

# The speed of biased random walk among random conductances

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We consider a random walk on the  $d$ -dimensional lattice in the random conductance model. Each edge of the lattice is assigned randomly a conductance and for a fixed realization of this environment, the random walker crosses an edge with a probability proportional to the conductivity of the edge. This model is one of the prime examples of a reversible process in an inhomogeneous medium. When we introduce a bias to the right, the process satisfies a law of large numbers with a nonzero effective speed. We are interested in properties of the speed as a function of the bias. For example, is the speed continuous, and is it increasing in the strength of the bias?

We will discuss general ideas how to deal with such a random medium and how it can lead to some atypical behavior. The talk is based on a joint work with Noam Berger and Nina Gantert.