

New Scientist gift subscriptions

SAVE OVER
70%

FREE
New Scientist
2010 calendar
[CLICK HERE](#)

NewScientist

Space



search New Scientist

[Home](#) [News](#) [In-Depth Articles](#) [Blogs](#) [Opinion](#) [Video](#) [Galleries](#) [Topic Guides](#) [Last Word](#) [E-Newsletter](#) [Su](#)

[SPACE](#) [TECH](#) [ENVIRONMENT](#) [HEALTH](#) [LIFE](#) [PHYSICS&MATH](#) [SCIENCE IN SOCIETY](#)

[Home](#) | [Space](#) | [News](#)

Astronomers begin search for 'vanishing' stars

20:41 09 May 2008 by [David Shiga](#)

Astronomers have started monitoring about a million massive stars to see if any suddenly vanish, seemingly without a trace. Such a disappearing act would support a theory that some massive stars simply implode when they die, rather than exploding in brilliant supernovae or gamma-ray bursts.

As a massive star ages, it accumulates iron in its core. Eventually, this iron core grows so massive that it is crushed by its own gravity, forming a black hole.

Sometimes the process is accompanied by a supernova, when the star's outer layers explode outwards to produce a brilliant flash of light at visible wavelengths. In rare cases, black hole births are even more spectacular, with the star firing out powerful jets of high-energy radiation as it dies - a phenomenon known as a gamma-ray burst.

But as many as half of black hole births may happen [more stealthily](#), with no explosion to mark the event. A new survey led by Christopher Kochanek of Ohio State University in Columbus, US, may detect these events by watching massive stars suddenly wink out.

'No guarantees'

The survey, which uses the 8.4-metre Large Binocular Telescope (LBT) on Mount Graham, Arizona, US, took its first images in early 2008. It is monitoring about 1 million [red supergiant stars](#) - massive stars in the final stage of their lives - in 30 nearby galaxies.

The team plans to take images of the galaxies twice per year, watching for the sudden disappearance of the red supergiants. By watching 1 million stars, the team hopes to catch about one stellar death per year in their survey, which will last five years.



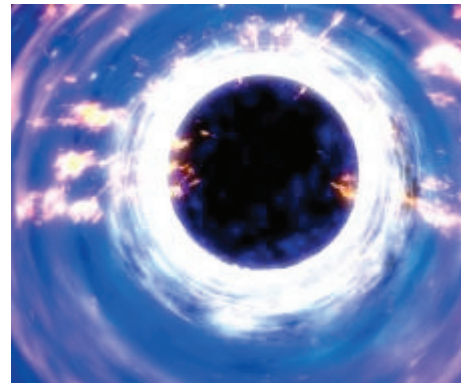
PRINT



SEND



SHARE



Some black holes announce their births with a brilliant flash of light shows, but others may tiptoe into existence without a trace. (Illustration: NASA)

[Enlarge image](#)

More [Latest news](#)

[Large moon of Uranus may explain tilt](#)



18:46 04 December
A massive ancient moon that has since disappeared may be the reason why Uranus now lies on its side.

[Why we shouldn't release all we know about the cosmos](#)

"There's no guarantee that you'll find these things - because it could just be that they all do a supernova at some level," Kochanek told **New Scientist**. "But that's no reason not to give it a try."

Giant outbursts

Stan Woosley of the University of California in Santa Cruz, US, who does theoretical studies of stellar deaths, agrees. "My own view is that it is impossible to make a black hole without some sort of electromagnetic display," he told **New Scientist**.

But perhaps there are cases where the radiation comes out in the form of X-rays or gamma rays, he says, rather than the visible light astronomers normally look for when searching for supernovae. "In any case, it is worth looking."

If a star seems to disappear, the team will try to confirm the formation of a black hole by looking for X-rays emitted by stray bits of matter falling into the black hole, Kochanek says.

In addition to clarifying what proportion of black holes are born without fanfare, the survey may also detect rare, giant outbursts from massive stars that are close to going supernova. Such an outburst in the 1840s temporarily made a star called Eta Carinae the second brightest star in the sky.

Journal reference: *Astrophysical Journal* (in press)

If you would like to **reuse any content** from New Scientist, either in print or online, please **contact the syndication** department first for permission. New Scientist does not own rights to photos, but there are a [variety of licensing options](#) available for use of articles and graphics we own the copyright to.

Have your say

Comment title

Your name

Email

Website

Comment

[cancel](#)

[preview](#)

[submit](#)

[read all 26 comments](#)

Comments 1 | 2



13:28 03 December
The Planck space observatory promises a feast and profound insights into the origin of the universe, but we mustn't be

says **Stuart Clark**

Death of rare giant star sheds cosmic past



18:00 02 December
One of the most massive stars known exploded in 2007, creating an early type of supernova probably common in the

early universe

Transparent universe reveals 1000 galaxies



18:00 02 December
Detection of high energy gamma rays from "blazars" are forcing us to rethink of our ideas about the formation and evolution of

of galaxies

[see all related stories](#)

Most read Most commented

[Extreme oil: Scraping the bottom of Earth's barrel](#)

[Net piracy: The people vs the entertainment industry](#)

[Transparent universe reveals 1000 galaxies](#)

[How our brains build social worlds](#)

[Low-carbon future: We can afford green](#)

TWITTER

[New Scientist is on Twitter](#)



Get the latest from New Scientist: sign up to our Twitter feed