Abstract Submitted
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Electron-impact excitation of O(^{1}S) and O(^{1}D) following dissociation of oxygen-containing molecules[1] WLADEK KEDZIERSKI, ELLY BLEJDEA, AMANDA DICARLO, WILLIAM MCCONKEY, University of Windsor — The well known oxygen green and red lines at wavelengths of 557.7, 630.0 and 636.4 nm result from transitions within the ground configuration of O and are dominant features of earth's aurorae. The parent O(^{1}S and ^{1}D) levels are metastable and are difficult to detect selectively in the laboratory. We have developed techniques and instrumentation involving solid rare gas (RG) matrices which are sensitive to these species through the formation of excited excimers (RGO*) which immediately radiate. The relative performance of different rare gas surfaces for O(^{1}S) detection will be presented as functions of surface temperature (from 20-65K) and spectral output between 400 and 800 nm. Kr is shown to be the most sensitive to O(^{1}S). First measurements of the production of O(^{1}D) from N_2O and CO_2 targets will be presented.

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