

Abstract Submitted
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Modeling polarization reversal in optically pumped rubidium vapors¹ J.M. DREILING, E. NORRGARD, T.J. GAY, University of Nebraska-Lincoln — Rubidium atoms can be polarized by optical pumping with a resonant circularly polarized laser beam. Using Faraday rotation polarimetry [1], we have observed a flip in the sign of the Rb electron polarization when the wavelength of the pump laser is varied over the D1 absorption spectrum. This could occur if $F < (I + J)$ states with $M_F = F$ are predominantly populated at specific pump frequencies resulting in different spin polarizations. We have used a simple rate equation model to estimate the final electron polarization under the assumption that we are able to pump only one F transition at a time. The results of these calculations will be presented.

[1] H. Batelaan, A.S. Green, B.A. Hitt, and T.J. Gay, Phys. Rev. Lett. **82**, 4216 (1999).

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