Department of Mathematics, BGU

AGNT

On Wednesday, November ,6 2019

At 15:10 - 16:25

In 101-

Alexei Entin (TAU)

will talk about

Factorization statistics for restricted polynomial specializations over large finite fields

Abstract: For a polynomial $F(t,A_1,...,A_n)$ in $\mathbb{F}_p[t,A_1,...,A_n]$)p being a prime number) we study the factorization statistics of its specializations $F(t,a_1,...,a_n)$ in $\mathbb{F}_p[t]$ with $(a_1,...,a_n) \in S$, where $S = I_1 \times \cdots \times I_n \subset \mathbb{F}_{p^n}$ is a box, in the limit $p \to \infty$ and deg(F) fixed. We show that under certain fairly general assumptions on F, and assuming that the box dimensions grow to infinity with one of them growing faster than $p^{1/2}$, the degrees of the irreducible factors of $F(t,a_1,\ldots,a_n)$ are distributed like the cycle lengths of a random permutation in S_n .

This improves and generalizes previous results of Shparlinski and more recent results of Kurlberg-Rosenzweig, which in turn generalize the classical Polya-Vinogradov estimate of the number of quadratic residues in an interval.

Please Note the Unusual Time!