

Science News

Astronomers Find The Most Distant Star Clusters Hidden Behind A Nearby Cluster

ScienceDaily (Jan. 14, 2007) — Astronomers have discovered the most distant population of star clusters ever seen, hidden behind one of the nearest such clusters to Earth. At a distance of more than a billion light-years, the newly discovered star clusters provide a unique probe of what similar systems in our own galaxy once looked like.

See also:

Health & Medicine

- Infectious Diseases
- Medical Imaging

Reference

- Vitreous humour
- Doppler effect
- Cluster headache
- Personality disorder

"Given their distance, the light that we see today from these clusters was emitted more than one billion years ago and may hold important clues for understanding the evolution of globular clusters," said Jason Kalirai, a postdoctoral fellow at the University of California, Santa Cruz, who will present the findings in a talk at the American Astronomical Society meeting in Seattle.

Kalirai and Harvey Richer of the University of British Columbia led the study, which began as an investigation of a globular star cluster in the Milky Way galaxy known as NGC 6397. The researchers acquired one of the deepest optical images ever taken with the Hubble Space Telescope's Advanced Camera for Surveys, focusing on a small field within NGC 6397. This cluster, home to hundreds of thousands of stars, is 8,500 light-years away, making it one of the closest globular clusters to Earth.

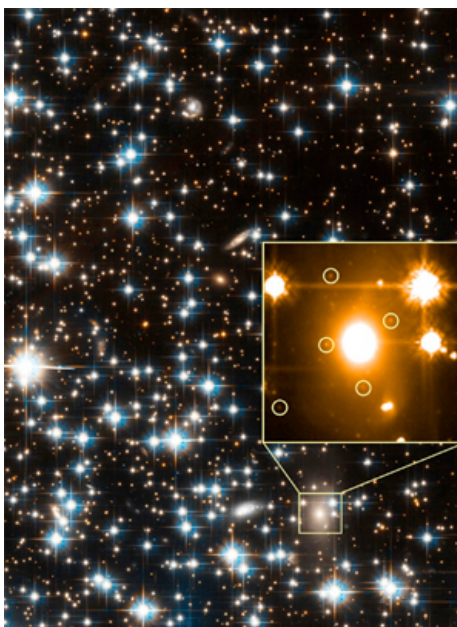
The new data from stars within NGC 6397 have yielded important insights into the age, origin, and evolution of this cluster. Hidden in the background, however, were findings that may hold even greater promise for understanding the evolution of such clusters, Kalirai said. Within the population of stars and galaxies behind NGC 6397, the Hubble image revealed a large elliptical galaxy that contains several hundred globular clusters.

Although each of these clusters probably contains hundreds of thousands of stars, they are so far away from the Earth that each cluster appears as a single faint point of light in the Hubble image. In fact, a single giant star in NGC 6397 appears 10 million times brighter than one of the distant globular clusters. Nevertheless, the faint light from these clusters could yield valuable information, Kalirai said.

Kalirai and Richer followed up the Hubble imaging observations with spectroscopic observations using the Gemini Multi-Object Spectrograph on the Gemini South Telescope on Cerro Pachon in Chile. They were able to determine the distance of the elliptical galaxy hosting the globular clusters by measuring its redshift (a measure of how the expansion of the universe shifts the wavelengths of light from a distant object). This showed that the globular clusters are the most distant ever studied.

"The properties that we infer for these clusters may therefore represent an important clue in understanding what our own Milky Way globulars, such as NGC 6397, looked like in the past," Kalirai said.

Previous studies by other researchers of globular clusters in



This Hubble Space Telescope image shows a small field within the Milky Way globular star cluster NGC 6397; the inset image shows a close-up view of a distant elliptical galaxy in the background, revealing more than 100 globular clusters within a galaxy located more than 1 billion light years from Earth. (Image Credit: NASA, ESA, H. Richer (UBC), J. Kalirai (UCSC))

Ads by Google

Advertise here

World Poker Tour

The Brand New Season Begins. Monday, March 24 at 9PM/8c on GSN.
WPTonGSN.com

South Park Star

Watch Full Episodes For Free Now At The Official Home of South Park!
www.SouthParkStudios.com

Down Home With the Neelys

Devilishly Delicious BBQ Cooking! Get Cooking w/The Neelys- Sat 11am
www.FoodNetwork.com/TheNeelys

Blade Server 8U Plateform

10 clustered blades dual core Xeon Space saving, low-cost & custom-made
www.StoreAnywhere.com

"2008 Diet Of The Year"

Amazing Chinese Weight Loss Secret As Seen On CNN, NBC, CBS & Fox News
www.Wu-YiSource.com

Just In:

[The Lean Gene: Thinness Is An Inheritable Trait](#)

Science Video News



Einstein Rings

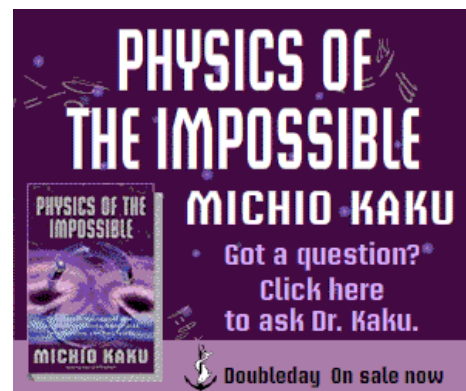
Images from the Hubble telescope reveal eight new Einstein rings, joining only three others previously known. Einstein rings are pairs of galaxies. ... > [full story](#)

