

Department of Mathematics, BGU

---

---

# BGU Probability and Ergodic Theory (PET) seminar

---

---

*On Thursday, June ,27 2024*

*At 11:10 – 12:00*

*In 101-*

Ilya Gekhtman (Technion)

will talk about

## **Stationary random subgroups of hyperbolic groups and applications**

Abstract: In recent years, the study of measure preserving and stationary actions of Lie groups and hyperbolic groups have produced many geometric consequences. This talk will continue the tradition. We will show that stationary actions of hyperbolic groups have large critical exponent, namely exponential growth rate more than half of entropy divided the drift of the random walk.

This can be used to prove an interesting geometric result: if the bottom of the spectrum of the Laplacian on a hyperbolic  $n$  manifold  $M$  is equal to that of its universal cover (or equivalently the fundamental group has exponential growth rate at most  $(n-1)/2$ ) then  $M$  has points with arbitrary large injectivity radius.

This is (in some sense the optimal) rank 1 analogue of a recent result of Fraczyk-Gelander which asserts that any infinite volume higher rank locally symmetric space has points with arbitrary large injectivity radius.

This is joint work with Arie Levit.