

Universally L^1 good sequences with gaps tending to infinity

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Abstract

We construct a sequence (n_k) such that $n_{k+1} - n_k \rightarrow \infty$ and for any ergodic dynamical system (X, Σ, μ, T) and $f \in L^1(\mu)$ the averages $\lim_{N \rightarrow \infty} (1/N) \sum_{k=1}^N f(T^{n_k} x)$ converge to $\int_X f d\mu$ for μ almost every x . Since the above sequence is of zero Banach density this disproves a conjecture of J. Rosenblatt and M. Wierdl about the nonexistence of such sequences.