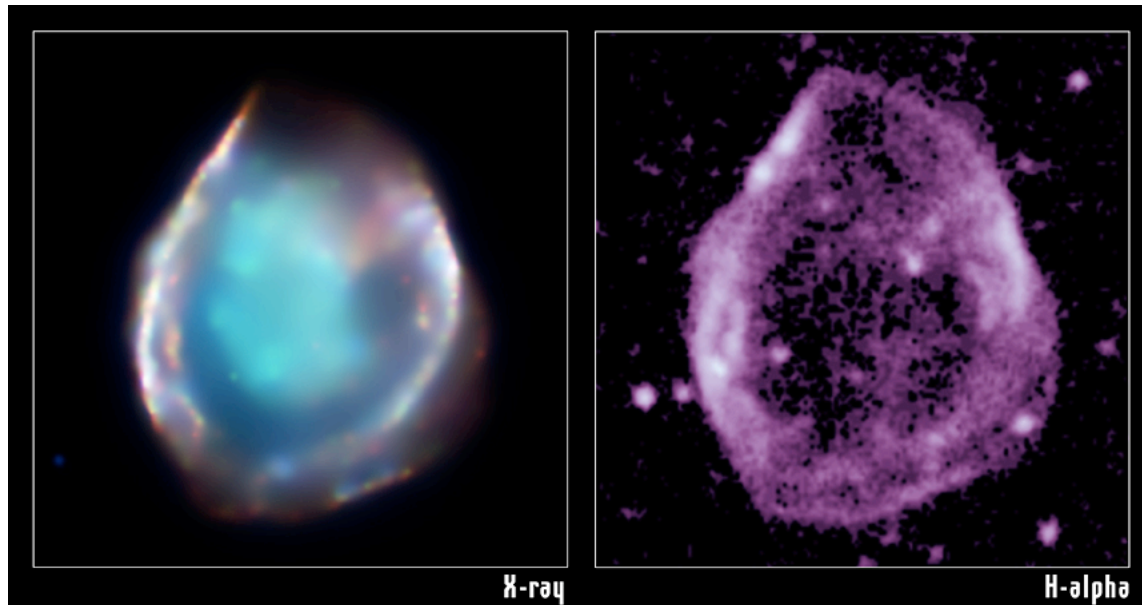




Chandra Science Highlight

DEM L71: A supernova remnant in the Large Magellanic Cloud Galaxy



Chandra's X-ray image (left panel) of the supernova remnant DEM L71 revealed a ten million Kelvin hot inner cloud (aqua) of glowing iron and silicon surrounded by an outer ring of 5 million Kelvin plasma. The outer ring is also visible at optical wavelengths (right panel).

Credit: NASA/CXC/Rutgers/J. Hughes et al.)

Reference: J. Hughes, et al. *Astrophysical Journal*, 582, L95, 2003 Jan 10

Scale: Images are each 1.7 arc minutes on a side

- X-ray image reveals clear double-shock structure consisting of outer blast-wave shock surrounding an inner region of reverse-shock-heated supernova ejecta.
- Abundances of plasma heated by outer shock are consistent with Large Magellanic Cloud (LMC) values.
- Ejecta show enhanced abundances relative to the LMC for silicon and iron, but not oxygen.
- The Luminosity of the ejecta cloud and its size indicate a mass ~ 1.5 solar masses for the ejecta.
- The X-ray properties of DEM L71 support the view that DEM L71 was produced by a Type Ia supernova - a thermonuclear explosion triggered when a white dwarf is driven beyond the Chandrasekhar stability limit by accretion from a companion star.