

COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2171

Konkoly Observatory
Budapest
1982 June 25
HU ISSN 0374-0676

VARIABLE STARS IN THE GLOBULAR CLUSTER MESSIER 28 (NGC 6626)

The investigation of variables in this cluster (C1821-249) has continued at the David Dunlap Observatory since the paper by Sawyer (1949, A.J. 54, 193) and during the past decade in collaboration with researchers at the University of Western Ontario. Otherwise the variables in this cluster have received little attention except in the work of Dr. Dorrit Hoffleit in the field, summarized in IBVS 660, 1972 and some recent work by Dr. T. Lloyd Evans (1980, private communication).

Because of the cluster's southern declination, observations from our latitudes have proved somewhat inconclusive in determination of periods, and we await further plates from the University of Toronto 0.6 m telescope at Las Campanas, Chile. About six new or suspected cluster variables have been found by Vicki Watt at the DDO as well as five new long period field variables. Two additional new variables have been found by the authors of this paper.

Accordingly it seems useful now to upgrade the list of variables in this cluster in the Third Catalogue of Sawyer Hogg in 1973 (Pub. D.D.O. 3, 6). The new list is given in Table I, but does not include the new field variables. Periods are based on magnitude measures by the two of us as well as those of Roslyn Moorhead of the University of Western Ontario. At the time of writing we have periods for 10 RR Lyrae stars and for V 4, the known W Vir type. In addition, a new variable, V 21, appears to have a long W Vir period of about 29 days and V 17 seems to be RV Tau type. Four variables are red and irregular. V 7 is not visible on most of our plates and is probably a field variable.

The full paper, with observations and light curves of the variables, will be completed in 1983. The standard sequence used for our measures may be revised from comparison with the work of G. Alcaino (1981, Astron. Astrophys. Suppl. 44, 191). Our sequences are in general agreement down to the 15th magnitude but then begin to diverge. Therefore in Table I the magnitudes listed for the RR Lyrae stars, especially at minimum, are probably too bright.

Table I

Variable Stars in Messier 28

No	x"	y"	Max	Min	Epoch	Period	Remarks
1	+174.0	+ 88.5	15.25	16.1	42590.853	0.491753	
2	- 47.3	+ 63.1	14.3	14.9			irr, red
3	- 32.9	+111.0	14.5	15.2			irr, red
4	- 34.5	+ 33.6	13.7	14.7	44371.894	13.457	
5	- 44.8	+ 16.4	14.8	15.8	36040.674	0.644360	
6	+ 34.1	+ 50.4	14.3	15.1			irr, red
7	+172.2	+102.7	14.8	17.0			f
8	+227.3	-222.3	15.1	16.2	44428.860	0.565995	
9	-158.6	-252.4	14.75	15.7	35696.652	0.661544	
10	+ 96	- 79	14.0	14.7			irr, red
11	- 14	+ 35	15.1	16.3	44429.835	0.542782	
12	+148	- 49	15.0	16.1	35335.633	0.578242	
13	- 92	- 24	15.5	15.9	42225.798	0.33599	
14	-131	-100	15.6	16.2	42589.850	0.418274	
15	-472	-186	15.5	16.6	42229.732	0.448331	
16	+432	-372	15.8	16.5			RR
17	+ 42	- 68	12.9	14.5			RV Tau
18*	+ 55	+ 20	15.3	16.4			new var, Watt, RR
19	+ 66	+ 15	15.3	15.9			new var, AW, RRC
20	+ 7	+ 29	14.6	15.7			new var, Watt
21	+ 7	+ 11	14.1	15.8	44429.835	27.6or29.9	new var, Watt
22	+ 6	+ 2	15.2	16.4	44432.666	0.498828	new var, HSH
23	+26	- 53	15.5	16.1			new var, Watt, RRC
24	-452	+109	15.7	16.1			new var, Watt, RRC

* V18 in 3rd Catalogue is same as V12.

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