Department of Mathematics, BGU

BGU Probability and Ergodic Theory (PET) seminar

On *Thursday, November ,7 2019*

At *11:10 − 12:00*

In *101-*

Tom Meyerovitch (Ben-Gurion University)

will talk about

Efficient finitary codings by Bernoulli processes

Abstract: Recently Uri Gabor refuted an old conjecture stating that any finitary factor of an i.i.d process is finitarly isomorphic to an i.i.d process. Complementing Gabor's result, in this talk, which is based on work in progress with Yinon Spinka, we will prove that any countable-valued process which is admits a finitary a coding by some i.i.d process furthermore admits an ϵ-efficient finitary coding, for any positive ϵ. Here an ''ϵ-efficient coding'' means that the entropy increase of the coding i.i.d process compared to the (mean) entropy of the coded process is at most ϵ. For processes having finite entropy this in particular implies a finitary i.i.d coding by finite valued processes. As an application we give an affirmative answer to an old question about the existence of finite valued finitary coding of the critical Ising model, posed by van den Berg and Stefi in their 1999 paper ''On the Existence and Nonexistence of Finitary Codings for a Class of Random Fields''.