Applications of the Birkhoff ergodic theorem and the Siegel mean value theorem to Diophantine approximation

Jimmy Tseng
University of Bristol

Abstract

A theme in ergodic theory is exploring how much information ergodicity itself, without using stronger properties such as mixing, can give about an ergodic dynamical system.

In this talk, we will focus on the system given by diagonal flows on the space of unimodular lattices and use the Birkhoff ergodic theorem, the Siegel mean value theorem, and an approximation argument to give an alternative proof of a form of Schmidts theorem on the number of integer lattice solutions of a system of inequalities where the solutions have uniformly bounded height. Joint work with J. Athreya and A. Parrish.