POLYNOMIAL SYSTEMS OVER FINITE FIELDS

Stefan Barańczuk (Adam Mickiewicz University, Poznań)

Abstract: Let $f_1, \ldots, f_k$ be polynomials in n indeterminates over a finite field. Suppose $k > n$. We prove that there exists a system of polynomials $g_1, \ldots, g_n$, each being a linear combination (with *scalar* coefficients) of $f_1, \ldots, f_k$, such that both systems have the same solution. In particular, one reduces the number of equations without increasing the total degree.