Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Quantum Assisted Sensing Using Rydberg Atom Electromagnetically Induced Transparency HAOQUAN FAN, JON SEDLACEK, ARNE SCHWETTMANN, JAMES P. SHAFFER, University of Oklahoma, HARALD KÜBLER, TILMAN PFAU, Universität Stuttgart — We present a method to probe AC electric fields with high sensitivity based on dark resonances in electromagnetically induced transparency (EIT) spectroscopy. The basic mechanism is to couple the electric field to a ladder-type Rydberg atom EIT system. Data from experiments using Cs and Rb will be shown to illustrate the method. The experiments take place in small (mm-μm) vapor cells. We discuss our experiments to push the electric field sensitivity of the method below 1μV/cm.

Haoquan Fan
University of Oklahoma

Date submitted: 26 Jan 2012 Electronic form version 1.4