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Electron Impact Induced VUV Emissions from Nitrous Oxide¹

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CA 91109 USA — Emissions in the VUV have been probed for transitions from
various excited electronic states (e.g., N* (3s ⁴P)) resulting from electron impact of
nitrous oxide (N₂O). The experimental setup consists of a 0.2m spectrometer and
an electron collision chamber. The electron beam (with energy spread of ~1eV) was
magnetically collimated with an axially symmetric magnetic field and accelerated to
a given kinetic energy. A Faraday cup was used to monitor the beam current and to
eliminate any back-scattered electrons. Photons emitted by electron impact excited
target molecules and excited atoms following dissociative excitation, were dispersed
by the spectrometer and detected with a channel electron multiplier coated with
CsI. Measured emission spectra and emission cross sections as functions of incident
energy will be presented.

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research was performed while CPM and JWMcC held NASA Fellowships at JPL.

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