SOME APPLICATIONS OF EXPANSION IN ALGEBRA AND GEOMETRY

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Abstract. This talk is an overview of some results about dynamical systems (here understood as measure preserving actions of finitely generated groups) which use the "spectral gap property" and its variants. The spectral gap property should be intuitively understood as the property of "expanding" on all Borel sets. This property has been instrumental to establish many interesting applications of the theory of measure-preserving group actions. I will focus on some results about measurable equidecompositions of sets in euclidean spaces (joint work with A. Mathe and O. Pikhurkho) and results about cost of equivalence relations with property (T) (joint work with H. Jardon Sanchez and S. Mellick, building on the previous work by T. Hutchcroft and G. Pete).