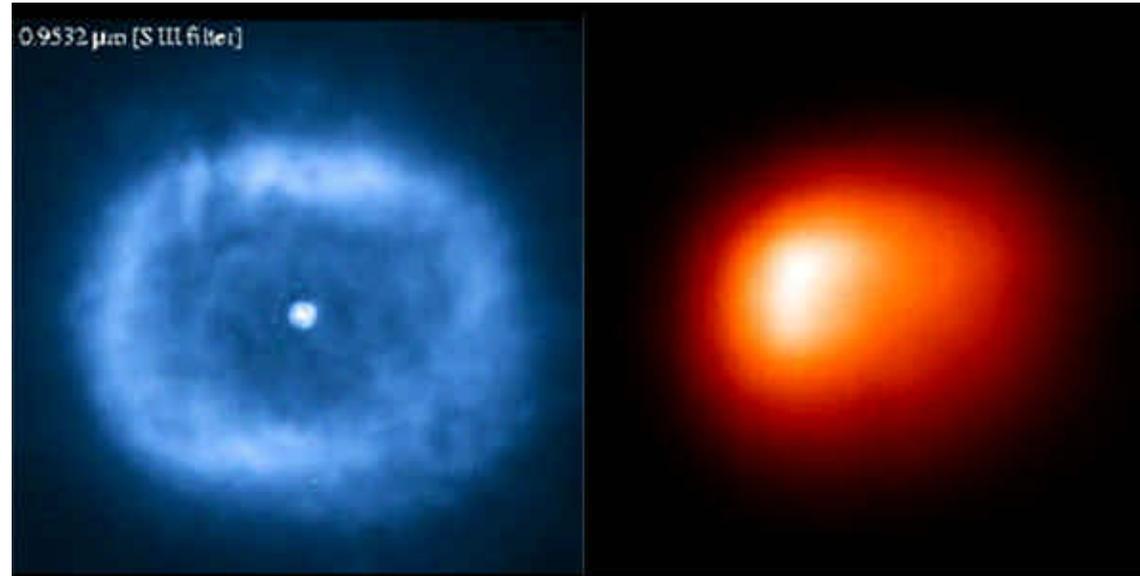




Chandra Science Highlights

BD+30 3639, a Planetary Nebula



Scale: Image is 6.6 arcsec on a side. (1 arcsec=230 billion kilometers at a distance of 5000 light years)

The Chandra ACIS image (right) of the planetary nebula BD+30 3639 was made with a 19 ksec observation on 21 March 2000. It shows a hot bubble of 3 million degree Celsius gas surrounding a dying, sun-like star. The Hubble Space Telescope image (left) shows 30,000 degrees gas heated by ultraviolet radiation from the central star.

Credit: X-ray: NASA/RIT/J. Kastner et al.; Optical: NASA/J. Harrington et al.

Ref: J. Kastner et al. (AAS 196, #43.03)

- This is the first time that the X-ray emission from a planetary nebula has been resolved.
- The X-ray emission fits neatly inside the optical nebula. This is consistent with the production of a hot bubble by the collision of a wind from the central star with the ejected red giant atmosphere. The asymmetric shape is a puzzle, and may indicate that the central star has an unseen companion.
- The hot gas has a luminosity $\sim 2 \times 10^{32}$ erg/s and an abundance of neon that is several times solar.

June 2000