

Joint CQSE and CASTS Seminar

Weekly Seminar
May 18, 2012 (Friday)

TIME May 18, 14:30 ~ 15:30
TITLE Thermalization, quantum correlation and entanglement in exactly solvable models
SPEAKER Prof. Ming-Chiang Chung
Physics Division, National Center for Theoretical Sciences
PLACE Rm716, CCMS & New Physics Building, NTU

Abstract

The generalized Gibbs ensemble introduced for describing few body correlations in exactly solvable systems following a quantum quench is related to the way in which operators sample, in the limit of infinite time after the quench, the quantum correlations present in the initial state. The emergence of the generalized Gibbs ensemble is thus analytically established for the quantum Ising and XX chains in the thermodynamic limit. For these models and for a broad class of initial states, which includes both translationally and non-translationally invariant states, the validity of the generalized Gibbs ensemble for simple correlation functions of both local and non-local operators is demonstrated provided certain conditions are met. The relation between quench dynamics and entanglement will be discussed. And a measurement of quantum entanglement through the quench dynamics will be proposed.

