

Speaker: Simon Machado

Title: Arithmeticity of discrete approximate subgroups

Abstract: According to Margulis arithmeticity theorem, every lattice (i.e. discrete subgroup of finite co-volume) with dense commensurator in a semi-simple Lie group is arithmetic. In this talk I will discuss recent generalisations of Margulis theorem to certain aperiodic subsets of Lie groups called approximate lattices. An approximate lattice is a discrete approximate subgroup (i.e. a subset closed under multiplication only up to a finite error) with finite co-volume. My goal will be to introduce approximate lattices and present their theory, explain how they relate to Pisot numbers as well as describe striking parallels between the structure of approximate lattices and the structure of finite approximate subgroups in $SL_2(\mathbb{F}_p)$.