Physics AT QUEENS COLLEGE

Colloquium Notice

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Relaxation and thermalization in isolated interacting quantum systems

We consider one-dimensional isolated interacting quantum systems that are taken out of equilibrium instantaneously. Three aspects are addressed: (i) the relaxation process, (ii) the size of the temporal fluctuations after relaxation, (iii) the conditions to reach thermal equilibrium. The relaxation process and the size of the fluctuations depend on the interplay between the initial state and the Hamiltonian after the perturbation, rather than on the regime of the system. They may be very similar for both chaotic and integrable systems. The general picture associating chaos with the onset of thermalization is also further elaborated. It is argued that thermalization may not occur in the chaotic regime if the energy of the initial state is close to the edges of the spectrum, and it may occur in integrable systems provided the initial state is sufficiently delocalized.

Monday
October 27, 2014
Starts at 12:15 PM
Coffee at 12:00 PM
Physics Conference Room, SB B326