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# VARIABLE STARS IN THE GLOBULAR CLUSTER NGC 6266

M62 (NGC 6266, C1658-300) is located close to the galactic center ($l = 353\overset{\circ}{.}6$, $b = 7\overset{\circ}{.}3$). This rather metal rich cluster ([Fe/H] = −1.28 (Zinn & West, 1984)) belongs to the concentration class CC IV, its apparent radius is $r = 7\overset{'}{.}1$ (Kukarkin, 1974) and the tidal radius $10\overset{'}{.}5$ (Webbink, 1985). M62 is rich in variables: 89 variables were discovered in the cluster (Sawyer-Hogg, 1973), periods are defined for 74 of these stars. Twelve of them are classified as RRc and 66 as RRab variables. Values of $P_{ab}$, $N_c/N_{ab}$ confirm the classification of the cluster as OoI variable rich one.

Table 1. Positions and photometric data for suspected variables

| $N$ | $X_{SH}$ (arcsec) | $Y_{SH}$ (arcsec) | $\Delta V$ | $\Delta B$ | $N$ | $X_{SH}$ (arcsec) | $Y_{SH}$ (arcsec) | $\Delta V$ | $\Delta B$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | −102.5 | −71.6 | 0.23 | 0.25 | 23 | 119.8 | 44.7 | 0.62 | 0.63 |
| 2 | −73.8 | −24.5 | 0.25 | 0.35 | 24 | 119.7 | −22.7 | 0.10 | 0.08 |
| 3 | −59.3 | 89.4 | 0.04 | 0.07 | 25 | 121.8 | 9.4 | 0.43 | 0.39 |
| 4 | −57.5 | 97.5 | 0.38 | 0.31 | 26 | −87.0 | −87.3 | 0.02 | 0.23 |
| 5 | −55.3 | 86.6 | 0.35 | 0.34 | 27 | −65.9 | 71.1 | 0.11 | 0.29 |
| 6 | −68.5 | −119.2 | 0.05 | 0.02 | 28 | −42.9 | −84.3 | 0.48 | 0.40 |
| 7 | −50.6 | 65.9 | 0.09 | 0.07 | 29 | −31.4 | −75.4 | 0.17 | 0.70 |
| 8 | −50.2 | −56.1 | 0.75 | 0.67 | 30 | −20.2 | −60.0 | 0.12 | 0.13 |
| 9 | −33.5 | −62.1 | 0.34 | 0.44 | 31 | 34.0 | −92.7 | 0.93 | 1.24 |
| 10 | −16.3 | 63.5 | 0.76 | 0.51 | 32 | 59.7 | −106.7 | 0.54 | 0.58 |
| 11 | −14.0 | −118.2 | 0.16 | 0.19 | 33 | 89.8 | 49.8 | 0.27 | 0.29 |
| 12 | 10.3 | 87.6 | 0.22 | 0.32 | 34 | 91.8 | 71.7 | 0.40 | 0.47 |
| 13 | 7.8 | −61.1 | 0.04 | 0.07 | 35 | 81.8 | −115.3 | 0.13 | 0.17 |
| 14 | 22.0 | −99.2 | 0.29 | 0.28 | 36 | 94.2 | 71.8 | 0.29 | 0.50 |
| 15 | 50.7 | 86.9 | 0.05 | 0.04 | 37 | 84.3 | −127.5 | 0.45 | 0.35 |
| 16 | 60.1 | 67.1 | 0.19 | 0.18 | 38 | 88.4 | −15.7 | 0.05 | 0.10 |
| 17 | 51.5 | −116.6 | 0.44 | 0.37 | 39 | 131.6 | −48.4 | 0.00 | 0.00 |
| 18 | 65.9 | 13.0 | 0.08 | 0.13 | 40 | 136.1 | −34.5 | 0.01 | 0.02 |
| 19 | 74.6 | 42.2 | 0.05 | 0.03 | 41 | 144.1 | −82.0 | 0.01 | 0.02 |
| 20 | 84.7 | −86.4 | 0.04 | 0.03 | 42 | 152.9 | −6.6 | 0.03 | 0.00 |
| 21 | 98.1 | 10.5 | 0.14 | 0.12 | 43 | 193.7 | −113.0 | 0.00 | 0.02 |
| 22 | 103.5 | 48.3 | 0.35 | 0.57 | | | | | |

