# LARGE DEVIATIONS FOR THE LOCAL TIMES OF RANDOM WALK AMONG RANDOM CONDUCTANCES

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We derive an annealed large deviation principle for the normalised local times of a continuous-time random walk among random conductances in a finite state space in the spirit of Donsker-Varadhan. We work in the interesting case that the conductances may assume arbitrarily small values. Thus, the underlying picture of the principle is a joint strategy of small values of the conductances and large holding times of the walk. The speed and the rate function of our principle are explicit in terms of the lower tails of the conductance distribution. As an application, we identify the logarithmic asymptotics of the lower tails of the principal eigenvalue of the randomly perturbed negative Laplace operator in the domain. We discuss also the case where the state space is a subset of the integer lattice and grows with time. Here an interesting phase transition occurs between low and high dimensions.

The talk is based on joint work with Michele Salvi and Tilman Wolff.