

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

Number 5701

Konkoly Observatory
Budapest
3 May 2006

HU ISSN 0374 – 0676

TIMES OF MAXIMA FOR SELECTED DELTA SCUTI STARS

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We are presenting 120 previously unpublished times of maxima for 32 Delta Scuti and SX Phe stars. The observations were obtained in the period 2002 - 2006, using the telescopes and CCD-detectors listed in Tables 1 and 2. CCD-frame calibration and differential aperture photometry were performed using AIP4WIN software (Berry and Burnell, 2005), sextractor and custom-written applications. The times of maxima, presented in Table 3, are all heliocentric, and were determined by polynomial fitting using Peranso software (Vanmunster, 2006).

Table 1: Telescopes and Observatories

Telescope type	Aperture	F-ratio	Observatory
Newtonian	20 cm	f/4	Bossmo Observatory (BMO)
Catadioptric	25 cm	f/10	Rolling Hills Observatory (RHO)
Catadioptric	30 cm	f/5	SETEC Observatory (SEO)

Table 2: Detectors

CCD type	Chip	FOV	Pixels	Observatory
SBIG ST-7	Kodak KAF-400	19'4 × 28'8	765 × 510	BMO
SBIG ST-9XE	Kodak KAF-0261	18'5 × 18'5	512 × 512	RHO
SBIG ST-8	Kodak KAF-1603ME	19'3 × 29'3	1530 × 1020	SEO

Table 3: Times of Maxima

Star	HJD	+/-	Filter	Obs
CC And	2452609.67358	0.00010	V	SEO
	2452609.80426	0.00046	V	SEO
	2453280.31612	0.00094	V	BMO
	2453280.43954	0.00108	V	BMO
GP And	2453680.35518	0.00031	None	BMO
V356 Aur	2453708.60049	0.00140	None	BMO

Table 3: (cont.)

YZ Boo	2452374.70620	0.00121	None	SEO
	2452374.81064	0.00102	None	SEO
	2452392.71252	0.00024	None	SEO
	2452392.81760	0.00033	None	SEO
	2452392.91966	0.00074	None	SEO
	2452432.68370	0.00053	V	SEO
	2452432.78942	0.00062	V	SEO
	2453798.47144	0.00054	None	BMO
	2453798.57500	0.00051	None	BMO
	2453798.67870	0.00052	None	BMO
	2453800.86516	0.00044	V	RHO
	2453800.96972	0.00015	V	RHO
BL Cam	2453809.30025	0.00004	None	BMO
	2453809.33812	0.00005	None	BMO
UY Cam	2453808.42249	0.00292	None	BMO
V871 Cas	2453816.46696	0.00051	None	BMO
	2453816.60251	0.00094	None	BMO
DQ Cep	2453710.23224	0.00074	None	BMO
	2453797.69160	0.00052	None	BMO
AD CMi	2453810.62591	0.00030	V	RHO
XX Cyg	2453169.84064	0.00015	V	RHO
	2453499.85607	0.00049	V	RHO
	2453538.69645	0.00045	V	RHO
	2453626.62920	0.00040	V	RHO
	2453660.61528	0.00059	V	RHO
	2453686.50947	0.00056	V	RHO
	2453695.27639	0.00047	None	BMO
	2453695.41071	0.00043	None	BMO
V2028 Cyg	2453708.27713	0.00155	None	BMO
V2129 Cyg	2453442.33548	0.00027	None	BMO
GW Dra	2453713.19876	0.00018	None	BMO
	2453713.31692	0.00031	None	BMO
QS Gem	2453709.69030	0.00118	V	BMO
V345 Gem	2453443.36334	0.00170	None	BMO
DY Her	2452786.65844	0.00064	V	RHO
	2453054.93914	0.00015	V	RHO
	2453132.67363	0.00005	V	RHO
	2453489.83381	0.00018	V	RHO
	2453535.61256	0.00039	V	RHO
V830 Her	2453817.57388	0.00092	None	BMO
V927 Her	2453803.51891	0.00095	None	BMO
	2453803.66209	0.00099	None	BMO
	2453804.56891	0.00020	None	BMO
V966 Her	2453807.54554	0.00031	None	BMO
VX Hya	2452735.60669	0.00069	V	RHO
	2453016.91220	0.00042	V	RHO
	2453113.63636	0.00022	V	RHO
	2453467.69577	0.00106	V	RHO
	2453476.59757	0.00151	V	RHO
AN Lyn	2453796.32690	0.00072	None	BMO
	2453802.61728	0.00084	V	RHO
	2453802.71466	0.00067	V	RHO
BE Lyn	2453416.27845	0.00047	None	BMO
	2453416.37521	0.00046	None	BMO
	2453443.60274	0.00040	None	BMO
	2453798.31817	0.00024	None	BMO
BO Lyn	2453795.53561	0.00044	None	BMO
	2453795.63339	0.00037	None	BMO
CQ Lyn	2453709.38329	0.00069	V	BMO
	2453709.49681	0.00076	V	BMO

Table 3: (cont.)

