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Heat Transport from Microscopic Dynamics : A Weak Coupling Approach

STEFANO OLLA

CEREMADE

Université de Paris - Dauphine
Place du Maréchal de Lattre de Tassigny
F-75775 Paris Cedex 16
FRANCE

`olla@ceremade.dauphine.fr`

We consider a chain of weakly coupled oscillators whose Hamiltonian dynamics is perturbed by stochastic terms that conserve energy of each particle. In a large-time weak-coupling limit, the energy of the particles evolves autonomously following a (non-gradient) stochastic Ginzburg–Landau dynamics. Then a non linear heat equation can be deduced from this stochastic dynamics under a hydrodynamic diffusive limit.

This is a joint work with Carlangelo Liverani.