

Abstract Submitted
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Slow Relaxation in Anderson Critical Systems¹ SOONWON CHOI, Harvard University, NORMAN YAO, University of California Berkeley, JOONHEE CHOI, GEORG KUCSKO, MIKHAIL LUKIN, Harvard University — We study the single particle dynamics in disordered systems with long range hopping, focusing on the critical cases, i.e., the hopping amplitude decays as $1/r^d$ in d -dimension. We show that with strong on-site potential disorder, the return probability of the particle decays as power-law in time. As on-site potential disorder decreases, the temporal profile smoothly changes from a simple power-law to the sum of multiple power-laws with exponents ranged from 0 to ν_{\max} . We analytically compute the decay exponents using a simple resonance counting argument, which quantitatively agrees with exact numerical results. Our result implies that the dynamics in Anderson Critical systems are dominated by resonances.

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