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Note generali	These are notes from a series of eight lectures given at the Saint-Flour Probability Summer School, July 4-17, 2010 -- Page vii.
Nota di bibliografia	Includes bibliographical references (pages 135-143) and index.
Nota di contenuto	Introduction -- Weighted graphs and the associated Markov chains -- Heat kernel estimates – General theory -- Heat kernel estimates using effective resistance -- Heat kernel estimates for random weighted graphs -- Alexander-Orbach conjecture holds when two-point functions behave nicely -- Further results for random walk on IIC -- Random conductance model.
Sommario/riassunto	In these lecture notes, we will analyze the behavior of random walk on disordered media by means of both probabilistic and analytic methods, and will study the scaling limits. We will focus on the discrete potential theory and how the theory is effectively used in the analysis of disordered media. The first few chapters of the notes can be used as an introduction to discrete potential theory. Recently, there has

been significant progress on the theory of random walk on disordered media such as fractals and random media. Random walk on a percolation cluster (‘the ant in the labyrinth’) is one of the typical examples. In 1986, H. Kesten showed the anomalous behavior of a random walk on a percolation cluster at critical probability. Partly motivated by this work, analysis and diffusion processes on fractals have been developed since the late eighties. As a result, various new methods have been produced to estimate heat kernels on disordered media. These developments are summarized in the notes.