Frequency modulation and pulse compression by coherent multimode molecular motion

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Abstract: A study was conducted on the beating of a probe field with a time-varying susceptibility of a Raman medium. Thus, a general analytical solution and conservation relations for this process was derived. It was shown that the interference between Raman polarizations may substantially affect frequency modulation and pulse compression.

Index Keywords: Coherent light; Electron transitions; Frequency modulation; Integrodifferential equations; Laser modes; Light polarization; Molecular dynamics; Molecular vibrations; Probes; Coherent multimode molecular motion; Pulse compression; Raman polarization; Raman susceptibility; Raman transitions; Ultrashort pulses

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