

PHOTOELECTRIC PHOTOMETRY OPPORTUNITIES

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The table below lists asteroids which come to opposition during the months of November through January that represent useful targets for photoelectric photometry observations. Observations are needed because the asteroid has either an unknown or ambiguous rotational period or because the asteroid will be observable at a very low phase angle. The table also includes asteroids which are candidates for pole determinations (see the article by Di Martino and Zappalà in issue 12, No. 1), are targets for radar observations (see the article by Ostro in MPB 10, No. 4), or are subjects for shape modeling (see the article by Davis and Binzel in MPB 14, No. 3). The table gives (in order of opposition dates) the asteroid number and name, opposition date, opposition V magnitude, the rotational period (in hours), the estimated lightcurve amplitude (in magnitudes), and the designation PER if observations are needed to determine the rotational period. AMB implies that previous period determinations have given ambiguous results and these alternate periods are listed in the table. PHA indicates observations of the phase curve are desired because the asteroid will be at an unusually low phase angle, POL indicates the asteroid is a pole position candidate, RAD indicates the asteroid is a planned radar target, and MOD denotes an asteroid at a critical longitude for shape modeling. Question marks are used to denote uncertain or unknown values. An outline of recommended observing procedures is given in MPB 11, No. 1, page 7. Also recommended is the book *Solar System Photometry Handbook* published by Willmann-Bell. Ephemerides for all of the asteroids in the table are included in this issue. Finder charts for some of these asteroids may appear in the *Minor Planet Observer*. For information on this publication, contact: Brian D. Warner, Box 818, Florissant, CO 80816. In addition to the objects listed here, observers should especially note the opportunity to observe 4179 Toutatis, whose call for observations appears elsewhere in this issue.

Asteroid	Opp'n Date	Opp'n V Mag	Per	Amp	
441 Bathilde	Nov 29	11.7	10.35	0.1	PHA
455 Bruchsalia	Dec 9	11.6	?	?	PER
198 Ampella	Jan 14	11.7	?	?	PER
426 Hippo	Jan 29	11.7	?	?	PER

Photoelectric Photometry Opportunities

			R.A. (2000)		DEC.	MAG	PHASE	
DATE			HR	MIN	DEG	MIN	V	ANGLE
Minor Planet			198 Ampella					
1992	Dec	9	8	16.17	+15	30.3	12.41	16.2
		19	8	9.84	+15	5.6	12.23	12.5
		29	8	0.93	+14	49.7	12.03	8.3
1993	Jan	8	7	50.32	+14	41.7	11.83	4.1
		18	7	39.20	+14	39.9	11.80	2.9
		28	7	28.84	+14	42.4	12.08	6.6
	Feb	7	7	20.35	+14	47.6	12.36	10.5
17		7	14.44	+14	53.8	12.62	13.9	
27		7	11.43	+14	59.7	12.86	16.6	

Minor Planet 426 Hippo						
1992 Dec	19	9 26.44	+20 35.3		12.88	16.4
	29	9 22.37	+20 1.3		12.66	13.5
1993 Jan	8	9 15.40	+19 30.8		12.41	9.9
	18	9 6.01	+19 1.5		12.14	5.7
	28	8 55.05	+18 30.8		11.81	1.1
Feb	7	8 43.75	+17 56.7		11.98	3.6
	17	8 33.37	+17 18.6		12.24	8.1
	27	8 25.02	+16 36.8		12.46	12.2
Mar	9	8 19.39	+15 52.1		12.67	15.6

Minor Planet 441 Bathilde						
1992 Oct	20	4 49.64	+25 42.1		12.81	16.2
	30	4 46.40	+25 16.7		12.59	13.1
Nov	9	4 40.41	+24 41.7		12.35	9.3
	19	4 32.25	+23 57.2		12.08	4.9
	29	4 22.93	+23 4.9		11.75	0.6
Dec	9	4 13.67	+22 8.7		12.04	4.4
	19	4 5.65	+21 13.7		12.30	8.8
	29	3 59.82	+20 25.0		12.53	12.7
1993 Jan	8	3 56.73	+19 46.3		12.75	16.0

Minor Planet 455 Bruchsalia						
1992 Oct	30	5 42.97	+20 10.2		12.52	19.2
	Nov 9	5 38.23	+20 55.3		12.34	15.3
Nov	19	5 30.18	+21 42.9		12.15	10.7
	29	5 19.62	+22 30.1		11.94	5.6
	Dec 9	5 7.85	+23 13.7		11.63	0.3
Dec	19	4 56.41	+23 51.9		12.05	4.8
	29	4 46.72	+24 24.6		12.40	9.4
1993 Jan	8	4 39.79	+24 53.4		12.72	13.3
	18	4 36.09	+25 20.4		13.00	16.4