STANFORD PROBABILITY SEMINAR

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Monday, 13 March 2006
4:15pm (Refreshments at 4pm in the 1st Floor Lounge)
Sequoia Hall, Room 200

Quenched invariance principle for random walks in random environment admitting a finite cycle representation

Abstract. This is joint work with Holger Koesters. We consider a class of random walks in a random environment on Z^d admitting a finite cycle representation, that is the corresponding jump rates are labeled by finite oriented cycles with ergodic weights, eg. [K], [M]. The reversible random conductances model with trivial two points cycles is a particular case, see [S] thus our model extends to the non reversible situation. Assuming uniform irreducibility, we prove a quenched invariant principle for the rescaled process. The annealed CLT result has been proved recently in the special case of two-fold walks by Komorovski and Olla in [K]. We adapt the quenched proof of Sidoravicius and Sznitman, [S], to the non reversible case using corrector, the sector condition and the heat kernels upper bounds for centered random walks by Mathieu, [M].

[K] Komorowski, T; Olla, S. A note on the central limit theorem for two-fold stochastic random walks in a random environment. Preprint (2005).

[M] Mathieu, P. Carne-Varopulos bounds for centered random walks. Ann of Prob (2006).

[S] Sidoravicius, V ; Sznitman. A Quenched invariance principles for walks on clusters of percolation or among random conductances. Probab. Theory Related Fields, 129, 219-244.