Titel: Bounds on the spectral shift function for continuum random Schrödinger operators and positivity of the density of states

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Abstract:
We prove a lower Wegner estimate for finite-volume alloy-type random Schrödinger operators on Rd. This implies a strictly positive, locally uniform lower bound on the density of states of such continuum random Schrödinger operators on the entire spectrum. The main mathematical novelty in this paper are pointwise-in-energy bounds on the expectation of the singular spectral shift function for these operators. Here we mainly focus on perturbations corresponding to a change from Dirichlet to Neumann boundary conditions along the boundary of a cube and show that the bound scales with the area of the surface of the cube where the boundary conditions are changed.