

An exponential inequality and strong limit theorems for conditional expectations

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Abstract

An exponential inequality for the tail of the conditional expectation of sums of centered independent random variables is obtained. This inequality is applied to prove analogues of the Law of the Iterated Logarithm and the Strong Law of Large Numbers for conditional expectations. As corollaries we obtain certain strong theorems for the generalized allocation scheme and for the nonuniformly distributed allocation scheme. © 2010 Akadémiai Kiadó, Budapest, Hungary.

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Keywords

conditional expectation, exponential inequality, generalized allocation scheme, Khintchine's inequality, law of the iterated logarithm, moment, strong law of large numbers