

Abstract Submitted
for the DAMOP15 Meeting of
The American Physical Society

Characterization of a partially-stabilized frequency comb¹ M.E. GOLD DAHL, ALEX ERIKSON, DANIEL WOODBURY, SCOTT BERGESON, Brigham Young University — We present measurements of well-known frequency intervals in Cs, Rb, and Ca. These measurements are used to determine the accuracy of a partially-stabilized ti:sapphire frequency comb. One mode of our frequency comb is offset-locked to a Rb-stabilized diode laser. The comb's repetition rate is counted but not locked. A second laser is used to probe well-known atomic transitions in Cs, Rb, and Ca. We describe our offset locking and scanning techniques and demonstrate a frequency precision of 10 kHz in a 30 second measurement time. The accuracy of our laser frequency interval measurements is approximately 40 kHz. However, cell-based frequency references can be off by several hundred kHz.

¹Research supported by the National Science Foundation (Grant No. PHY-0969856) and the Air Force (Grant No. FA9950-12-1-0308).

Scott Bergeson
Brigham Young University

Date submitted: 30 Jan 2015

Electronic form version 1.4