

Abstract Submitted
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Integral Cross Sections for the Electron Impact Excitation of Molecular Nitrogen¹ C.P. MALONE, P.V. JOHNSON, I. KANIK, Jet Propulsion Laboratory, Caltech, MS 183-601, 4800 Oak Grove Drive, Pasadena, CA 91109, USA, S. WANG, M.A. KHAKOO, Department of Physics, California State University, Fullerton, CA 92834, USA — Integral cross sections (ICSs) for the electron impact excitation of the X $^1\Sigma_g^+$ ($v''=0$) ground level to the a'' $^1\Sigma_g^+$, b $^1\Pi_u$, c $^1\Pi_u$, o $^1\Pi_u$, b' $^1\Sigma_u^+$, c' $^1\Sigma_u^+$, G $^3\Pi_u$, and F $^3\Pi_u$ states of N₂ are reported at incident energies of 17.5eV, 20eV, 30eV, 50eV, and 100eV. The ICSs were obtained from integrating recent differential cross sections, which were obtained by unfolding new energy-loss spectra taken at electron scattering angles ranging from 2° to 130°. The analysis of the spectra followed a different algorithm from that employed in a previous study of N₂ for the valence states by Khakoo *et al.* [Physical Review A **71**, 062703 (2005)], since the $^1\Pi_u$ and $^1\Sigma_u^+$ states form a strongly-interacting Rydberg-valence series. The present results are compared to existing cross sections.

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