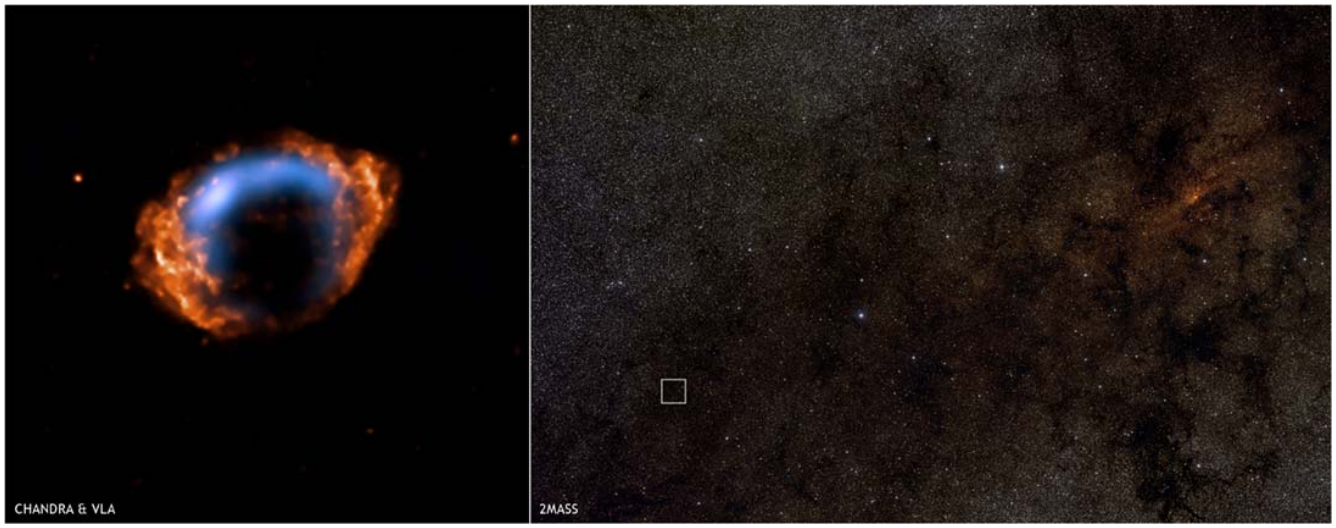
Chandra Science Highlight

G1.9+0.3: The Youngest Galactic Supernova Remnant

Chandra X-ray Observatory ACIS image.



Left: Composite Radio (blue), X-ray (orange) image of G1.9+0.3. The radio image was taken in 1985, and the X-ray image in 2007. The diameter of the X-ray shell is about 20% larger than that of the radio shell.

Right: Near-infrared image of the field containing G1.9+0.3 (position marked by box).

Scale: 5 arcmin across - Estimated distance: 28,000 light years – Instrument: ACIS

- Assuming that the difference in diameters of the radio and X-ray shells is due to expansion – an assumption confirmed by subsequent radio observations – implies an age of about 140 years, making G1.9+0.3 the youngest known supernova remnant in the Galaxy.
- A very high absorbing column density indicates that G1.9+0.3 is in the region of the Galactic Center, implying a diameter of 13 light years and an expansion speed of 15,000 km/s.
- Because of the very high absorption, the visible light from the supernova would have been diminished by a factor of about a trillion, so the supernova that produced G1.9+0.3 would have been undetectably faint.

Credit: X-ray(NASA/CXC/NCSU/S.Reynolds et al.); Radio(NSF/VLA/NCSU/D.Green et al.)(Near IR(2MASS/CfA/E.Bressert)

Reference: Reynolds, S. et al. 2008, Astrophys. J. Letters (Accepted)

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