

Seminar in Nonlinear Systems

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Limit Theorems for Random Walk in Random Environment: The Particle Story

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Abstract: Random walk in random environment (RWRE) is a basic model of the field of random media. It has been subject to extensive study in the past three decades. Many questions, although seemingly intuitive and simple, present great mathematical challenges. The point of view of the particle is a method that has proved very powerful in the treatment of many (reversible) particle systems. However, in the case of multi-dimensional (non-reversible) RWRE this method has been of very limited use until recently.

We will give an overview of existing results and method, and then focus on new results showing that the aforementioned method can be successfully extended to answer many important questions about RWRE, such as the law of large numbers, the central limit theorem, and large deviation principles.

Refreshments provided