

Department of Mathematics, BGU

BGU Probability and Ergodic Theory
(PET) seminar

On Thursday, November ,27 2025

At 11:10 – 12:00

In 101-

Eitan Sapir (BGU)

will talk about

On the generation problem in Thompsons groups
 F_n

Abstract:

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The generation problem for a finitely generated group G asks whether there exists an algorithm that decides, given a finite subset $X \subseteq G$, whether X generates G . While this problem is undecidable in general, it is decidable for some specific groups.

For each natural $n \geq 2$, Thompson's group F_n consists of all piecewise-linear homeomorphisms of the unit interval with finitely many breakpoints in $\mathbb{Z} \left[\frac{1}{n} \right] \cap (0, 1)$ and slopes that are powers of n . It also has a combinatorial description via n -ary trees. F_n is finitely presented, and its abelianization is \mathbb{Z}^n . Golan found an algorithm that solves the generation problem in F_2 . This talk is based on my thesis under the supervision of Gili Golan. I will describe sufficient conditions for a finite set to generate F_n , for general $n \geq 2$. As an application, we construct maximal subgroups of F_n that do not fix any point in the open unit interval, answering a question originally posed by Savchuk and generalized by Aiello and Nagnibeda. In particular, for every $n \geq 2$, the group F_n contains a maximal subgroup isomorphic to F_{2n-1} .