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SIX NEW RR LYRAE STARS IN NGC 1261

Periods for 13 RR Lyrae variables in NGC 1261 ($\alpha=13^h10^m.9$, $\delta=-55^o25''$, 1950; $\ell=271^o$, $b=-52^o$) were recently published by Wehlau and Demers (Astr.Astroph., 57, 251, 1977) using the same plate material as was used for the present paper. Fourteen pairs of the plates taken with the 60-cm telescope of the University of Toronto located on the site of the Las Campanas Observatory of the Hale Observatories were blinked at the University of Western Ontario and six new variables were discovered.

Because all the new variables are close to the center of the cluster magnitudes had to be estimated by eye. Table 1 lists the estimates made from the plates available to Wehlau and Demers as well as estimates made by Bartolini from his plates (Bartolini et al., I.B.V.S. 662, 1972). All these values are strongly affected by blending on the plates. Estimates could not be made on plates of poorer quality, therefore less measures were available for period determination than were used in the previous study.

All of the new variables appear to be RR Lyrae stars, bringing the number of known RR Lyrae variables in NGC 1261 to 19. Coordinates and light curve parameters are given in Table 2. For some variables the values of B_{min}, B_{max}, and B_{mean} are systematically too bright because of blending. Blue light curves for variables 16 and 21 are shown in Fig. 1 in which phase 0 corresponds to J.D.2442000.

When measuring the coordinates for these stars it was discovered that incorrect coordinates for variable 4 are given in the Third Catalogue of Variable Stars in Globular Clusters (Sawyer Hogg, Publ. David Dunlap Obs. 3, No. 6, 1973). This can probably be attributed to an incorrect identification on the chart published by Fourcade et al. (Atlas y Catalogue de Estrellas Variables en Cumulos Globulares al sur de -29°, Cordoba,1966). The correct values for variable 4 are X=+22.2 and Y=−31.8.There is an additional error in the sign of Y for variable 12 which should be +10.5.

The addition of 4 more ab-type RR Lyrae stars brings the number known in this cluster to 14 and yields a value of $\langle P_{ab} \rangle$ of 0.555, only slightly lower than the value of 0.563 given in the earlier paper. Five c-type variables are now known in this cluster with a value of $\langle P_c \rangle = 0.328$ hardly changed from the value of 0.323 given earlier. The ratio N_c/N_{ab} now stands at 0.36 well within the range expected for an Oosterhoff type I cluster.

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Table 1

Heliocentric J.D.	16	17	18	19	20	21
2440569.644	17.2	16.6	17.2	-	17.0	17.0
40569.662	16.5	17.1	17.1	-	16.1	17.3
40570.584	17.6	16.6	17.2	-	17.0	17.1
40570.690	17.6	17.1	17.3	-	17.2	17.2
40813.203	17.3	16.85	17.2	17.1	-	17.4
40814.180	17.3	-	17.2	16.4	-	-
40837.072	16.7	16.8	17.0	16.0	-	17.2
40837.100	16.9	16.8	17.0	16.1	-	17.2
40837.173	17.1	16.8	17.1	16.3	-	16.8
40837.207	17.2	16.85	17.1	16.4	-	16.8
40837.233	17.3	16.65	17.1	16.55	-	16.9
40837.258	17.4	16.65	-	16.7	-	17.0
40841.219	16.4	-	-	17.0	-	16.9
40841.244	16.4	-	-	17.0	-	16.8
40841.270	16.5	-	-	17.0	-	16.8
41299.543	15.9	16.5	17.0	16.4	16.5:	17.1
41300.550	16.7	16.5	16.8	16.0	16.3:	17.1
41301.551	17.1	16.6	16.8	16.6	16.0	16.9
41305.547	17.2	16.8	16.9	16.7	16.9	16.8
41625.852	17.2	16.6	17.6	17.0	16.7	17.0
41626.796	16.0	16.5	17.1	16.1	16.1	17.2
41627.694	17.4	17.0	17.0	16.5	-	17.2:
41627.722	17.3	16.8:	17.1	16.6	16.8:	17.2:
42327.707	16.2	16.7:	16.8	16.6	16.0	17.4
42327.748	16.8	16.8:	17.2	16.8	16.5	17.3
42327.789	17.0	17.0:	17.0	17.0	16.7	17.0
42327.807	16.8	17.1	17.6	16.8	16.8	16.9
42327.823	17.3	17.0	17.6	17.4	16.8	17.1
42328.739	16.0	16.6	17.2	17.6	16.7	17.2
42328.755	15.9	16.7:	17.1	17.5	16.2	17.2:
42328.803	16.7	17.0:	17.3	16.7	16.0	17.1
42329.779	15.9	16.5	17.3	16.7	16.9	17.1
42339.590	17.4	16.8:	17.2	16.7	16.0	16.9:
42340.575	17.3	16.7	17.0	17.1	17.1	16.9
42340.641	17.5	16.8	17.5	16.2	16.7	16.9
42392.703	17.5:	16.9:	17.0:	-	-	17.0:
42392.730	17.5:	16.5:	16.9:	-	-	16.8:
42392.756	17.5:	16.4:	17.0:	-	-	17.1:
42393.540	16.4	17.2	17.1	16.8	16.8	17.4
42393.567	16.6	16.9	17.0	16.2	16.8	17.4
42393.594	17.1	17.1	16.9	16.0	16.9	17.4
42393.621	17.2	17.2	16.8	15.9	16.8	17.1
42393.661	17.2	17.1	17.1	16.3	16.8	17.0
42393.690	17.2	17.2	16.9	16.1	16.2	16.8
42393.717	17.5	16.9	17.1	16.4	15.9	16.8
42393.744	17.4	16.9	17.3	16.4	16.0	16.7
42394.641	17.0:	-	16.9:	-	-	17.1:
42394.670	17.1:	-	17.0:	16.5:	-	17.0:
42394.706	17.3:	-	16.6:	16.7:	-	16.9
42394.733	17.3:	-	17.0:	16.6:	-	16.7
42395.542	15.8	16.9	17.1	16.3	16.8	17.3:
42395.569	16.2:	17.2:	17.2:	15.9:	-	17.3

Table 1 (cont.)

Heliocentric J.D.	16	17	18	19	20	21
2442395.648	16.6	17.2	16.8	16.3	16.8	17.3
42395.718	17.3:	17.1:	17.1:	16.3:	-	17.1
42395.744	17.2:	17.1:	17.0:	16.5:	-	17.1
42396.540	17.6:	17.0:	17.1:	16.8:	-	17.4
42396.567	16.9	17.0	17.0	16.8	16.6	17.3
42396.639	16.2	17.1:	17.0:	16.7:	-	17.2

Table 2

Var.	X"	Y"	Type	Period	Epoch of Max.2400000+	B_{min}	B_{max}	B_{mean}
16	-17.7	-16.1	RRab	0.52618	42395.542	17.4	16.0	16.95
17	- 3.9	+20.1	RRab	0.51303	42392.756	17.1	16.5	16.85
18	-18.5	+16.7	RRc	0.33653	42395.648	17.5	16.9	17.1
19	+19.3	+11.9	RRab	-	42395.718	17.4	16.0	16.6
20	+28.8	- 3.8	RRab	0.54123	42393.717	17.0	16.0	16.55
21	-12.5	+25.5	RRc	0.33441	42394.733	17.2	16.9	17.05