AXIAL RATIOS, ORIENTATIONS, AND CENTER COORDINATES OF GALACTIC GLOBULAR CLUSTERS

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A program to determine the axial ratios and major axis orientations for a sample of 120 galactic globular star clusters was begun by us recently. The sample was selected from the clusters listed by Kukarkin and which can be seen on the glass copies of the blue-emulsion plates of the Palomar Observatory Sky Survey and on the B-series film copies of the European Southern Observatory Sky Survey. Out of the major program will come axial-ratios of the elliptical isodensity contours for each cluster, as well as the orientations of the major axes of the elliptical contours, and an accurate position for the center of each of the clusters in the sample. The probable errors of the central coordinates will be on the order of ±1 arcsec or better.

The plates are scanned with use of the Kitt Peak National Observatory PDS microdensitometer. The digital data are then subjected to a "blurring" process in order to minimize confusion effects of single-star images and to take advantage of existing software developed for the analysis of elliptical galaxy images. The final blurred image is then loaded into the memory of the COMTAL visual display of the Kitt Peak Image/Picture Processing System (IPPS) and the axial-ratios and major-axis orientations are then determined using programs developed by S. and K. Strom. Central coordinates are obtained using a program developed by C.R. Lynds which allows central coordinates to be determined to within 0.01 pixel.

Upon completion of our analysis of the galactic globular clusters, we plan to perform a similar analysis on the Magellanic Cloud clusters.

James E. Hesser (ed.), Star Clusters, 481–482.

We would like to acknowledge the contribution of Dr. Richard West of ESO who kindly sent one of us (REW) a complete set of ESO(B) film copies of those southern fields containing globular clusters. This work could not be done without the facilities of Kitt Peak and a number of staff members, namely, Dr. D.C. Wells, Mrs. K. Strom, Mr. E. Carder, and the personnel of the Computing Center at Kitt Peak.

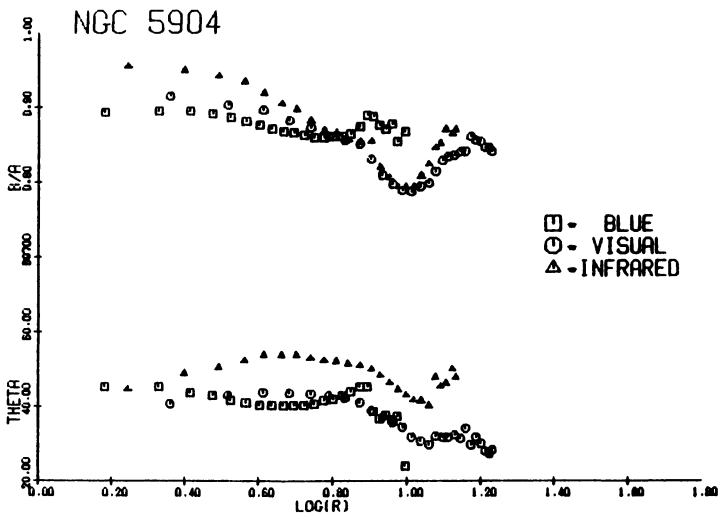

Figure 1. The axial ratio and orientation as a function of the distance in arcmin from the center of NGC 5904. The orientations are arbitrary for each colour. The infrared plate was kindly made available by Dr. E. Craine of Steward Observatory from his infrared sky survey.

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