A CENTRAL LIMIT THEOREM FOR COCYCLES OVER ROTATIONS

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The central limit theorem (CLT) is a key feature of probabilistic systems that can be often proved in the context of hyperbolic dynamical systems. We will present an instance of the CLT in entropy zero dynamics. We consider determinisic random walks on the real line R driven by a rotations (or in other words, a skew product over an irrational rotation) and prove a temporal CLT for badly approximable rotation numbers and piecewise cocycle with jumps at certain irrational values. This generalizes previous results by J.Beck and by D. Dolgopyat and O. Sarig. The proof uses continued fraction and Ostrowsky renormalization.