Abstract

Consider two commutative measure-preserving transformations T_0 and T_1. For any sequence (T_{\epsilon_n}) of T_0 and T_1 and for any integrable function f, we are interested in the limit of n^{-1}sum_{k=1}^n f(T_{\epsilon_k}...T_{\epsilon_1} x). If the limit exists a.e. for every L^p-integrable f, we say that the L^p partial ergodic theorem holds. It is proved that if (\epsilon_n) is a Bernoulli random sequence, then almost surely L^2 partial ergodic theorem holds. This investigation is related to Khintchin conjecture and the Khintchin problem that will also be presented with several open questions.