



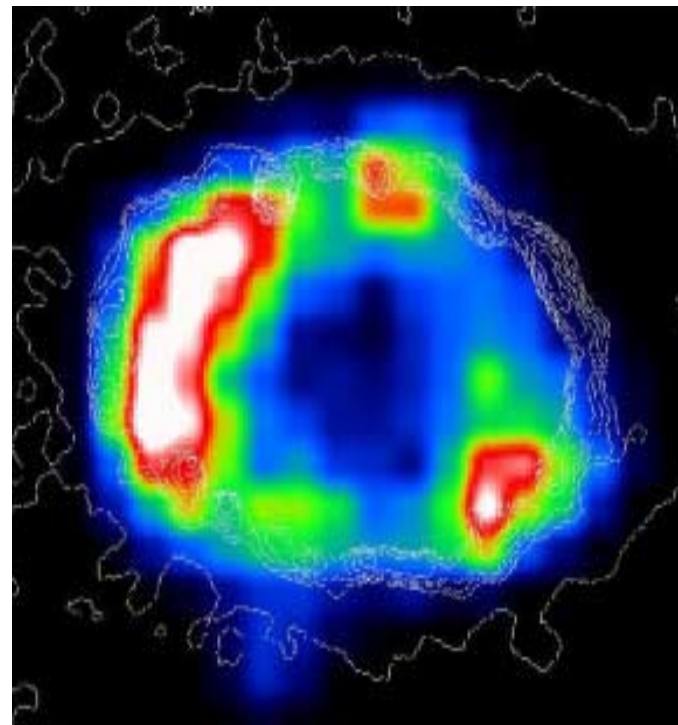
# Chandra Science Highlights

## Chandra Resolves Blast Wave in SN1987A

This Chandra X-ray Image of SN 1987A in the Large Magellanic Cloud was made with a 10.7 ksec ACIS observation on 17 January 2000. It shows the X-rays from the blastwave produced by the supernova. Also shown are the contours from an HST H-alpha image taken on 2 February 2000.

*Scale: The optical ring is 1.2 x 1.6 arc sec, corresponding to 0.3 x 0.5 pc.*

- The observations are the first time that X-rays from a shock wave have been imaged at such an early stage of a supernova explosion. The shell of X-ray emission is clearly resolved at the sub-arcsecond level.
- The X-ray emission peaks just inside the optical inner ring observed by the Hubble Space Telescope, although the brightest X-ray emission does not coincide with the brightest optical spot.
- The spectrum from a 120 ksec High Energy Transmission Grating Spectrometer observation made on 6 October 1999 can be fit with an equilibrium plasma model with a temperature of 8 million K and enhanced abundances of N, O, Si, and S, or a non-equilibrium ionization model with solar abundances and a temperature of 27 million K.
- The X-ray emission is consistent with a model according to which a supernova blast wave traveling at a speed of 4,500 kilometers per second is colliding with portions of the optical ring.



Credit: X-ray: NASA/PSU/D. Burrows et al.;  
Optical: NASA/CfA/P. Challis et al

Ref: D. Burrows et al (submitted to ApJ)

May 2000