Mass Distributions and the State of the Intracluster Medium in Lensing Clusters of Galaxies

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[Contributed talk, 15min.]

Abstract

Chandra observations of lensing galaxy clusters have provided accurate dark matter profiles for some objects, clear evidence for departure from hydrostatic equilibrium in the intracluster plasma of others, and indications that the X-ray surface brightness distribution need not follow mass. We provide examples of these phenomena and discuss their implications for dark matter distributions in cluster cores, and for models of cluster merging. We find evidence for large departures from hydrostatic equilibrium (with total pressure exceeding thermal pressure by a factors of 2-3) in the cores ($r < 100$ kpc) of several clusters which show no evidence of strong shocks, and which appear to in hydrostatic equilibrium at larger radii. The spatial resolution of Chandra images of clusters exceeds that of existing merger simulations.

CATEGORY: CLUSTERS OF GALAXIES