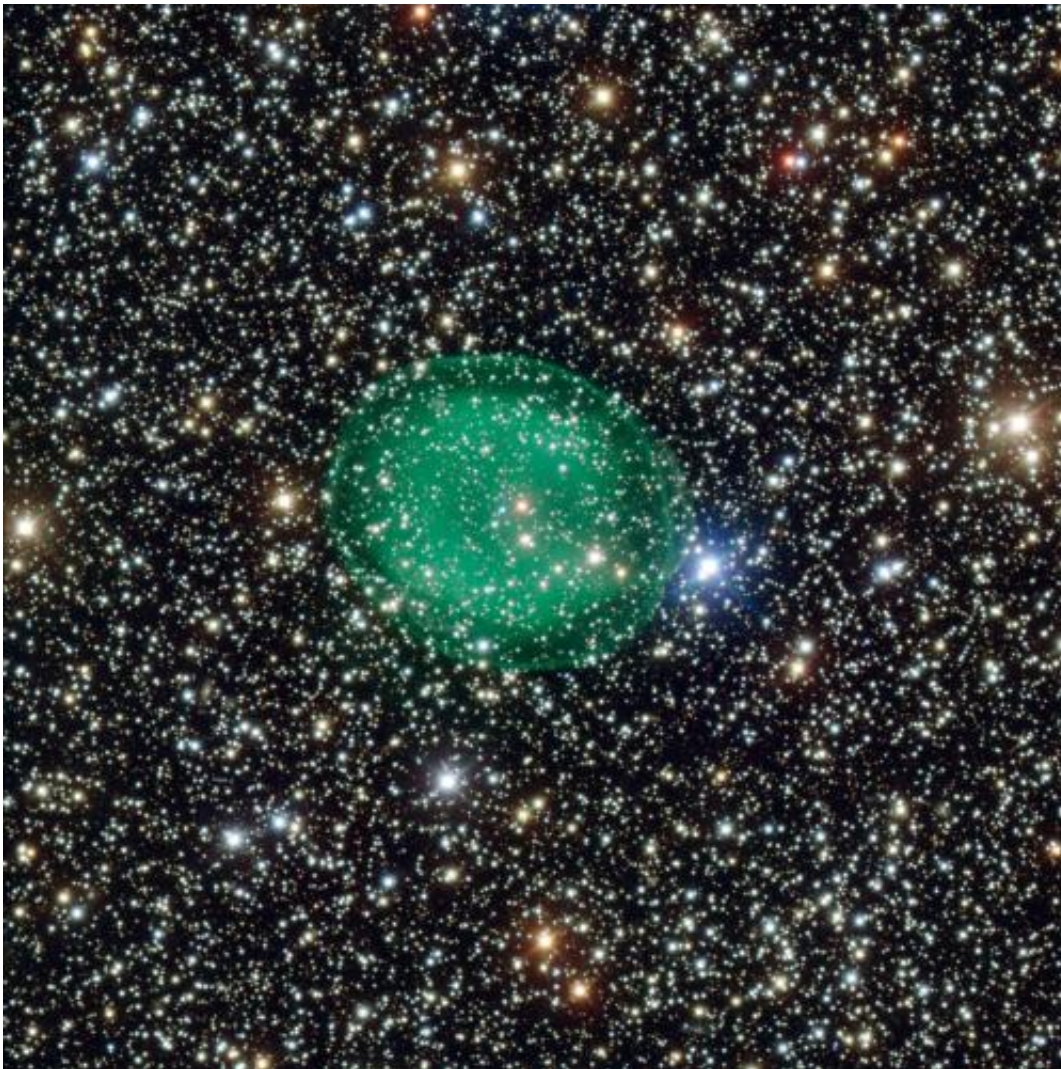


A ghostly green bubble: VLT snaps a planetary nebula

April 10 2013



This intriguing picture from ESO's Very Large Telescope shows the glowing green planetary nebula IC 1295 surrounding a dim and dying star. It is located about 3300 light-years away in the constellation of Scutum (The Shield). This is the most detailed picture of this object ever taken. Credit: ESO

(Phys.org) —This intriguing new picture from ESO's Very Large Telescope shows the glowing green planetary nebula IC 1295 surrounding a dim and dying star located about 3300 light-years away in the constellation of Scutum (The Shield). This is the most detailed picture of this object ever taken.

Stars the size of the Sun end their lives as tiny and faint white dwarf stars. But as they make the final transition into retirement their atmospheres are blown away into space. For a few tens of thousands of years they are surrounded by the spectacular and colourful glowing clouds of ionised gas known as planetary nebulae.

This new image from the [VLT](#) shows the [planetary nebula](#) IC 1295, which lies in the [constellation](#) of Scutum (The Shield). It has the unusual feature of being surrounded by multiple shells that make it resemble a micro-organism seen under a microscope, with many layers corresponding to the membranes of a cell.

These bubbles are made out of gas that used to be the star's atmosphere. This gas has been expelled by unstable fusion reactions in the star's core that generated sudden releases of energy, like huge thermonuclear belches. The gas is bathed in strong [ultraviolet radiation](#) from the aging star, which makes the gas glow. Different [chemical elements](#) glow with different colours and the ghostly green shade that is prominent in IC 1295 comes from ionised oxygen.

At the centre of the image, you can see the burnt-out remnant of the star's core as a bright blue-white spot at the heart of the nebula. The [central star](#) will become a very faint white dwarf and slowly cool down over many billions of years.

Stars with masses like the Sun and up to eight times that of the Sun, will form planetary nebulae as they enter the [final phase](#) of their existence. The Sun is 4.6 billion years old and it will likely live another four billion years.

Despite the name, planetary nebulae have nothing to do with planets. This descriptive term was applied to some early discoveries because of the visual similarity of these unusual objects to the outer planets Uranus and Neptune, when viewed through early telescopes, and it has been catchy enough to survive. These objects were shown to be glowing gas by early spectroscopic observations in the nineteenth century.

This image was captured by ESO's Very Large Telescope, located on Cerro Paranal in the Atacama Desert of northern Chile, using the FORS instrument (FOcal Reducer Spectrograph). Exposures taken through three different filters that passed blue light (coloured blue), visible light (coloured green), and red light (coloured red) have been combined to make this picture.

Provided by ESO

Citation: A ghostly green bubble: VLT snaps a planetary nebula (2013, April 10) retrieved 24 April 2024 from <https://phys.org/news/2013-04-ghostly-green-vlt-snaps-planetary.html>

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