

Abstract Submitted
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Electron Impact Excitation of Several Rydberg-Valence Series in Molecular Nitrogen.¹ MURTADHA A. KHAKOO, SHIYANG WANG, California State University Fullerton, VAASU SWAMINATHAN, DANIEL NUYUJUKIAN, California State University Fullerton-Troy High School, PAUL V. JOHNSON, CHARLES P. MALONE, ISIK KANIK, Jet Propulsion Laboratory- Caltech — Preliminary analysis of recent high-resolution electron impact differential cross-section measurements for e.g. the excitation of the higher-lying b,c and o $^1\Pi_u$ series of N₂ are presented. The data are taken at 17.5, 20, 30, 50 and 100eV incident energies and scattering angles from 2 to 130 degrees. These data show clear interference effects in the differential scattering amplitudes (cross-sections) produced by the coupling within these series and are the first time such observations have been observed for electron scattering in N₂. The results have strong implications for modeling the excitation of these important series in this fundamental gas target, of importance to astrophysical as well as atomic-molecular physics applications.

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Murtadha A. Khakoo
California State University Fullerton

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