

## MORPHOLOGY OF GALAXIES WITH UV-CONTINUUM

Mihkel Jõeveer  
Tartu Astrophysical Observatory  
202444 Toravere, Estonia, U.S.S.R.

### DISTRIBUTION OF HUBBLE TYPES

The purpose of this contribution is to compare the morphology of galaxies with UV-continuum (Markarian galaxies) found in the First Byurakan Survey with normal galaxies. We use only data from general surveys.

In order to be able to compare our results with Huchra's (1977) we consider at first galaxies with magnitudes  $13.0 \leq m_{pg} \leq 14.0$ . In table 1 for these galaxies percentages of different Hubble types are presented on basis of the UGC catalogue (Nilson 1973).

Table 1. Distribution of the Hubble types in the UGC catalogue

Objects	E-E/SO	SO-Sab	Sb-Scd	Sd-Im	S...	Unclassified
Mrk gal.	0.8±0.8	35.3	17.6	5.0	10.1	31.1
Normal gal.	13.5±1.1	27.7	31.1	5.4	13.5	8.9

Working with Palomar Sky Survey prints, Nilson was unable to give Hubble types to 31% of Markarian objects. According to classifications by Huchra (1977) 4/5 of Nilson's unclassified objects are spiral galaxies. The remaining 1/5 are compact or very compact objects (Nilson 1973). Using these ratios we see that among Markarian and normal galaxies the percentage of SO-Scd galaxies is nearly the same. Galaxies of latest types (Sd-Im) are more common among the Markarian galaxies as already stated by Huchra (1977).

The essential difference with the Huchra's study is the strong deficiency of elliptical galaxies among Markarian objects according to

classifications by Nilson. This deficiency exist also in other magnitude intervals, e.g. among more than a hundred Markarian galaxies with  $14.1 < m_{pg} < 14.5$  only one (Mrk 806) is classified as a E galaxy, one has a type E? (Nilson 1973). Contradiction between the Huchra's and Nilson's data can be explained by small differences in classification schemes used. In fact, according to the UGC data there is a strong deficiency of normal elliptical galaxies among the Markarian galaxies.

According to the UGC data there is an excess of barred spirals among Markarian galaxies. The average fraction of Markarian Sa-Scd spirals that are barred is approximately 1/2 against 1/3 among normal galaxies. This confirms Kalloghlian's (1971) results.

Further details are available in Joeveer (1986a) and references therein.

#### DISTRIBUTION OF INCLINATIONS

Planes of Markarian galaxies have specific orientations. Evidence for this comes from the distribution of the apparent axial ratios  $b/a$  in the UGC catalogue. Among Markarian galaxies ratios  $b/a \leq 0.6$  are less frequent than for normal galaxies (Joeveer 1986b). Such effect may be caused by larger intrinsic flattenings  $(b/a)_0$  of Markarian galaxies. However, this possibility is improbable, because the percentage of spiral galaxies is at least the same or higher among Markarian objects. More probable interpretation is that we have a case of observational selection, observers preferentially distinguishing UV-continuum in face-on galaxies. The same situation exist in the sample of Seyfert galaxies (Doroshenko, Terebizh 1980).

Inclination classes estimated by Vorontsov-Velyaminov in MCG confirm the UGC data. Among normal galaxies inclination classes III are 1.5 times, classes IV - 2 times, and classes V - 5 times more frequent than for non-Seyfert Markarian galaxies.

This means that from all galaxies with UV-continuum ~20% are not included in the FBS catalogue due to their edge-on orientation. Lumino-sity function and galactic space orientation studies must take this selection effect into account.

#### REFERENCES

- Doroshenko, V. T., Terebizh, V. Yu.: 1980, *Astrofizika* **16**, pp. 393-396.  
 Huchra, J. P.: 1977, *Astrophys. J. (Suppl.)*, **35**, pp. 191-195.  
 Joeveer, M.: 1986a, *Astrofizika* **24**, pp. 25-32.  
 Joeveer, M.: 1986b, *Soobshch. Spets. Astrofiz. Obs. (in press)*.  
 Kalloghlian, A. T.: 1971, *Astrofizika* **7**, pp. 521-528.  
 Nilson, P.: 1973, *Uppsala General Catalogue of Galaxies*.