Chandra Observations of Io and the Io Plasma Torus

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[Contributed talk, 15min.]

Abstract

Chandra observed the Jovian system for $\sim$ 1 day with ACIS-S in Nov, 1999, and $\sim$ 10 hours with HRC-I in Dec, 2000. Among the many results of great interest to planetary scientists are the detection of x-ray emission from the Io Plasma Torus (IPT) and, very faintly, associated with the Jovian moon Io itself. The IPT is an almost self-generating donut of S and O ions in Io's orbit that ultimately derive from volcanoes on the surface. While EUV and visible emissions from the IPT are relatively well understood to result from low charge state transitions of S and O and from electron impact, the x-ray emissions are too energetic to be explained this way and seem to require the presence of higher charge states of S and O. We present current ideas as to origins of these x-ray emissions.

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