



Chandra Science Highlight

G327.1-1.1: Supernova Shock Waves, Neutron Stars, and Lobsters



A Chandra image of G327.1-1.1 shows a bright pulsar wind nebula of high energy particles (blue) produced by a rapidly spinning neutron star (white), embedded in a cloud of hot gas created by a supernova shock wave (faint red).

- ❑ The pulsar wind nebula appears to have been flattened by a reverse shock wave generated by the interaction of the outgoing supernova shock wave with the interstellar medium.
- ❑ The swept-back tail behind the pulsar (extending toward the lower left, SE) is likely due to the rapid motion of the pulsar, which is presumably due to a recoil kick produced by an asymmetric supernova explosion.
- ❑ The lobster-claw-like features in front of the pulsar (extending to the upper right, NW) appear to be wrapping around a large bubble, and may be due to the violent collision of the pulsar wind nebula with the reverse shock wave.

Scale:

Image is 17.5 arcmin across
(150 light years).

Distance Estimate:

29,000 light years

Reference: http://cxc.harvard.edu/symposium_2014/posters.html

Credit: X-ray: NASA/CXC/GSFC/T. Temim et al.

Instrument: Chandra ACIS Observation

**CXC Operated for NASA by the
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