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NEW VARIABLE STARS IN THE FIELD OF γ CYGNI

The systematic photographic search of variable stars, in blue and infrared radiation, in 5 fields of some $25 \square^{\circ}$ each (Maffei 1975) has been continued in a field centered on the star γ Cygni ($\alpha=20^{\text{h}}20^{\text{m}}26^{\text{s}}$; $\delta=40^{\circ}05'7''$) with the Schmidt telescope of 65/90 cm of the Osservatorio Astrofisico of Asiago. From 4th Aug. 1967 to 7 Dec. 1974 some 74 I-N (hypers.) + RG5 and few 103a-O + GG 13 or without filter were collected.

The examination of these plates leads to the discovery of 62 new variable stars, most of which visible in the infrared plates only. The plates were compared by means of the blink microscope of the Asiago Observatory. This operation was based on 13 pairs of selected plates. A few larger field with the same center was previously searched for variable stars in blue light by G. Romano, who was able to find 44 new variables (Romano 1969).

The main characteristics of the 62 variables are listed in Table I. The numeration of the variables, characterized by the prefix M, continues the one started in the field of M 16-M 17 (Maffei 1975). The lack of some numbers is due to the exclusion of a few variables, not confirmed during the investigation following the discovery. The positions were obtained by means of the measuring machine Zeiss-PEK2 of the Specola Vaticana of Castelgandolfo. The identification charts, most of the curves of light and a detailed account, will be published, in a short time, in a more extensive work.

Table I

Var. N.	A.R. (1950.0) Dec.		m_{ir}		Type	P	E 24.....
M 210	20 ^h 27 ^m 16 ^s .1	39°32'41"	12.1	15.4	M	770	40578
M 211	29 12.2	41 35 02	13.0	15.7	M	420	40062
M 212	21 11.0	41 07 19	14.7	15.7	SR	450:	
M 213	19 41.2	41 23 00	13.5	15.6	M	312:	40680
M 214	19 52.7	41 27 24	14.8	16.0			
M 215	21 11.0	41 41 23	14.1	16.0	SR or M	400:	39844:
M 216	23 41.0	42 16 37	11.1	14.5	M	382	39904
M 217	23 35.1	42 22 29	11.5	14.1	M	308	40380
M 218	21 54.5	42 40 57	14.4	15.6	SR or M	308::	40096:
M 219	20 47.4	42 39 54	11.3	14.2	RV	285	40056
M 220	18 20.5	42 53 23	13.0	14.2	SR	400::	41060::
M 221	16 08.0	42 22 19	14.7	15.9	SR	280:	40480:
M 222	16 50.8	41 58 46	13.4	15.6	M	383	41100
M 223	19 50.4	42 16 24	14.2	15.9	SR or M	484:	40580::
M 224	17 23.9	41 37 24	14.8	15.7	SR	290::	41196::
M 225	13 51.5	42 12 43	15.0	15.8	SR		
M 226	27 51.9	38 55 59	15.0	15.7			
M 228	23 33.3	38 32 44	12.0	14.8	M	462	39864
M 229	23 45.6	38 09 17	13.0	15.1	M	310	40500
M 230	21 13.4	38 54 34	13.3	15.4	M:	385:	40138
M 233	18 54.1	39 13 05	10.4	12.2	M	335	40560
M 234	20 30.1	40 33 33	10.1	14.4	M	268:	40815:
M 235	16 42.1	40 24 41	12.5	15.0	M	442	40140
M 236	11 19.2	40 43 11	12.8	14.6	SR	416	40450
M 237	11 07.1	40 54 01	12.7	14.5	SR	410	40834
M 238	10 16.6	40 51 19	12.3	14.7	SR	318	40520
M 239	09 07.0	41 06 57	12.1	14.5	M	261	40818
M 240	08 46.6	41 13 47	12.6	14.4	M	300	40884:
M 241	10 25.6	41 13 19	12.4	13.5	L::		
M 242	10 34.5	41 16 20	12.5	13.4	I		
M 243	10 07.2	41 23 51	11.5	13.6	M	430	41160
M 244	10 08.9	41 27 02	12.5	13.4	E		
M 245	10 59.6	41 26 57	10.7	14.2	M	322	40504
M 246	10 36.0	41 42 45	11.9	13.7	M	251	39640
M 247	13 21.8	41 08 25	12.8	13.8	C::		
M 248	14 49.4	41 25 48	13.6	14.8	SR or M	334:	40494
M 249	21 55.2	38 20 18	7.2	8.6	L::		
M 251	19 29.7	38 53 19	14.4	15.3			
M 252	16 49.7	39 08 22	9.3	11.3	M	395	40172
M 253	16 09.6	38 57 36	13.6	15.2	M	300	40104:
M 254	17 15.1	38 45 10	14.4	15.6			
M 256	17 24.9	38 21 32	13.2	15.2	M	565:	40570
M 257	13 50.6	38 16 23	8.7	11.4	M	400	41020
M 258	12 31.1	38 18 35	11.1	14.6	M	297	40474
M 259	13 32.9	39 49 32	12.4	15.5	M:	388	40176
M 260	13 10.2	39 47 00	13.2	14.8	E:		
M 261	12 00.6	40 13 10	13.1	14.8	M	290	40072
M 263	09 31.5	40 55 35	13.8	14.9	SR	460:	40280::
M 264	09 33.9	40 43 28	12.4	13.8	M	415	39804:
M 265	07 41.0	40 34 53	12.2	14.5	SR:		
M 266	05 47.6	40 34 59	10.4	14.3	M	350	40480
M 267	05 51.0	39 47 49	11.9	15.0	M	310	40150

Table I (cont.)

Var. N.	A.R. (1950.0) Dec.	m_{ir}	Type	P	E 24.....
M 268	20 ^h 07 ^m 55 ^s 0	39 37 18	12.9 15.1	SR::	400
M 269	07 01.4	39 04 04	13.4 14.2	L::	
M 270	10 20.6	39 27 47	8.7 11.3	M	404 40365
M 271	11 36.1	39 17 52	12.7 15.4	M	412 42300
M 272	12 50.6	39 04 01	12.3 15.0	M	380 40798
M 273	10 46.4	38 53 27	12.4 15.1	M	400 39800
M 274	11 59.7	38 29 00	13.1 15.4	SR or M	584:: 41198::
M 275	11 34.4	38 29 39	11.9 15.2	M	360 39980
M 276	11 37.7	38 25 24	12.4 14.4	E	
M 277	17 36.5	40 46 43	13.2 14.7	I	

Of the 62 new variables, 32 have been classified as Mira type stars, 11 as SR and 5 doubtful (SR or M). Before this research only 8 Mira and 13 SR were known in the field searched in blue light by Romano.

This result confirms the strong increase of the number of Mira type stars when the observations are made by means of the infrared technique. However in the field of γ Cygni this increase is not so dramatic as in the field of M 16 - M 17 previously reported.

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PAOLO MAFFEI
Osservatorio Astrofisico
Catania, Italia

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