Assani, I.
Multiple return times theorems for weakly mixing systems. (English) Zbl 0985.37004

The author proves the pointwise convergence of the expression
\[
\frac{1}{N} \sum_{n=0}^{N} a_n g(R^n z)
\]
where \((Z, K, \nu, R)\) is an ergodic dynamical system on a probability measure space \((Z, K, \nu)\), the sequence of scalars \(a_n\) has the form
\[
a_n = a_n(x, y_1, y_2, \ldots, y_J) = \left( \prod_{i=1}^{H} f_i(T^{b_i,n}x) \right) \left( \prod_{j=1}^{J} g_j(S_j^n y_j) \right),
\]
\((b_1, b_2, \ldots, b_H) \in \mathbb{Z}^H\), \(J\) is a positive integer, the functions \(f_i\) and \(g_j\) are bounded and \((X, F, \mu, T)\) and \((Y, G_j, m_j, S_j)\) are weakly mixing systems.

Reviewer: Liviu Goras (Iaşi)

MSC:
37A25 Ergodicity, mixing, rates of mixing
93E25 Computational methods in stochastic control (MSC2010)

Keywords:
ergodic dynamical system; weakly mixing systems

Full Text: DOI Numdam EuDML