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Electromagnetically induced transparency and four-wave mixing in an optically dense atomic vapor IRINA NOVIKOVA, NATHANIEL PHILLIPS, The College of William & Mary, ALEXEY GORSHKOV, Harvard University — We show that resonant four-wave mixing (FWM), which is enhanced in optically dense atomic medium under electromagnetically induced transparency (EIT) conditions, can strongly modify both cw spectra and the dynamics of the pulse propagation. In particular, we investigate the possibility to reduce the negative effects of FWM in EIT-based quantum memory. We also discuss how some of the observed features can be described by a simple theoretical model.

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