

[GC-11] **A Photometric Survey of Star Clusters in Spiral Galaxy M33**

Won-Keek Park^{1,2}

¹*Astrophysical Research Center for Structure and Evolution of the Cosmos*

²*Dept. of Physics & Astronomy, Seoul National University*

We present the result of a photometric survey of star clusters in the Triangulum Galaxy, M33(=NGC 598). We have found 1394 star clusters (242 confirmed clusters, 925 Probable Clusters, and 227 HII Clusters which show H_α emission) from the BVI wide-field mosaic CCD images. Most of star clusters are located on the M33 disk, with red star clusters located as far as D~30'' from M33 center. Integrated color-magnitude diagram and color-color diagram show large fraction of star clusters are blue ones with $(B-V)_0 \leq 0.3$ and intermediate ones with $0.3 \leq (B-V)_0 < 0.5$. The luminosity function of blue star clusters shows no turnover down to the survey limit of this study, while those of intermediate and red star clusters both show peaks at $M_V \sim -5.75$. Star cluster survey has been made also on the HST/WFPC2 images of 24 M33 fields. 104 star clusters including 31 new ones are found. Combining the results from previous HST based surveys, we have built the catalog of 242 confirmed star clusters. Ages of 102 star clusters are estimated by fitting isochrones to their observed CMDs. The age distribution shows most of star clusters have ages of $7.0 \leq \log(t) \leq 9.0$. Old star clusters are found to have age spread larger than that of Galactic globular clusters. We discuss about the formation of M33 halo based on our results.

[GC-12] **Subaru/MOIRCS observations of IC 10 : Determination of the Distance based on the JHKs photometry of the Tip of the Red Giant Branch**

Minsun Kim^{1,2}, Eunhyeuk Kim², Narae Hwang², Myung Gyoon Lee²,
Myung Shin Im², Hiroshi Karoji³, Junichi Nakamura³, Makoto Takada³

¹*International Center for Astrophysics, Korea Astronomy and Space Science Institute,*

²*Department of Physics and Astronomy, Seoul National University,*

³*National Astronomical Observatory of Japan*

We present the color-magnitude diagrams and luminosity functions of the nearest starburst galaxy IC 10 based on near infrared JHKs photometry obtained with the Multi-Object InfraRed Camera and Spectrograph (MOIRCS) on the Subaru telescope. We detected ~50,000 stars in a field of view of 4×7 arcmin² around the center of IC 10. We calibrated the relation between metallicity [Fe/H] and the slope of the red giant branch stars in the (J-Ks vs. Ks) color-magnitude diagram using the 2MASS data of the Galactic globular clusters. Using the relation between the absolute magnitude of the tip of the red giant branch of stars and metallicity, we estimate the distance to IC 10.