

SOME CONVERGENCE RESULTS RELATED TO A STABLE BRANCHING RANDOM WALK

Mei ZHANG *Beijing Normal University, PRC*, E-mail: meizhang@bnu.edu.cn

Abstract: Consider a discrete-time branching random walk $(V(x))$ in the boundary case, where the associated random walk is in the domain of attraction of an α -stable law with $1 < \alpha < 2$. The convergence of the derivative martingale D_n is proved. Let M_n be the minimal position of $(V(x))$ at generation n . An integral test to describe the lower limit of $M_n - \frac{1}{\alpha} \log n$ and a law of iterated logarithm for the upper limit of $M_n - (1 + \frac{1}{\alpha}) \log n$ are established. Meanwhile, the converging rate of the additive martingale W_n is obtained. (This is based on two joint works. One is with H. He, J. Liu and the other is with J. Liu).