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**An Electron Electric Dipole Moment Search in the  $^3\Delta_1$  Ground State of Tungsten Carbide Molecules** JEONGWON LEE, AARON LEANHARDT, Department of Physics, University of Michigan, Ann Arbor, Michigan 48109-1040, USA — We report on progress towards constructing and characterizing a continuous tungsten carbide (WC) molecular beam for an electron electric dipole moment (EDM) search<sup>1</sup>. Tungsten atoms are evaporated from a resistively heated filament and tungsten carbide molecules are formed through a reaction with methane:  $W + CH_4 \rightarrow WC + 2H_2$ . WC has a  $^3\Delta_1$  ground state with its two valence electrons in a  $\sigma\delta$  molecular orbital configuration<sup>2,3,4</sup>. This molecular structure has several unique advantages for an electron EDM search and arises in other diatomic species such as  $HfF^{+5,6}$ ,  $ThF^{+5,7}$ , and  $ThO^{7,8}$ .

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