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Seção
Abstracts

Noise spectroscopy in cold Rubidium atoms in EIT configuration

Klara Rhaissa Burlamaqui Theophilo
Universidade de São Paulo

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Resumo

Using noise spectroscopy, we studied the correlations between two light beams with opposite circular polarization, coupling the transition F=2 -> F'=2 in Λ EIT configuration, with cold atoms of Rubidium-85. In the spectrum of correlation we observed the transition from correlation to anti-correlation, off-resonance, when raising the potency of the beams.This transition is a consequence of the competition between four-wave mixing, which is responsible for the correlation regime, and the Stark effect that produces anti-correlation in the beams.In the spectra of mean signal of intensity and correlation, we observed that the EIT peak is free of potency broadening, which makes possible that the measure of coherence time be more precise in the condition of EIT. Using a EIT's model for a system in Λ configuration, we observed that the theoretical correlation spectra are in good accordance with the experimental data, considering the degenerescence of the hyperfine levels. Besides that, the model predicts the non-broadening of the correlation peak, showing the correlation as a characterization property more accurated than the mean signal of intensity.