CFHT 12K Mosaic CCD Photometry of the Perseus Cluster of Galaxies

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We present a BVI photometric study of the Perseus cluster of galaxies, based on deep wide-field images obtained at the CFHT 3.6m telescope using the 12K mosaic CCD camera. The total area of the fields covered in this study is 42'x45', and the limiting magnitude of our photometry is $V \sim 25$ mag. We have selected 1000 galaxies with $V<22$ mag using the stellarity parameter provided by the digital galaxy photometry program SExtractor (Bertin & 1996, AA, 117, 393). We have classified the morphological types of the bright galaxies using the combination of structural parameters and photometric parameters. Color-magnitude diagrams of early type galaxies in the central part of the cluster show a tight color-magnitude relation with a slope of $d(B-V)/dV = -0.05$, as seen often in other clusters. We have also derived the galaxy luminosity function depending on the morphological types. Spatial distribution of galaxies of each type is also investigated.