Abstract Submitted for the MAR10 Meeting of The American Physical Society

Molecular spectroscopy with comb-stabilized diode lasers¹ TREVOR SEARS, Stony Brook University, C. P. MCRAVEN, N. E. SHAFER-RAY, University of Oklahoma, M. CICH, G. V. LOPEZ, Stony Brook University, G. E. HALL, Brookhaven National Laboratory — We have constructed a comb-stabilized extended cavity diode laser-based spectrometer designed for precision spectroscopic measurements of chemical intermediates. Initial experiments have concentrated on the detection of sub-Doppler absorptions in acetylene near 1.5 μm in order to characterize the instrument. In the immediate future, we plan to attempt a detection of the X_2-X_1 fine structure transition in lead fluoride (PbF) at 1.2 μm , a molecule targeted because of its potential as a vehicle for a future measurement of the electron's electric dipole moment.

¹Work at Brookhaven National Laboratory was carried out under contract No. DEAC02-98CH10886 and EPSCOR program DOE-07ER46361 with the U.S. Department of Energy.

Trevor Sears Stony Brook University and Brookhaven National Laboratory

Date submitted: 19 Nov 2009

Electronic form version 1.4