

Photon Generation and Transport in the Nanoscale: a Potential Application in Quantum Computing Architectures

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Abstract

The emergence of quantum computing raises significant implementation challenges in both theory and practice. Data transport across quantum computing architectures is essential to preserving quantum states within an acceptable error margin and benefit from phenomena such as entanglement and superdense coding. This article describes the potential application of carbon nanotubes and quantum dots as constructive elements for a quantum data channel based on nano-optical and nanophotonic principles.

Keywords: Carbon nanotube, quantum dots, nano-optical, nanophotonic

