

Seminar

Dr. Utkarsh Mishra

University of Electronic Science and Technology of China, UESTC

Dynamics of many-body quantum systems across the equilibrium quantum phase transitions

Friday, October 11, 2019

at 11:00 h

ESI, Boltzmann Lecture Hall

Abstract: In this talk, I will address the non-equilibrium evolution of closed many-body quantum systems across the equilibrium quantum phase transition. We pay attention to the cases where the evolved state shows characteristic different behavior depending upon whether the equilibrium quantum phase transition is crossed or not. We focus on the evolution of entanglement in the XYZ spin chain and the revival of dynamical fidelity (Loschmidt echo) in long-range pairing Kitaev wire and find that their survival is connected to the quenching across the equilibrium critical point. Finally, we consider the Ising model under periodic driving and explore that such system can be used for quantum metrology if the driving starts from the state close to the critical point. As the systems under consideration can be simulated in current experimental setups of ion traps and optical lattices, the present results might also be experimentally realizable.

R. Zeier

October 10, 2019