

Quantum/Simulated Annealing and open adiabatic dynamics in Ising ferromagnets

Rosario Fazio

The Abdus Salam International Centre for Theoretical Physics

In my talk I will discuss several different issues related to the adiabatic driving of a quantum system through a quantum critical point. I will first consider the effect of an external bath on the defect formation by studying the Lindblad dynamics in a one-dimensional Ising model and in the case of some exactly solvable free fermion models.

I will then move considering an infinite range spin-1/2 model exhibiting both first and second order phase transitions depending on some external parameter. Here I will compare adiabatic quantum dynamics with simulated annealing.