

## THE STATUS OF ABSOLUTE PROPER MOTIONS AND THE KINEMATICS OF GLOBULAR CLUSTERS

M. GEFFERT, B. DAUPHOLE, J. COLIN, M. ODENKIRCHEN,  
H.-J. TUCHOLKE AND C. DUCOURANT

*Sternwarte der Univ. Bonn, D-53121 Bonn, and*

*Observatoire de l'Univ. de Bordeaux, F-33270 Floirac*

We have studied a sample of 26 globular clusters for which so far absolute proper motions exist in the literature. The proper motions were combined with distances and radial velocities for a determination of the space motion of the clusters. Using different galactic potentials (see Dauphole & Colin 1994 and references therein) we calculated the orbits of the globular clusters and their time averaged eccentricities, total energies, and apo- and perigalactic distances. The relation of the orbital quantities to the metallicities of the globular clusters has been studied. Preliminary results of this study were presented in Geffert et al. (1993). We arrive at the following conclusions:

- The net rotation of the clusters corresponds very well with the one obtained from radial velocities alone.
- A significant fraction of globular clusters is on retrograde orbits.
- There is no kinematical evidence for the young halo clusters to be members of the "Fornax-Leo-Sculptor" stream as proposed by Majewski (1994).
- Globular clusters with  $[Fe/H] > -1.4$  are at smaller z-distances from the galactic plane than metal-poorer clusters.
- Using the apogalactic distances of the clusters our data indicate a halo abundance gradient of the Galaxy.

The complete version of this analysis will be given in Dauphole et al. (1994).

Dauphole B., Colin J., 1994, *A&A* (in press)

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