Department of Mathematics, BGU

BGU Probability and Ergodic Theory (PET) seminar

On *Thursday, March ,14 2024*

At *11:10 − 12:00*

In *101-*

Ariel Rapaport (Technion)

will talk about

Dimension of Bernoulli convolutions in R^d

Abstract: Let $(\lambda_{1},...,\lambda_{d})=\lambda\in(0,1)^{d}$ be with $\lambda_{1}>...>\lambda_{$ and let μ_{λ} be the distribution of the random vector $\sum_{n\ge0}\pm (\lambda_{1}^{n},...,\lambda_{d}^{n})$, where the $\pm$ are independent fair coin-tosses. Assuming $P(\lambda_{j})\ne 0$ for all $1\le j\le d$ and nonzero polynomials with coefficients $\pm1,0$, we show that $\operatorname{dim}\mu_{\lambda}=\min \big(d,\dim_{L}\mu_{\lambda} \big)$, where $\dim_{L}\mu_{\lambda}$ is the Lyapunov dimension. This extends to higher dimensions a result of Varjú from 2018 regarding the dimension of Bernoulli convolutions on the real line. Joint work with Haojie Ren.