

Effect of Virtual Photon Exchange on the Interaction of Light Field with N Atoms

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Abstract: Under no rotating wave approximation and including the effect of dipole-dipole interaction between the atoms, exact squeezing properties for the output optical field and the atomic field are obtained. It is shown that an atom laser keeping squeezed all the time can be generated, though the input optical field is at the coherent state or vacuum state.

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Key words: virtual photon exchange, atom laser, squeezing

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