

Department of Mathematics, BGU

Colloquium

On *Tuesday, December 16, 2025*

At *14:30 – 15:30*

In *Math 101-*

Tom Meyerovitch (BGU)

will talk about

Dimension and embeddability for Dynamical systems

Abstract: It is well known that a compact metric space embeds in a finite-dimensional Euclidean space if and only if it has finite Lebesgue covering dimension. In 1999 Gromov introduced the notion of mean dimension, a fundamental invariant for dynamical systems that could be considered as a dynamical analogue of Lebesgue covering dimension.

A (discrete time) dynamical system is a pair (X, Φ) , where $\Phi: X \rightarrow X$ be a homeomorphism of a compact metric space X . The *embeddability* or *sampling-rate problem* asks: Under what conditions do there exist a finite number of continuous real-valued functions $f_1, \dots, f_d: X \rightarrow \mathbb{R}$ so that a point $x \in X$ can be uniquely recovered by sampling the values of the f_1, \dots, f_d along the orbit of x ?

In this talk I will describe historical developments around the embeddability problem and some exciting recent developments.

We will not assume any specialized background (in particular, we will recall the definition of Lebesgue covering dimension).