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mCPod — Three Years Later

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Abstract. We present new progress in our extensive project mCPod (*On–line database of photometric observations of magnetic CP stars*), which was initiated five and a half years ago (Mikulášek et. al, 2007). The nascent database that contains now more than 215 thousand photometric measurements of the most important 157 mCP stars will be continuously supplemented with published or new photometric data on these and also additional mCP stars.

Key words: chemically peculiar stars – magnetic stars – photometry

1 Structure and Content of the Database

Using the NASA ADS (http://adsabs.harvard.edu/abstractservice.html) and the SIMBAD (http://simbad.ustrasbg.fr/Simbad) services we collected photometric observations of 157 magnetic CP variable stars now available and satisfying the requirements of many sources. We also obtained some observations as private communications from other authors. Most of the mCP stars were observed in the Strömgren uvby photometric system (Strömgren, 1966) and the HIPPARCOS (ESA, 1997) system, observations were also performed in other systems, e. g., the Johnson international photometric system (Johnson and Morgan, 1951), Geneva (Golay, 1972), 10–colour photometry (Schöneich et al., 1976), Walraven (Walraven & Walraven, 1960) and Maitzen (Maitzen, 1976) systems. Recently we included this year data from the project ASAS (http://www.astrouw.edu.pl/asas/) and NSVS database (http://skydot.lanl.gov/nsvs/nsvs.php). In the future we expect the list to be extended to more than 400 stars with photometric observations.

The database consists of two parts, the Data and the References. In the References one finds the sources of data, the bibcodes including links to the corresponding papers, names of comparison and check stars (if available), the number of observations in individual filters (see Fig. 1).

We calculated the mean values of magnitudes, the error of one measurement and the effective amplitudes in particular filters presented in this part from all the data sets of a given star. We define the effective amplitude $A_{\rm eff}$ as:

$$A_{\rm eff} = \sqrt{8 \int_0^1 (m(\varphi) - \overline{m})^2 d\varphi}\,,$$

where φ is the phase, $m(\varphi)$ is a colour light curve and $\overline{m}$ is its mean value. The factor 8 is selected so that the effective amplitude of the sine light curve corresponds to the amplitude of the observed one.

When using the data by means of this database, the original sources linked at the *References* should be cited.

The Data contains photometric observations and offers various possibilities for retrieval, e.g. photometric systems and epochs of observation. After submitting the selection, a tabulated list

On-line database of photometric observations of mCP stars

mCPod - mCP observation database

References for HD 37776

	ref. No.	star HD#	source	bibcode	comp HD#	dataset statistics	
☐	0000	037776	ESA 1997, The Tycho Catalogues	ESA, SP-1200 (link to ADS)		Get statistics	Hp(103)Bh (129)Vh (129)
☐	0006	037776	Groote, D.; Kaufmann, J. P.	1983A&AS...53...91G (link to ADS)		Get statistics	J(10)H(10)K (10)L(10)M (8)
☐	0026	037776	Pedersen, H.; Thomsen, B.	1977A&AS...30...11P (link to ADS)		Get statistics	u(54)v(54)b (54)y(54)
☐	0033	037776	Adelman, S. J.	1997A&AS..125...65A (link to ADS)	HD36591	Get statistics	u(42)v(42)b (42)y(42)
☐	0085	037776	Adelman, S. J.; Pyper, D. M.	1985A&AS...62..279A (link to ADS)	HD37744	Get statistics	u(18)v(18)b (18)y(18)β (15)
☐	0103	037776	Bartolini, C.; Bonifazi, A.; et al.	1982Ap&SS..83..287B (link to ADS)	HD37674,HD37393	Get statistics	U(41)B(58) V(58)
☐	0111	037776	Pojmanski, G.	2002AcA....52..397P (link to ADS)		Get statistics	V(470)
☐	0123.1	037776	Mikulášek, Z.; Krtička, J.; Henry, G.W.; and co	2008A&A...485..585M (link to ADS)	HD37788	Get statistics	B(209)V (209)
☐	0123.2	037776	Mikulášek, Z.; Krtička, J.; Henry, G.W.; and co	2008A&A...485..585M (link to ADS)	HD36166	Get statistics	U(14)B(17) V(17)
☐	0123.3	037776	Mikulášek, Z.; Krtička, J.; Henry, G.W.; and co	2008A&A...485..585M (link to ADS)	HD36591	Get statistics	U(30)B(27) V(27)

JD (<-) (starting Julian Date 2400000+, without restriction left empty)

JD (->) (finishing Julian Date 2400000+, without restriction left empty)

Submit query

Database Query Results for star 37776 (all filters)

Figure 1: Response of *Database* in the *References* part.

