SPEAKER:

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TITLE:

Diffusion in the mean for a periodic Schrodinger equation perturbed by a
fluctuating potential

ABSTRACT:
We consider the evolution of a quantum particle hopping on a cubic lattice
in any dimension and subject to a potential consisting of a periodic part and
a random part that fluctuates stochastically in time. If the random potential
evolves according to a stationary Markov process, we obtain diffusive scaling for
moments of the position displacement, with a diffusion constant that grows as
the inverse square of the disorder strength at weak coupling. More generally, we
show that a central limit theorem holds such that the square amplitude of the
wave packet converges, after diffusive rescaling, to a solution of a heat equation.
Additionally, we will consider how the addition of a random, stochastically
evolving, potential affects the transport properties of the one dimensional Dimer
model. (Joint work with J. Schenker and S. Zhang)