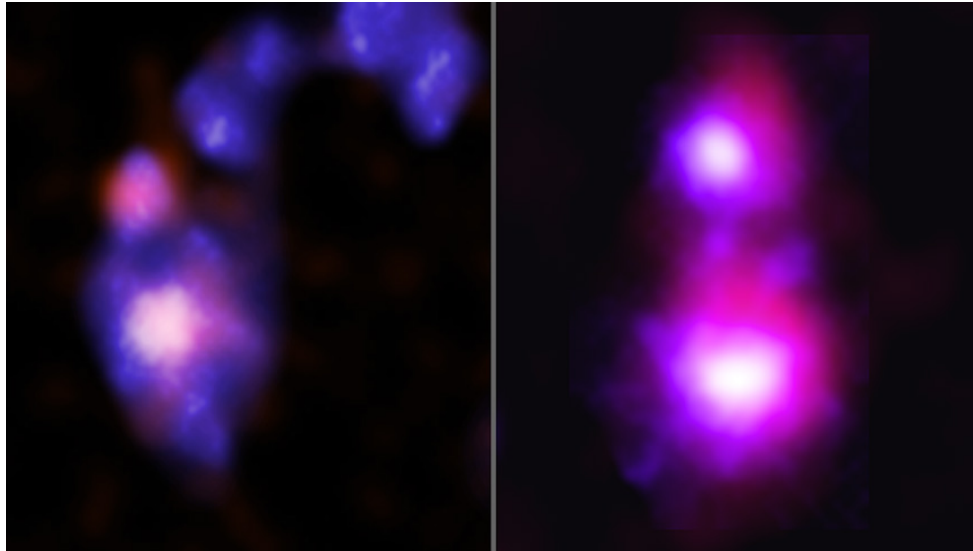




Chandra Science Highlight

NASA's Chandra Discovers Giant Black Holes on Collision Course



Caption: A new study using NASA's Chandra X-ray Observatory has tracked two pairs of supermassive black holes in dwarf galaxies on collision courses. One pair is in the galaxy cluster Abell 133, seen in the composite image on the left. Chandra X-ray data is in pink and optical data from the Canada-France-Hawaii Telescope (CFHT) is in blue. This pair of dwarf galaxies appears to be in the late stages of a merger, and shows a long tail caused by tidal effects from the collision. The other pair was discovered in the galaxy cluster Abell 1758S, shown in the composite image from Chandra (pink) and CFHT (blue) on the right. The researchers think these two have been caught in the early stages of a merger, causing a bridge of stars and gas to connect the two colliding galaxies from their gravitational interaction.

- NASA's Chandra X-ray Observatory has helped identify two pairs of supermassive black holes in dwarf galaxies on track to merge.
- The stellar mass is about 20 times smaller than that of the Milky Way.
- These newly discovered merging dwarf galaxies can be used as analogs for ones in the early Universe that are too faint to observe.
- Collisions and mergers between dwarf galaxies in the early universe led to the formation of much larger galaxies we see today.

Distance estimates: 760 million and 3.2 billion light-years

Credits : X-ray: NASA/CXC/Univ. of Alabama/M. Micic et al.; Optical: International Gemini Observatory/NOIRLab/NSF/AURA

Instrument: ACIS

Reference: Micic, M., et al., 2023, [ApJ, 944, 160](#).

(The photo album is at:
https://chandra.si.edu/photo/2023/bh_pairs/)

The CXC is operated for NASA by the Smithsonian
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