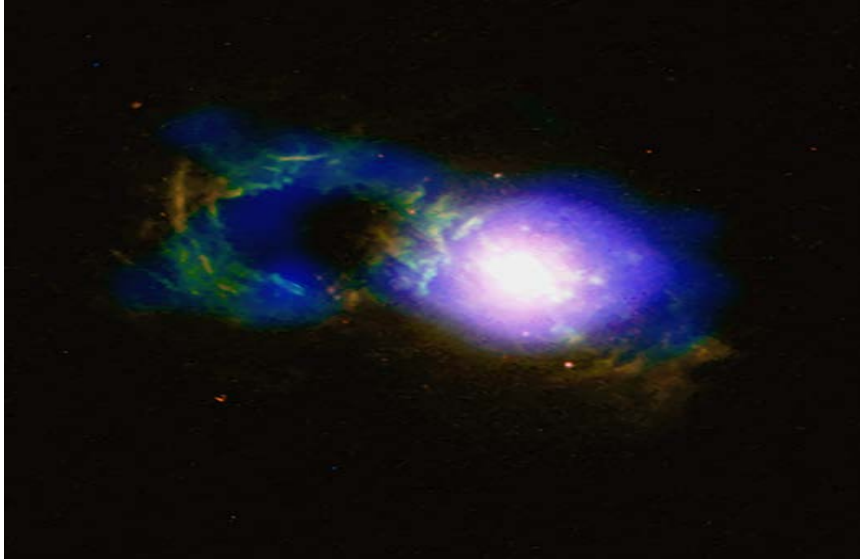




# Chandra Science Highlight

## Storm in a Teacup



Caption: Composite image of the structure known as "The Teacup," which is located in the galaxy SDSS 1430+1339. X-ray data from Chandra (blue) along with optical view from NASA's Hubble Space Telescope (red and green).

Distance estimate: 1.1 billion light years (redshift  $z=0.08520$ )

- The "handle" of the Teacup is a ring of optical and X-ray light located about 30,000 light-years from a supermassive black hole at the center of the galaxy.
- The handle likely traces gas heated by a shock wave produced by one or more eruptions from a supermassive black hole in the center of the galaxy. A similar bubble about the same size on the other side of the galaxy has been detected with radio observations.
- The eruptions are generated as gas in the central regions of the galaxy is pulled toward the black hole. The gas is energized by the strong gravity and magnetic fields near the black hole. Some of it falls into the black hole, and some is flung away from the galaxy in strong winds or jets, creating the bubbles.
- Chandra and XMM-Newton observations of the central black hole reveal that the black hole is highly obscured by surrounding gas, and is much more luminous than previously believed on the basis of optical observations alone.

Credits: X-ray: NASA/CXC/Univ. of Cambridge/G. Lansbury et al; Optical: NASA/STScI/W. Keel et al.

Instrument: ACIS-LETG

Reference: Lansbury, G. et al. 2018, *Apj*, 865,1;  
[arXiv:1808.00009](https://arxiv.org/abs/1808.00009)

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