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An application of Margulis' inequality to effective equidistribution

Ratner's celebrated equidistribution theorem states that the trajectory of any point in a homogeneous space under a unipotent flow is getting equidistributed with respect to some algebraic measure. In the case where the action is horospherical, one can deduce an effective equidistribution result by mixing methods, an idea that goes back to Margulis' thesis. When the homogeneous space is non-compact, one needs to impose further "diophantine conditions" over the base point, quantifying some recurrence rates, in order to get a quantified equidistribution result.

In the talk I will discuss certain diophantine conditions, and in particular I will show how a new Margulis' type inequality for translates of horospherical orbits helps verify such conditions, a quantified equidistribution result for a large class of points, akin to the results of A. Strombreggson dealing with SL_2 case. In particular we deduce a fully effective quantitative equidistribution for horospherical trajectories of lattices defined over number fields, without pertaining to the strong subspace theorem.