

Department of Mathematics, BGU

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# BGU Probability and Ergodic Theory (PET) seminar

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*On Thursday, April ,29 2021*

*At 11:10 – 12:00*

*In Online*

Nishant Chandgotia (The Hebrew University)

will talk about

## **About Borel and almost Borel embeddings for $Z^d$ actions**

Abstract: Krieger's generator theorem says that all free ergodic measure preserving actions (under natural entropy constraints) can be modelled by a full shift. Recently, in a sequence of two papers Mike Hochman proved that this theorem can be strengthened: He showed that all free homeomorphisms of a Polish space (under entropy constraints) can be Borel embedded into the full shift. In this talk we will discuss some results along this line from a recent paper with Tom Meyerovitch and ongoing work with Spencer Unger.

With Meyerovitch, we established a condition called flexibility under which a large class of systems are almost Borel universal, meaning that such systems can model any free  $Z^d$  action on a Polish space up to a universally null set. The condition of flexibility covered a large class of examples including those of

domino tilings and the space of proper 3-colourings (among many non-symbolic examples) and answered questions by Robinson and Sahin. However extending the embedding to include the null set is a daunting task and there are many partial results towards this. Using tools developed by Gao, Jackson, Krohne and Seward, along with Spencer Unger we were able to get Borel embeddings of symbolic systems (as opposed to all Borel systems) under assumptions very similar to flexibility. This answers questions by Gao and Jackson and recovered some results announced by Gao, Jackson, Krohne and Seward.

**Please Note the Unusual Place!**