

# SCMS Seminar

## POLYNOMIAL EFFECTIVE EQUIDISTRIBUTION FOR SOME UNIPOTENT SUBGROUPS

**Speaker: Zuo Lin 林左**  
**UC Berkeley**

**Time: Wednesday, January 14th; 14:00**

**Venue: Room 102, SCMS**

### **Abstract:**

Let  $G$  be a semisimple Lie group,  $\Gamma$  be a lattice in  $G$  and  $U$  be a unipotent subgroup of  $G$ . A celebrated theorem of Ratner says that for any  $x$  in  $G/\Gamma$  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.