

Speaker: Hao Xing

Title: Equidistribution of Definable Curves in a Polynomially Bounded Structure in Homogeneous Spaces

Abstract: We describe closures and limiting distributions of trajectories $\{\phi(t)\mathbb{Z}^n : t \geq 0\}$ in the (finite volume) space of unimodular lattices in \mathbb{R}^n , under appropriate conditions, where $\phi(t)$ is an $n \times n$ matrix of determinant 1 whose coordinate functions are definable in a polynomially bounded \mathcal{o} -minimal structure which is a large family of functions that includes rational functions and more. The work uses Ratner's theorems on unipotent flows and extends the earlier work of Shah for polynomial trajectories and the work of Peterzil and Starchenko on trajectories on nilmanifolds that are definable in a polynomially bounded \mathcal{o} -minimal structure. The talk is based on a joint work with Michael Bersudsky and Nimish Shah, and will be made accessible to a general audience without a background in model theory or homogeneous dynamics.