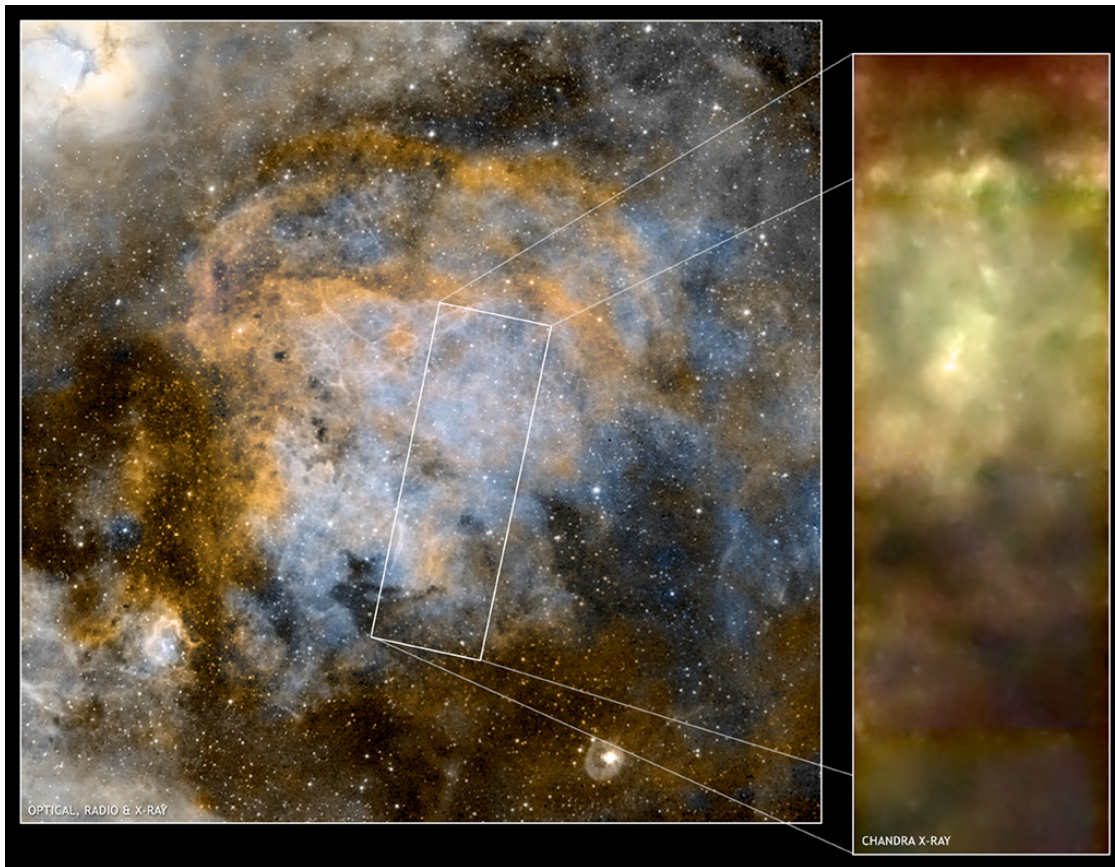




Chandra Science Highlight

W28: A Mixed Morphology Supernova Remnant

Chandra X-ray Observatory ACIS image.



- W28 is an example of a mixed-morphology supernova remnant with an outer shell of radio emission, and a center filled with thermal X-ray emission.
- This morphology is thought to be due to interaction of the supernova shock wave with clouds of dust and gas surrounding the pre-supernova star.
- W28 is unusual among mixed morphology supernova remnants in that a two-temperature hot plasma model with a soft (~ 3 MK) and a relatively high temperature (> 10 MK) is needed to fit the spectrum.
- Compared to the hard X-ray emission, the soft X-ray emission from the center of W28 is associated with smaller scale structure, indicating significant cooling at the site of interaction with adjacent clouds.

Reference: J. Keohane et al. 2008 American Astronomical Society, AAS Meeting #212, #13.02

Credit: Chandra X-ray: NASA/CXC/HSC/J. Keohane et al.; ROSAT X-ray: NASA/ROSAT; Optical: NOAO/CTIO/P.F. Winkler et al.; Radio: NSF/NRAO/VLA/G. Dubner et al.

Scale: Left panel: 54 arcmin across; Chandra inset: 24.7 arcmin across - Estimated distance: 6,000 light years - Instrument: ACIS

Left: Composite Radio (orange), optical (gray and white), and X-ray (blue) wide-field image of W28 using data from the VLA (radio), Cerro Tololo (optical) and ROSAT (x-ray telescopes).

Right: Chandra closeup of the central region of the supernova remnant with low-energy X-rays colored red, medium green, and high blue.

June 2008