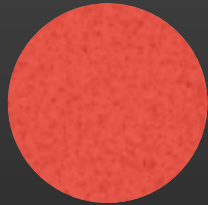


Supernova: Five Stages in the Death of a Star

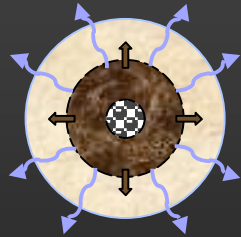
1. Just before explosion

A red super-giant star approaches the end of its life. There is no more fuel to burn and make it shine. Soon its massive dense core is bound to collapse under its own weight.



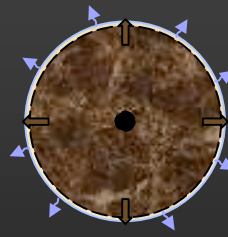
2. The first light flash

The core collapses and sends a shock wave out. For a few hours the shock compresses and heats the envelope, thus producing a very bright flash of light from the inside of the star.



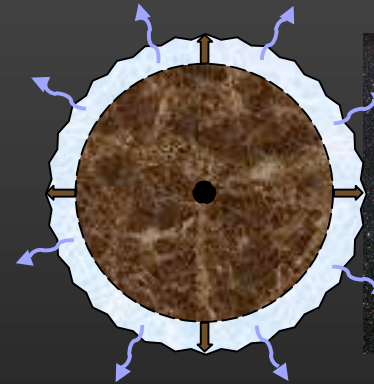
3. The flash has gone

After hitting the surface at 50 million km/h the shock blows the star apart. The core turns into a neutron star, a compact atomic nucleus with the mass of the Sun but 10 km in size.



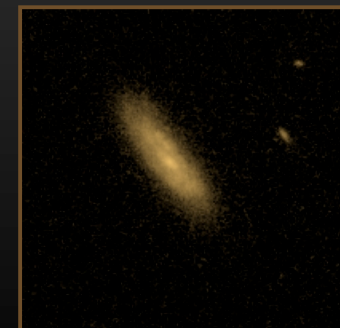
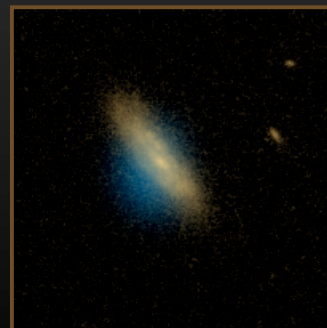
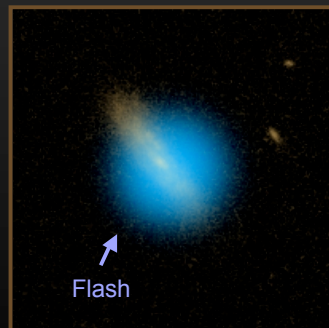
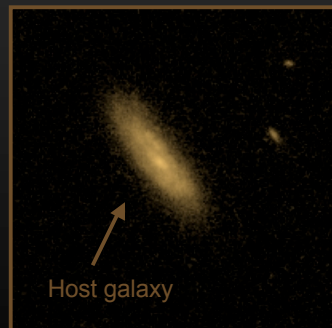
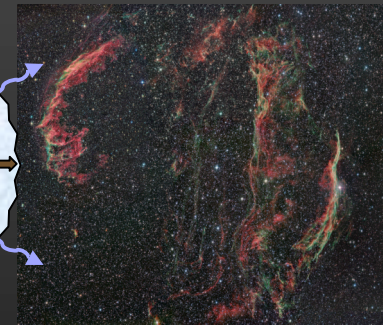
4. The proper Supernova

The hot glowing surface expands quickly making the fireball brighter again. In a few days it will be 10x the size of the original star and will be discovered by supernova hunters.



5. A long time after

The remains of the former star are spread over light years of space. They keep floating quickly, sweeping up interstellar gas here and there, leaving a faint beautiful glow behind...



Sources

- Image of Veil Nebula a.k.a. Cirrus Nebula by Johannes Schedler and taken from www.universetoday.com/am/uploads/veil_lrg.jpg
- Illustrations and text by C. Wolf
- Image composition by K. Schawinski
- Image sources (all data are public archives)
 - Host galaxy NASA/HST, taken by COSMOS team
 - Supernova NASA/GALEX