



**Chandra X-ray
Observatory Center**

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3C438: A central galaxy in the center of a massive cluster of galaxies, 4.8 billion light years away.
(Credit: X-ray: NASA/CXC/CfA/R.P.Kraft; Optical: Pal.Obs. DSS)

Caption: This comparison of 3C438 in optical (left) and X-ray (right) light reveals evidence for one of the most energetic events in the local Universe. An arc-like feature to the lower left in the cluster's hot gas is about 2 million light years long. Astronomers have determined that an enormous amount of energy would be required to produce such a large structure. One plausible scenario is that two massive clusters collided at high velocity and later merged. Another intriguing feature in the Chandra data is the possible detection of a cavity in the hot gas, which may be the result from a tremendous outburst from a supermassive black hole.

Scale: Each panel is 8 arcmin per side.

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory