Chandra Observations of Elliptical Galaxies

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Abstract

The X-ray emission from the diffuse gas in ellipticals gives insight into the evolution and enrichment of the hot gas. The X-ray emitting gas is presumably due to the accumulation of stellar mass loss, and the observed gas masses are consistent with this. Previous X-ray analysis of the hot gas in ellipticals has found surprisingly low iron abundances in the X-ray emitting gas of some ellipticals. This is in stark contrast to theoretical models which predicted iron abundances of 3-5 times solar (Loewenstein & Mathews 1991; Renzini et al 1993), due to iron deposition by Type I supernovae. We present results from Chandra ACIS imaging spectroscopy of three elliptical galaxies, NGC 1407, NGC 4486 and NGC 4552. The spatial resolution of the ACIS data allows us to determine the temperature and abundance profiles with approximately the same spatial resolution as the stellar abundance data. We compare the X-ray abundance data with that from the stellar abundances and compare these with models of the enrichment of the diffuse gas in these systems.

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