

Characterization of the Anderson metal-insulator transition for non ergodic random operators

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Abstract

We investigate the Anderson metal-insulator transition for non ergodic random Schrödinger operators in both annealed and quenched regimes, based on a dynamical approach of localization, improving known results for ergodic operators into this more general setting. In the procedure, we reformulate the Bootstrap Multiscale Analysis of Germinet and Klein to fit the non ergodic setting and we obtain “uniform” Wegner Estimates, needed to perform this adapted Multiscale Analysis. As an application we study operators with Anderson-type potentials modeling aperiodic solids, where the impurities lie on a Delone set rather than a lattice, yielding a break of ergodicity.