

Sideband generation using strongly driven Raman coherence in solid hydrogen

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Abstract: The collinear parametric Raman sideband generation using solid hydrogen is demonstrated. It is shown that the Raman coherence strongly driven with two single-mode lasers beats with multimode laser radiation with very broadband nature to the Raman sidebands with a signature of saturation. It is also shown that the sideband generation occurs mainly on the negative side of Raman detuning, where the medium may adiabatically follow the antiphased state.

Index Keywords: Bandwidth; Hydrogen; Laser tuning; Light propagation; Molecular dynamics; Nonlinear optics; Pulsed laser applications; Quantum efficiency; Quantum well lasers; Raman scattering; Raman sidebands; Single-mode lasers; Solid hydrogens; Quantum theory

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