

Wide field CCD photometry of the globular cluster M92

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A wide field CCD photometry was performed to investigate dynamical status of a galactic globular cluster M92 using the data sets from Canada-France-Hawaii Telescope and CFH12K mosaic CCD. An accurate color-magnitude diagram was obtained down to 5 magnitudes fainter than cluster turn-off. After removing the background contribution, we obtained the surface density profiles, luminosity and mass functions of the cluster. The surface density profile shows that the cluster's halo extends out to at least $\sim 30'$ from the cluster center in agreement with previous study (Testa et al. 2000), but the profile of faint stars show different gradient on outside of the cluster with that of bright stars. For a mass function of the form $\Phi(M) \propto M^{-(1+x)}$, we find that the inner region ($r < 9'$) of the cluster has $x \simeq 1.3$, whereas the outer region has $x \simeq 2.1$, which clearly shows the mass segregation of the cluster. From the 2-D surface density map, although the tidal tail of this cluster is too weak to confirm, we can tentatively say that the direction of the tidal tail of M92 is NE to SW.