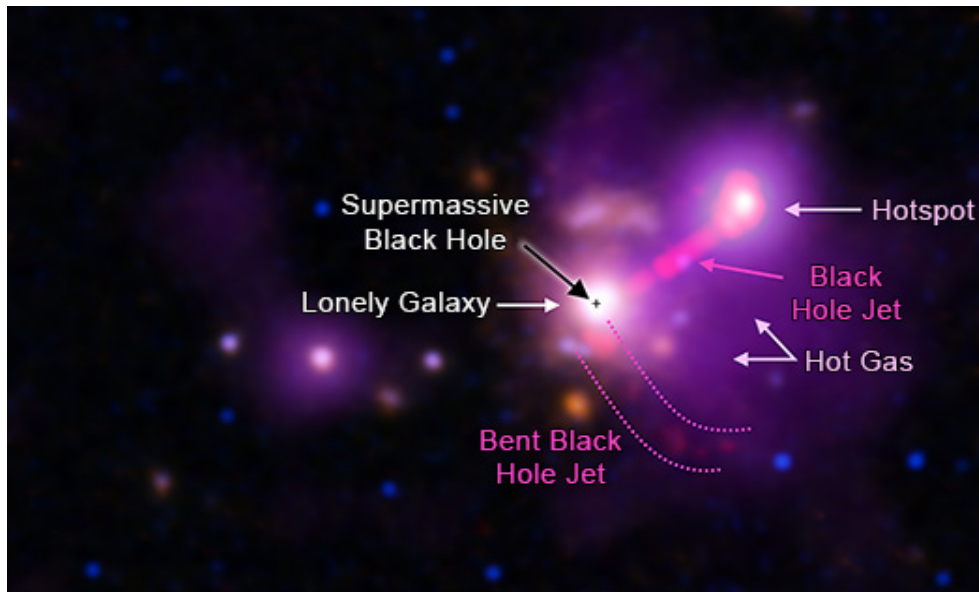




Chandra Science Highlight

Chandra Helps Astronomers Discover a Surprisingly Lonely Galaxy



Caption: In this labeled composite image of a lonely galaxy (3C 297) and its surroundings, Chandra data is colored purple, VLA data is red and Gemini data is green. Visible light and infrared data from the Hubble Space Telescope (blue and orange respectively) have also been included. The position of 3C 297 and its supermassive black hole are identified in the image, along with the black hole's jets, an X-ray hotspot and the hot gas. The field of view of this image is too small to show any of the 19 galaxies that had distance estimates with Gemini. None were found to be at the same distance as 3C 297.

- Astronomers have found evidence for a surprisingly lonely galaxy, named 3C 297, about 9.2 billion light-years from Earth.
- Its surroundings have features of a galaxy cluster, including hot gas detected with Chandra and a jet of particles interacting with surrounding gas.
- However, the lack of nearby galaxies detected with the International Gemini Observatory implies 3C 297 has likely pulled in and absorbed its former companion galaxies.
- This result may push the limits for how quickly galaxies are expected to grow in the early Universe.

Distance estimates: 9.2 billion light-years.

Credits: : X-ray: NASA/CXC/Univ. of Torino/V. Missaglia et al.; Optical: NASA/ESA/STScI & International Gemini Observatory/NOIRLab/NSF/AURA; Infrared: NASA/ESA/STScI; Radio: NRAO/AUI/NSF

Instrument: ACIS

Reference: Missaglia, V. et al., [2023, ApJS, 264, 6.](#)

(The photo album is at:
<https://chandra.harvard.edu/photo/2023/3c297/>)

The CXC is operated for NASA by the Smithsonian
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