

Abstract: "Anomalous random walks and their scaling limits: From fractals to random media"

In this talk, I present results concerning the behavior of random walks and diffusions on disordered media. Examples treated include fractals and various models of random graphs, such as percolation clusters, trees generated by branching processes, Erdős-Rényi random graphs and uniform spanning trees. As a consequence of the inhomogeneity of the underlying spaces, we observe anomalous behavior of the corresponding random walks and diffusions. The main focus is to estimate the long time behavior of the heat kernel and to obtain a scaling limit of the random walk. I will overview the research in these areas chronologically, and describe how the techniques have developed from those introduced for exactly self-similar fractals to the more robust arguments required for random graphs.