

Anomalous localization near the band center in the 1D Anderson model: Hamiltonian map approach

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The band center anomaly of the 1D Anderson model is analyzed with the Hamiltonian map approach. We derive an analytical solution for the localization length which is valid in the neighborhood of the band center. We also discuss the application of the Hamiltonian map approach to the question of the validity of the single-parameter scaling hypothesis close to the band center.