

Abstract Submitted
for the SES16 Meeting of
The American Physical Society

An experimental determination of quantum defects of ng and nh series for Rb JEONGHUN LEE, Univ of Virginia, JIRAKAN NUNKAEW, Chiang Mai University, TOM GALLAGHER, Univ of Virginia — We present an experimental technique to determine ng and nh series quantum defects for Rb. The technique is based on measuring a property of the atom that depends on the field, as opposed to its square. Using the technique, we are able to measure zero field intervals between $(n+1)d_{5/2}$ and ng/nh states for $27 \leq n \leq 30$ despite the fact that the electric field can be only controlled in one direction in our setup. The ng and nh series quantum defects are extracted from the zero-field intervals. Using the quantum defects and adiabatic core polarization theory, we also obtain the scalar polarizabilities of Rb ionic core. Our results and the comparison with other results are presented. This work is supported by Air Force Office of Scientific Research.

Jeonghun Lee
Univ of Virginia

Date submitted: 06 Oct 2016

Electronic form version 1.4