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From the Lifshitz tail to the quenched survival asymptotics in the trapping problem.

(English) [Zbl 1191.60122](#)

[Electron. Commun. Probab.](#) 14, 435-446 (2009).

Summary: The survival problem for a diffusing particle moving among random traps is considered. We introduce a simple argument to derive the quenched asymptotics of the survival probability from the Lifshitz tail effect for the associated operator. In particular, the upper bound is proved in fairly general settings and is shown to be sharp in the case of the Brownian motion among Poissonian obstacles. As an application, we derive the quenched asymptotics for the Brownian motion among traps distributed according to a random perturbation of the lattice.

MSC:

[60K37](#) Processes in random environments

[82B41](#) Random walks, random surfaces, lattice animals, etc. in equilibrium
statistical mechanics

Cited in **6** Documents

Keywords:

[trapping problem](#); [random media](#); [survival probability](#); [Lifshitz tail](#)

Full Text: [DOI](#) [EMIS](#) [EuDML](#) [arXiv](#)