

# Two supernova factories found in the Milky Way (Forwarded)

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NAM 2008  
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From Monday 31st March to Friday 4th April Dr Davies can be contacted  
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## Two supernova factories found in the Milky Way (Forwarded)

### Two supernova factories found in the Milky Way

The discovery of two "supernova factories", rare clusters of Red Supergiant (RSG) stars, located in the Galactic Bar of the Milky Way will be presented at the RAS National Astronomy Meeting in Belfast on Tuesday 1st April.

"RSGs represent the final brief stage in a massive star's lifecycle before it goes supernova. They are very rare objects, so to find this many in the same place is remarkable. Together they contain 40 RSGs, which is nearly 20% of all the known RSGs in the Milky Way. These stars are all at the brink of going supernova," said Dr Ben Davies of the Rochester Institute of Technology.

The two clusters are located next to each other on the edge of the Galactic Bar which is ploughing through the disc of the Milky Way. It is likely to be this interaction between the bar and the disc that triggered the star formation event that created the clusters.

The clusters are about 20 000 light years from Earth and separated from each other by 800 light years. Cluster 1 contains 14 RSGs and is 12 million years old; Cluster 2 contains 26 RSGs and is 17 million years old. Massive stars are rarely observed because they burn their fuel up very quickly. RSGs are doubly rare because they are only a brief period of that short life cycle.

Dr Davies said, "The next supernova could go off in one of these clusters at any time. We estimate that it's about 5000 years between explosions for these clusters and we can see the remnants of a supernova that went off around 5000 years ago. That means that the next one could be any time between today and 7008 AD."

The team identified the clusters initially using the mid-infrared Galactic Plane survey (GLIMPSE), a huge database of images taken by the Spitzer Space Telescope. They found two distinct groupings of bright stars very close to one another in the constellation of Scutum. Using the Keck Telescope in Mauna Kea, Hawaii, they were then able to pin-point the exact distance from Earth of each star in each group. These observations showed that, in each group, large numbers of stars were at exactly the same distance from Earth, and therefore were members of the same cluster.

Dr Davies said, "The discovery of these clusters gives us a great opportunity to answer some long-standing questions in astrophysics, such as exact mechanisms of how massive stars evolve toward supernovae, and how the Galactic Bar can trigger huge starburst events in the Milky Way."

### IMAGES

Images can be found at  
<http://www.cis.rit.edu/~bxdpai/RSGCimages>

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### NOTES FOR EDITORS

#### RAS NATIONAL ASTRONOMY MEETING

The RAS National Astronomy Meeting (NAM 2008) is hosted by Queen's University Belfast. It is principally sponsored by the RAS and the STFC. NAM 2008 is being held together with the UK Solar Physics (UKSP) and Magnetosphere, Ionosphere and Solar–Terrestrial (MIST) spring meetings.

#### RED SUPERGIANTS (RSGs)

Red Supergiants are approximately 14–18 times the mass of the Sun. Their diameters are many hundreds of times the diameter of the Sun and around a million Suns could fit inside one RSG.

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