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Teleportation of single unknown qubit state using entanglement and disentanglement operations

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Abstract

A novel scheme for quantum teleportation of single quantum bit state is presented using entangling and disentangling operations. This scheme is based on the interaction of two atoms within high decay cavity with the laser field. An outstanding characteristic of this scheme is that it can work without the help of any measurements.

Keywords

Teleportation; entanglement operation; disentanglement operations

Research highlights

- ▶ A new scheme for quantum teleportation of single quantum bit state is presented by using entangling and disentangling technique.
- ▶ This scheme can work without the help of any measurements.
- ▶ This scheme can suffer from decoherence.

1. Introduction

Over the past few years, quantum teleportation, originally proposed by Bennett et al in 1993, has attracted much interest due to its important application in quantum calculation [1] and quantum communication [2-10]. In original scheme, quantum teleportation is such a process that an unknown quantum state is transmitted from a

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