Abstract Submitted
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Electron Impact Excitation of O^{3+1} SWARAJ TAYAL, Clark Atlanta University — The Breit-Pauli R-matrix with pseudostates approach has been used to calculate electron impact excitation cross sections between fine-structure levels of the $2s^2 2p$, $2s2p^2$, $2p^3$, $2s^2 3s$, $2s^2 3p$, $2s^2 3d$, 2s2p3s, 2s2p3p, 2s2p3d, $2s^2 4s$, and $2s^2 4p$ configurations of O^{3+}. The effect of coupling to the highly excited bound and contonuum target states have been simulated by using a set of pseudostates in the R-matrix expansion. The target states are represented by configuration-interaction wave functions that yield excitation energies and oscillator strengths which are in close agreement with experiment and other accurate calculations. Rydberg series of resonances converging to the excited level thresholds are found to make substantial contributions to the cross sections. Significant differences with earlier calculations indicate the importance of coupling to the continuum.

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