Institute for Applied Mathematics, Bonn University

Oberseminar Stochastik

Thursday, 16 January 2025, 16:30
Lipschitz-Saal (LWK 1.016)

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The quadratic Littlewood-Offord Problem

Let $Q(x_1, \ldots, x_n)$ be a given quadratic polynomial, and consider $\xi_1, \ldots, \xi_n$ to be independent unbiased $\{1, -1\}$-valued random variables (i.e. each ξ_i takes value 1 with probability $1/2$ and value -1 with probability $1/2$). To what extent can $Q(\xi_1, \ldots, \xi_n)$ concentrate on a single value? This question is a quadratic version of the classical Littlewood–Offord problem for linear polynomials, and was popularized by Costello, Tao and Vu in their study of symmetric random matrices. This talk will discuss an essentially optimal bound for this question, as conjectured by Nguyen and Vu. Joint work with Matthew Kwan.