

Abstract Submitted  
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**O(<sup>1</sup>D) Production in Electron-Carbon Dioxide Collisions<sup>1</sup>**

WLADEK KEDZIERSKI, JEFF HEIN, COLLIN TIESSEN, DRAGAN LUKIC, JOSHUAH TROCCHI, TIM MLINARIC, WILLIAM MCCONKEY, University of Windsor — O(<sup>1</sup>D) is an important species in the earth's atmosphere giving rise to the well known oxygen red lines at wavelengths of 630.0 and 636.4 nm from the upper atmosphere and strongly influencing stratospheric photochemistry. O(<sup>1</sup>D) is metastable and is difficult to detect selectively in the laboratory. Using techniques and instrumentation developed in our laboratory we have studied the excitation of O(<sup>1</sup>D) following dissociative excitation of CO<sub>2</sub> in the electron impact energy range from threshold to 300 eV. A solid Ne matrix at 10K forms the heart of the detector. This is sensitive to the metastable species through the formation of excited excimers (NeO\*) which immediately radiate. Using a pulsed electron beam and time-of-flight techniques we have measured relative cross sections as a function of impact electron energy. Threshold energy data are used to gain information about the parent molecular states.

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J. William McConkey  
University of Windsor

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