

## Morphology and Luminosity Distribution of Seyfert Galaxies

M.G. Pastoriza - Royal Greenwich Observatory, Herstmonceux, U.K.

and Instituto de Física, UFRGS, Porto Alegre, Brazil.

E. Mediavilla - Instituto de Astrofísica de Canarias, Tenerife, Spain.

E. Battaner - Universidad de Granada, Granada, Spain.

V and I CCD images for 13 Seyfert galaxies have been obtained at the Cassegrain focus of the JKT at the Roque de los Muchachos Observatory, Canary Islands. Integrated V and I magnitudes were obtained sampling the intensity of each galaxy in a circular area, up to a radial distance  $R$  at which the V surface brightness is 24 mag/sq arcsec. Mean luminosities  $M_V = -21.89$  and  $M_I = -22.92$  have been calculated adopting the galaxian radial velocities given by Adams (1977) and  $H_0 = 55 \text{ km s}^{-1} \text{ Mpc}^{-1}$ . By using elliptically averaged V and I luminosity profiles and the most outstanding morphological features from isophote maps we can distinguish two groups: 1) Galaxies with prominent bulge (Mk 50, Mk 124, Mk 348 and 3C227) where almost the entire profile is fitted by an  $r^{-1/4}$  law and no evidence for an exponential disk is found; some have a very diffuse external structure, like Mk 50 and Mk 348; and 2) Spiral galaxies (Mk 9, Mk 10, Mk 79, Mk 110, Mk 352, Mk 358 and Mk 618) showing spiral arms and exponential disks; most of them have also a prominent bar. Mk 42, whose luminosity profiles are strongly disturbed by a bright external ring, and NGC 985 a galaxy with a single arm, were both included in this group.

Fig. 1 shows the V isophote maps and V luminosity profiles of the bulge galaxy Mk 348 and the spiral Mk 10. The parameters found for the bulge galaxies spheroids are similar to those observed in ellipticals and red compact galaxies, as shown in Fig. 2. B effective surface brightness and effective radius for the comparison sample were taken from Kormendy (1977b) and the B values transformed to V colours by means of the B-V colour index (Kormendy 1977a). V-I colour indices at 3, 5, 10 and 15 kpc were calculated from the averaged luminosity profiles V and I. Mean  $V - I = 1.0 \pm 0.2$  at 3 kpc found for both bulge and spiral galaxies suggests that the stellar population is roughly the same up to that radius for both types. The V-I colour index for the spirals decreases slowly to bluer colours ( $\sim 0.6$ ) outside 5 kpc; becoming redder instead for the bulge galaxies (Fig. 3). Mk 10 and Mk 348 are known to have a companion (Dahari 1984); and using Dahari's criterium we also find a companion for Mk 124 and Mk 618. Tidal effects however are not observed in the averaged luminosity profiles or in the ellipses fitted to the isophotes in the bulge galaxies Mk 348 and Mk 124; while perturbations can be seen at the outer profiles for Mk 10 (Fig. 1) and Mk 618.

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Kormendy, J., 1977a. *Astrophys. J.*, **214**, 359

Kormendy, J., 1977b. *Astrophys. J.*, **218**, 333

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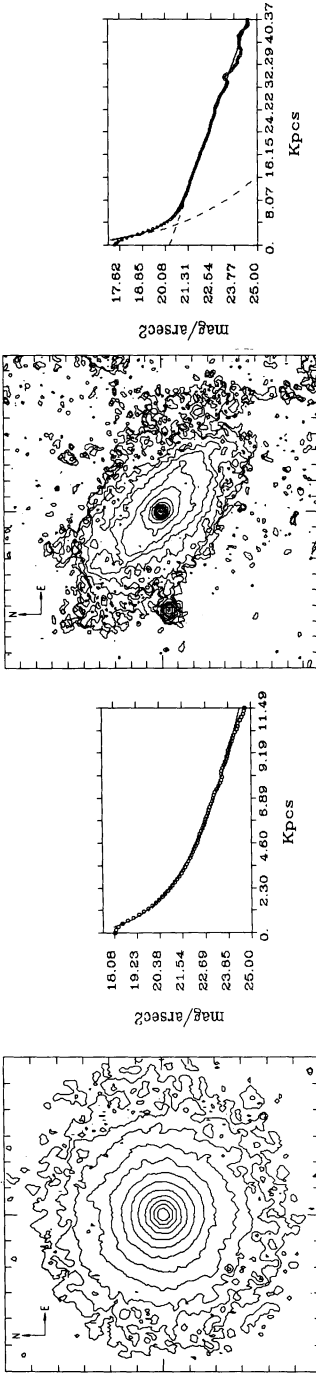


