

MULTICOLOR LUMINOSITY FUNCTION OF FIELD GALAXIES

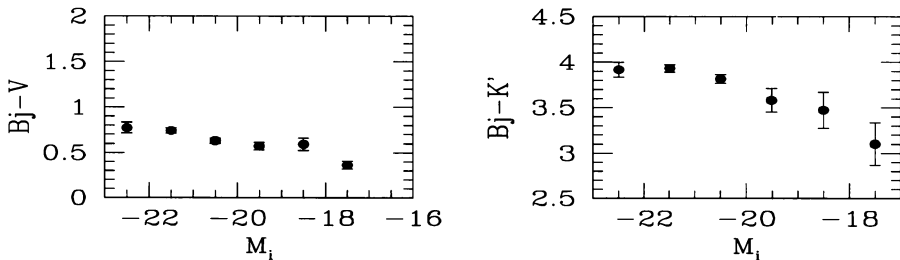
A. BRUNELLO, P. SARACCO, B. GARILLI, D. MACCAGNI
IFCTR-CNR, Via Bassini 15, 20133 Milano, Italy

AND

G. CHINCARINI

Osservatorio Astronomico di Brera, Via Brera 28, 20121 Milano, Italy

The aim of this programme is to determine the luminosity function of field galaxies in different bands for a unique sample. From the ESP [1] redshift survey of 3344 $b_j \leq 19.4$ galaxies, we have extracted a fair subsample and obtained multicolor photometry for 354 (11%) galaxies in the V, R (Johnson) and i (Gunn) filters and for 148 (4%) in the K' band. Errors on the total magnitudes are smaller than 0.1 in all bands. In order to obtain absolute magnitudes, we applied k-corrections [2] after deriving a rough morphological classification based on color information. Here we present a by product of this programme: the determination of the color-luminosity relationship. The figure shows how the rest-frame B_j-K' color is strongly related to the absolute i magnitude while such correlation is not present using optical colors. If we assume M_i is a good mass tracer, the figure indicates that bluer galaxies are the less massive ones.



References

- [1] Vettolani, G. et al. (1997) The ESO Slice Project (ESP) galaxy redshift survey. I. Description and first results, *A&A*, Vol. 325, pp. 954–960
- [2] Frei, Z., Gunn, J.E. (1994) Generating colors and k corrections from existing catalog data, *AJ*, Vol. 108. II, pp. 1476–1485