Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Microwave transitions between pair states composed of two Rb Rydberg atoms JEONGHUN LEE, TOM GALLAGHER, University of Virginia — Microwave transitions between pair states composed of two Rb Rydberg atoms in a magneto-optical trap are investigated. Our current interest is the transition from ndnd to (n+1)d(n-2)f states. This transition is allowed because the dipole-dipole induced configuration interaction between the ndnd state and the energetically close (n+2)p(n-2)f state admixes some of the latter state into the former. The resonance frequencies of the ndnd-(n+1)d(n-2)f transitions for n=35 to 42 have been measured and found to agree well with the calculated values. In addition, the power shifts of the resonance frequencies have been measured for n=35 to 42. The dependence of the fractional population transfer from the ndnd to (n+1)d(n-2)f states on the microwave field strength and atomic density has been measured and can be compared to a simple theoretical model. This work has been supported by the Air Force Office of Scientific Research.

Jeonghun Lee
University of Virginia

Date submitted: 30 Jan 2015 Electronic form version 1.4