



The Fourier structure of low degree polynomials

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Abstract

The paper was removed due to a mistake in the proof. Theorem 4.2 as stated is not correct. We thank Qian Li for finding that.

An example is: let $x, y \in \mathbb{F}_2^d, z \in \mathbb{F}_2^{d^2}$, take the order 3 tensor $T(x, y, z) = \sum_{i,j \in [d]} x_i y_j z_{i,j}$. It has linear dimension d when fixing any of x, y or z , but its overall linear dimension is d^2 .