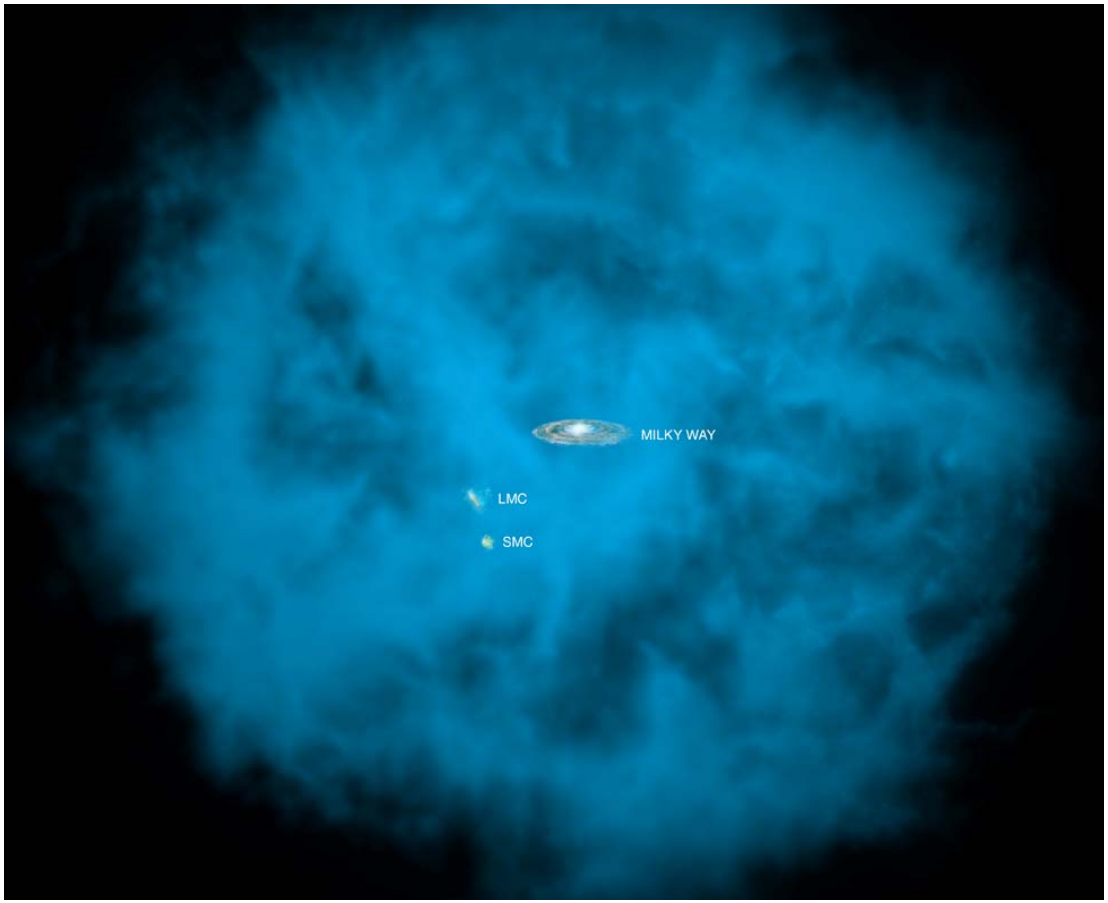
Chandra Science Highlight

Evidence for a Massive Halo of Hot Gas Around the Milky Way



Data from the Chandra X-ray Observatory indicate that the Milky Way is embedded in an enormous halo of hot gas that extends for hundreds of thousands of light years.

- Absorption lines of OVII and OVIII at redshift z =0 in extragalactic sight lines were detected.
- K-alpha and K-beta absorption lines of OVII were used to measure accurate column densities.
- Column density data were combined with data from XMM-Newton and Suzaku on emission measure measurements for hot gas in the Galactic halo to derive the density and path length for the hot halo.
- The implied radial extent of the warm-hot phase (>1 MK) is > 300,000 light years, and the mass is > 10 billion solar masses, many times more than that in cooler gas phases, and comparable to the total baryonic mass in the disk of the Galaxy.

Reference: Gupta, A et al, 2012, ApJ, 756:L8; arXiv:1205.5037

Credit: Illustration: NASA/CXC/M. Weiss

Instruments: ACIS/HETG, ACIS/LETG, HRC-S/LETG

SEPTEMBER 2012

CXC operated for NASA by the Smithsonian Astrophysical Observatory