

Department of Mathematics, BGU

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# BGU Probability and Ergodic Theory (PET) seminar

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*On Thursday, January, 19 2023*

*At 11:10 – 12:00*

*In 101-*

Anurag Rao (Technion)

will talk about

## **Dynamical questions arising from Dirichlet's theorem on Diophantine approximation**

Abstract: We study the notion of Dirichlet improvability in a variety of settings and make a comparison study between Dirichlet-improvable numbers and badly-approximable numbers as initiated by Davenport-Schmidt. The question we try to answer, in each of the settings, is – whether the set of badly-approximable numbers is contained in the set of Dirichlet-improvable numbers. We show how this translates into a question about the possible limit points of bounded orbits in the space of two-dimensional lattices under the diagonal flow. Our main result gives a construction of a full Hausdorff dimension set of lattices with bounded orbit and with a prescribed limit point. Joint work with Dmitry Kleinbock.