

SOME RESULTS OF CLASSIFICATION OF STARS IN KAPTEYN AREAS
 APPLIED TO GALACTIC STRUCTURE IN NGP

E. K. Kharadze, R. A. Bartaya
 Abastumani Astrophysical Observatory,
 Georgian SSR, USSR.

The observational base of our investigation consists of a two-dimensional MK classification of about 11.000 stars in the 42 Kapteyn Areas situated along the gal.lat-s from -17° up to $+72^{\circ}$ and 200 Ap, Am stars discovered in the same KA. The dispersion of the applied objective-prism spectra is 160 \AA per mm. The data are of high accuracy, close to the Michigan level, and uniformity, which make them reliable. The limit is close to the 12-th ph.mg.

The general conclusion of the undoubted importance is stated: the galactic concentration of dwarfs is closer than it had been assumed until now; on the other hand - the giants are not so closely concentrated to the galactic plane as it has been accepted.

Figure 1 is plotted for the F type stars of the III and V classes. Ordinates are apparent percentages of stars; abscissae - the increasing values of gal.lattitudes ($1-0^{\circ}$; $5-60^{\circ}$). The numbers of the III class stars are nearly equal at all latitudes. Meanwhile those of the V class stars, unchangeable at the beginning, fall sharply at high latitudes.

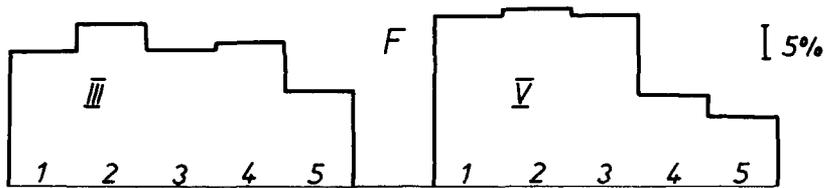


Figure 1.

The highly luminous stars of types F, G, K and almost M too are not so strongly concentrated to the galactic plane as it has been thought hitherto (Fig. 2). The space distribution of K supergiants is characterised by discrete grouping at different distances from the galactic plane.

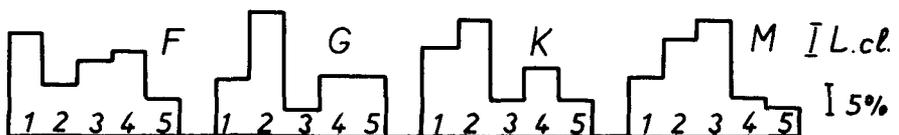


Figure 2.

The luminosity functions referring to the low latitudes differ insignificantly from each other, if one neglects the regular decrease of highly luminous stars here. And there is an evident difference at the high latitudes especially for the stars in the interval of photographic absolute magnitudes between -1 and +2 (Fig. 3).

Possibly this phenomenon is the result of a tendency of the Population II stars of the galactic halo to mix with the disc population stars. Dr. Uppgren has pointed out a similar effect some years ago.

The distribution of Ap,Am stars is not uniform; Am stars significantly prevail in amount over the Ap stars; Ap stars occur mainly at the gal.lat-des less than 20°; but Am stars up to 60°; galactic concentration is not so sharply characteristic for Ap and Am stars as it is for the common B8-A5 stars (Fig. 4).

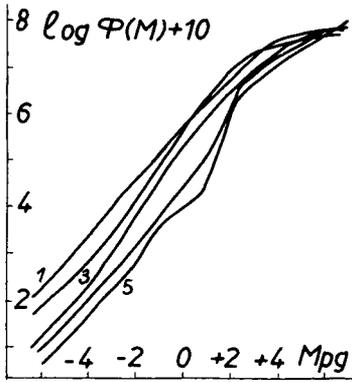


Figure 3.

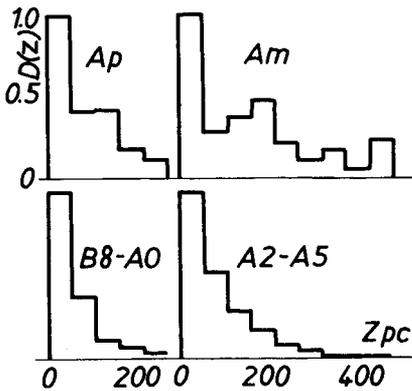


Figure 4.