

Department of Mathematics, BGU

BGU Probability and Ergodic Theory (PET) seminar

On Thursday, April ,20 2023

At 11:10 – 12:00

In 101-

El Houcein El Abdalaoui (CNRS-Université de Rouen Normandie)

will talk about

Mixing sequences for non-mixing locally compact Abelian groups actions

Abstract: Mixing is an important spectral property of dynamical systems and it can be described concretely. But, “In general a measure preserving transformation is” only “mixing” along a sequence of density one, by the Rokhlin-Halmos theorem. On the other hand, mixing on some sequences implies mixing. Formally, the mixing can be defined by demanding that the ergodic averages along any increasing sequence converge in mean, thanks to the Blum-Hanson theorem. In my talk, I will present my recent joint contribution with Terry Adams to Bergelson’s question asked online during the Lille conference :2021 Does mixing on the squares imply mixing? We first obtain a characterization of a sequence for which mixing on it implies mixing. We further establish that there are non-mixing maps that are mixing on appropriate sequences. We extend also our

results to the group action with the help of the Host-Parreau characterization of the set of continuity from Harmonic Analysis. We further extended our result to the Real line action. As a open question, we ask pour extension our our result to the case of non-commutative case and specially Heisenberg group action.