2002 Vol.38 No.2 pp.221-223 DOI:

Fidelity of Interference Between Two Bose-Einstein Condensates with Collision and Dissipation

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(Received: 2001-6-8; Revised: 2001-12-13)

Abstract: Interference between the two Bose-Einstein condensates with collision and dissipation is investigated. It is found that when the two condensates are initially in the coherent state, the interference intensity is affected by the collision and dissipation, but for the initial Fock state, it is only related to the dissipation. Whether the initial state is in the coherent state or in a Fock state, the fidelity time has nothing to do with collision. For the initial coherent state, the fidelity loss rate is zero, but for the initial Fock state, it is determined by the initial particle number of the two condensates and dissipation.

PACS: 42.25.Hz, 03.75.Fi, 05.30.Jp
Key words: fidelity, interference, Bose-Einstein condensate, collision, dissipation