AN APPROXIMATE SEMIGROUP PROPERTY FOR THE RANDOM SCHRÖDINGER EQUATION

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The Schrödinger equation coupled to a random potential is a simple model for wave propagation in random environments. When the potential is weak and the oscillation of the potential is on the same length scale as the oscillation of the initial condition, there is a kinetic equation that describes the evolution of macroscopic observables on long time scales. In this talk I will sketch a derivation of this kinetic equation. A key idea is to use a wavepacket decomposition of the solution which allows us to estimate error terms using bounds derived for classical random walks.