Figure 1: Isophotes and elliptically averaged luminosity profiles of Mkn348 (left) and Mkn10 (right). Contours are spaced 0.5 mag arcsec<sup>-2</sup> starting at 24 mag arcsec<sup>-2</sup>. Bulge, disk and total profile for Mkn10 and the bulge fit for Mkn348 are shown.

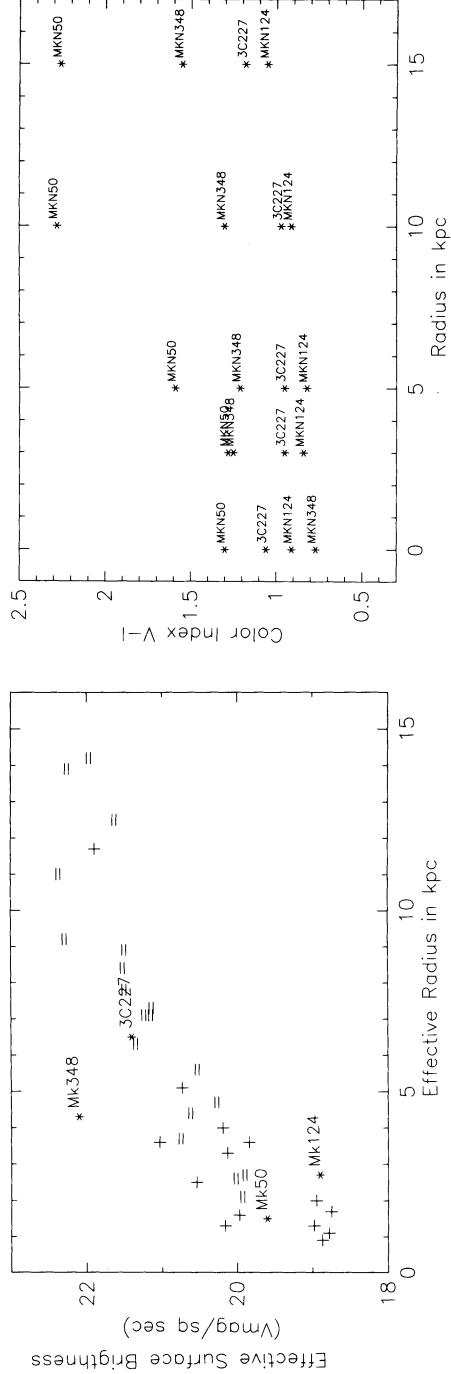


Figure 2: Effective surface brightness versus effective radius of the Seyfert galaxies with dominant bulge, normal elliptical galaxies and red compact galaxies are shown.

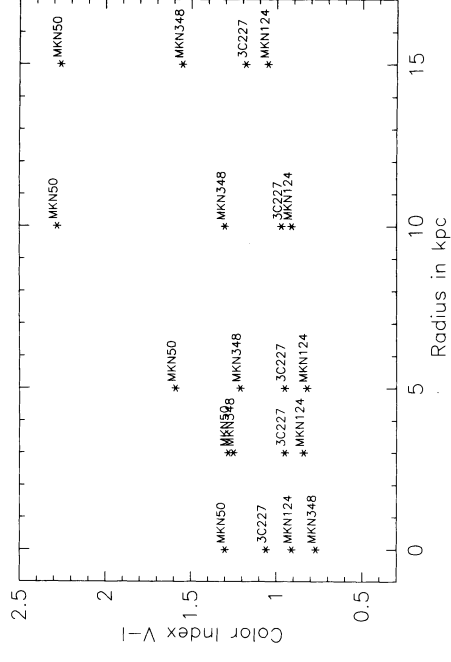


Figure 3: Dereddened colour gradient V-I of Seyfert galaxies with dominant bulge.