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Suppression of modulation transfer signal for two-level atoms with open transition JUNYEON WON, MINJEONG SEO, HEUNG-RYOUL NOH, chonnam national university, LONG ZHE LI, JONG-DAE PARK, CHANG-HO CHO, Paichai University, SANG EON PARK, KRISS — In a modulation transfer spectroscopy, the frequency modulated pump beam propagates collinearly with the counter-propagating unmodulated probe beam. From the nonlinear interaction of the carrier, sideband, and the probe photons, the probe beams oscillating at the frequencies shifted upward and downward by the modulation frequency of the pump beam are generated. By beating these generated signals with the original probe beam, the in-phase and quadrature phase signals oscillating at the modulation frequency are measured. In the case of an open transition, the modulation transfer signal becomes suppressed. It is found that the important ingredient of observing strong modulation transfer signal is the long interaction time of atoms with the lasers.

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