Abstract: "Disorder and Homogenization in the Parabolic Anderson Model"

The Parabolic Anderson Model is a paradigmatic toy model for transport in disordered media. Concretely, one considers the discrete heat equation with a random potential term representing a disordered environment of sources and sinks. The homogenizing effect of the heat flow competes with the potentially localizing effect of the random environment. This is reflected in the behavior of solutions but also - more abstractly - in the spectrum of the corresponding random Schrödinger operator. A refined picture of this competition can be obtained by considering variants of the problem with rescaled disorder or diffusivity. In the talk, we will review known results and present current lines of research.