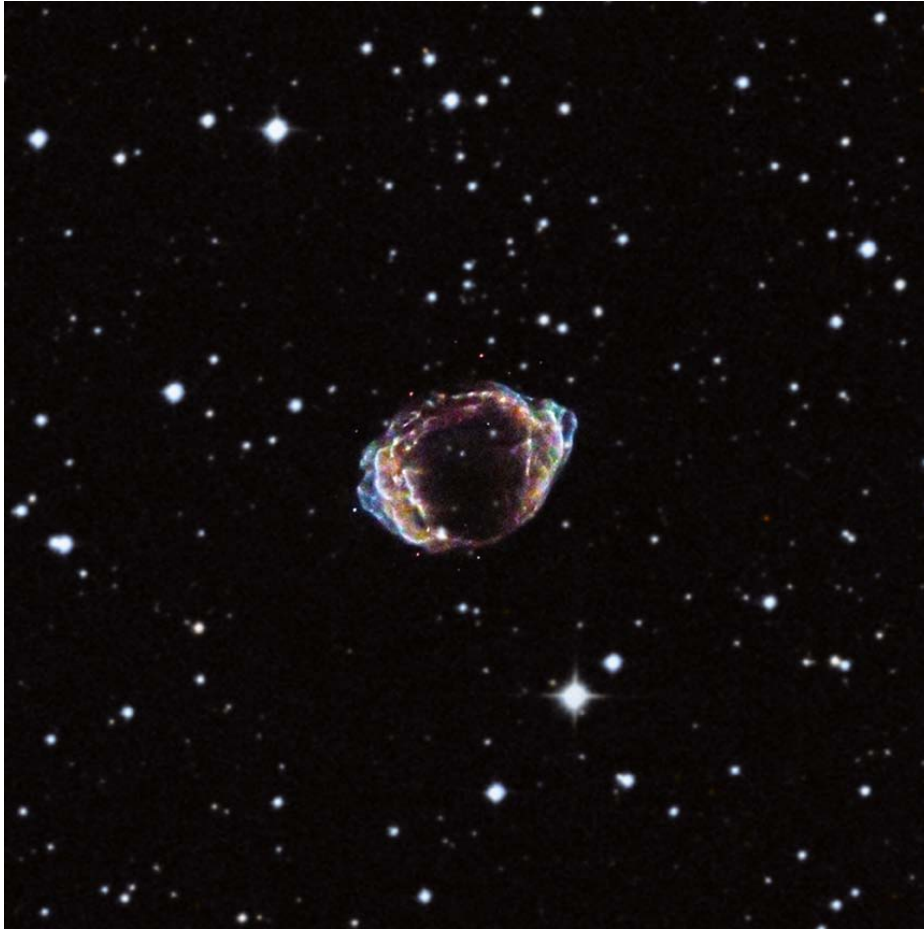




Chandra Science Highlight

G1.9+0.3: The Youngest Known Galactic Supernova Remnant



Composite image of G1.8+0.3, a supernova remnant located near the center of the Galaxy. The image is a composite from Chandra where red, green and blue represent 1-3 keV, 3-4.5 keV, and 4.5-7.5 keV X-rays, respectively. Also shown are optical data from the Digitized Sky Survey, with stars appearing in white.

- ❑ At an age of about 110 years, G1.9+0.3 is the youngest known Galactic supernova remnant, and its ejecta are expanding rapidly, at $\sim 18,000$ km/s.
- ❑ The likely location of G1.9+0.3 is near the Galactic Center at a distance of 28,000 light years, so the light from the supernova would have been obscured by intervening dust and gas.
- ❑ Spatially resolved spectroscopy of Si, S and Fe ejecta show that the distribution of these elements is extremely asymmetric and inhomogeneous, suggesting a strongly asymmetric explosion.
- ❑ One possible explanation for the observed features of G1.9 is the delayed detonation of a white dwarf, where a subsonic nuclear-fusion deflagration plume is followed by a supersonic detonation front.

Reference: K. Borkowski, et al, 2013, ApJ Letters (Submitted); [arXiv:1305.7399](https://arxiv.org/abs/1305.7399)

Credit: X-ray (NASA/CXC/NCSU/K.Borkowski et al.); Optical (DSS)

Scale: Image is 8 arcmin across (About 60 light years) **Distance Estimate:** About 28,000 light years

Instrument: ACIS