



Chandra Science Highlight

M87: FILAMENTS, BUBBLES AND SHOCKS

Chandra X-ray Observatory ACIS image.



This composite image shows complex filamentary structures in the X-ray image (red) of the hot gaseous atmosphere of the giant elliptical galaxy M87 in the Virgo Cluster. An optical image from the Digitized Sky Survey shows stars in M87 in blue.

- The brighter filaments, which have widths $\sim 1,000$ light years, may be the outer edges of a series of buoyant bubbles filled with relativistic plasma produced by a succession of outbursts produced at intervals of ~ 6 million years by accretion onto the central supermassive black hole.
- A nearly circular shell 80,000 light years in diameter is evidence for a weak shock wave produced by an outburst 20 million years ago, in the time frame of M87.

Distance to M87: About 50 million light years

Reference: W. Forman et al. 2006, astro-ph/0604583