A Shadow of the Diffuse X-Ray Background

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[Contributed talk, 15min.]

Abstract

The majority of baryons in the local universe are expected to lie outside of galaxies, in modest overdensity regions of the universe. This gas is predicted to be 10^5-10^7 K and emit X-rays that can contribute significantly to the X-ray background near 0.75 keV. If present, the gas in an edge-on galaxy would absorb this diffuse background emission, causing a shadow. We carried out this test using *Chandra* observations of the edge-on galaxy NGC 891, and in a gas-rich region defined by high optical extinction, we detect a shadow in the 0.4-1.0 keV band at the 98% confidence level. This shadow corresponds to approximately one-third to one-half of the X-ray background in this energy range at this location. This observation is consistent with theoretical models, which predict a wide range of spatially dependent values for the background.

CATEGORY: EXTRAGALACTIC DIFFUSE EMISSION AND SURVEYS