

POLYNOMIAL EFFECTIVE EQUIDISTRIBUTION FOR SOME UNIPO TENT SUBGROUPS

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Time: Wednesday, January 14th; 14:00

Venue: Room 102, SCMS

Abstract:

Let G be a semisimple Lie group, Γ be a lattice in G and U be a unipotent subgroup of G . A celebrated theorem of Ratner says that for any x in G/Γ the orbit $U.x$ is equidistributed in a periodic orbit of some subgroup $U \leq L \leq G$. Establishing a quantitative version of Ratner's theorem has been long sought after. If U is a horospherical subgroup of G , the question is well-studied. If U is not a horospherical subgroup, this question is far less understood. Recently, Lindenstrauss, Mohammadi, Wang and Yang established a fully quantitative and effective equidistribution result for orbits of one-parameter (non-horospherical) unipotent groups in some cases. In this talk, we will discuss a recent equidistribution theorem for some unipotent subgroup in higher dimension. Our results in particular provide equidistribution theorems for orbits of the isometry group of a non-degenerate bilinear form on $\mathbb{R}^n$ in $SL_n(\mathbb{R})/SL_n(\mathbb{Z})$ for all n . If time permits, we will also discuss a submodularity inequality in irreducible representation, which is a key ingredient of the proof and is of independent interest.