X-Ray Structure of Lensing Clusters Abell 2219 and Abell 2104

John C. Houck, David S. Davis, Michael W. Wise (*MIT Center for Space Research*)

Abstract

We present results from Chandra/ACIS-S imaging observations of two distant clusters, A2219 (z = 0.228) and A2104 (z = 0.155), both of which show evidence for gravitational lensing. A2219 is a massive, X-ray luminous cluster, with a high mean X-ray temperature of about $kT \approx 12$ keV. Despite having a smooth, elliptical X-ray surface brightness distribution, evidence from gravitational lensing and from the X-ray temperature map are consistent with the interpretation that A2219 is an ongoing merger. A2104 is a much cooler ($kT \approx 8$ keV) and somewhat less luminous cluster which appears to be more dynamically relaxed. Using these data, we estimate cluster masses and provide constraints on the matter distribution in the cluster cores which will be compared with published gravitational lensing models.

Support for this work was provided by NASA through Chandra Award Number GO0-1122X issued by the Chandra X-Ray Observatory Center, which is operated by SAO on behalf of NASA under contract NAS8-39073.

CATEGORY: CLUSTERS OF GALAXIES