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MPEC 2021-T168 : COMET C/2021 T1 (Lemmon)

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M.P.E.C. 2021-T168

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COMET C/2021 T1 (Lemmon)

R. Haver and R. Gorelli report cometary activity of an asteroidal NEOCP candidate (submitted by Mount Lemmon Survey on Oct. 2 UT) in forty 90-second images taken on Oct. 2 at Frasso Sabino Observatory (157), noting a diffuse 8" coma. Precovery images were reported back to Sep. 2021. Additional reports of cometary features are as follows:

OC	Date	Reporter	Coma	Tail	PA	Exposures
H06	2021-10-03	H. Sato	6"			14x60s
B49	2021-10-04	J. Camarasa	12"	10"	180	
B96	2021-10-04	E. Bryssinck	8"	12"	317	30x90s

Observations:

CK21T010	C2021	09	15.33524	01	03	18.70	+45	30	54.4	VET168703	
CK21T010	C2021	09	15.34053	01	03	17.92	+45	30	56.5	20.4	GVET168703
CK21T010*	C2021	10	02.20822523	53	01.81	+44	29	43.5	20.04	GVET168G96	
CK21T010	C2021	10	02.21351823	53	00.50	+44	29	40.4	20.07	GVET168G96	
CK21T010	C2021	10	02.21881123	52	59.13	+44	29	36.7	19.80	GVET168G96	
CK21T010	C2021	10	02.22411823	52	57.78	+44	29	33.0	20.00	GVET168G96	
CK21T010	mC2021	10	02.34385723	52	27.40	+44	28	11.9	19.59	GVET168G96	
CK21T010	mC2021	10	02.34669223	52	26.61	+44	28	10.1	19.51	GVET168G96	
CK21T010	mC2021	10	02.34963623	52	25.84	+44	28	07.8	20.18	GVET168G96	
CK21T010	mC2021	10	02.35268823	52	25.11	+44	28	05.9	20.00	GVET168G96	
CK21T010	C2021	10	02.52292	23	51	42.46	+44	26	09.6	19.1	RrET168P93
CK21T010	C2021	10	02.52759	23	51	41.32	+44	26	05.2	18.9	RrET168P93
CK21T010	C2021	10	02.53480	23	51	39.47	+44	26	00.8	18.8	RrET168P93
CK21T010	C2021	10	02.54417	23	51	37.08	+44	25	54.5	18.9	RrET168P93
CK21T010	C2021	10	02.72964523	50	50.33	+44	23	45.6	19.8	rVET168N51	
CK21T010	C2021	10	02.73560723	50	48.85	+44	23	41.9	20.0	rVET168N51	
CK21T010	KC2021	10	02.83776523	50	23.35	+44	22	28.9	19.8	GVET168L01	
CK21T010	KC2021	10	02.83931423	50	22.96	+44	22	27.4	20.2	GVET168L01	
CK21T010	KC2021	10	02.84086823	50	22.55	+44	22	26.7	19.9	GVET168L01	
CK21T010	KC2021	10	02.84243023	50	22.12	+44	22	25.6	20.0	GVET168L01	
CK21T010	KC2021	10	02.84563723	50	21.34	+44	22	23.0	20.2	GVET168L01	
CK21T010	KC2021	10	02.89210	23	50	09.68	+44	21	50.5	19.2	RqET168157
CK21T010	KC2021	10	02.91379	23	50	04.14	+44	21	34.2	19.7	RqET168157
CK21T010	C2021	10	03.25886	23	48	37.56	+44	17	27.5	VET168H06	
CK21T010	C2021	10	03.26496	23	48	35.97	+44	17	22.8	19.7	GVET168H06
CK21T010	1C2021	10	03.82100423	46	17.20	+44	10	28.6	VET168246		
CK21T010	1C2021	10	03.82128723	46	17.09	+44	10	29.0	VET168246		
CK21T010	1C2021	10	03.82157123	46	17.04	+44	10	28.5	VET168246		
CK21T010	KC2021	10	04.09498623	45	08.99	+44	07	00.6	20.6	VuET168H21	
CK21T010	KC2021	10	04.09779223	45	08.27	+44	06	58.2	21.1	VuET168H21	
CK21T010	KC2021	10	04.10059823	45	07.59	+44	06	56.3	20.4	VuET168H21	
CK21T010	KC2021	10	04.13928123	44	58.01	+44	06	26.3	20.3	GXET168858	
CK21T010	KC2021	10	04.14314823	44	56.99	+44	06	23.3	19.6	GXET168858	
CK21T010	KC2021	10	04.14713423	44	56.06	+44	06	19.8	19.5	GXET168858	
CK21T010	KC2021	10	04.76483	23	42	22.88	+43	58	13.6	16.0	VqET168C82
CK21T010	KC2021	10	04.77340	23	42	20.75	+43	58	05.8	15.9	VqET168C82
CK21T010	KC2021	10	04.78704	23	42	17.42	+43	57	52.5	16.8	VqET168C82
CK21T010	KC2021	10	04.78904	23	42	16.97	+43	57	51.7	16.9	VqET168C82
CK21T010	KC2021	10	04.84390	23	42	03.30	+43	57	07.5	19.5	GVET168B96
CK21T010	KC2021	10	04.86335	23	41	58.15	+43	56	53.2	20.2	GVET168B96
CK21T010	KC2021	10	04.86864623	41	57.19	+43	56	48.1	19.8	GVET168B49	

