

Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Four-Wave Mixing reduction for EIT-based stored light GLEB ROMANOV, IRINA NOVIKOVA, College of William and Mary — We study Electromagnetically Induced Transparency (EIT) based quantum memory. EIT conditions introduce Four-Wave Mixing (FWM) that leads to signal gain and generation of the additional Stokes field, causing additional noise in quantum memory experiments. We investigate the possibility of reducing the FWM and the associated gain by introducing absorption for the Stokes field. Here we propose to use a natural abundance cell with a buffer gas, with storage realized on one of the isotopes. The second isotope can be used to create a Raman absorption resonance for the Stokes field using a strong off-resonant field. Absorption of the Stokes photons should lead to reduced gain and the associated noise for the probe. I will report on our progress with this experiment.

Gleb Romanov
College of William and Mary

Date submitted: 01 Feb 2015

Electronic form version 1.4