

Central Limit Theorem For The Excited Random Walk In Dimension $d \geq 2$

Jean Berard, *Université de Lyon*

Alejandro Ramirez, *Pontificia Universidad Catolica de Chile*

Abstract

We prove that a law of large numbers and a central limit theorem hold for the excited random walk model in every dimension $d \geq 2$

Full text: [PDF](#) | [PostScript](#)

Pages: 303-314

Published on: October 3, 2007

Bibliography

1. Benjamini, Itai; Wilson, David B. Excited random walk. *Electron. Comm. Probab.* 8 (2003), 86--92 (electronic). [MR1987097](#) (2004b:60120)
2. Bolthausen, E. On the volume of the Wiener sausage. *Ann. Probab.* 18 (1990), no. 4, 1576--1582. [MR1071810](#) (92e:60151)
3. Bousquet-Mélou, Mireille; Schaeffer, Gilles. Walks on the slit plane. *Probab. Theory Related Fields* 124 (2002), no. 3, 305--344. [MR1939650](#) (2003h:60013)
4. Davis, Burgess. Weak limits of perturbed random walks and the equation $\mathbb{E} Y_{s+t} = \mathbb{E} Y_s + \alpha \sup\{Y_{s \wedge t} - \beta \inf\{Y_{s \wedge t}\}\}$. *Ann. Probab.* 24 (1996), no. 4, 2007--2023. [MR1415238](#) (97m:60021)
5. Davis, Burgess. Brownian motion and random walk perturbed at extrema. *Probab. Theory Related Fields* 113 (1999), no. 4, 501--518. [MR1717528](#) (2001k:60030)
6. Donsker, M. D.; Varadhan, S. R. S. On the number of distinct sites visited by a random walk. *Comm. Pure Appl. Math.* 32 (1979), no. 6, 721--747. [MR0539157](#) (81j:60080)
7. Benjamini, Itai; Wilson, David B. Excited random walk. *Electron. Comm. Probab.* 8 (2003), 86--92 (electronic). [MR1987097](#) (2004b:60120)
8. Gady Kozma. Excited random walk in two dimensions has linear speed. [arXiv:math/0512535](#), 2005.
9. Mountford, Thomas; Pimentel, Leandro P. R.; Valle, Glauco. On the speed of the one-dimensional excited random walk in the transient regime. *ALEA Lat. Am. J. Probab. Math. Stat.* 2 (2006), 279--296 (electronic). [MR2285733](#)
10. Perman, Mihael; Werner, Wendelin. Perturbed Brownian motions. *Probab. Theory Related Fields* 108 (1997), no. 3, 357--383. [MR1465164](#) (98i:60081)
11. Sznitman, Alain-Sol. Long time asymptotics for the shrinking Wiener sausage. *Comm. Pure Appl. Math.* 43 (1990), no. 6, 809--820. [MR1059329](#) (92e:60152)
12. Sznitman, Alain-Sol. Slowdown estimates and central limit theorem for random walks in random environment. *J. Eur. Math. Soc. (JEMS)* 2 (2000), no. 2, 93--143. [MR1763302](#) (2001j:60192)
13. Sznitman, Alain-Sol; Zerner, Martin. A law of large numbers for random walks in random environment. *Ann. Probab.* 27 (1999), no. 4, 1851--1869. [MR1742891](#) (2001f:60116)
14. Remco van den Hofstad and Mark Holmes. An expansion for self-interacting random walks. [arXiv:0706.0614](#), 2006.
15. Volkov, Stanislav. Excited random walk on trees. *Electron. J. Probab.* 8 (2003), no. 23, 15 pp. (electronic). [MR2041824](#) (2005a:60113)
16. Zerner, Martin P. W. Multi-excited random walks on integers. *Probab. Theory Related Fields* 133 (2005), no. 1, 98--122. [MR2197139](#) (2006k:60178)
17. Zerner, Martin P. W. Recurrence and transience of excited random walks on \mathbb{Z}^d and strips. *Electron. Comm. Probab.* 11 (2006), 118--128 (electronic). [MR2231739](#) (2007g:60123)

Research Support Tool

[Capture Cite](#)
[View Metadata](#)
[Printer Friendly](#)

▼ [Context](#)

[Author Address](#)

▼ [Action](#)

[Email Author](#)
[Email Others](#)



[Home](#) | [Contents](#) | [Submissions, editors, etc.](#) | [Login](#) | [Search](#) | [EJP](#)

Electronic Communications in Probability. ISSN: 1083-589X