Transport for Stochastic System with Infinite Locally Coupled Oscillators

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Abstract: We consider the transport of particles for spatially periodic system with infinite locally coupled oscillators driven by additive and multiplicative noises. A formula of the probability current derived by us shows that the coupling among the infinite oscillators is an ingredient for transport. This coupling of the oscillators can induce transport of particles in the absence of the correlation of the additive and multiplicative noises, even without the multiplicative noise.

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