

Noncommutative ergodic theory of higher-rank lattices

Cyril Houdayer

Université Paris-Saclay

`cyril.houdayer@universite-paris-saclay.fr`

I will survey recent results in the study of dynamical properties of the space of positive definite functions and characters of higher-rank lattices. I will explain that for a large class of higher-rank lattices, all their Uniformly Recurrent Subgroups (URS) are finite and all their weakly mixing unitary representations weakly contain the left regular representation. These results strengthen celebrated results by Margulis (1978), Stuck-Zimmer (1992) and Nevo-Zimmer (2000). The key novelty in our work is a structure theorem for equivariant normal unital completely positive maps between von Neumann algebras and function spaces associated with Poisson boundaries.

Based on joint works with R. Boutonnet and U. Bader, R. Boutonnet, J. Peterson.