Department of Mathematics, BGU

Probability and ergodic theory (PET)

On *Tuesday, February ,28 2017*

At *10:50 − 12:00*

In *Math 101-*

Erez Nesharim (University of York)

will talk about

Diophantine approximation in function fields

Abstract: Irrational rotations of the circle $T : \mathbb{R}/\mathbb{Z} \to \mathbb{R}/\mathbb{Z}$ are amongst the most studied dynamical systems. Rotations by badly approximable angels are exactly those for which the orbit of zero do not visit certain shrinking neighborhoods of zero, namely, there exists c>0 such that $T^n(0) \notin B\left(0, \frac{c}{n}\right)$ for all n. Khinchine proved that every orbit of any rotation of the circle misses a shrinking neighborhood of some point of the circle. In fact, he proved that the constant of these shrinking neighborhoods may be taken unfiormly. The largest constant, however, remains unknown.

We will introduce the notion of approximation by rational functions in the field $\mathbb{F}_q((t-1))$, formulate the analogue of Khinchine's theorem over function fields and calculate the largest constant in this context.