

U PHOTOMETRY OF GLOBULAR CLUSTERS IN THE CENTRAL REGION OF M 87

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We present a photometric (U band) investigation of the globular clusters in the central region of M87 from deep calibrated photographic and electronographic material, obtained with the CFH telescope. The aim of this work is to complete previous photometric studies at longer wavelengths (Grillmair *et al.*, 1986; Lauer and Kormendy, 1986).

The observational material was chosen from the deepest U photographic and electronographic data obtained during several CFH observing runs by one of us, for the study of the optical counterparts of the radio source Virgo A, notably the M87 jet (Nieto and Lelièvre, 1982; 1985).

In this preliminary report we have analyzed one prime focus 90 min photographic plate (IIaO baked) and two Cassegrain focus, respectively 120 min and 240 min electronographic plates, (obtained with the wide-field electronographic camera of Observatoire de Paris).

The fields investigated, scanned with the PDS of the Padua Observatory, are $6' \times 6'$ for the photographic plate and $3'30'' \times 3'30''$ for the electronographic plates. The reduction was made using the IHAP and MIDAS packages developed by the European Southern Observatory. To remove the galactic background an unsharp mask was constructed and subtracted from the original image.

Only the photographic plate has objects in common with the list of photographic secondary UB_V standards kindly communicated to us by R. Racine (1986). Our measurements show a good agreement with his in the range $19 < m_U < 22$ mag. We suspected that a deviation at $m_U \geq 22$ comes from a biased choice of noise-enhanced objects located near the detection limit of Racine's photographic material. This departure was confirmed by comparing our electronographic photometry with our photographic photometry in the central $3'30'' \times 3'30''$. The zero point of the electronographic data was further adjusted to the photographic magnitudes. We found good internal consistency for our measurements down to the $m_U = 21.8$ photographic limit. We have adopted for each frame a magnitude limit brighter than the detection limit, in order to obtain a complete sample of globular clusters in the first phase of this study.

Figure 1 shows the globular cluster counts in $15''$ annuli. The inner $15''$ were not considered here because the central region deserves special treatment. A core is however visible that confirms Lauer and Kormendy's (1986) result. A preliminary

differential luminosity function of the globular cluster candidates brighter than $m_U = 23$ was derived for each plate. Contributions of faint stars and background galaxies will be taken into account in a later stage of this study.

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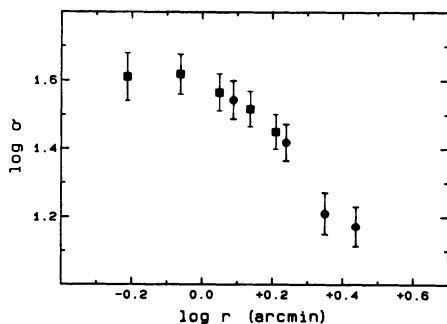


Fig. 1. Surface density of M87 globular clusters (in arcmin^{-2}) versus distance to the center. Squares: 120 min electronographic plate; dots: photographic plate. Error bars are computed as \sqrt{n} .

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