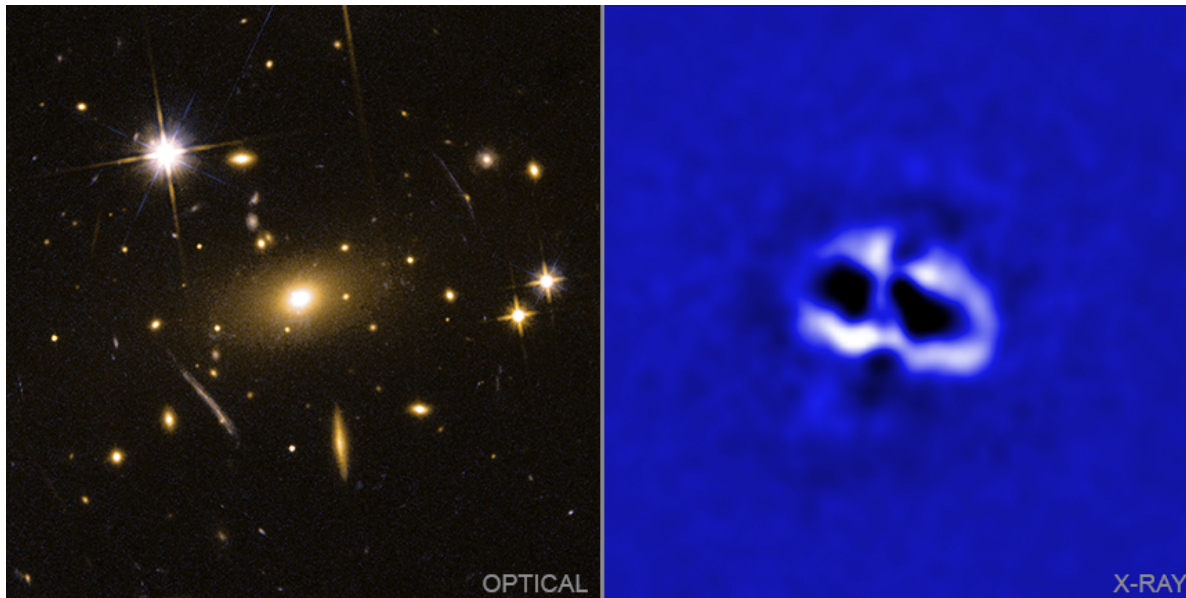




# Chandra Science Highlight

## Astronomers Spy Quartet of Cavities from Giant Black Holes



- Using Chandra, four cavities have been discovered in the hot gas of a single galaxy cluster located about 3.9 billion light years from Earth.
- This suggests there is a pair of supermassive black holes, both of which erupted and generated jets at about the same time, pushing gas outwards to create the cavities.
- If confirmed, the two supermassive black holes would be among the closest pair ever discovered, with a separation of about 250 light years.
- An alternative explanation is that there is only one supermassive black hole — with jets that somehow managed to flip around in direction quite quickly.

**Distance estimate:** About 3.9 billion light-years.

**Credits:** X-ray: NASA/CXC/Univ. of Bologna/F. Ubertosi; Optical: NASA/STScI/M.Calzadilla

**Instrument:** ACIS

**Reference:** Ubertosi, F. et al, 2021, [arXiv:ApJL, 923, L25](https://arxiv.org/abs/2112.12512).

**Caption:** Four enormous cavities, or bubbles, have been found at the center of the RBS 797 galaxy cluster using Chandra. Hot gas that envelopes the individual galaxies is invisible in optical light (seen in a Hubble image on left), but it is detected in X-rays by Chandra (right). Scientists have seen many pairs of X-ray cavities before in other galaxy clusters, but four in the same cluster is very rare.

<https://chandra.si.edu/photo/2021/rbs797/>

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