

GEOMETRICALLY STRICTLY SEMISTABLE LAWS AS THE LIMIT LAWS

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Abstract

A random variable X is geometrically infinitely divisible iff for every $p \in (0, 1)$ there exists random variable X_p such that $X \stackrel{d}{=} \sum_{k=1}^{T(p)} X_{p,k}$, where $X_{p,k}$'s are i.i.d. copies of X_p , and random variable $T(p)$ independent of $\{X_{p,1}, X_{p,2}, \dots\}$ has geometric distribution with the parameter p . In the paper we give some new characterization of geometrically infinitely divisible distribution. The main results concern geometrically strictly semistable distributions which form a subset of geometrically infinitely divisible distributions. We show that they are limit laws for random and deterministic sums of independent random variables.

Keywords: infinite divisibility, geometric infinite divisibility, geometric semistability, random sums, limit laws, characteristic function.

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