

Abstract Submitted
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Emission and Ionization Cross Sections for Atomic Oxygen¹

SWARAJ TAYAL, Clark Atlanta University, OLEG ZATSARINNY, Drake University — The B-spline R-matrix with pseudostates approach has been used to calculate electron collision emission and ionization cross sections for atomic oxygen in the electron energy region up to 150 eV. We included nineteen spectroscopic and 1097 pseudostates in the close-coupling expansion. These states were generated by a combination of B-spline box based multichannel close-coupling expansions and multiconfiguration Hartree-Fock method. The pseudostates cover the energy region up to 50 eV above the ionization limit. The inclusion of pseudostates leads to a better agreement with experimental emission cross sections. Our calculated ionization cross sections are also in very good agreement with available experimental data. The comparison of different scattering models and experiments provides an estimate of accuracy of our results.

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