[Astrophysicists Discover New Details of How Stars Collapse](#)

[Physicists Spot Interstellar Shock Wave Using Spitzer Telescope](#)

[Astronomers Explain New Double Star In Western Sky](#)

[more science videos](#)



PHYSICS OF THE IMPOSSIBLE
MICHIO KAKU
Got a question? Click here to ask Dr. Kaku.
Doubleday On sale now

Breaking News

... from NewsDaily.com

Mini-black hole is smallest ever but still strong

Study sheds light on Woolly Mammoth demise

Love in the octopus' garden

Japan space agency searches for new astronauts

What's keeping us from Mars? Space rays, say experts

[more science news](#)

In Other News ...

U.S. image improves after years of decline: poll

Colombia: France offers hostage medical mission

REUTERS

nearby galaxies, including the Milky Way, have shown that these systems play a very important role in understanding the formation and evolution of galaxies. With a sample of almost 200 clusters in this one distant galaxy, Kalirai's team will test whether the properties of these globulars are consistent with the idea that elliptical galaxies formed the bulk of their stars at early times. For the first time, the observations may also allow astronomers to test for evolution in the properties of globular clusters themselves, Kalirai said.

In addition to Kalirai and Richer, the team involved in this research includes Jay Anderson of Rice University and Jay Strader and Kieran Forde of UC Santa Cruz. This work was supported by NASA through a Hubble Fellowship grant awarded by the Space Telescope Science Institute to Kalirai. Support for this work was also provided by a grant from NASA/STScI, the Natural Sciences and Engineering Research Council of Canada, and the Canada-U.S. Fulbright Program through the award of a Fulbright Fellowship to Richer.

Adapted from materials provided by University of California - Santa Cruz.

Need to cite this story in your essay, paper, or report? Use one of the following formats:

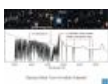
- APA University of California - Santa Cruz (2007, January 14). Astronomers Find The Most Distant Star Clusters Hidden Behind A Nearby Cluster. *ScienceDaily*. Retrieved April 1, 2008, from <http://www.sciencedaily.com/releases/2007/01/070110181358.htm>
- MLA

Related Stories

Chandra Probes Nature Of Dark Matter (Sep. 14, 2001) — Scientists have precisely determined the distribution of dark matter in a distant galaxy cluster with NASA's Chandra X-ray Observatory. These new measurements serve to narrow the field of ... [> read more](#)



The Growing-up Of A Star (Feb. 4, 2008) — Using ESO's Very Large Telescope Interferometer, astronomers have probed the inner parts of the disc of material surrounding a young stellar object, witnessing how it gains its mass before becoming ... [> read more](#)



The Invisible Galaxies That Could Not Hide (Feb. 22, 2006) — Astronomers, using the unique capabilities offered by the high-resolution spectrograph UVES on ESO's Very Large Telescope, have found a metal-rich hydrogen cloud in the distant universe. The result ... [> read more](#)

Mining For Gems In The Fungal Genome (Jan. 24, 2006) — Ever since penicillin, a byproduct of a fungal mold, was discovered in 1929, scientists have scrutinized fungi for other breakthrough drugs. As reported Jan. 20 in the *Journal of Chemistry and ...* [> read more](#)

Looking Into Space Is Good For The Eye (Oct. 3, 2006) — Telescopes have helped the naked eye see into space for hundreds of years. Now imaging technology developed to correct telescopic images of far-flung planetary systems is directly benefiting research ... [> read more](#)

Bush wants NATO to welcome European democracies

Bush vows to press for Ukraine, Georgia in NATO

Some homes worth less than their copper pipes

FAA issues landing gear alert: report
Iraqi casualties at highest level since mid-2007

Necklace is oldest gold artifact in the Americas

[more top news](#)

Copyright Reuters 2008. See [Restrictions](#).

Free Subscriptions ... from *ScienceDaily*

Get the latest science news with our free email newsletters, updated daily and weekly. Or view hourly updated newsfeeds in your RSS reader:

[Email Newsletters](#)

[RSS Newsfeeds](#)

Feedback ... we want to hear from you!

Tell us what you think of the new ScienceDaily -- we welcome both positive and negative comments. Have any problems using the site? Questions?

Your Name:

Your Email:

Comments:

Click button to submit feedback:

Search ScienceDaily

Number of stories in archives: 44,032

Find with keyword(s):

Enter a keyword or phrase to search ScienceDaily's archives for related news topics, the latest news stories, reference articles, science videos, images, and books.

Ads by Google

[Advertise here](#)

Automatic Litter Box

The Automatic Litter Box that Really Works. 5 Star Rating!
litter-robot.com

Place Card Holders

Hearts, Spheres, Stars and Shells
Vases, Crowns, All Themes
AdvantageBridal.com

Change The Game -21 Movie

Feel the rush of high stakes action
Get the 21 Movie soundtrack here!
www.amazon.com/21themovie

[About This Site](#) | [Editorial Staff](#) | [Awards & Reviews](#) | [Contribute News](#) | [Advertise With Us](#) | [Privacy Policy](#) | [Terms of Use](#)
Copyright © 1995-2008 ScienceDaily LLC — All rights reserved — Contact: editor@sciencedaily.com