COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS
Number 5137

Konkoly Observatory
Budapest
12 July 2001

HU ISSN 0374 – 0676

ON THE IDENTIFICATIONS OF V391 Sct, V2435 Sgr AND MAFFEI'S INFRARED VARIABLES

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V391 Sct is one of new variable stars discovered by Maffei (1975). The object was classified as a possible dwarf nova by Maffei (1975). However, owing to the lack of a finding chart, the exact identification remained uncertain. Downes et al. (1997) even considered the variable to be lost.

The reason of the difficulty of finding an identification has been partly because that Maffei (1975) used infrared plates to search for variable stars. Many of new variable stars by Maffei (1975) are not registered in USNO catalogs, probably because of their red colors and interstellar extinction. The recent release of 2MASS point source catalog (released by IPAC/UMass 2000) has removed much of these difficulties. A sample extraction of variable stars by Maffei (1975) has revealed that remarkably bright infrared sources are almost always present at the exact locations reported by Maffei (1975), making unique identifications possible. Table 1 lists all objects in the table of Maffei (1975) which have 2MASS counterparts brighter than $J = 11$ and $K_s = 9$. However, the 2MASS release has covered only a small part of the survey by Maffei (1975), which does not contain the field of V391 Sct. The most recent release of the Midcourse Space Experiment (MSX5C) Point Source Catalog (Egan 1999) has dramatically improved this situation. The author has found many variables by Maffei (1975) have conspicuous MSX5C counterparts, as are also listed in Table 1.

The author noticed the presence of MSX5C G016.1479-02.1803 at the exact location reported by Maffei (1975). Based on secure identifications of other variables with MSX5C sources, we consider that this MSX5C source is the true counterpart of V391 Sct. The source is subsequently identified with a GSC star (GSC 6266.2259) with $V = 12.8$, not resolved in the USNO catalog. A large difference between the USNO r magnitude of 15.5 (combined magnitude with a nearby star) and the GSC value also supports that the optical counterpart is a large-amplitude variable star. Combined with the infrared detection, the object is most likely a large-amplitude, Mira-type variable. Table 2 lists the reported positions in J2000.0.

V2435 Sgr is one of variables discovered by Oosterhoff and Ponsen (1968), and was classified as a possible dwarf nova. The author noticed that the object is identified with a bright 2MASS star ($J = 9.63$, $H = 8.50$, $K_s = 8.14$) and a variable star ISOGAL P J175855.1-290037 with a $\log P(\mathrm{d}) = 1.718$ detected by the ISOGAL project (Schultheis et al. 2000). These identifications have not been reported in the previous literature. The

Table 1: Maffei's objects identified with bright 2MASS sources

No.[a]	Object	2MASS position[b]		MSX5C[b]		Maffei[b]	
2	GU Ser	$18^{h}09^{m}39^{s}.53$	$-14^{\circ}55'38''.9$	39.5	44	39.5	37
3	GO Ser	18 08 51.93	−14 08 33.3	51.8	37	51.6	31
15	V405 Sct	18 29 22.48	−15 07 59.8	22.5	57	22.7	57
30	GH Ser	18 08 21.56	−15 24 01.9	21.8	05	22.1	02
31	GL Ser	18 08 34.39	−15 07 38.6	-	-	34.8	37
32	GN Ser	18 08 40.03	−15 09 39.3	-	-	39.8	36
65	V404 Sct	18 29 12.84	−15 37 37.7	-	-	12.3	40
67	V400 Sct	18 28 42.36	−15 22 52.6	42.3	51	42.0	53
76	V421 Sct	18 30 50.93	−15 37 29.0	-	-	51.3	29
77	V424 Sct	18 31 36.26	−15 26 58.2	36.3	58	36.1	56
78	V422 Sct	18 31 25.26	−15 18 22.7	25.2	22	24.9	20
79	V402 Sct	18 29 00.73	−14 43 55.1	00.9	51	01.2	52
80	V401 Sct	18 28 54.18	−14 29 20.2	54.2	16	53.9	20
84	V415 Sct	18 03 13.42	−14 25 19.2	13.5	17	13.8	16
90	GI Ser	18 08 26.39	−15 35 11.9	26.3	11	26.4	06
92	GM Ser	18 08 35.81	−15 04 01.6	35.7	03	35.7	59
100	GQ Ser	18 09 18.03	−14 38 12.7	17.8	15	18.2	10
101	GG Ser	18 08 11.04	−14 34 27.9	10.9	30	12.1	19
102	FY Ser	18 07 53.49	−14 31 26.4	53.4	30	54.0	24
103	GK Ser	18 08 25.49	−14 18 07.7	25.2	10	25.8	06
104	GT Ser	18 09 34.93	−14 26 40.8	34.7	42	34.9	38
134	V406 Sct	18 29 23.30	−15 47 34.8	23.7	25	23.5	29
135	V407 Sct	18 29 32.18	−15 48 39.6	32.1	40	32.5	40
136	V413 Sct	18 30 02.33	−15 28 30.1	02.3	28	02.1	30
137	V414 Sct	18 30 13.85	−15 27 22.4	13.7	21	14.1	23
151	V409 Sct	18 29 40.00	−14 00 17.9	-	-	40.3	18
152	V412 Sct	18 29 58.81	−14 10 10.3	58.9	08	58.5	11
153	V419 Sct	18 30 36.29	−14 16 24.9	36.4	19	36.6	21
154	V418 Sct	18 30 28.97	−14 21 35.4	29.2	33	28.7	34
163	GP Ser	18 09 09.81	−15 51 20.2	09.7	19	09.7	19
164	GR Ser	18 09 24.40	−15 19 36.4	24.3	36	24.0	32
165	NSV10266	18 09 06.05	−15 18 37.2	-	-	06.0	34
172	NSV10251	18 08 36.17	−14 47 34.1	-	-	36.4	34
173	FZ Ser	18 08 01.93	−14 44 15.0	01.7	16	02.3	09
174	NSV10271	18 09 14.51	−14 29 48.4	14.4	50	14.0	46
198	V403 Sct	18 29 02.73	−14 46 58.3	02.9	55	02.2	56
199	V410 Sct	18 29 53.01	−14 57 53.4	53.0	52	53.5	52
200	V425 Sct	18 34 42.33	−15 12 14.3	42.2	13	41.7	12
201	V408 Sct	18 29 38.97	−14 46 12.4	-	-	39.2	08
202	V417 Sct	18 30 15.72	−14 31 26.6	15.8	24	15.9	25
205	V416 Sct	18 30 14.76	−14 21 33.9	14.9	30	14.7	33
206	V423 Sct	18 31 25.23	−14 43 50.3	25.3	47	25.2	47

[a] Maffei Var. Number (Maffei 1975); [b] J2000.0 position

Table 2: Positions of V391 Sct

Source	R.A.	Decl.
Maffei	$18^{\rm h}28^{\rm m}06\overset{\rm s}{.}7$	$-15°54'49''$
MSX5C	18 28 06.6	−15 54 42
GSC 1.1	18 28 06.6	−15 54 45

Table 3: Positions of V2435 Sgr

Source	R.A.	Decl.
Original[a]	$17^{\rm h}58^{\rm m}54\overset{\rm s}{.}98$	$-29°00'37\overset{''}{.}8$
2MASS	17 58 54.98	−29 00 37.8
ISOGAL	17 58 55.1	−29 00 37

[a] Position by Downes et al. (1997), based on the chart in Oosterhoff and Ponsen (1968)

variable is thus a long-period variable rather than a dwarf nova. Table 3 lists the reported positions in J2000.0.

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