

Short sums of polynomials Möbius function

Étienne Fouvry (Université Paris-Saclay)

(in collaboration with I. Shparlinski and P. Xi)

Let p be a prime, and f be a monic polynomial with coefficients in $\mathbb{F}_p$. By similarity with the classical Möbius function μ defined on the set of positive integers, let $\mu_p : f \mapsto \mu_p(f)$ be the polynomial Möbius function which depends on the decomposition of f into monic irreducible polynomials. So $\mu_p(f)$ is equal to 0, 1 or -1 . We investigate the oscillations of $\mu_p(f)$ when the degree of f is fixed and when the coefficients of f belong to some short intervals modulo p . Our study is based on stratification theorems of multidimensional characters sums (modulo p) (see Junyan Xu, IMRN 2020).