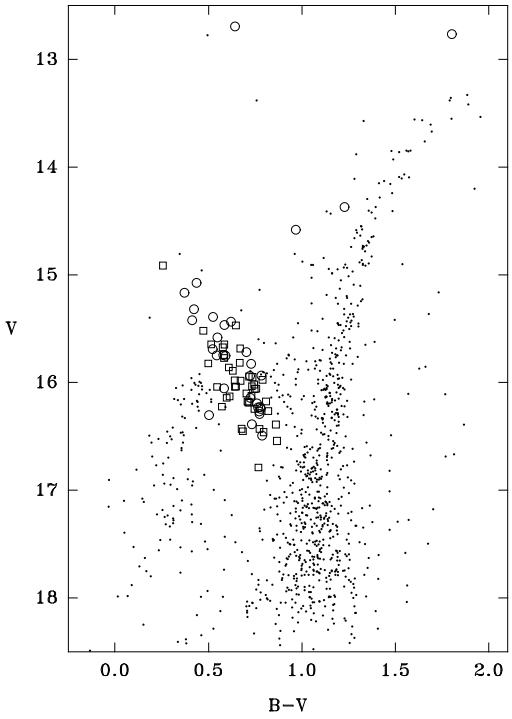


Figure 1. The color - magnitude diagram for the globular cluster NGC6266 corrected for different reddening, the known RR Lyrae stars are denoted by circles, suspected variables are marked by squares

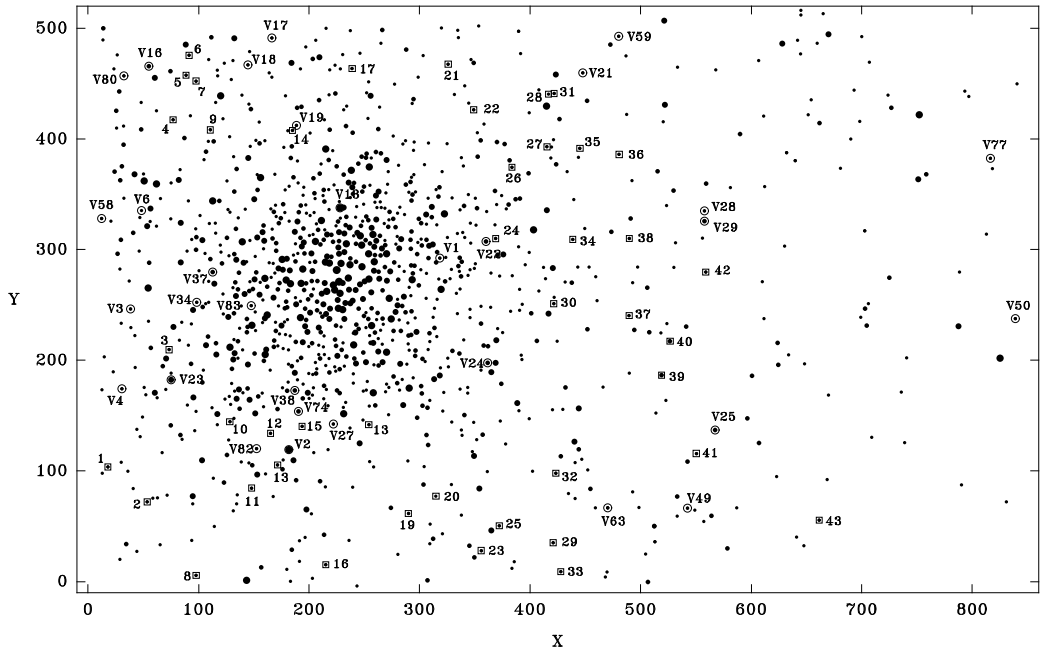


Figure 2. Finding chart for NGC6266. The known RR Lyrae stars are denoted by circles and by their number from the catalog of SH, suspected variables are marked by squares

This study is based on CCD observations (Brocato et al., 1996). We used the same method of search for RR Lyrae variables as Kadla et al., 1996). In the investigation area ($3'.81 \times 6'.30$) there are 31 known variables. The identification of V1 and V13 was made using coordinates of SH catalog only. They were not marked on Plate 3 of Van Agt and Oosterhoff (1959) since the stars are situated in the crowded central part of the cluster. Variables V2, V23 and V37 are brighter than the other variables. In order to eliminate errors due to crowding of the central part of the cluster, we have not considered the region of the cluster center ($r < 2'$ ).

The differential reddening across the cluster field (Van Agt and Oosterhoff, 1959) causes an additional difficulty for the investigation of this cluster.

The colour–magnitude diagram after correction for differential reddening is shown in Figure 1. Apart from 31 known variables, there are 43 stars in the instability strip. All data for suspected variable stars are given in Table 1. The coordinates of stars in arcseconds in the system of SH's catalog and the maxima of magnitude variations $\Delta$B and $\Delta$V, during our observations are listed in columns 2-5 of Table 1. In Figure 1 and in the finding chart (Figure 2) the known and suspected variables are marked by circles and squares correspondingly.

Because of its position in Figure 1 we suppose that V13 is a red giant. The stars V2, V23 and V37 seem to be field variables.

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