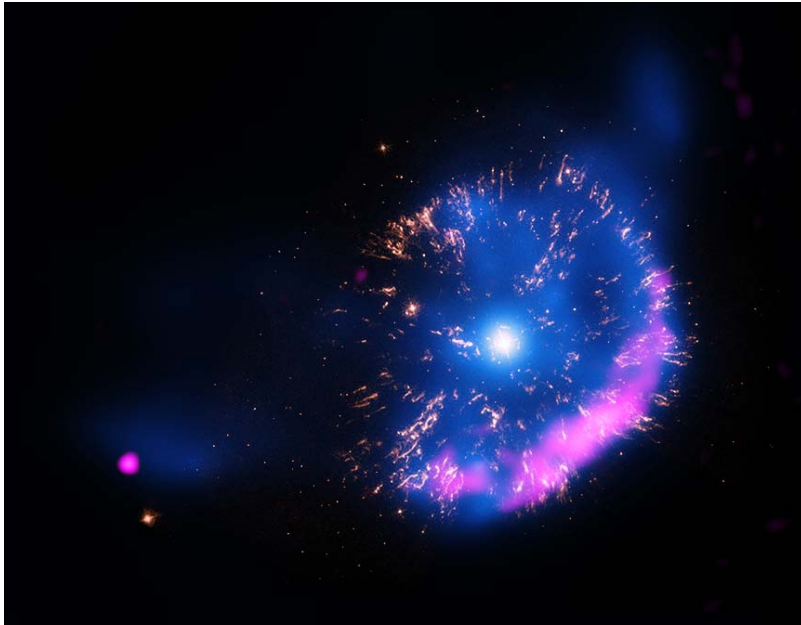




Chandra Science Highlight

GK Persei: X-ray Fading and Expansion of an Old Nova Remnant



Chandra X-ray data (blue) show hot gas and the Very Large Array radio data (pink) show emission from electrons that have been accelerated to high energies by the nova shock wave. The optical data from the Hubble Space Telescope (yellow) reveal clumps of material that were ejected in the explosion. The nature of the point-like source on the lower left is unknown.

- ❑ GK Persei, a "classical nova," is an outburst produced by a thermonuclear explosion on the surface of a white dwarf star. It appeared suddenly as a bright source in 1901 and faded quickly over a period of weeks.
- ❑ The average expansion rate of the X-ray source deduced from Chandra observations over a period of nearly 14 years is 0.14 arcsec/yr., corresponding to 300 km/s.
- ❑ Although the X-ray luminosity has faded by about 40% over the last 14 years, the gas temperature behind the shock wave has remained constant, suggesting that the shock wave is expanding into a region of much lower density than before and has swept up a negligible amount of gas over that period.

Scale:

Image is about 3.5 arcmin across (about 1.5 light years).

Distance Estimate:

1,530 light years

Reference: Takei, D. et al, 2015, ApJ, 801, 92; arXiv:1503.03181

Credit: X-ray: NASA/CXC/RIKEN/D.Takei et al; Optical: NASA/STScI; Radio: NRAO/VLA

Instrument: Chandra ACIS Observation

**CXC Operated for NASA by the
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