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Variational approach to controlling dynamics of open quantum systems

V Rezvani[1,2] and A Rezakhani[1*]

1. Department of Physics, Sharif University of Technology, Tehran, Iran
2. Department of Engineering, Hashtgerd Branch, Islamic Azad University, Alborz, Iran

E-mail: rezakhani@sharif.edu

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Abstract
Control of quantum dynamics with high fidelity in the presence of noise is one of the requirements of quantum technologies. Here we develop a variational control approach for open quantum systems which is completely based on dynamics (process matrix) and is independent of initial conditions. We obtain a set of equations for optimal control of an open quantum system. We solve these equations iteratively for the particular case of simulating a dynamics in a preset time.

Keywords: open quantum system, dynamical control, process matrix, variational approach

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