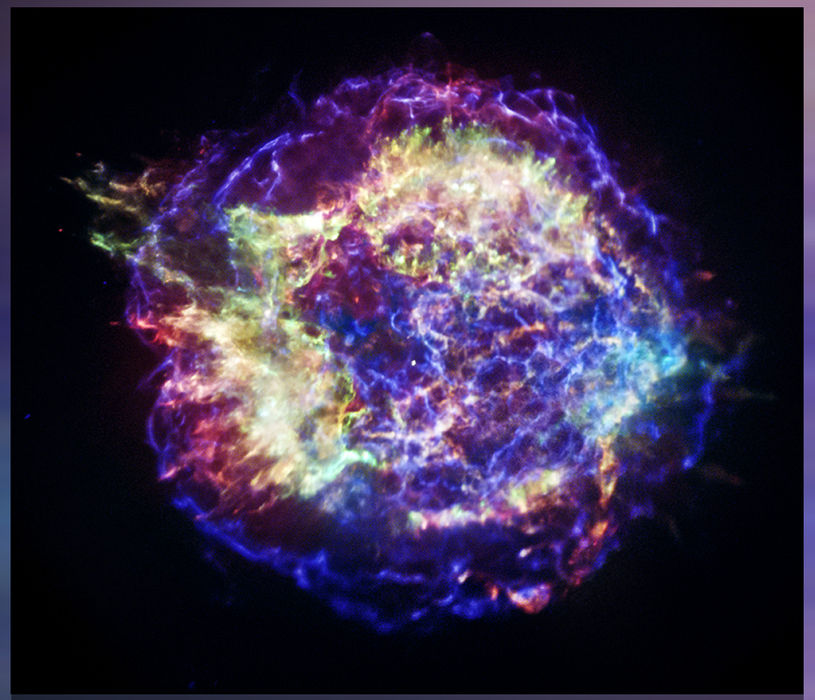
National Aeronautics and Space Administration

SUPERNOVAS

Supernovas are some of the most dramatic events in the cosmos, signaling the collapse and destruction of a star much larger than our Sun. These titanic explosions send shock waves rumbling through space and create giant tapestries of glowing gas that have been superheated to millions of degrees and glow in X-ray light. Chandra has helped determine many key physical properties of these important stellar explosions.



Most of the elements necessary for life—including oxygen, carbon, and iron—are forged inside stars and blasted into space when stars explode as supernovas. Chandra can trace these elements with unprecedented accuracy in many supernova remnants, including Cassiopeia A.

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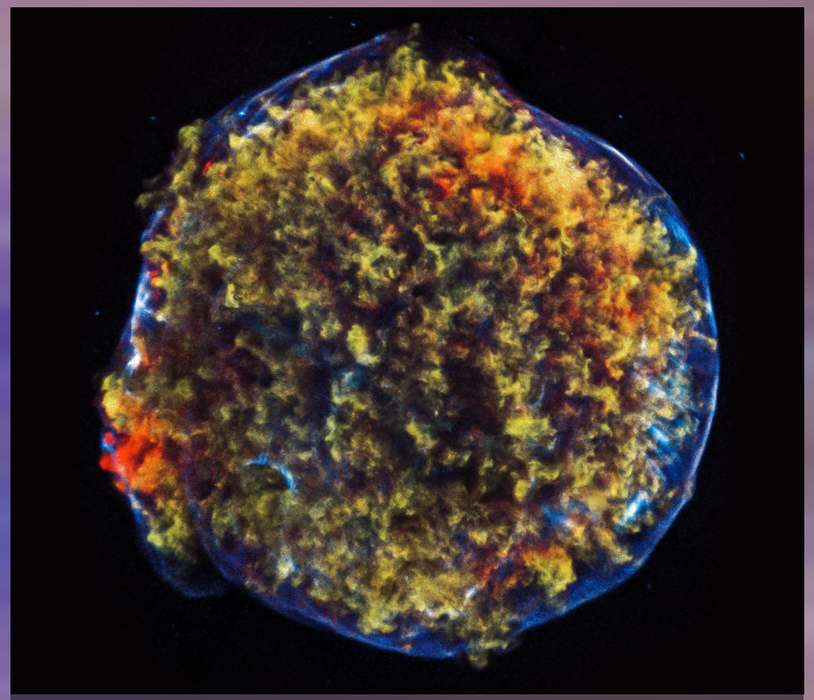

A particular type of supernova has been used to measure the expansion of the Universe, and Chandra has provided critical information about them. One example is Tycho's supernova remnant, which was so bright when first seen in 1572 that it was visible during the day on Earth.

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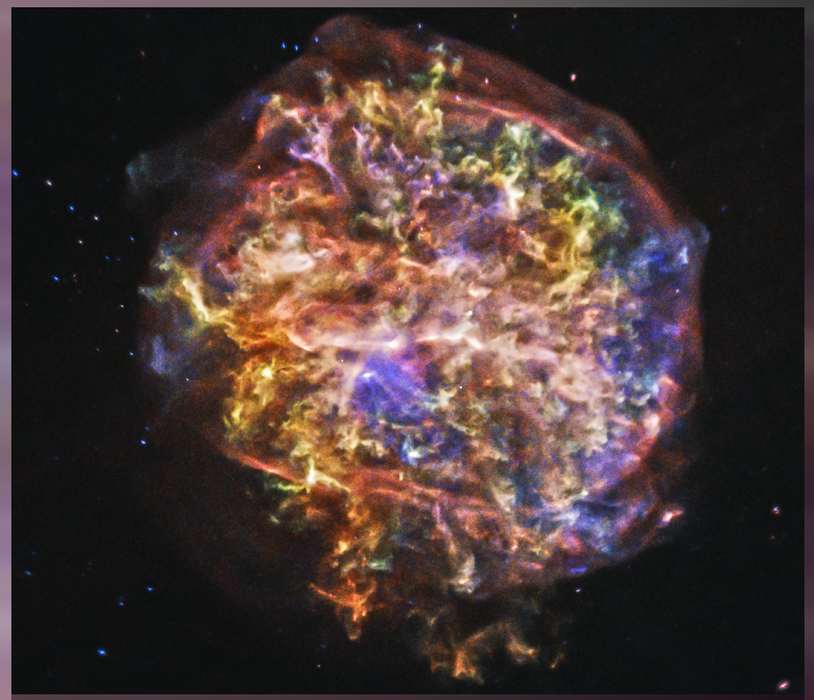

Some supernova remnants contain large amounts of oxygen, and G292.0+1.8 is one of them. Chandra detects a rapidly expanding, intricately structured debris field that has, along with oxygen (yellow and orange), other elements such as magnesium (green), and silicon and sulfur (blue).

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