Abstract Submitted
for the DAMOP08 Meeting of
The American Physical Society

Polarization of X-rays produced in charge-exchange collisions in astrophysical plasmas MARKO GACESA, University of Connecticut, VASILI KHARCHENKO, University of Connecticut, ITAMP / Harvard-Smithsonian Center for Astrophysics and Harvard Physics Department, ROBIN CÔTÉ, University of Connecticut — The discovery of X-ray emissions from comets is important for solar system and astrophysical applications. It is believed that the underlying mechanism are charge-exchange collisions between the highly charged solar wind ions and the atoms and molecules present in the cometary and planetary atmospheres as well as in the interstellar gas. We describe a simple charge-exchange process of the form $A^{q+} + B \rightarrow A^{(q-1)+*} + B^{+}$ and predict the spatial distribution of emitted X-rays and their polarizations by solving Schroedinger equation in quasi-molecular orbital approach.

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Date submitted: 01 Feb 2008 Electronic form version 1.4