

MACROSCOPIC ENERGY DIFFUSION IN A CHAIN OF AN-HARMONIC OSCILLATORS

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We consider a chain of an-harmonic oscillators whose Hamiltonian dynamics is perturbed by a local energy conserving noise. Under a diffusive space-time rescaling, we prove that the fluctuations of the energy evolve following a linear SPDE, with diffusion coefficient given by the Green–Kubo formula. We use Varadhan’s approach for the hydrodynamic limit of non-gradient systems, and this is the first application of the method to a mechanical model with noise.

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