



Chandra Science Highlight

On the Hunt for a Missing Giant Black Hole



Caption: This image of the galaxy cluster Abell 2261 contains X-ray data from Chandra (pink), showing hot gas pervading the cluster as well as optical data from Hubble and the Subaru Telescope, and infrared data from the Mayall Telescope at Kitt Peak, that show galaxies in the cluster and in the background. Astronomers used these telescopes to search the galaxy in the center of the image for evidence of a supermassive black hole that is expected to be located there. No sign of this black hole was found.

- Astronomers have searched for signs of a supermassive black hole in the galaxy cluster Abell 2261.
- Nearly all large galaxies contain central black holes, and the galaxy in the middle of Abell 2261 is expected to contain a particularly massive one, weighing between 3 and 100 billion times that of the Sun.
- Scientists think this galaxy underwent a merger with another galaxy in the past, which could have caused a newly-formed larger black hole to be ejected.
- No trace of a growing supermassive black hole was found with Chandra or with other telescopes. It is unknown whether the black hole was ejected from the center of the cluster or if it is growing too slowly to be detected.

Distance Estimate: About 2.7 billion light years.

Credits: X-ray: NASA/CXC/Univ of Michigan/K. Gültekin;
Optical: NASA/STScI and NAOJ/Subaru; Infrared:
NSF/NOAO/KPNO

Instrument: ACIS

Reference: Gültekin, K. et al., 2021, ApJ, 906, 48;
[arXiv:2010.13980](https://arxiv.org/abs/2010.13980)

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