Abstract Submitted for the DAMOP06 Meeting of The American Physical Society

Contributors to the solar-wind-induced spectrum of cometary xrays: S and Ne L x-rays, Fe M x-rays and others¹ C. J. VERZANI, K. A. MILLER, Q. KESSEL, W. W. SMITH, University of Connecticut, 06269-3046, S.J. SMITH, S. HOSSAIN, A. CHUTJIAN, Jet Propulsion Laboratory, California Institute of Technology, 91109 — Cravens explained the presence of well resolved x-ray lines from comets as being due to the transfer of electrons from cometary gases (CO, H₂O, etc.) to create excited states of highly-charged C and O ions from the solar wind (1). However, these x rays, with energies in the 250 to 700 eV range, represent only a small fraction of the x rays observed compared with those found in the 50 - 250 eV range (2). Spectra obtained, using solar wind-type ions such as Ne^{7+,8+}, S⁹⁺ and Fe¹¹⁺ from the JPL ECR ion source, suggest that soft x-ray lines from charge-transfer processes terminating on the n=2, and n=3 levels of solar wind ions may contribute significantly to cometary x-ray spectra in this range.

1. T.E. Cravens, Science 297, 1042 (2002).

2. K. Dennerl, J. Englhauser, Joachim Trumper, Science 277,1625 (1997).

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