



THE UNIVERSITY
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Phillips Hall 332
11:30–12:30 PM

The diffusive limit of the random Schrödinger equation

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Abstract. The random Schrödinger equation models the motion of a quantum particle in a random environment and more generally is a toy model for waves in random media. A major open question is to demonstrate diffusive transport of solutions over very long time scales. This question is related to understanding Ohm's law and the spectrum of the random Schrödinger operator. A diffusive limit was first rigorously established by Erdos, Salmhofer, and Yau using diagrammatic arguments in 2008. In this talk I will explain some of the ideas that go into an alternative derivation of the diffusive limit. The new key ingredients are a phase space path integral, a geometric interpretation of diagrams, and an approximate semigroup property.