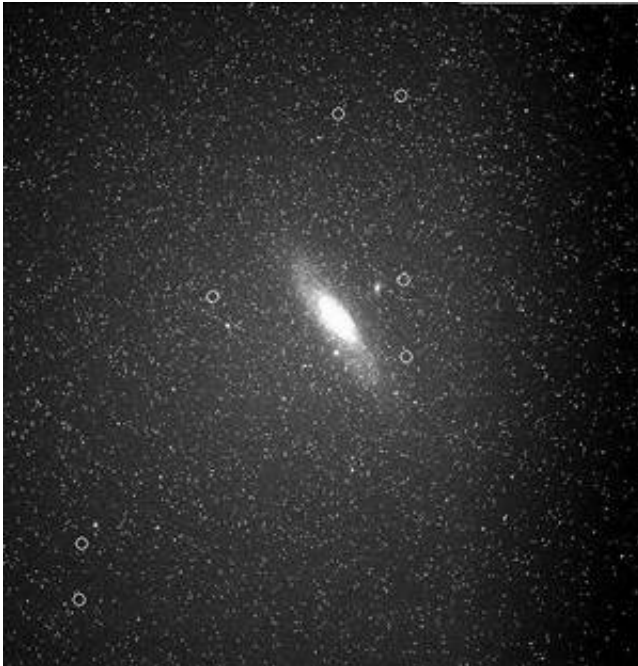


# Astronomers Discover Mysterious New Star Clusters

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A UK-led team of astronomers has discovered a completely new type of star cluster around a neighbouring galaxy.

The new-found clusters contain hundreds of thousands of stars, a similar number to the so-called “globular” star clusters which have long been familiar to astronomers.

What distinguishes them from the globular clusters is that they are much larger – several hundred light years across – and hundreds of times less

dense. The distances between the stars are, therefore, much greater within the newly discovered "extended clusters".

*The above image shows the giant Andromeda spiral galaxy (M31), with circles indicating the locations of the newly discovered star clusters. The most distant cluster is about 200 thousand light years from the centre of M31. (Photo credit: WASP Consortium)*

The discovery was made during the course of an unprecedentedly broad and detailed survey of the Milky Way's nearby sister, the Andromeda Galaxy (often referred to by the catalogue number, M31). The survey has so far covered more than 50 square degrees of sky, compared with only a few degrees covered by all previous CCD surveys.

Part of this study involved a search for globular clusters around M31, during which the new "extended clusters" were found. The new clusters are distributed in a spherical 'halo' region extending about 200,000 light years from the giant M31 spiral galaxy.

"How these objects formed, and why there are no similar clusters in the Milky Way is still a mystery," said Avon Huxor, a PhD student at the University of Hertfordshire who is presenting a poster describing the new results at the RAS National Astronomy Meeting in Birmingham this week.

"What is clear is that these clusters, like the globulars, are ancient. They are billions of years old - possibly amongst the first objects to form in the Universe."

"It may be they were originally created not in M31, but as part of other small, so-called dwarf galaxies, which have subsequently been pulled apart and merged with the giant M31 galaxy," commented team member Mike Irwin (University of Cambridge).

“That would be particularly exciting since they might then be more properly considered as the very smallest galaxies rather than star clusters, and help explain the apparent scarcity of such objects compared to theoretical predictions,” added Nial Tanvir, another University of Hertfordshire astronomer, who led this part of the work.

The data for the survey were acquired with the 2.5 m Isaac Newton Telescope in La Palma, Canary Islands, and the 3.6 m Canada-France-Hawaii Telescope in Hawaii. The observations were made using sensitive electronic CCD cameras; previous surveys of these regions had used photographic technology, which had failed to detect the faint clusters.

The team also included astronomers from France, Canada and Australia. A first paper announcing the discovery has been submitted to the Monthly Notices of the Royal Astronomical Society. Observations of the clusters with the Hubble Space Telescope are scheduled for later this year.

Source: Royal Astronomical Society (RAS)

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