

论文

原子相干对光缔合形成分子的影响

王璞玉,杨国建

(北京师范大学 物理系,北京 100875)

摘要:

量子统计方法,讨论了原子相干对超冷两态原子经光缔合形成超冷分子的影响.结果表明,在原子相干的作用下,光缔合形成的分子数随时间做近周期减幅振荡.原子相干对光缔合过程的暂态阶段影响强烈,而分子始终保持sub-Poisson统计分布.

关键词: 超冷原子 光缔合 原子相干 分子转换率 二阶相关函数

Atomic Coherence Effect on the Formation of Molecules via Photoassociation

WANG Pu-yu, YANG Guo-jian

(Department of Physics, Beijing Normal University, Beijing | 100875, China)

Abstract:

The influence of atomic coherence on the formation of a ultracold molecule from ultracold two-state atoms is discussed via photoassociation. By using the method of quantum statistics, it is found that under the action of atomic coherence, the molecular number vibrates with an approximate period and with reduced amplitude. Atomic coherence has a strong influence on the temporary of the whole photoassociation process, but the molecules are always subject to sub-Poisson statistical distribution.

Keywords: Ultracold atom Photoassociation Atomic coherence Molecule conversion rate Second order correlation function

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通讯作者: 王璞玉

作者简介:

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