

Globular Clusters in the Inner Region of NGC 4472

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Globular cluster systems in giant elliptical galaxies have been studied for long from the data obtained from ground-based observations. However, it is very difficult to study in detail globular cluster systems in the inner region of the galaxies using the ground-based data, because of the central concentration of the clusters and of the highly varying galaxy halo light in the inner region. We present a study of the globular cluster system in the inner region of NGC 4472, the brightest galaxy in Virgo cluster, based on the HST archives. We have analyzed the *VI* images of two central fields, one 3' north field, and one 3' south field of NGC 4472 in the HST archives.

The $V-(V-I)$ color magnitude diagram shows a dominant population of globular clusters in NGC 4472. The $(V-I)$ color histogram of the globular cluster candidates shows a clear bimodality, with a blue peak at $(V-I) \sim 0.98$ mag and a red peak at $(V-I) \sim 1.23$ mag, which is consistent with the result for the outer region of NGC 4472 based on the ground-based observation. (Geisler, Lee & Kim 1996, *AJ*, 111, 1529; Lee, Kim & Geisler 1998, *AJ*, 115, 947). The red globular clusters (RGCs) are more dominant than the blue globular clusters (BGCs) in the central region at $r < 1'$, while the BGCs become more dominant than the RGCs at the outer region at $3' < r < 4'$.

The V luminosity function shows a peak at $V_0 = 23.67 \pm 0.1$ mag, leading to a distance estimate of 16 ± 1 Mpc for the foreground reddening of $E(B-V) = 0.02$ mag. This result is in good agreement with the result for the outer region of NGC 4472, and the result for the inner region of M87 base on HST/WFPC2 images (Kundu et al. 1999, preprint).

The radial surface density distribution of the globular clusters hows a rather flat distribution in the central region. Also the radial profile of surface density of the globular clusters is much shallower than that of the galaxy halo light.