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量子光学

克尔介质中k光子Jaynes-Cummings模型的量子特性研究

廖庆洪,贾书磊,刘晔

1南昌大学电子信息工程系，江西 南昌 330031； 2南昌大学护理系，江西 南昌 330031

摘要： 研究一个被克尔介质包围的两能级原子与单模辐射场通过 光子跃迁发生相互作用的系统, 着重讨论了原子与辐射场通过三光子和四光子相互作用过程中，光场的熵压缩和原子布居数反转随时间演化的动力学特性，分析了克尔介质对光场熵压缩和原子布居数反转的影响，结果表明它们对克尔介质的非线性作用非常敏感。

关键词： 量子光学 克尔介质 熵压缩 光子

Quantum properties of k-photon Jaynes-Cummings model in a Kerr medium

1 Department of Electronic Information Engineering, Nanchang University, Nanchang 330031, China; 2 Nursing College, Nanchang University, Nanchang 330031, China

Abstract: The system under consideration consists of a two-level atom coupled an optical field in -photon Jaynes-Cummings model with a Kerr medium. The time evolution of field entropy squeezing and population inversion of the atom for three and four-photon transitions is discussed. The influence of the Kerr medium on field entropy squeezing and population inversion of the atom is also analyzed. The results show that the field entropy squeezing and population inversion of the atom are sensitive to the effect of the Kerr medium.

Keywords: quantum optics Kerr medium entropy squeezing photon

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通讯作者: 廖庆洪（1982-）江西人，博士，副教授，主要从事量子光学与量子信息的研究。

作者简介:

作者Email: nculqh@163.com

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