

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Quantum open systems dynamics via quantum diffusion equations DAWEI LUO, JIAN-QIANG YOU, HAI-QING LIN, CSRC, LIAN-AU WU, EHU/UPV, TING YU, STEVENS INSTITUTE OF TECHNOLOG, C.H. LAM, Hong Kong Polytechnic University — Solving realistic quantum systems coupled to an environment is a challenging task. Here we develop a hierarchical functional derivative (HFD) approach for efficiently solving the non-Markovian quantum trajectories of an open quantum system embedded in a bosonic bath. An explicit expression for arbitrary order HFD equation is derived systematically. Moreover, it is found that for an analytically solvable model, this hierarchical equation naturally terminates at a given order and thus becomes exactly solvable. This HFD approach provides a systematic method to study the non-Markovian quantum dynamics of an open system coupled to a bosonic environment.

Dawei Luo
CSRC

Date submitted: 10 Nov 2016

Electronic form version 1.4