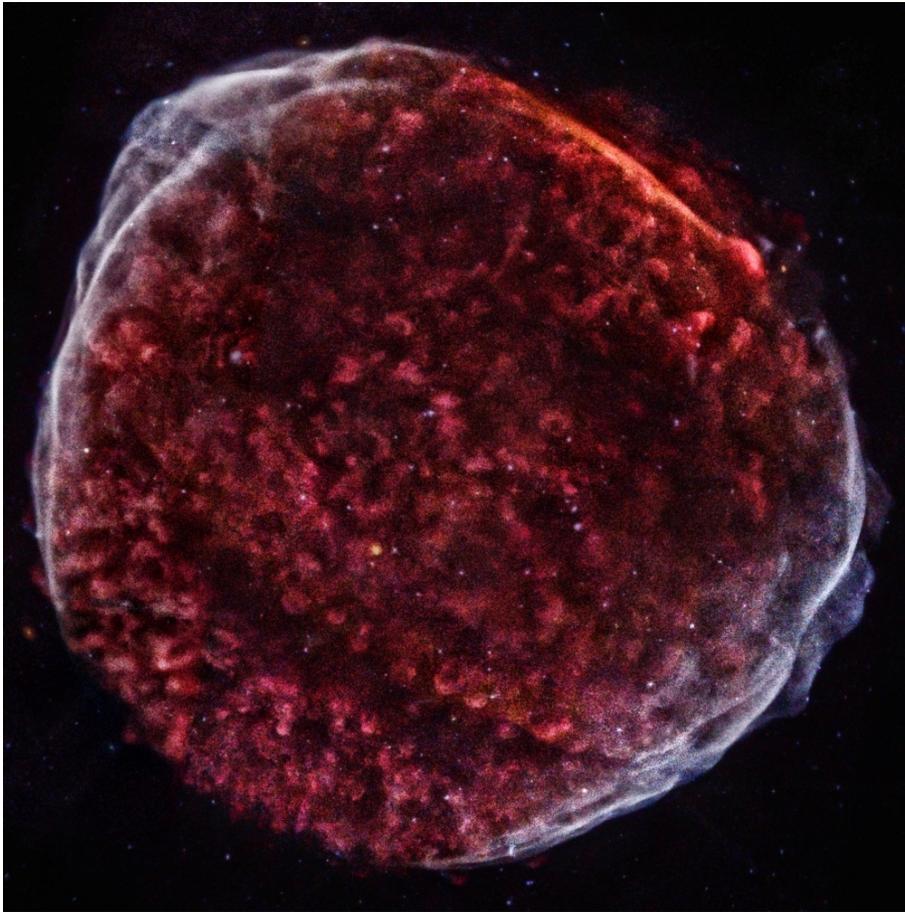




Chandra Science Highlight

SN 1006: X-Ray View of A Thousand-Year-Old Cosmic Tapestry



Scale: Image is 34 arcmin across (about 70 light years) Distance Estimate: 7,000 light years

Instruments: ACIS

Chandra image of SN 1006, the remnant of the supernova observed in 1006 A.D. Red, green, and blue colors represent low, medium, and high-energy X-rays.

- ❑ The bright blue filaments in the upper left and lower right of the image are due to synchrotron radiation from ~ 30 TeV electrons accelerated by the supernova-generated forward shock wave, which is expanding at several thousand km/s.
- ❑ The thinness of the filaments requires strong amplification of the magnetic field by the shock wave, coupled with energy losses by the electrons as they move away from the shock region
- ❑ High pressure behind the forward shock wave pushes back on the supernova ejecta, causing a reverse shock that heats the ejecta to millions of degrees, producing the fluffy red features in the interior of the remnant.

References: S. Ressler et al. 2013, AAS Meeting, #221, 249.16 & P. F. Winkler et al. , AAS Meeting, #221, 249.14

Credit: NASA/CXC/Middlebury College/P. F.Winkler