

SHORT-PERIOD VARIABLES IN GLOBULAR CLUSTERS OF MODERATE METALLICITY

Martha L. Hazen

Harvard-Smithsonian Center for Astrophysics

ABSTRACT. Three Galactic globular clusters of moderate metallicity, ($-0.7 > [\text{Fe}/\text{H}] > -0.9$), have been searched for variable stars. NGC 6388 and NGC 6569 appear to contain RR Lyrae variables as members; NGC 6652 does not. NGC 6388 and NGC 6569 thus appear to have bluer horizontal branches than normally found at their metallicity.

As part of an ongoing program to study globular clusters that have not been extensively examined for variable stars, three Galactic globular clusters of moderate metallicity, ($-0.7 > [\text{Fe}/\text{H}] > -0.9$ on the Zinn 1985 scale), have been searched for short-period variables. The clusters are listed in Table I along with their pertinent characteristics, including R, the distance from the Galactic center, and z, the distance above or below the Galactic plane.

Table I.
The clusters studied

NGC	[Fe/H]	R(kpc)	z(kpc)
6388	-0.74	3.8	-1.2
6569	-0.86	0.8:	-0.8:
6652	-0.89	5.2	-2.4:

NGC 6388 is found to contain four variable stars that are RR Lyrae type and probable members, and an additional two or more stars that are possible RR Lyrae members (Hazen and Hesser, 1986). NGC 6569 contains 8 RR Lyrae stars that are probable members and four that are possible members (Hazen-Liller, 1985). Preliminary results on NGC 6652 suggest that, although three stars lying within its tidal radius are RR Lyrae stars, none of them is a likely member.

NGC 6388 and NGC 6569 are the clusters of highest metallicity suspected to contain horizontal branch variable stars. The results imply that these two clusters have horizontal branches bluer than expected for their metallicities. The lack of RR Lyrae stars as possible members of NGC 6652 suggests that this cluster has a horizon-

tal branch considered more typical of its metallicity.

REFERENCES

- Hazen, M. L. and Hesser, B. H. 1986 Astron. J., in press.
Hazen-Liller, M. L. 1985 Astron. J. 90, 1807.
Zinn, R. 1985 Astrophys. J. 293, 424.