

Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Optical Spectroscopy of Tungsten Carbide Molecules for Permanent Electron Electric Dipole Moment Search JEONGWON LEE, JINHAI CHEN, AARON LEANHARDT, University of Michigan — Searching for a permanent electron electric dipole moment (EDM) is a powerful tool to probe for physics beyond the Standard Model. We identify the $X^3\Delta_1$ ground state of tungsten carbide molecules as a candidate system for the electron EDM search. We have developed a molecular beam source from pulse supersonic expansion technique and used laser induced fluorescence spectroscopy to detect the molecules through $[20.6]\Omega = 2, v' = 4 \leftarrow X^3\Delta_1, v'' = 0$ transition. The beam properties, including the flux and internal temperature, are characterized. The hyperfine structure and the lambda doublet of the transition are measured and the implications related to the EDM experiment are revealed.

Jeongwon Lee
University of Michigan

Date submitted: 26 Jan 2012

Electronic form version 1.4