Random walks, Random media, Branching

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ISI, Lectures on Probability

and Stochastic Processes VII

Lecture 1 Random walks in random environment

The Random Conductance Model (see [2], [3])

Random Walks in an i.i.d. (site) random environment (see [14], [18], [17])

Electrical networks (see [5], [9])

Lecture 2 The method of the environment seen from the particle

Example: One-dimensional random walk in an i.i.d. environment (see [17], [18]).

Lecture 3 Regeneration times

Random walks in an i.i.d. environment (see [16])

Directed random walk on an oriented percolation cluster (see [1])

Lecture 4 Branching random walks

Tree-indexed random walks (where the tree is a Galton-Watson tree) (see [11])

More general branching random walks (see [12])

Questions:

Local survival (see [6]

Growth of the maximum (see [11], [12])

Empirical law of the cloud of particles (see [15])

Branching random walks in random environment (see [4], [10], [7]).

The following list of references is by no means complete, but just gives some places (without historical credits) where you find most of the material addressed in the course. Do not hesitate to ask me for more references for any statement of the course!

References

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