



8

Artist's view of the 1E1740.7-2942 black hole in a couple with a star

# Stellar corpses

WHEN THEY STOP SHINING, SOME STARS SURVIVE IN SPACE IN THE FORM OF EXOTIC STARS, SOURCES OF POWERFUL GAMMA RAYS

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When a giant star explodes at the end of its life, the star's core collapses on itself in a fraction of a second and reaches an extraordinarily high **density**.

Revolving at very high speeds, the small, dense body can then be seen through **gamma ray** emissions that sweep across the skies at regular intervals, almost like a **galactic lighthouse**.



In some even more extreme cases, the star's core turns into an even more exotic star, called a black hole, which can have a mass that is dozens of times the Sun's mass. The interaction between a **black hole** and its immediate environment may produce intense gamma rays. The matter captured by a black hole forms a disk from which powerful bursts of matter are ejected.

**Zoom**  
The density achieved when the core of a giant star collapses is unimaginable: several hundreds of millions of tons per cubic centimeter. The star is then composed of only neutrons, and the neutron star encloses the equivalent of the Sun's mass within a sphere of just a few kilometers of radius. Some of these stars also have an extreme magnetic field – the most powerful magnets in the universe. When a neutron star is in a couple with another star, it sometimes captures its companion's matter as well. The collapsing matter is then wrapped into a disk shape before falling on to the neutron star at high speeds. The source baptized '1E1740.7-2942' is the most powerful source of gamma rays in the area at the center of the Galaxy, at a distance of more than 25,000 light-years. It is a black hole coupled with another star.



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