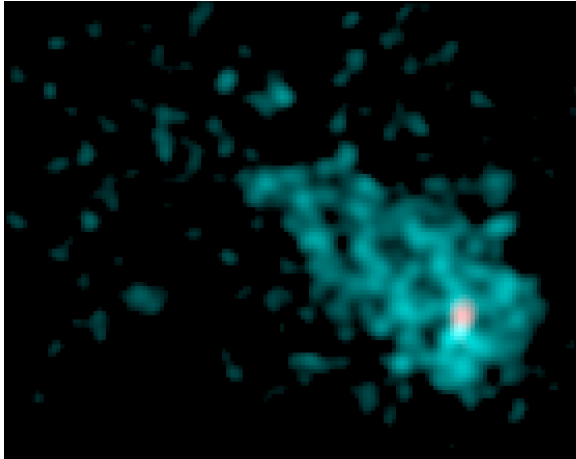




Chandra Science Highlights

IC 443: A Supernova Remnant with a Newly Discovered Neutron Star 5,000 light years from Earth



Scale: Image is 1 x 0.8 arcmin

This Chandra image shows a point-like source of X-rays inside a cloud of high energy particles which is embedded in the supernova remnant IC443. Using this image, along with radio data from the Very Large Array, three high school students found evidence that the point-like source is a rotating neutron star, or pulsar. The comet-shaped appearance of the cloud of high-energy particles indicates that the neutron star is moving through the remnant.

Credit: NASA/NCSSM/C. Olbert et al.

Chandra X-ray Observatory ACIS Image

- High resolution observations revealed the existence of soft (kT ~ 0.24 keV) point source of X-rays -- presumably a neutron star-- embedded in a nebula of cometary morphology within the supernova remnant.
- Interpreting the cometary nebula as due to a pulsar wind with a bow shock due to its motion through the remnant permits an estimate of the velocity of the neutron star, and the age of the remnant.
- The age of the supernova remnant is estimated to be 30,000 years.
- The velocity of the neutron star is estimated to be about 200 km/sec.
- The three high school students won first place in the Siemens-Westinghouse Science and Technology Competition in Washington, DC for their work with the Chandra data.

December 2000