

Department of Mathematics, BGU

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# BGU Probability and Ergodic Theory (PET) seminar

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On Thursday, March ,7 2019

At 11:10 – 12:00

In 101-

Omri Sarig (Weizmann Institute)

will talk about

## **Local limit theorem for inhomogeneous Markov chains (joint with Dolgopyat)**

Abstract: An inhomogeneous Markov chain  $X_n$  is a Markov chain whose state spaces and transition kernels change in time. A “local limit theorem” is an asymptotic formula for probabilities of the form

$$Prob[S_N - z_N \in (a, b)], S_N = f_1(X_1, X_2) + \dots + f_N(X_N, X_{N+1})$$

in the limit  $N \rightarrow \infty$ . Here  $z_N$  is a “suitable” sequence of numbers. I will describe general sufficient conditions for such results.

If time allows, I will explain why such results are needed for the study of certain problems related to irrational rotations.

This is joint work with Dmitry Dolgopyat.