

Abstract Submitted
for the DAMOP06 Meeting of
The American Physical Society

Temperature measurements using Rydberg tagging¹ JONATHAN TALLANT, K. RICHARD OVERSTREET, ARNE SCHWETTMANN, JEFF CRAWFORD, JAMES P. SHAFFER, University of Oklahoma — We present a new non-destructive temperature measurement technique using Rydberg tagging of ultra-cold atom traps ($T < 1\text{mK}$). The time-of-flight velocity distributions of the Rydberg tagged atoms are used to deduce the temperature. We show that the initial temperature of the Rydberg atoms is identical to the trap temperature. We compare the technique to others.

¹We acknowledge funding from the Research Corporation, the OSRHE and the Air Force Office of Scientific Research (FA9550-05-0328).

Jonathan Tallant

Date submitted: 27 Jan 2006

Electronic form version 1.4