

Quantum Logic Operation with Single Trapped Ion Without Limitation of Lamb-Dicke Parameter

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Abstract: By applying the nonlinear interaction between internal and external degrees of a trapped ion with the assistance of two pairs or three pairs of laser beams that are perpendicular to each other, the realization of quantum logic operation without the limitation on the Lamb-Dicke parameter can be achieved when the lasers are tuned to the carrier.

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Key words: ion trap, Lamb-Dicke parameter, quantum logic operation

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