Open quantum systems on quantum computers

Francesco Petruccione

University of KwaZulu-Natal, Private Bag X54001, Durban 4000, South Africa

The numerical solution of Markovian master equations can be approached through the unravelling into a corresponding stochastic Schroedinger equation. Here we describe how to implement the simulation of such a stochastic Schroedinger equation on a noisy Intermediate-scale quantum computer. As a proof of concept we show how to simulate the unravelling of various single-qubit and two-qubit master equations on IBMQ hardware.