

Random walks on dynamic random environments with non-uniform mixing

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In this talk, we will discuss recent results on the limiting behavior of random walks on dynamic random environments. We will mainly discuss the case when the random walk evolves on one-dimensional random environments given by conservative interacting particle systems such as the simple symmetric exclusion process. Our results depend a great deal on space-time mixing properties imposed on the underlying environment and also on other features like the dimension and the type of allowed transitions. Conservation of particles leads to poor-mixing conditions which complicate the applicability of available tools and to overcome this difficulty we use renormalization to obtain the law of large numbers, large deviation estimates, and sometimes central limit theorems.

The talk is based on several joint works with Oriane Blondel, Frank den Hollander, Daniel Kious, Renato dos Santos, and Vidas Sidoravicius.