

## Tunneling Dynamics of the Halves of a Double-Well Trap Containing a Bose-Einstein Condensate

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**Abstract:** In this paper, we have studied tunneling dynamics of the halves of a double-well trap containing a Bose-Einstein condensate. It is found that there exist step structure and macroscopic quantum self-trapping of population difference of atoms, and exist Shapiro-like steps of atomic tunneling current. Both the population difference and the atomic tunneling current depend strongly on the total number of atoms and the initial phase difference.

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Key words: population difference, atomic tunneling current, step structure

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