

BVRI CCD Surface Photometry of the Dwarf Elliptical Galaxies NGC 185 and NGC 205

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NGC 185 and NGC 205 are peculiar dwarf elliptical galaxies in the Local Group. We present BVRI CCD surface photometry for the central ($6'.35 \times 6'.35$) regions of NGC 185 and NGC 205 obtained using the Palomar 1.5m telescope. Surface photometry was derived from the CCD images using elliptical annulus aperture photometry and two ellipse fitting methods.

Structural parameters at $\gamma \geq 30'' (=90 \text{ pc})$ of NGC 185 are measured: the ellipticity ≈ 0.2 and the position angle 50 . Surface brightness profiles of NGC 185 are flat in the central regions and decrease exponentially in the piuter regions. Radial color distributions show that all colors remain nearly constant in the outer region of $\gamma 20'' (=60 \text{ pc})$ and become bluer toward the center.

Structural parameters of NGC 205 at $\gamma \geq 30'' (=120 \text{ pc})$ are measured: the ellipticity $\approx 0.3-0.5$ and the position angle ≈ -15 . Surface brightness profiles get extremely brighter toward the center in the nucleus ($\gamma 4'' = 16 \text{ pc}$), remain a little flat at intermediate radius and decrease exponentially at larger radius. While all colors remain nearly constant in the outer region of $\gamma \geq 18'' (=70 \text{ pc})$, they get bluer in the central regions.

It is the young blue stars in the central regions of each galaxy that are believed to make the colors blue in the central regions of each galaxy. this interpretation is supported by the previous detection of young stars, dark clouds, and neutral hydrogen gases in the central regions of NGC 185 and NGC 205. No color gradient in the outer regions of NGC 185 and NGC 205 indicates that the stars in the outer region of each galaxy formed coevally.

The Effective Temperatures, Radii, and Masses of Dwarf Cepheids

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Using the flux values determined with the infrared flux method(IRFM) developed by Blackwell and Lynas-Gray (1993), we derived the empirical relationship between flux(F_v) and (V-K) colour appropriate to Dwarf Cepheids. For three Dwarf Cepheids of CY Aqr, YZ Boo and SZ Lyn where both VK photometry and radial velocities are available from the literature, effective temperatures were determined using the intrinsic Stromgren indices, model atmosphere grides for (V-K), and tne relation between temperature and (V-K) colour. then, by applying the infrared surface brightness method, radii and distances hence masses and absolutel magnitudes were estimated for three different effective temperatures. It was found that the average mass of these