

Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

Demonstration of a rubidium fiber laser R. AYACHITULA, M.K. SHAFFER, BORIS ZHDANOV, R.J. KNIZE, US Air Force Academy - Laser and Optics Research Center — Fiber lasers over the last fifty years have become one of the most compact, efficient and cost-effective coherent light sources available. In the past decade, free-space optically pumped alkali lasers have demonstrated high efficiency and good beam quality. Alkali lasers have the advantage that they can be scaled to higher powers that fibers are adept at handling for long distances. Combining these two technologies, we report on an optically pumped alkali vapor laser in a hollow fiber where rubidium and ethane have been allowed to migrate throughout the hollow core fiber. Similar to traditional alkali lasers, we end pump rubidium in our fiber at the 780nm, $5S_{1/2} \rightarrow 5P_{3/2}$ D2 line, create a population inversion between the $5P_{1/2}$ and $5S_{1/2}$ states from mixing via ethane and lase on the 795nm D1 line.

R. Ayachitula
US Air Force Academy - Laser and Optics Research Center

Date submitted: 28 Jan 2013

Electronic form version 1.4