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Limit theorems for random walks in random environment

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We prove the quenched central limit theorem and the law of large numbers for reversible random walks in a stationary random environment on Z. In this model, the conductivity of the edge between $[k; k+1]$ is equal to $\alpha_k c(T^k \omega)$, where α_k be a positive number and c be a positive measurable function on Ω.

Fix $\omega \in \Omega$, we consider the Poisson equation $(P_\omega - I)f = \psi$, and then use the pointwise ergodic theorem to treat the limit of solutions and then the limit theorems will be established by the convergence of moments.

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