

# Hubble Telescope extremely rare photo of the moment of the Supernova explosion

When a massive star runs out of fuel and is nearing the end of its life, it explodes in a giant burst of energy called a supernova.

In simple terms, a Supernova (also known as a supernova) is a giant final explosion that marks the destruction of a star, occurring in the final stages of the evolution of massive stars. large, creating a "new" star with an intense light source, before gradually fading within a few weeks to a few months.

A Supernova event can produce a source of light so powerful that it outshines the entire galaxy, causing every other star in its galaxy to 'dim'. But that light source didn't last long - just the blink of an eye in terms of cosmic time. This, combined with the unpredictable nature of supernova events, makes capturing the moment the event takes place extremely rare. However, the Hubble Space Telescope recently showed its importance in the field of astronomy by bringing back to humanity three different moments of a supernova event in a single photo. .

It is very rare that a supernova can be detected at an early stage, as this stage lasts only a moment. It only lasts for a few hours to a few days, and can be easily missed even at a short distance. In the same exposure. However, Hubble did an excellent job at that difficult task. A sequence of images can be seen — like different views of a supernova.



The reason three different points can be seen at the same time is due to a phenomenon called gravitational lensing, in which a massive object lies between us and the object being observed. If the intermediate object is large enough, its gravity will warp space, changing the visibility of the object behind it. That background object can appear brighter when the intermediate object acts as a magnifying glass, and it can also appear at a different point in space when its light is bent. In this case, the light from the supernova is bent along three paths of different lengths, so the light arriving at Hubble shows three different aspects.

Overall, this is a very distant supernova event, meaning it happened a long time ago. Scientists estimate that this event occurred 11 billion years ago, close to the beginning of the universe's formation (13.8 billion years ago). This is one of the earliest supernovae observed in such detail. Thanks to three different timestamps captured in the image, researchers were able to measure the size of the star that created the explosion. This star is estimated to be about 500 times larger than the sun, most likely a rare red super giant.

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