CK21T010	KC2021	10	04.87131423	41	56.53	+43	56	46.4	19.5	GVET168B49	
CK21T010	KC2021	10	04.87842023	41	54.79	+43	56	39.8	19.8	GVET168B49	
CK21T010	KC2021	10	04.88108223	41	54.15	+43	56	37.6	19.7	GVET168B49	
CK21T010	KC2021	10	04.90285623	41	48.71	+43	56	20.5	19.6	GXET168595	
CK21T010	KC2021	10	04.90899023	41	47.17	+43	56	15.5		XET168595	
CK21T010	KC2021	10	04.91550823	41	45.58	+43	56	09.5		XET168595	
CK21T010	KC2021	10	05.73507	23	38	24.18	+43	44	46.7	19.8	GVET168G02
CK21T010	KC2021	10	05.74143	23	38	22.62	+43	44	41.2	19.7	GVET168G02
CK21T010	KC2021	10	05.74781	23	38	21.08	+43	44	35.6	19.9	GVET168G02
CK21T010	KC2021	10	06.80420	23	34	04.21	+43	29	08.9	19.8	RqET168L27
CK21T010	KC2021	10	06.81607	23	34	01.33	+43	28	58.8	19.5	GVET168I93
CK21T010	KC2021	10	06.82676	23	33	58.85	+43	28	48.4	19.9	RqET168L27
CK21T010	KC2021	10	06.82677	23	33	58.72	+43	28	49.0	19.4	GVET168I93
CK21T010	KC2021	10	06.85010123	33	52.96	+43	28	27.3	19.2	GVET168L06	
CK21T010	KC2021	10	06.85332	23	33	52.24	+43	28	25.4	19.9	RqET168L27
CK21T010	KC2021	10	06.85693823	33	51.34	+43	28	21.3	19.3	GVET168L06	
CK21T010	KC2021	10	06.86220923	33	50.10	+43	28	16.4	19.0	GVET168L06	
CK21T010	KC2021	10	06.86612	23	33	49.17	+43	28	14.0	19.7	RqET168L27
CK21T010	KC2021	10	06.87552	23	33	46.91	+43	28	06.1	19.7	RqET168L27
CK21T010	KC2021	10	07.09471	23	32	53.20	+43	24	43.3	19.1	RqET168A77
CK21T010	KC2021	10	07.10073	23	32	52.28	+43	24	38.9	18.6	RqET168A77
CK21T010	KC2021	10	07.10750	23	32	50.20	+43	24	29.3	18.8	RqET168A77
CK21T010	C2021	10	07.69936523	30	28.82	+43	15	23.4	19.7	rVET168N51	
CK21T010	C2021	10	07.70532923	30	27.39	+43	15	17.8	20.0	rVET168N51	
CK21T010	KC2021	10	07.79456	23	30	06.38	+43	13	51.9	19.9	GVET168K74
CK21T010	KC2021	10	07.80537	23	30	03.77	+43	13	43.0	19.8	GVET168K74
CK21T010	KC2021	10	07.81039	23	30	02.61	+43	13	38.1	19.6	GVET168K74
CK21T010	KC2021	10	07.84479	23	29	54.35	+43	13	05.6	18.8	GXET168J57
CK21T010	KC2021	10	07.85495	23	29	51.91	+43	12	55.2	19.4	GXET168J57
CK21T010	KC2021	10	07.88960623	29	43.58	+43	12	22.4	19.3	GXET168958	
CK21T010	KC2021	10	07.90082523	29	40.94	+43	12	13.1	19.4	GXET168958	
CK21T010	KC2021	10	07.91204423	29	38.31	+43	12	01.0	19.5	GXET168958	

Observer details:

