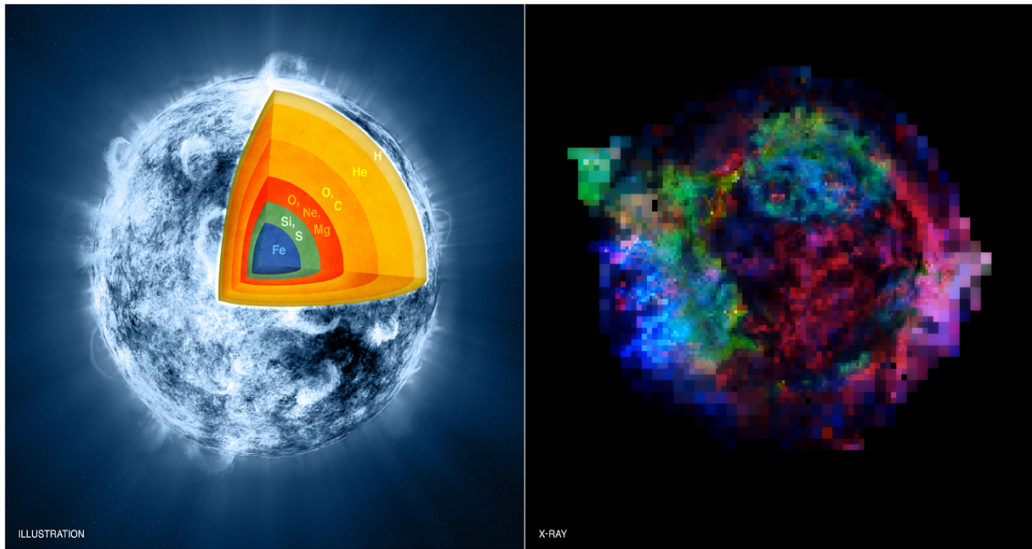




# Chandra Science Highlight

## Cassiopeia A: A Star Explodes and Turns Inside Out

Credit: Illustration: NASA/CXC/M.Weiss;  
X-ray: NASA/CXC/GSFC/U.Hwang &  
J.Laming



Distance estimate 11,000 light years  
Scale: Image is 8.4 arcmin across (about  
27 light years)

The artist's illustration on the left shows a simplified picture of the inner layers of the star that formed Cas A just before it exploded, with the predominant concentrations of different elements represented by different colors. The image from NASA's Chandra X-ray Observatory on the right uses the same color scheme to show the distribution of iron, sulfur and magnesium in the supernova remnant.

- The data show that the distributions of sulfur and silicon are similar, as are the distributions of magnesium and neon.
- The Chandra element map shows clearly that most of the iron, sulfur, silicon, and magnesium, which according to theoretical models of the pre-supernova was originally on the inside of the star, is now located near the outer edges of the remnant
- The distribution of the elements indicates that a strong instability in the explosion process somehow turned the star inside out.

Reference : Hwang, U. et al, 2012, ApJ, 746, 130  
arXiv:1111.7316;

Chandra ACIS Image