Abstract Submitted
for the DAMOP07 Meeting of
The American Physical Society

Magnetic Resonance Reversals in Optically Pumped Alkali-Metal Vapor[1] FEI GONG, YUAN-YU JAU, WILLIAM HAPPER, Princeton University — We report an unusual new phenomenon, peculiar sign reversals of the ground-state magnetic resonances and of the "zero-dip" resonance (Zeeman resonance at zero field) of optically-pumped, alkali-metal vapors. These anomalies occur when a "weak" circular polarized $D1$ laser light is tuned to pump atoms predominantly from the lower ground-state hyperfine multiplet. One can understand the signal reversals in simple, semi-quantitative way with reference to this distribution. uantitative computer simulations are in excellent greement with observations.

[1]Air Force Office of Scientific Research, Defense Advanced Projects Agency

Fei Gong
Princeton University

Date submitted: 02 Feb 2007 Electronic form version 1.4