SZ Lyn	2452321.73578	0.00063	None	SEO	
	2452343.79563	0.00042	None	SEO	
	2452623.55155	0.00058	V	SEO	
	2452623.67342	0.00035	V	SEO	
	2452640.54936	0.00035	V	SEO	
	2452640.66976	0.00056	V	SEO	
	2452643.44217	0.00118	V	SEO	
	2452643.56365	0.00062	V	SEO	
	2452643.68337	0.00081	V	SEO	
	2452647.42013	0.00047	V	SEO	
	2452647.54057	0.00051	V	SEO	
	2452647.65949	0.00023	V	SEO	
	2452648.50325	0.00056	V	SEO	
	2452648.62321	0.00082	V	SEO	
	2452658.63939	0.00036	V	RHO	
	2453064.72252	0.00024	V	RHO	
	2453338.81318	0.00097	V	RHO	
	2453395.58528	0.00022	V	RHO	
	2453416.55775	0.00050	V	BMO	
	2453745.73923	0.00064	V	RHO	
	2453758.76187	0.00016	V	SEO	
	2453758.88451	0.00035	V	SEO	
	2453759.60604	0.00007	V	SEO	
	2453759.72692	0.00002	V	SEO	
	2453759.84713	0.00061	V	SEO	
	2453759.96792	0.00027	V	SEO	
	2453798.41955	0.00049	None	BMO	
TV Lyn	2453806.53233	0.00062	None	BMO	
BP Peg	2453709.23216	0.00025	None	BMO	
DY Peg	2452518.74991	0.00053	None	SEO	
	2452518.82371	0.00043	None	SEO	
	2452522.75997	0.00061	None	SEO	
	2452522.83366	0.00071	None	SEO	
	2452522.90871	0.00058	None	SEO	
	2452524.73135	0.00078	None	SEO	
	2452524.80295	0.00022	None	SEO	
	2452524.87576	0.00043	None	SEO	
	2452524.94893	0.00039	None	SEO	
	2453295.21602	0.00015	V	BMO	
	2453295.28932	0.00014	V	BMO	
	AE UMa	2453409.52857	0.00024	None	BMO
		2453409.61085	0.00032	None	BMO
2453409.69405		0.00058	None	BMO	
2453794.36194		0.00029	None	BMO	
2453795.31152		0.00031	None	BMO	
2453795.39982		0.00013	None	BMO	
2453827.65701		0.00130	V	RHO	
GG UMa	2453711.29412	0.00064	V	BMO	
HH UMa	2453801.92005	0.00193	V	RHO	
IP UMa	2453712.50592	0.00041	V	BMO	
	2453712.60750	0.00074	V	BMO	
	2453797.34943	0.00061	None	BMO	
	2453797.45183	0.00082	None	BMO	
TU UMi	2453713.50846	0.00045	V	BMO	

Remarks:

Many Delta Scuti stars have multiple periods, and in these cases $O - C$ values might show some scatter due to the beating of the periods. Still, averaged $O - C$ values are useful when looking for long term trends (Fauvud et al., 2006) or sudden period changes (Breger et al., 1998), if analyzed with care.

Acknowledgements:

This work has made use of the SIMBAD database, operated at CDS, Strasbourg, France.

Reference:

- Berry, R., Burnell, J., 2005, Handbook of Astronomical Image Processing, Willmann-Bell
<http://www.willbell.com/aip/index.htm>
- Breger, M., Pamyatnykh, A. A., 1998, *A&A*, **332**, 958
- Fauvud, S., Rodríguez, E., Zhou, A.Y. et al., 2006, “A comprehensive study of the SX Phe star BL Cam”, accepted for publication in *A&A*
- Vanmunster, T., 2006, <http://www.peranso.com>

ERRATUM FOR IBVS 5701

The star listed as V2028 Cyg in IBVS 5701 should be V2088 Cyg.

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