

Macroscopic current fluctuations in stochastic lattice gases

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Abstract

In this talk we discuss macroscopic current fluctuations in steady states of lattice gases extending a dynamic approach developed recently. More precisely we derive a large deviation estimate for the space-time fluctuations of the empirical current which includes a previous principle for density fluctuations as a special case. An asymptotic estimate for the fluctuations of the time average of the current, recently established by Bodineau and Derrida, follows easily and is improved and generalized in several respects. Explicit illustrative examples will be given.