

[GC-37] Are There Any Old Globular Clusters in the Starburst Galaxy M82?

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M82 is a famous starburst galaxy which is dominated by young stellar populations and ISM. Some previous studies indicated the existence of intermediate-age and old stellar population in this galaxy, but little is known about them. We present a study of old globular clusters in M82 using the Hubble Space Telescope archive data. From the cluster survey of M82 we found 650 star clusters. We divided them into disk and halo star clusters according to their position. The color-color diagrams show that all 19 halo star clusters are old globular clusters. The disk sample may include both reddened young clusters and genuine old globular clusters. We estimated their ages using spectral energy distribution fit method with six filter data covering from ultraviolet (F330W) to infrared (F160W), and found that 30 of them are older than 3 Gyr. These are considered to be disk globular clusters. Twelve of the halo globular clusters are found to be partially resolved into their member stars. The (B-V) color range of the halo globular clusters is consistent with that of the Milky Way globular clusters, but most of M82 globular clusters are bluer than (B-V)=0.7. The existence of these old globular clusters suggests that the starburst galaxy M82 has an old stellar halo that may be as old as the Milky Way halo.

[GC-38] A Photometric Study of Star Clusters in Nearby Barred Spiral Galaxies

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We present a photometric study of star clusters in three nearby barred spiral galaxies NGC 1300, NGC 1672 and NGC 6217.

We use the Hubble Heritage CCD images taken with Advanced Camera for Surveys (ACS) of Hubble Space Telescope (HST) in several filters.

We have selected hundreds of star clusters with $V \leq 24$ mag in each galaxy, based on the morphological parameters and visual inspection.

Most of the blue star clusters with $B-V \leq 0.5$ are strongly concentrated in spiral arms.

A significant fraction of these star clusters are distributed in ansae (the joint between spiral arms and bar structure).

Some of the blue star clusters are also found in the nuclear starburst region, especially in NGC 1672.

A small number of star clusters are found in the bar region.

In contrast, the red star clusters with $B-V < 0.5$ are relatively uniformly located over the entire field of galaxy, and show some central concentration around the bulge.

We discuss the physical properties of these star clusters with the expected results from simulations.