

**Windisch, David**

**Entropy of random walk range on uniformly transient and on uniformly recurrent graphs.**

(English) [Zbl 1226.60070](#)

*Electron. J. Probab.* 15, Paper No. 36, 1143-1160 (2010).

Summary: We study the entropy of the distribution of the set  $R_n$  of vertices visited by a simple random walk on a graph with bounded degrees in its first  $n$  steps. It is shown that this quantity grows linearly in the expected size of  $R_n$  if the graph is uniformly transient, and sublinearly in the expected size of  $R_n$  if the graph is uniformly recurrent with subexponential volume growth. This in particular answers a question asked by *I. Benjamini, G. Kozma, A. Yadin* and *A. Yehudayoff* [*Ann. Inst. Henri Poincaré, Probab. Stat.* 46, No. 4, 1080–1092 (2010; [Zbl 1208.82046](#))].

**MSC:**

[60G50](#) Sums of independent random variables; random walks

[60J05](#) Discrete-time Markov processes on general state spaces

Cited in **1** Review  
Cited in **4** Documents

**Keywords:**

random walk; range; entropy

**Full Text:** [DOI](#) [arXiv](#) [EMIS](#)