

# Stellar Explosion Displays Massive Carbon Footprint

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(PhysOrg.com) -- While humans are still struggling to get rid of unwanted carbon it appears that the heavens are really rather good at it. New research by astrophysicists at the University of Warwick has discovered that a mystery stellar explosion recorded in 2006 may have marked the unusual death of an equally unusually carbon-rich star.

The strange object known as SCP 06F6 was first noted in 2006 by supernovae researchers in the US taking images with the [Hubble Space Telescope](#), seeing it appearing out of nowhere, and fading again into oblivion, over the course of 120 days. The US team published their observations in September 2008, drawing a blank on the nature of SCP 06F6, in particular it was unclear if this event happened in our cosmic backyard, or at the other end of the universe.

Now a team of astrophysicists and astronomers at the University of Warwick in the UK believe they have come up with an answer. According to their research, the observations of SCP 06F6 bear remarkable resemblance to a group of stars containing extremely large proportions of carbon, hence dubbed carbon stars. However, to achieve the close match, SCP 06F6 must be at a distance of around 2 billion light years, causing a considerable redshift in its appearance. Given the large distance, the sudden appearance of SCP 06F6 is most likely related to the sudden death of a carbon-rich star, and the Warwick team believes that this object may be a new type of a totally new class of supernova.

It would be an unusual type of supernovae in several aspects: SCP 06F6

is located in a blank part of the sky, with no known visible host galaxy. If the star did explode as a normal type II supernova why then did it take up to four times as long to brighten and diminish as other such supernova and why did emit up to 100 times more X-rays energy than expected? The X-ray energy might lead one to speculate that the star was ripped apart by a black hole rather than exploding on its own, but the lead researcher of University of Warwick team Boris Gänsicke says that idea is not without its problems as:

"The lack of any obvious host galaxy for SCP 06F6 would imply either a very low black hole mass (if [black holes](#) do exist at the centres of dwarf irregular galaxies) or that the black hole has somehow been ejected from its [host galaxy](#). While neither is impossible this does make the case for disruption by a black hole somewhat contrived"

"Several new telescopes are now being designed and built that will continuously monitor the entire sky for short guest appearances of new stars, and there is no doubt that SCP 06F6 will not remain alone in puzzling astronomers over the coming years. "

More information: The research is published in the June 1 issue of the *Astrophysical Journal Letters* as "SCP06F6: A carbon-rich extragalactic transient at redshift  $z \sim 0.14$ ?" by Dr Boris Gaensicke, Dr Andrew Levan, Professor Thomas Marsh, and Dr Peter Wheatley all from the Department of Physics at the University of Warwick.

Source: University of Warwick ([news](#) : [web](#))

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