



Chandra X-Ray
Observatory Center

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Abell 2029: A cluster of galaxies one billion light years from Earth in the constellation Serpens.

Credit: X-ray: NASA/CXC/UCI/A. Lewis et al.; Optical: Pal.Obs. DSS

Abell 2029 is composed of thousands of galaxies (optical image, right) enveloped in a gigantic cloud of hot gas (X-ray image, left), and an amount of dark matter equivalent to more than a hundred trillion Suns. Both the gas and the galaxies are confined to the cluster primarily by the gravity of the dark matter. If this galaxy cluster is a representative sample of the universe, the Chandra observation indicates that 70 to 90 percent of the mass of the universe consists of dark matter - mysterious particles left over from the dense early universe that interact with each other and "normal" matter only through gravity.

Scale: Each image is 4 arcmin on a side.
Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory