

Parametric beating of a quantum probe field with a prepared Raman coherence in a far-off-resonance medium

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Abstract: The parametric beating of a quantum probe field with a prepared Raman coherence in a far-off-resonance medium was investigated. It was shown that the normalized autocorrelation functions of the probe field were exactly reproduced in the Stokes and anti-Stokes sideband fields. It was found that an initial coherent state of the probe field can be replicated to the Raman sidebands, and an initial squeezing of the probe field can be partially transferred to the sidebands.

Index Keywords: Coherent light; Multiplexing; Oscillations; Probes; Radiation; Raman scattering; Input field state; Molecular oscillations; Quantum probe; Raman coherence; Quantum theory

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