

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

Number 4860

Konkoly Observatory  
Budapest  
8 March 2000

*HU ISSN 0374 – 0676*

**NEW OBSERVATIONS ON CLASSICAL CEPHEIDS**

**DL Cas AND FM Cas**

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<b>Name of the object:</b>
DL Cas

<b>Equatorial coordinates:</b>	<b>Equinox:</b>
<b>R.A.</b> = 00 <sup>h</sup> 29 <sup>m</sup> 58 <sup>s</sup> .6 <b>DEC.</b> = +60°12'43".1	2000.0

<b>Name of the object:</b>
FM Cas

<b>Equatorial coordinates:</b>	<b>Equinox:</b>
<b>R.A.</b> = 00 <sup>h</sup> 14 <sup>m</sup> 28 <sup>s</sup> .2 <b>DEC.</b> = +56°15'10".6	2000.0

<b>Observatory and telescope:</b>
Szeged Observatory – University of Szeged, 0.4-m Cassegrain-type telescope

<b>Detector:</b>	Single-channel Optec SSP-5A photoelectric photometer
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<b>Filter(s):</b>	<i>UBV</i>
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<b>Comparison star(s):</b>	DL Cas: HD 236433 ( $V = 8^m88$ , $B - V = 0^m97$ , $U - B = 0^m64$ ) FM Cas: HD 236355 ( $V = 9^m16$ , $B - V = 1^m67$ )
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<b>Transformed to a standard system:</b>	Johnson
<b>Standard stars (field) used:</b>	Mean transformation coefficients of the differential photometry

<b>Type of variability:</b>	DCEP
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Table 1: *UBV* photometry of DL Cas and FM Cas

DL Cas					FM Cas				
Hel. J.D. 2400000 +	$\phi$	$V$	$B - V$	$U - B$	Hel. J.D. 2400000 +	$\phi$	$V$	$B - V$	
50320.573	0.462	9.108	1.304	0.971	50322.449	0.851	9.163	0.920	
50322.411	0.692	9.254	1.362	0.915	50368.342	0.751	9.418	1.060	
50368.333	0.431	9.090	1.288	0.903	50370.406	0.106	8.963	0.887	
50370.397	0.689	9.238	1.369	0.915	50371.340	0.267	9.117	0.991	
50371.335	0.807	9.051	1.228	0.811	50378.384	0.480	9.268	1.115	
50387.363	0.810	9.042	1.210	0.763	50387.383	0.029	8.875	0.839	
50388.291	0.926	8.776	1.075	0.667	50388.297	0.186	9.062	0.972	
50378.375	0.687	9.277	1.323	0.968	50391.465	0.731	9.451	1.090	
50391.456	0.322	8.949	1.241	0.826	50393.372	0.060	8.912	0.837	
50393.364	0.560	9.183	1.371	0.971	50397.361	0.746	9.420	1.083	
50397.320	0.054	8.761	1.089	0.707	50409.252	0.793	9.300	1.039	
50409.243	0.545	9.204	1.353	0.928	50413.434	0.513	9.305	1.095	
50413.426	0.068	8.790	1.102	0.683					
50855.245	0.291	8.907	1.216	–					
50862.310	0.174	8.841	1.169	–					
51078.410	0.184	8.870	1.147	0.787					

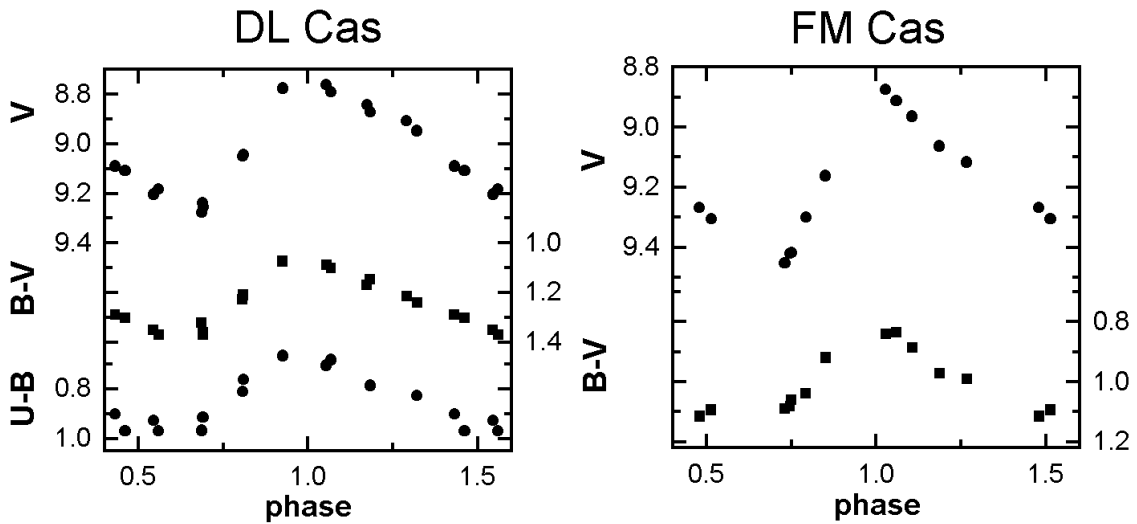


Figure 1. The light and colour curves of DL Cas and FM Cas phased with the ephemerides taken from Moffett & Barnes (1984).

**Remarks:**

In the course of photoelectric observations of the brightest northern Cepheids (Kiss 1998) we carried out supplementary photometry for DL Cas (a binary Cepheid located in the open cluster NGC 129, Gieren et al. 1994) and the rarely observed Cepheid FM Cas being at an angular distance of only  $5^\circ$  SW from DL Cas. The main aim was to check the period stability of the programme stars. The data obtained between 1996 and 1998 are presented in Table 1. The achieved accuracy is about  $\pm 0.015$  mag for  $V$  and  $\pm 0.02 - 0.025$  for  $B - V$  and  $U - B$ .

The light and colour curves presented in Fig. 1 were folded by the following ephemerides (Moffett & Barnes 1984):

$$\text{DL Cas: } P = 8^{\text{d}}000610, E_0 = 2444948.465,$$

$$\text{FM Cas: } P = 5^{\text{d}}809280, E_0 = 2444223.567.$$

We compared the resulting  $V$  phase diagrams with those of by Moffett & Barnes (1984) to look for small phase shifts caused by the possible period change. While the phases of DL Cas are in very good agreement with the earlier data, in the case of FM Cas a small shift of  $\Delta\varphi \approx +0.01$  seems to be necessary to add to our data in order to match the two curves. This corresponds to an  $O - C = -0.058$  days, however, it has a quite large uncertainty (comparable to its value) due to the poor phase coverage.

**Acknowledgements:**

This work has been supported by Hungarian OTKA Grant #T032258 and Szeged Observatory Foundation.

## References:

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 Kiss, L.L., 1998, *MNRAS*, **297**, 825  
 Moffett, T.J., Barnes, T.G., 1984, *ApJS*, **55**, 389