An extension of the inductive approach to the lace expansion

Mark P Holmes, *University of Auckland*
Remco van der Hofstad, *Eindhoven University of Technology*
Gordon Slade, *University of British Columbia*

Research Support Tool

Capture Cite
View Metadata
Printer Friendly

▼ Context

Author Address

▼ Action

Email Author
Email Others

Abstract

We extend the inductive approach to the lace expansion, previously developed to study models with critical dimension 4, to be applicable more generally. In particular, the result of this note has recently been used to prove Gaussian asymptotic behaviour for the Fourier transform of the two-point function for sufficiently spread-out lattice trees in dimensions $d>8$, and it is potentially also applicable to percolation in dimensions $d>6$.

Full text: PDF | PostScript

Pages: 291-301

Published on: June 15, 2008

Bibliography

1. R. van der Hofstad. The lace expansion approach to ballistic behaviour for one-dimensional weakly self-avoiding walk. *Probab. Theory Related Fields*, 119:311–349, (2001).MR1820689
2. R. van der Hofstad, F. den Hollander, and G. Slade. A new inductive approach to the lace expansion for self-avoiding walks. *Probab. Theory Related Fields*, 111:253–286, (1998).MR1633582
3. R. van der Hofstad and M. Holmes. An expansion for self-interacting random walks. Preprint, (2006).Arxiv
4. R. van der Hofstad, M. Holmes, and G. Slade. Extension of the generalised inductive approach to the lace expansion: Full proof. *Unpublished*, (2007). Arxiv
5. R. van der Hofstad and A. Sakai. Gaussian scaling for the critical spread-out contact process above the upper critical dimension. *Electr. Journ. Probab.*, 9:710–769, (2004). MR2110017
6. R. van der Hofstad and G. Slade. A generalised inductive approach to the lace expansion. *Probab. Theory Related Fields*, 122:389--430, 2002. MR1892852
7. R. van der Hofstad and G. Slade. Convergence of critical oriented percolation to super-Brownian motion above 4+1 dimensions. *Ann. Inst. H. Poincar'e Probab. Statist.*, 39(3):413--485, 2003. MR1978987
8. R. van der Hofstad and G. Slade. The lace expansion on a tree with application to networks of self-avoiding walks. *Adv. Appl. Math.*, 30:471--528, 2003. MR1973954
9. M. Holmes. Convergence of lattice trees to super-Brownian motion above the critical dimension. *PhD thesis, University of British Columbia*, (2005).
10. M. Holmes. Convergence of lattice trees to super-Brownian motion above the critical dimension. *Electr. Journ. Probab.*, 13: 671–755, (2008)
11. M. Holmes and E. Perkins. Weak convergence of measure-valued processes and r-point functions. *Ann. Probab.*, 35:1769--1782, 2007. MR2349574
12. G. Slade. *The Lace Expansion and its Applications.* Springer, Berlin, (2006). Lecture Notes in Mathematics Vol. 1879. Ecole d'Et'e de Probabilit'es de Saint–Flour XXXIV–2004. MR2239599
13. D. Ueltschi. A self-avoiding walk with attractive interactions. *Probab. Theory Related Fields*, 124:189–203, (2002).MR1936016