

Department of Mathematics, BGU

Colloquium

On *Tuesday, November 23 2021*

At *14:30 – 15:30*

In *Math 101-*

Ilya Gekhtman (Technion)

will talk about

Randomness, genericity, and ubiquity of hyperbolic behavior in groups.

Abstract: Consider an infinite group G acting by isometries on some metric space X .

How does a “typical” element act? Consider a representation of G into some matrix group. What sort of matrix represents “typical” elements of G ?

The answer depends on what we mean by the word “typical,” of which there are at least two reasonable notions. We may take a random walk on G and look where it lands after a large number of steps. We may also fix a generating set for G and look how large balls are distributed.

I will talk about how these two notions of genericity are related and how they differ, focusing on the setting of hyperbolic groups. I will also explain that the following is true with respect to both notions: For a group acting on a Gromov hyperbolic metric space typical elements act loxodromically, i.e. with north-south dynamics.

For a representation of a large class of groups (including hyperbolic groups) into $SL_n \mathbb{R}$, typical elements map to matrices whose eigenvalues are all simple and have distinct moduli.