

Detection of hot plasma around M96 in the Leo-I group

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Abstract.

The nearby ($D = 11$ Mpc) sparse group of galaxies, Leo-I, is in many respects unique. It is the nearest group containing both bright spirals (M96 and M95) and a bright elliptical (M105). A giant (diameter ca. 200 kpc) intergalactic HI ring orbits the central M105/NGC3384 galaxy pair and appears to interact with M96. If M96 is really in the group core, the Leo-I group provides an unusually “clean” route to determining the Hubble constant. In our 22 ksec ASCA SIS exposure of M96 we have detected diffuse X-ray emission extending more than 10 arcminutes North of M96, in the direction of the HI ring. The morphology and spectral characteristics of the diffuse emission shows that M96 has recently interacted with the HI ring, indicating that M96, the HI ring and the central galaxy M105 are at the same distance within a few percent.