Abstract Submitted
for the DAMOP10 Meeting of
The American Physical Society

Spectroscopy of low Rydberg np states of ^{7}Li PAUL OXLEY, PATRICK COLLINS, Physics Department, The College of the Holy Cross — Laser-induced florescence spectroscopy of an atomic Lithium beam has been performed and the absolute energies of the np atomic states with $8 \leq n \leq 15$ have been measured. The atoms are excited to these states by a total of four narrow bandwidth frequency-stabilized diode lasers. We review the experimental apparatus and techniques used to excite these states and present their absolute energies, which are an order of magnitude more precise than previous measurements. We compute the quantum defects of the states and compare them with recent theoretical calculations. The agreement is excellent.

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Date submitted: 19 Jan 2010 Electronic form version 1.4