On-line database of photometric observations of mCP stars

mCPod - mCP observation database

General Database Query Form

Star: HD (asterisk for all stars included in database)

JD (<-) (starting Julian Date 2400000+, without restriction left empty)

JD (->) (finishing Julian Date 2400000+, without restriction left empty)

Johnson	☐ U	☐ B	☐ V	☐ R	☐ R_C	☐ I	☐ J	☐ K	☐ L	☐ M		
Strömgren	☐ u	☐ v	☐ b	☐ y	☐ c_1	☐ m_1	☐ β	☐ β_{191}	☐ β_{37}	☐ α	☐ (b-y)	☐ y
Geneva	☐ U-B_1	☐ B_1-B_2	☐ B_2-V_1	☐ V_1-G	☐ H	☐ B	☐ V	☐ B_1	☐ B_2	☐ V_1	☐ G	
Hipparcos	☐ H_p	☐ B_h	☐ V_h									
10 colour photometry	☐ U	☐ P	☐ X	☐ Y	☐ Z	☐ V	☐ HR	☐ S	☐ MR	☐ DR		
Walraven	☐ V	☐ B	☐ L	☐ U	☐ W							
Maitzen and others	☐ g_1	☐ g_2	☐ Δa		☐ 4200Å	☐ 5360Å						
DAO	☐ D	☐ H	☐ B	☐ V	☐ B'	☐ V'						
MOST	☐ V_m											

None filter selected means all filters selected.

Submit query

Figure 2: Query form for selecting filters/indexes.

Table 1: Codes of filters and colour indices of photometric systems

Johnson	Strömgren	Hipparcos	Geneva	10–colour photom.	Walraven	Maitzen and other
$U = 1$	$u = 20$	$H_{\rm p} = 30$	U-$B_1 = 36$	$U = 50$	$V = 60$	$g_1 = 70$
$B = 2$	$v = 21$	$B_{\rm h} = 31$	B_1-$B_2 = 37$	$P = 51$	$B = 61$	$g_2 = 71$
$V = 3$	$b = 22$	$V_{\rm h} = 32$	B_2-$V_1 = 38$	$X = 52$	$L = 62$	$\Delta a = 72$
$R = 4$	$y = 23$		V_1-$G = 39$	$Y = 53$	$U = 63$	
$R_{\rm C} = 5$	$c_1 = 24$		$U = 40$	$Z = 54$	$W = 64$	4200Å$= 75$
$I = 6$	$m_1 = 25$		$B = 41$	$V = 55$		5360Å$= 76$
$J = 7$	$\beta = 26$		$V = 42$	$HR = 56$		
$H = 8$	$\alpha = 27$		$B_1 = 43$	$S = 57$		
$K = 9$	$(b$-$y) = 28$		$B_2 = 44$	$MR = 58$		MOST
$L = 10$	$\gamma = 29$		$V_1 = 45$	$DR = 59$		$V_{\rm m} = 100$
$M = 11$			$G = 46$			

of information on the data available is displayed (see Fig. 2). Besides the HD, the filter number and the number of the records found, one can extract the data in the ASCII format ('TXT'). The data are also plotted in two formats ('PNG' and 'EPS'). The data extracted contain the following columns: the HD number, the HJD-2400000, the magnitude or magnitude difference, the error of the individual measurement when given (otherwise 0.0000 is shown), the filter number, and the reference code. The database mCPod of 157 CP stars, largely magnetic ones is accessible at

http://astro.physics.muni.cz/mcpod

A reader can visit it and kindly send us comments, suggestions or recommendations. They will help us to improve the future versions of the Database.

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