Sets of bounded discrepancy for multi-dimensional irrational rotation

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The equidistribution theorem for the irrational rotation of the circle may be stated by saying that the discrepancy N(S,n) - n mes(S) = o(n), where S is any set whose boundary has measure zero, and N(S,n) is the number of points falling into S among the first n points in the orbit.

It was discovered that for certain special sets S, the discrepancy actually remains bounded as n tends to infinity. Hecke and Kesten characterized the intervals with this property, called "bounded remainder intervals".

In this talk I will discuss the Hecke-Kesten phenomenon in the multi-dimensional setting. This is joint work with Nir Lev.