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!