Universal strong laws for increments of sums of i.i.d. random variables

A. N. Frolov

St. Petersburg State University

We find a universal norming sequence in strong limit theorems for increments of sums of i.i.d. random variables with finite first moments and finite second moments of positive parts. Under various one-sided moment conditions our universal theorems imply the following results for sums and their increments: the strong law of large numbers, the law of the iterated logarithm, the Erdős-Rényi law of large numbers, the Shepp law, one-sided versions of the Csörgő-Révész strong approximation laws. We derive new results for random variables from domains of attraction of a normal law and asymmetric stable laws with index $\alpha \in (1, 2)$.