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Polarization of the X-ray emission induced by charge-exchange collisions of solar wind ions and neutral heliospheric gas MARKO GACESA, University of Connecticut, HANS-REINHARD MÜLLER, Dartmouth College, ROBIN CÔTÉ, University of Connecticut, VASILI KHARCHENKO, University of Connecticut, Harvard-Smithsonian Center for Astrophysics — Charge-exchange collisions between highly charged solar wind ions and neutral hydrogen and helium present in heliosphere contribute a significant part of the diffuse X-ray background emissions detected by telescopes in space. The same process is responsible for X-ray emissions observed from comets, moons and planets in the solar system. Underlying physical mechanism is a two-species charge-exchange collision of type $A^{q+} + B \rightarrow A^{(q-1)+*} + B^{+}$, followed by a cascading radiative decay with emission of energetic photons. We present our calculations of intensity distribution and polarization of heliospheric charge-exchange X-rays and discuss their implications on current models of the heliosphere and the boundary with the local interstellar medium.

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