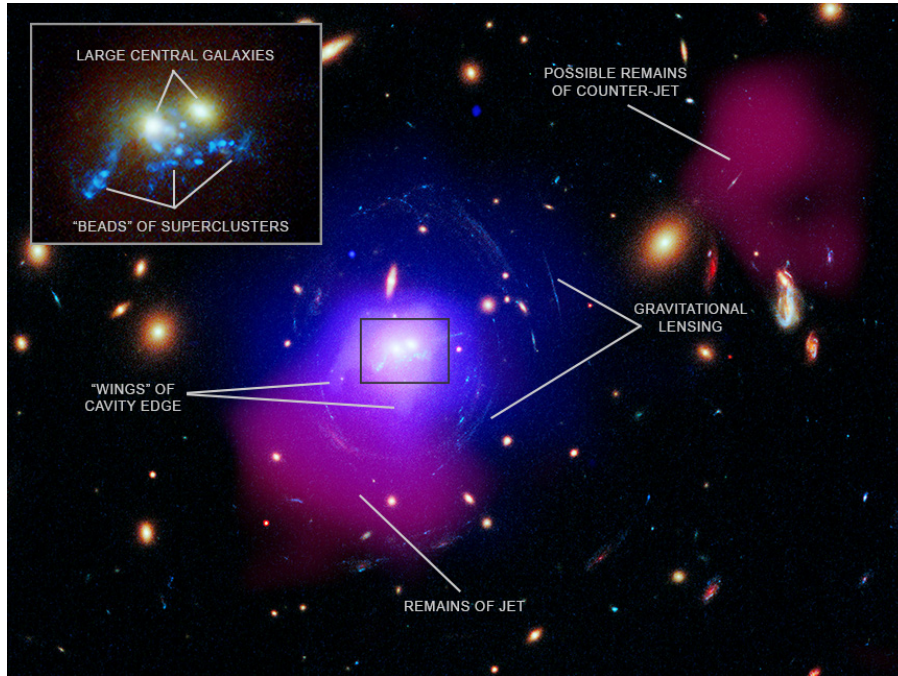




Chandra Science Highlight

Black Hole Fashions Stellar Beads on a String



This image shows SDSS J1531 in X-rays from Chandra (blue; purple), radio data from the Low Frequency Array (LOFAR) in dark pink, and an optical image from Hubble (yellow; white). The inset gives a view of SDSS J1531's center in optical light, showing 19 large clusters of stars arranged in an 'S' formation that resembles beads on a string. The authors think that a powerful jet from a supermassive black hole in the cluster's center pushed the surrounding hot gas away from the black hole, creating a gigantic cavity. The edges of the cavity are "wings" of bright X-ray emission, seen with Chandra, tracing dense gas near the center of SDSS J1531 and the less dense gas in between is part of the cavity. LOFAR shows radio waves from the remains of the jet's energetic particles filling in the giant cavity and a possible counter-jet.

- A team of astronomers have used NASA's Chandra X-ray Observatory to discover evidence for a giant eruption from a supermassive black hole in a cluster of galaxies called SDSS J1531.
- The team thinks that some of the gas sent away from the black hole by the eruption eventually cooled enough to form copious numbers of new stars, including a set of 19 star clusters near the black hole called "beads on a string".
- The eruption is thought to have occurred some 200 million years earlier in the cluster's history, creating a huge cavity in hot gas detected with Chandra.
- Along with Chandra, researchers used the LOFAR radio telescope and NASA's Hubble Space Telescope to make this discovery.

Distance estimate: 3.8 billion light-years

Credits: X-ray: NASA/CXC/SAO/O. Omoruyi et al.; Optical: NASA/ESA/STScI/G. Tremblay et al.; Radio: ASTRON/LOFAR; Image Processing: NASA/CXC/SAO/N. Wolk

Instrument: ACIS

Reference: Omoruyi, O. et al., 2024, ApJ, 963,1; <https://www.arxiv.org/abs/2312.06762>

More information:
<https://chandra.si.edu/photo/2024/beads/index.html>

**The CXC is operated for NASA by the Smithsonian
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