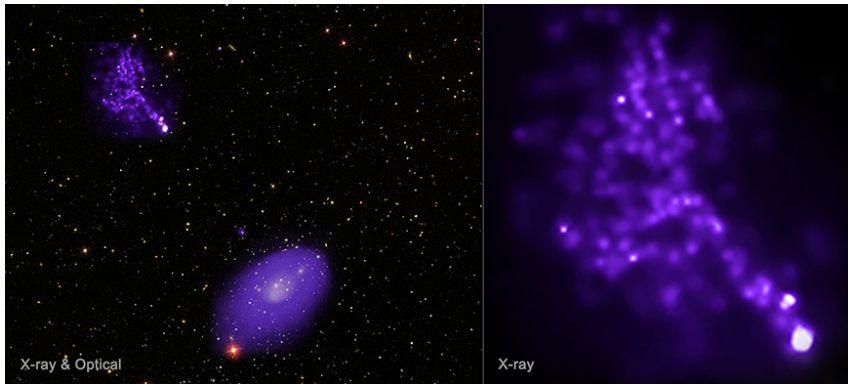
Chandra Science Highlight

Chandra observations of a galaxy group falling into Abell 2142



Left panel: Wide-field view of the galaxy cluster Abell 2142, which contains hundreds of galaxies embedded in multi-million degree gas (purple) detected by Chandra. Only the most dense gas is shown here. Sloan Digital Sky Survey (SDSS) optical data are shown in red, green and blue. The center of the cluster is located in the middle of the purple emission in the lower part of the image. The upper left of the image shows a hot gas cloud associated with a group of a few dozen galaxies falling into the cluster. Right panel: A closer view of the infalling group.

Distance estimate: About 1.2 billion light years (redshift z=0.09)

Scale: Image is about 33.5 arcmin across (about 11,550,000 light years); Inset: about 5.8 arcmin across (about 2,000,000 light years)

- As the group of galaxies falls into the cluster, the ram pressure created by the motion of the group through the hot cluster gas strips gas from the group.
- The stripped gas forms into a relatively narrow tail that extends for some 800,000 light years.
- The shape of the tail suggests that magnetic fields draped around it are helping to contain the gas.
- Beyond about a million light years, the tail flares, possibly because the shielding effect of the magnetic field becomes less effective.

Credits: X-ray: NASA/CXC/Univ. of Geneva, D. Eckert. Optical: SDSS provided by CDS through Aladin.

Instrument: ACIS

Reference: Eckert, D, et al., 2017, A&A, 605, A25. arXiv:1705.05844

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