

# THE INVESTIGATION OF OPEN CLUSTERS BY MEANS OF THEORETICAL HR-DIAGRAMS\*

(Abstract)

O. B. DLUZHNEVSKAYA and A. E. PISKUNOFF

*Astronomical Council of the Academy of Science, U.S.S.R.*

An investigation of the initial mass function for 19 open clusters of different ages was carried out. The membership of stars in clusters was determined by means of UBV-photometry data, proper motions or radial velocities. The masses of cluster members were estimated using Paczyński's (1970) evolutionary sequences isochrones (Dluzhnevskaya *et al.*, 1971) and B.C. and  $T_e$  scales given by Johnson.

Assuming that the mass function may be expressed as  $f(M) = aM^{-\alpha}$  the values of 'a' and ' $\alpha$ ' were derived for each cluster. It is shown that ' $\alpha$ ' is an increasing function of the cluster age, while 'a' correlates with the cluster mass.

This may be interpreted as an evidence of certain evolutionary changes in the initial mass functions for stars with masses larger than  $8 M_{\odot}$  in the solar vicinity.

## References

- Dluzhnevskaya, O. B., Musylev, V. V., and Rodionova, G. G.: 1971, *Nauch. Inform. Moscow* **21**.  
Johnson, H. L.: 1966, *Ann. Rev. Astron. Astrophys.* **4**, 93.  
Paczyński, B.: 1970, *Acta Astron.* **20**.

\* This paper was presented by O. B. Dluzhnevskaya.