UNIVERSITÀ DEGLI STUDI DI MILANO
DIPARTIMENTO DI FISICA
QUANTUM TECHNOLOGY LAB

Tuesday, 06 Nov 2018, 11:30
Aula Caldirola

Dario Tamascelli

Università degli Studi di Milano

Efficient simulation of finite-temperature open quantum systems

Abstract:
Chain-mapping techniques have proven to be a powerful tool for the simulation of open-quantum system dynamics. When finite-temperature environments are considered, however, such techniques suffer from an un favorable algorithmic scaling with the temperature. In this work we prove that this difficulty can be overcome by exploiting the equivalence between an open quantum system interacting with a bosonic bath at finite temperature and the same system interacting with a second bosonic bath at zero temperature. This approach provides a polynomial improvement over existing state-of-the-art chain-mapping techniques and paves the way to numerically-exact and certifiable simulation of complex open quantum systems at finite temperature.

For further info:
http://users.unimi.it/aqm/