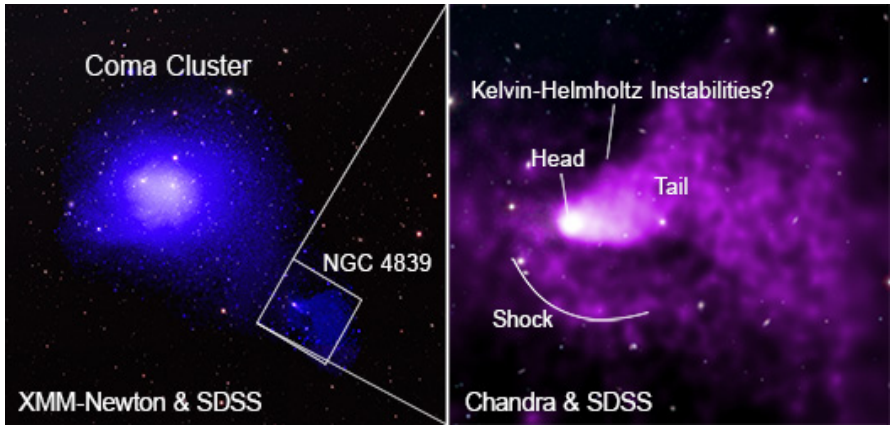
Chandra Science Highlight

Galaxies Go on a Deep Dive and Leave Fiery Tail Behind



Caption: *The image on the left shows an X-ray view of the Coma galaxy cluster taken with the European Space Agency's XMM-Newton (blue), along with optical data from the Sloan Digital Sky Survey (yellow). The galaxy group NGC 4839 is in the lower right of that image. The image on the right is the Chandra image (purple) of the region outlined by the square. The head of NGC 4839's tail is on the left side of the Chandra image and contains the brightest galaxy in the group and the densest gas. The tail trails to the right. (The Chandra image has been rotated so that north is about 30 degrees to the left of vertical.)*

- Astronomers have used NASA's Chandra X-ray Observatory to confirm that the tail of hot gas behind a galaxy group is the longest yet seen – 1.5 million light-years.
- Hot gas is being stripped from the galaxy group NGC 4839 as it plunges into the Coma galaxy cluster, leaving behind the tail that glows in X-rays.
- Astronomers used the Chandra data to study the physics of the tail's gas, including the viscosity of the gas and how well it conducts heat.
- This result is also helping astronomers learn more about how galaxy clusters grow to their enormous sizes.

Distance estimates: About 340 million light-years.

Credits: X-ray: Chandra: NASA/SAO/Univ. of Alabama/M. S. Mirakhor et al.; XMM: ESA/XMM-Newton; Optical: SDSS; Image processing: N. Wolk

Instrument: ACIS

Reference: Mirakhor, M. et al. 2023, MNRAS, 522, 2105; arXiv:2304.05419

(The photo album is at:
https://chandra.harvard.edu/photo/2023/ngc4839/)

The CXC is operated for NASA by the Smithsonian Astrophysical Observatory

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