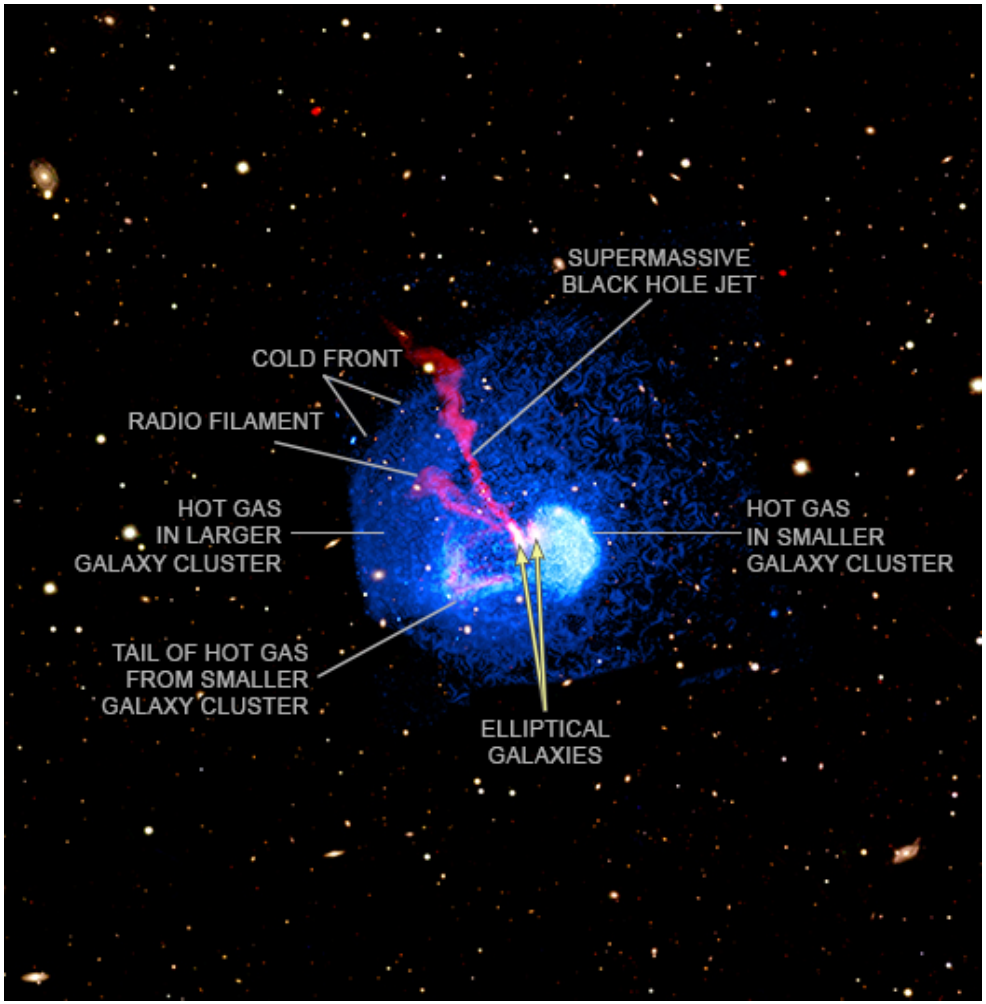
Chandra Science Highlight

Chandra Catches Slingshot During Collision



- Galaxy clusters are the largest structures in the universe held together by gravity, and their collisions are among the most energetic events in the Universe.
- Abell 1775 is a system where a smaller galaxy cluster is colliding with and plowing into a larger galaxy cluster.
- A new study using Chandra and LOFAR data suggests that the tail of hot gas behind the smaller cluster is a “slingshot tail” created by the collision. The jet generated by a supermassive black hole in one of the clusters is also affected by the collision.
- X-ray spectra obtained with upcoming missions may be able to confirm the slingshot tail idea.

Distance estimate: About 960 million light-years.

Credits: X-ray: NASA/CXC/Leiden Univ./A. Botteon et al.;
Radio: LOFAR/ASTRON; Optical/IR:PanSTARRS

Instrument: ACIS

Reference: **Botteon, A., et. al, 2021, A&A, 649, A37;**
arXiv:2103.01989.

Caption: *A new image of the galaxy cluster system Abell 1775 contains X-rays from Chandra (blue), optical data from the Pan-STARRS telescope in Hawaii (blue, yellow, and white), and radio data from the LOw Frequency ARray (LOFAR) in the Netherlands (red). A curved tail from the smaller cluster is seen, along with a region of gas with a curved edge, called a "cold front", that is denser and cooler than the gas it is plowing into. These two features are the result of the galaxy cluster collision.*

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