

Short character sums evaluated at homogeneous polynomials

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Let p be a prime. Bounding short Dirichlet character sums is a classical problem in analytic number theory, and the celebrated work of Burgess provides nontrivial bounds for sums as short as $p^{1/4+\varepsilon}$ for all $\varepsilon > 0$. In this talk, we will first survey known bounds in the original and generalized settings. Then we discuss the so-called "Burgess method" and present new results that rely on bounds on the multiplicative energy of certain sets in products of finite fields.