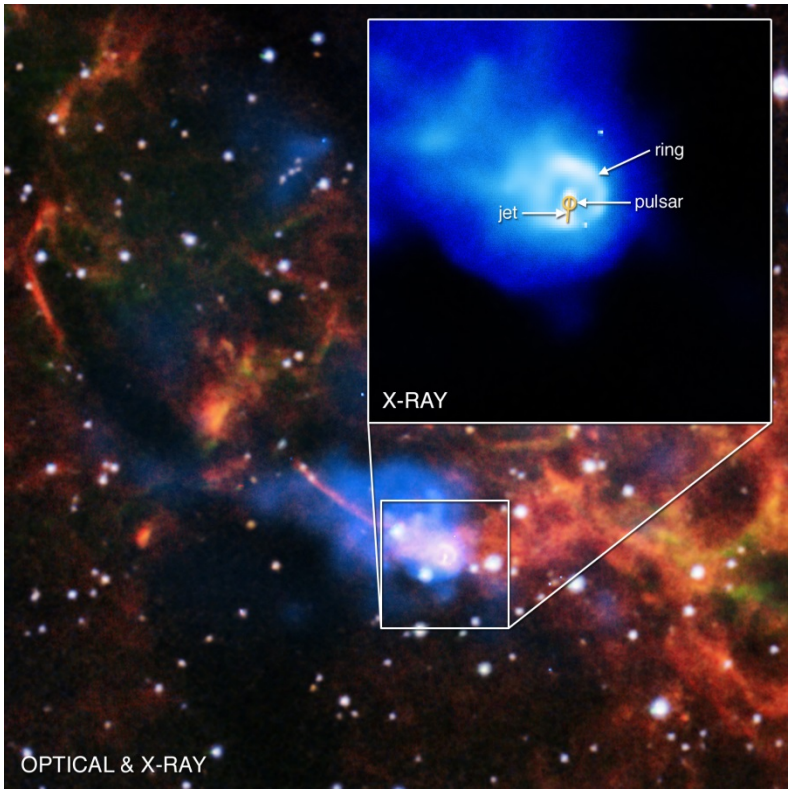
Chandra Science Highlight

Pulsar Wind Nebula in IC 443



The composite image shows optical (red, green, orange and cyan) and X-ray (blue) images from the southern region of the IC 443, the remnant of a supernova that occurred about 30,000 years ago. The inset shows X-ray emission from the region around an object that is likely a pulsar created in the explosion.

- ❑ The X-ray brightness and spectrum of the object located, shown in the box, are consistent with a pulsar.
- ❑ The Chandra image reveals a small ring surrounding the pulsar, which is likely due to a shock wave in the high-speed wind of particles flowing away from the pulsar.
- ❑ The jet-like feature pointing roughly in an up-down direction that passes through the pulsar could be due to particles ejected from the magnetic poles of the pulsar.
- ❑ The comet-like shape of the X-ray nebula suggests motion to the lower right, probably due to an asymmetric explosion.
- ❑ It is unclear if the long, pink wisp of optical emission is related to the pulsar, as similar wisps found elsewhere in IC 443 are unrelated to X-ray features from the pulsar.

Distance Estimate:
5,000 light years

Scale (Wide Field):
7 arcmin (about 10 light years)

Reference: Swartz, D. et al, 2015, ApJ, 808, 84; arXiv:1506.05507

Credit: Wide X-ray wide field and inset: NASA/CXC/MSFC/D.Swartz et al, Optical wide field: DSS, SARA

Instrument: Chandra ACIS Observation

CXC Operated for NASA by the Smithsonian Astrophysical Observatory

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