Abstract Submitted
for the DAMOP07 Meeting of
The American Physical Society

Sorting Category: 1.1 (E)

Near-IR frequency comb to characterize acetylene-filled fiber-based frequency references[1] KRISTAN L. CORWIN, RAJESH THAPA, KEVIN KNABE, KARL TILLMAN, ANDREW JONES, BRIAN R. WASHBURN, Kansas State University, JEFFREY W. NICHOLSON, MAN F. YAN, OFS Laboratories — Optical frequency combs have revolutionized the field of optical frequency metrology. Typically Ti:sapphire lasers form the basis of these combs, but Cr:forsterite offers an interesting alternative in the near-IR, lasing at ∼1250 nm, and broadened in a highly nonlinear fiber (HNLF) to span an octave between 1020 and 2040 nm. We have demonstrated the first self-referenced Cr:forsterite laser that uses prisms for dispersion compensation, and observe narrower carrier-envelope offset beatnotes than in the case of the first Cr:forsterite laser to be self-referenced [1]. We will use this comb to characterize optical frequency references based on acetylene-filled hollow photonic bandgap optical fibers. Furthermore, we have developed a simplified technique for observing sub-Doppler features in these fibers, called a "reflected pump" technique, and compare it to more conventional methods. [1] K. Kim *et al.*, "Stabilized frequency comb with a self-referenced femtosecond Cr:forsterite laser," Opt. Lett., **30**, 932 (2005).

[1]This work is supported by the NSF award No. ECS-0449295 and by the AFOSR, award No. FA9550-05-1-0304.

[X] Prefer Oral Session
[ ] Prefer Poster Session

Kristan Corwin
corwin@phys.ksu.edu
Kansas State University

Date submitted: 02 Feb 2007 Electronic form version 1.4