- 157 Frasso Sabino. Observers R. Haver, R. Gorelli. Measurer R. Haver. 0.37-m f/6.70 Cassegrain + CCD.
- 246 Klet Observatory-KLENOT. Observers M. Tichy, J. Ticha, M. Honkova. Measurer M. Tichy. 1.06-m f/2.7 reflector + 2048x2048 CCD.
- 595 Farra d'Isonzo. Observer E. Pettarin. 0.40-m f/5.15 reflector + CCD.
- 703 Catalina Sky Survey. Observer D. Rankin. Measurers B. Gray, D. Rankin, F. C. Shelly. 0.68-m Schmidt + 10K CCD.
- 858 Tebbutt Observatory, Edgewood. Observer F. B. Zoltowski. 0.51-m Schmidt-Cassegrain + CCD.
- 958 Observatoire de Dax. Observers P. Dupouy, J. B. de Vanssay. Measurer P. Dupouy. 0.43-m f/2.7 reflector + CCD.
- A77 Observatoire Chante-Perdrix, Dauban. Observer J.-G. Bosch. 0.4-m f/2.8 reflector + CCD.
- B49 Paus Observatory, Sabadell. Observer J. Camarasa. 0.30-m f/4.0 reflector + CCD.
- B96 Brixii Observatory, Krubike. Observer E. Bryssinck. 0.4-m f/3.8 reflector + CCD.
- C82 Osservatorio Astronomico Nastro Verde, Sorrento. Observer N. Ruocco. 0.35-m f/6.3 Schmidt-Cassegrain + CCD.
- G02 KYSUCE Observatory, Kysucke Nove Mesto. Observers M. Urbanik, J. Masiar. Measurer M. Urbanik. 0.40-m f/4.5 Corrected Dall-Kirkham + CCD.
- G96 Mt. Lemmon Survey. Observer D. C. Fuls. Measurers E. J. Christensen, G. A. Farneth, D. C. Fuls, A. R. Gibbs, A. D. Grauer, H. Groeller, R. A. Kowalski, S. M. Larson, G. J. Leonard, T. A. Pruyn, D. Rankin, R. L. Seaman, F. C. Shelly, K. W. Wierzbos. 1.5-m reflector + 10K CCD.
- H06 iTelescope Observatory, Mayhill. Observer H. Sato. 0.43-m f/6.8 astrograph + CCD + f/4.5 focal reducer.
- H21 Astronomical Research Observatory, Westfield. Observer R. Holmes. Measurers T. Linder, R. Holmes, L. Horn. 0.81-m f/4.0 astrograph + CCD.
- I93 St Pardon de Conques. Observer F. Losse. 0.40-m f/3.7 reflector + CCD.
- 357 Centro Astronomico Alto Turia, Valencia. Observer A. Fornas. Measurers A. Fornas, G. Fornas, E. Arce, V. Mas. 0.43-m f/6.8 reflector + CCD.
- K74 Muensterschwarzach Observatory, Schwarzach. Observer C. Gerhard. 0.3-m f/3.75 Newtonian reflector + CCD.
- L01 Visnjan Observatory, Tican. Observers K. Korlevic, D. Pujagic, V. Dobos. Measurer D. Pujagic. 1.0-m f/2.9 reflector + CCD.
- L06 Sormano 2 Observatory, Bellagio Via Lattea. Observer G. Ventre. Measurer P. Sicoli. 0.36-m Schmidt-Cassegrain + CCD.
- L27 29PREMOTÉ Observatory, Dauban. Observer J.-F. Soulier. 0.25-m f/3.5 Newtonian reflector + CCD.
- N51 GROWTH India Telescope, IA0, Hanle. Observers V. Swain, K. Sharma, H. Kumar, U. Stanzin, V. Bhalerao, G. C. Anupama, S. Barway. Measurers V. Swain, K. Sharma. 0.70-m f/6.5 Corrected Dall-Kirkham + CCD.
- P93 Space Tracking and Communications Center, JAXA. Observers S. Urakawa, M. Hagino. 1.0-m f/3.0 reflector + CCD.

Orbital elements:

C/2021 T1 (Lemmon)
 Epoch 2021 Nov. 2.0 TT = JDT 2459520.5
 T 2021 Oct. 14.27740 TT

q	3.0562765	(2000.0)	P	Rudenko
z	+0.0030994	Peri.	51.52751	Q
	+/-0.0013341	Node	56.78613	-0.02812947
e	0.9905273	Incl.	140.34256	-0.99960409
			+0.53413158	-0.00062465

 From 73 observations 2021 Sept. 15-Oct. 7, mean residual 0".9.

C/2021 T1 (Lemmon)
 Epoch 2021 July 5.0 TT = JDT 2459400.5
 T 2021 Oct. 14.25061 TT

q	3.0563092	(2000.0)	P	Rudenko
z	+0.0031346	Peri.	51.51853	Q
	+/-0.0013341	Node	56.78383	-0.02804151
e	0.9904196	Incl.	140.34123	-0.99960662
			+0.53413354	-0.00052820

 From 73 observations 2021 Sept. 15-Oct. 7, mean residual 0".9.

Ephemeris:

Date	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2021	09	08	01 29 56.2	+44 46 45	2.4469	3.0768	120.0	16.5	19.3
...									
2021	09	23	00 32 09.5	+45 34 28	2.2817	3.0634	133.8	13.7	19.2
...									
2021	10	01	23 58 07.9	+44 42 38	2.2422	3.0590	137.8	12.7	19.1
...									

2021 10 07	23 33 16.9 +43 26 13	2.2373	3.0571	138.3	12.6	19.1
2021 10 08	23 29 17.4 +43 10 38	2.2385	3.0569	138.2	12.6	19.1
2021 10 09	23 25 21.1 +42 54 19	2.2404	3.0567	138.0	12.6	19.1
...						
2021 10 15	23 03 04.1 +41 02 50	2.2639	3.0563	135.5	13.2	19.1
...						
2021 10 23	22 37 32.7 +38 08 44	2.3263	3.0575	129.5	14.5	19.2
...						
2021 11 07	22 03 09.0 +32 23 29	2.5224	3.0651	114.2	17.2	19.4

M. P. C. Staff

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