Department of Mathematics, BGU

BGU Probability and Ergodic Theory (PET) seminar

On *Thursday, November ,24 2022*

At *11:10 – 12:00*

In *101-*

Nachi Avraham (The Hebrew University)

will talk about

Stable processes indexed by amenable groups: from probability to non-singular ergodic theory

Abstract: Stable processes is an important class of stochastic processes, including Gaussian processes, Cauchy processes and Levy processes. In an analogy to that the ergodicity of a Gaussian process is determined by the spectral measure, it was shown by Rosinski and Samorodnitsky that the ergodicity of a stationary symmetric stable process is characterized by its spectral representation. While this result was known when the process is indexed by $\mathbb{Z}^d$ or $\mathbb{R}^d$, the classical techniques fail when it comes to non-Abelian groups and it was an open question whether the ergodicity of such processes admits a similar characterization.

In this talk I will introduce the fundamentals of stable processes, the ergodic theory behind their spectral representation, and the key ideas of the characterization of the ergodicity for processes indexed by amenable groups. If time permits, I will mention recent results in non-singular ergodic theory that allow the constructions of weakly-mixing but not strongly-mixing stable processes indexed by many groups (Abelian groups, Heisenberg group).