



**Chandra X-ray  
Observatory Center**

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**SDSS J103842.59+484917.7:** A group of galaxies nicknamed the "Cheshire Cat" about 4.6 billion light years from Earth.

(Credit: X-ray: NASA/CXC/UA/J.Irwin et al; Optical: NASA/STScI)

**Caption:** Astronomers think that in the future the "Cheshire Cat" group will become what is known as a fossil group, a gathering of galaxies that contains one giant elliptical galaxy and other much smaller, fainter ones. Today, researchers know each "eye" galaxy is the brightest member of its own group of galaxies and these two groups are racing toward one another at over 300,000 miles per hour. Data from Chandra (purple), which has been combined with optical data from Hubble, show hot gas that has been heated to millions of degrees, which is evidence that the galaxy groups are slamming into one another. Chandra's X-ray data also reveal that the left "eye" of the Cheshire Cat group contains an actively feeding supermassive black hole at the center of the galaxy.

**Scale:** Image is 1.3 arcmin across (about 1.45 million light years)

*Chandra X-ray Observatory ACIS Image*

*CXC operated for NASA by the Smithsonian Astrophysical Observatory*