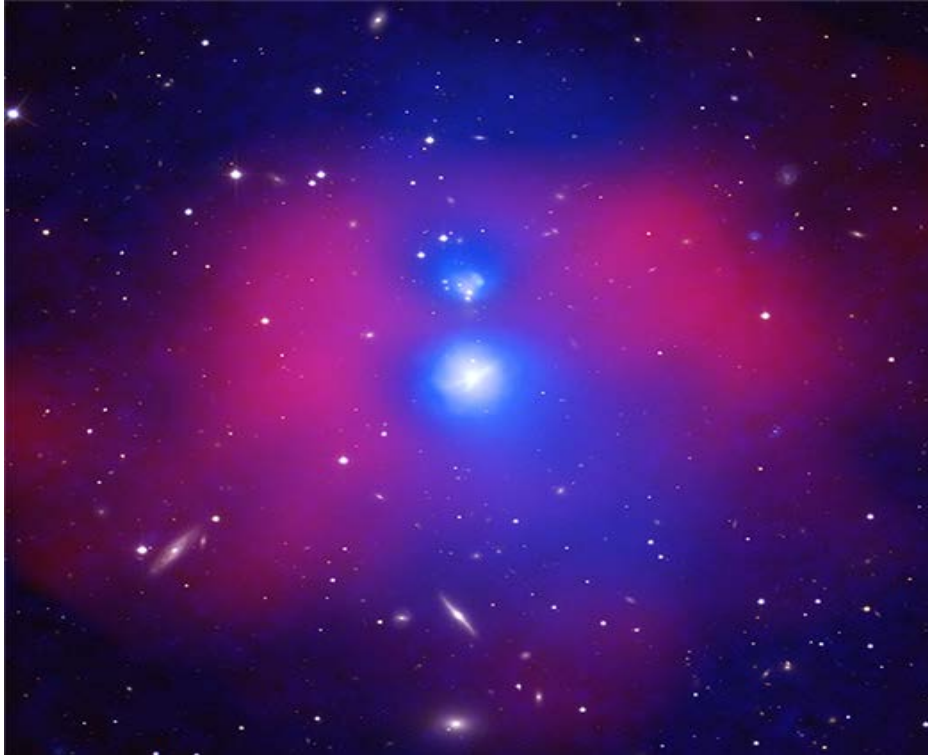




Chandra Science Highlight

Two Merging Galaxy Groups in the NGC 6338 System



Caption: The NGC 6338 complex, which consists of two merging groups of galaxies, is shown in this composite image. X-ray data from Chandra reveal a giant cloud of hot gas with temperature $T \approx 20$ MK (red) enveloping cooler gas with $T \approx 10$ MK detected by Chandra and XMM (blue). An optical image (white) from the Sloan Digital Sky survey shows the dominant galaxies of the centers of these groups.

Distance estimate: 380 million light years ($z=0.027$)

Scale: Image is about 12 arcmin (1.3 million light years) across.

- The 20 MK cloud of gas is likely the result of the collision of two individual clouds of gas surrounding the groups.
- Radiative cooling in the central region has produced the 10 MK gas.
- The total mass contained in the NGC 6338 groups is ≈ 100 trillion solar masses, with $\approx 83\%$ of the mass in the form of dark matter, 16% in hot gas, and 1% in stars.

Credits: X-ray: **NASA/CXC/SAO/E. O'Sullivan**; XMM: **ESA/XMM/E. O'Sullivan**; Optical: **SDSSE**

Instrument: ACIS

Reference: E. O'Sullivan et al, 2019, MNRAS, 488, 2925;
[arXiv:1906.07710](https://arxiv.org/abs/1906.07710)

**CXC Operated for NASA by the Smithsonian
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