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NGC 720: An elliptical galaxy located about 80 million light years from Earth in the Constellation Cetus.

Credits: X-ray: NASA/CXC/UCI/D.Buote et al., Optical: DSS U.K.Schmidt Image/STScI

Chandra's image reveals a galaxy enveloped in a slightly flattened or ellipsoidal cloud of 7 million-degree Celsius gas. The shape and orientation of the hot cloud are different from that of the optical image of the galaxy. This means that a massive halo of dark matter is needed to keep the hot gas from expanding away. Alternate theories of gravity that eliminate the need for dark matter cannot explain the observed shape and orientation of the cloud. The Chandra data also fit predictions of a cold dark matter model. According to this model, dark matter consists of slowly moving particles which interact with each other and "normal" matter only through gravity.

Scale: Images are 5 x 4.2 arcmin.

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory