

Lawler, Gregory F.

Cut times for simple random walk. (English) Zbl 0888.60059
Electron. J. Probab. 1, No. 13, Paper 13, 24 p. (1996).

Summary: Let $S(n)$ be a simple random walk taking values in \mathbb{Z}^d . A time n is called a cut time if $S[0, n] \cap S[n + 1, \infty) = \emptyset$. We show that in three dimensions the number of cut times less than n grows like $n^{1-\zeta}$ where $\zeta = \zeta_d$ is the intersection exponent. As part of the proof we show that in two or three dimensions

$$P\{S[0, n] \cap S[n + 1, 2n] = \emptyset\} \asymp n^{-\zeta},$$

where \asymp denotes that each side is bounded by a constant times the other side.

MSC:

60G50 Sums of independent random variables; random walks

Cited in **1** Review
Cited in **13** Documents

Keywords:

random walk; cut points; intersection exponent

Full Text: [EuDML](#) [EMIS](#)