures. Basic operations involving symbolic polynomials are indeed trivial (addition, multiplication, derivatives); however, other crucial operations remain much more difficult, such as factorization, GCD, Gröbner Bases.

The exponent variables can be evaluated, producing Laurent Polynomials which can then be interpolated back to their original form. For a $t$-sparse exponent polynomials of $p$ variables and degree $d$, sparse interpolation can be used to reduce the required number of images from $O\big((d+1)^p\big)$ to $O(pdt)$.

In practice, selecting random, or small evaluations will often result in polynomials of very large degree. In this talk, we will describe a method of selecting evaluation points, that will minimize the maximum degree of the input symbolic exponents.