

Abstract Submitted
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Low energy electron scattering from atomic oxygen and nitrogen

JIM WILLIAMS, University of Western Australia — Recent considerations of the depth of understanding of laboratory and astrophysical plasmas has drawn attention to theoretical and experimental data for electron collisions with atoms, molecules and ions, particularly for atomic oxygen, nitrogen and carbon atoms [1]. We report accurate experimental differential elastic cross sections from 10 to 150 degrees with energy analysis of the scattered electrons. Phase shifts parameterization [2] of oxygen and nitrogen data enabled calculation of integral elastic and momentum transfer cross sections. Subsequently ionization and excitation processes in nitrogen atoms were explored to see the influence of electronic structure such as the $2s^2 2p^3 \ ^2D$ and $\ ^2P$ metastable states in the autoionization region [3]. The apparatus used crossed modulated electron and atomic beams with energy selection of the incident electron beam and absolute cross sections determined from experimental parameters using a relative gas flow method.

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