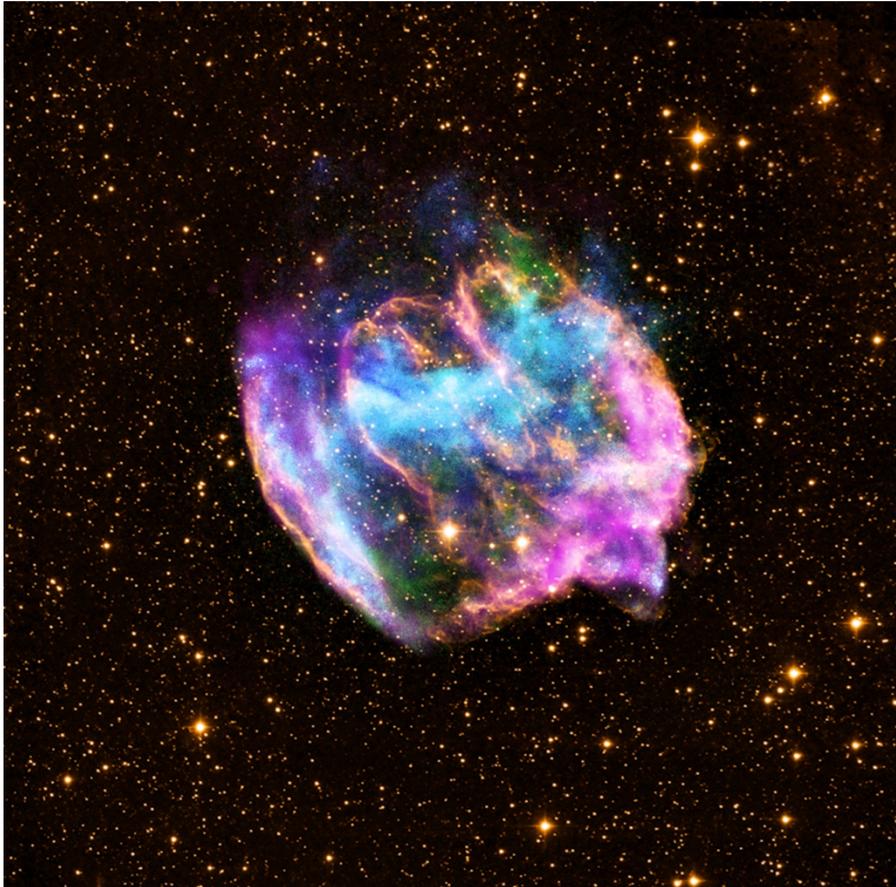




Chandra Science Highlight

W49B: Rare Explosion May Have Created Our Galaxy's Youngest Black Hole



Scale: Image is 8.5 arcmin across (60 light years)

Instruments: ACIS

Distance Estimate: 25,000 light years

Composite image of the W49B supernova remnant. The image combines X-rays from Chandra (blue and green), radio data from NSF's Very Large Array (pink) and infrared data from Caltech's Palomar Observatory (yellow).

- * The remnant appears to be the product of a rare explosion in which matter is ejected at high speeds along the poles of a rotating star.
- * The mean metal abundances are consistent with the predicted yields in models of bipolar/jet driven supernovas produced by the collapse of the core of the pre-supernova star.
- * Strict upper limits on the X-ray luminosity of any undetected point source exclude the presence of a neutron star in W49B, and suggest that the supernova left behind a black hole.
- * The estimated age of W49B is 1,000 years, which would make the remnant black hole the youngest black hole in the Galaxy.

Reference: Lopez, L. et al 2013, ApJ 764,50:
arXiv:1301.0618

Credit: X-ray: NASA/CXC/MIT/L.Lopez et al; Infrared: Palomar; Radio: NSF/NRAO/VLA