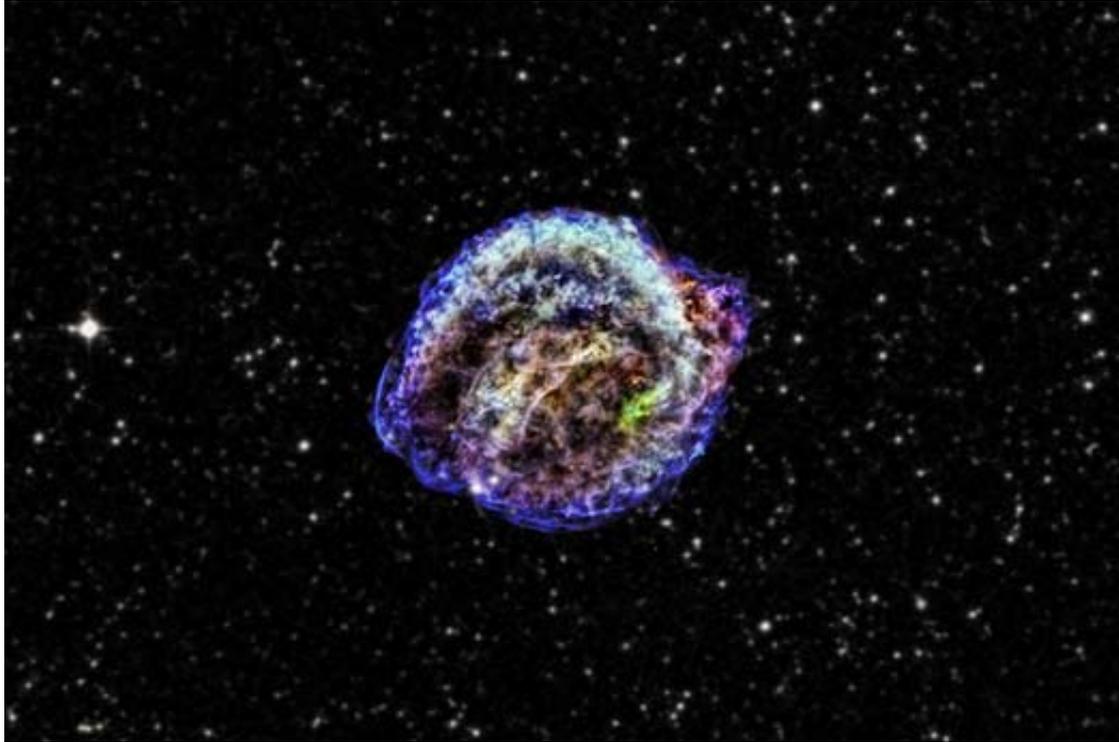




Chandra Science Highlight

Kepler's Supernova Remnant: Famous Supernova Reveals Clues About Crucial Cosmic Distance Markers



Scale: Image is 12 arcmin across (45 light years)
Instruments: ACIS

Distance Estimate: 13,000 light years

Chandra data are colored red, green, and blue to show low, medium, and high-energy X-rays, and the optical image of the field from the Digitized Sky Survey is shown in grayscale.

- * X-ray spectral data from a Chandra observation of Kepler's supernova remnant were used to identify regions of shocked circumstellar material (CSM).
- * The shocked CSM is co-located with infrared dust emission seen with the Spitzer Space Telescope.
- * Hydrodynamic simulations show that a blast wave encountering an equatorial wind from a companion star can produce this morphology.
- * The observed asymmetry supports the theory that the supernova was produced in a binary system in which a white dwarf star became unstable due to accretion from a companion giant star.

Credit: NASA/CXC/NCSU/M.Burkey et al