2007 Vol.47 No.5 pp.913-915 DOI:

Simplified Scheme for Testing Symmetrization Postulate for Photons

YE Sai-Yun

Department of Electronic Science and Applied Physics, Fuzhou University, Fuzhou 350002, China
(Received: 2006-6-26; Revised:)

Abstract: We propose a scheme for testing the small violations of the symmetrization postulate (SP) for photons in cavity QED. In the scheme, a degenerate Λ-type three-level atom is sent through a cavity field initially in a q-deformed coherent state. After an appropriate interaction time, the atom is measured by a state-selective detector. The probability that the atom makes a transition from one of the lower states to the other characterizes the violation of the SP. In the scheme, only one atom is required and classical fields are unnecessary, which is prior to the previous schemes.

PACS: 42.50.Dv

Key words: symmetrization postulate, photon, Raman interaction

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