$$S_t \circ c(h)(a_s)_{ti}c(s) + \mathfrak{S}_e m^i n(a_r)$$

Department of Mathematics, University of Utah

An approach to the almost-sure invariance principle for random walk in random environment

Firas Rassoul-Agha

University of Utah

Time and Place: Monday February 5, 2007; 4:20–5:10 p.m.; LCB 215

Consider a crystal formed of two types of atoms placed at the nodes of the integer lattice. The type of each atom is chosen at random, but the crystal is statistically shift-invariant. Consider next an electron hopping from atom to atom. This electron performs a random walk on the integer lattice with randomly chosen transition probabilities (since the configuration seen by the electron is different at each lattice site). This process is highly non-Markovian, due to the interaction between the walk and the environment.

We will present a martingale approach to proving the invariance principle (i.e. Gaussian fluctuations from the mean) for such a process. This is joint work with Timo Seppäläinen.

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[0]Jointly with the Applied Math Seminar