

Abstract Submitted
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Precise multiwavelength differential light shift measurements in lattice-trapped ^{87}Rb NATHAN LUNDBLAD, RADU CHICIREANU, KARL NELSON, MALTE SCHLOSSER, WILLIAM PHILLIPS, TREY PORTO, NIST/JQI — There has been considerable recent interest in finding a “magic wavelength” for hyperfine (microwave) transitions for atoms confined in optical lattices. Magic wavelength predictions exist for Al and Ga, but predictions for the alkalis (Rb and Cs) have met with some controversy, and it is likely that they do not exist in traditional optical lattices. In the interest of elucidating some of the issues, we present preliminary results of a precision multi-wavelength study of light shifts in lattice-trapped Rb, focusing particularly on the differential light shift between the ground-state hyperfine levels $F = 1, 2$.

Nathan Lundblad
NIST/JQI

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