

Relaxation dynamics of systems with long-range interactions

Interviene:

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Systems with long-range interactions often exhibit a very slow relaxation to equilibrium, that may even take forever in the thermodynamic limit. Their long-lived out-of-equilibrium states may consequently correspond to the only physical accessible regime, and themselves have special features (out-of-equilibrium phase transitions, phase reentrance, etc).

We here investigate lattices with power-law decaying interaction term, from both a classical and quantum perspective: It is shown that both kinds of systems exhibit system-size dependent relaxation times with, in particular, the existence of a common dynamical threshold. The short-time dynamics, time scales on which perturbations and correlations propagate, is also investigated, using the tool known as Lieb-Robinson bounds: Also yielding system-size dependent time scales, these bounds are shown to describe very well the propagation in space and time of such perturbations/correlations.

Seminario

Giovedì 23 aprile 2015

Sala Riunioni, ore 15.00

Via dei Musei 41 - Brescia

