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Progress Report on O(^{1}D) production from oxygen-containing molecules[1] WILLIAM MCCONKEY, WLADEK KEDZIERSKI, JEFF HEIN, University of Windsor — O(^{1}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(^{1}D) is metastable and is difficult to detect selectively in the laboratory. We have developed techniques and instrumentation involving a solid Ne matrix at 10K that is sensitive to this 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 for a number of targets including N_2O and CO_2. Threshold energy data are used to gain information about the parent molecular states.

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