

This star 'tears up' its companion to create a rare beautiful nebula

It is no exaggeration to say that nebulae are among the most beautiful structures found in space. They are essentially giant clouds of dust and gas, shimmering with light from countless nearby stars.

These nebula regions are often busy star-forming sites, as new stars are born from dust clouds that collect extra matter due to gravity. Nebulae themselves come in different varieties, such as emission nebulae, in which gases are ionized by radiation and glow brightly. Or supernova remnants, which are structures left behind after massive stars end their lives and explode.

A new image recently taken by NOIRLab's Gemini South telescope reveals an extremely rare and 'ghostly' beautiful nebula called a dipole reflection nebula.

Featured in the image is the nebula IC 2220, located 1,200 light-years away in the constellation Carina (Keel). This nebula is also known as the Toby Jug because of its similar shape to a traditional English vase. IC 2220's two dipole reflector lobe regions are actually two ring structures originating from the center of the nebula, a red giant star nearing the end of its life. Lower-mass stars like our sun will reach this stage when they begin to run out of fuel and swell to great size, before releasing layers of gas to create planetary nebulae. .



' In about five billion years, when it burns out its hydrogen supply, our sun will also become a red giant and eventually evolve into a planetary nebula,' NOIRLab researchers say know. ' In the very distant future, all that will be left of our solar system will be a brilliant nebula like Toby Jug, with the slowly cooling sun at the centre' .

The red giant star HR3126 is thought to be partly responsible for the unusual dipole shape of the Toby Jug nebula. One theory that has received a lot of consensus among astronomers is that HR3126 once had a companion star, but this star was later pulled out into a dense disk of matter orbiting the giant star. Chopping this companion star may have spurred the formation of this rare dipole structure.

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