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2004 UBVR PHOTOMETRY OF THE ECLIPSING BINARY KR Cyg

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Equatorial coordinates:	**Equinox:**
R.A.= $20^{h}09^{m}17^{s}.6$ **DEC.**= $+30°33'55''$	2005.0

Observatory and telescope:
Ege University Observatory, 48 cm Cassegrain telescope.

Detector:	High Speed Three-Channel Photon counting photometer (HSTCP).

Filter(s):	UBVR

Date(s) of the observation(s):
2004.06.25 - 2004.07.08

Comparison star(s):	HD 191398

Check star(s):	HD 333664

Transformed to a standard system:	Yes
Standard stars (field) used:	HD 185025 (from Landolt, 1992)

Availability of the data:
upon request

Type of variability:	EB

Remarks:

Using the latest published minima taken from Taş et al. (2004) with the minima times in Table II of Sipahi and Gülmen (2004), the light elements are improved using the linear least squares method and expressed in the following equation with the probable errors:

$$\text{HJD Min I} = 2429106.3987(14) + 0.84515252(7) \times E$$

The O-C's were computed according to Vetesnik (1965). In this study the UBVR light curves of the system obtained in the year 2004 is presented. The light curves obtained in four colours are shown in Figure 1. The first U-B colour curve of KR Cyg in the literature is observed and is plotted together with the other colour index curves in Figure 2. The amplitudes of primary minima for U, B, V, R bands are $0\overset{m}{.}882$, $0\overset{m}{.}878$, $0\overset{m}{.}833$ and $0\overset{m}{.}800$ magnitudes, respectively. The asymmetrical shape of the lowest part of the primary minimum is rather a striking feature. Similar effect appears in the light curve of some Algols and β Lyr type systems like BL And, V1425 Cyg and of Algol itself. It is generally accepted that this asymmetry is caused by the presence of the gaseous stream or by an accretion disc. In Fig. 2 another striking feature appears: the $B - V$ and $V - R$ colour curves become redder in primary minimum, while they get bluer in secondary minimum. This would indicate that primary eclipse is an occultation: the radiation from hotter, bluer star is being blocked by the secondary. On the other hand, $U - B$ colour curve gets bluer during both minima. This interesting behaviour of colour curves of KR Cyg will be investigated in an other study.

Acknowledgements:

I am grateful to Dr. G. Taş for her comments.

References:

Landolt, A. U., 1992, *AJ*, **104**, 340.
Sipahi, E. and Gülmen, Ö, 2004, *ApSS*, **293**, 307.
Taş et al., 2004, *IBVS* No. 5548.
Vetesnik, M., 1965, *BAC*, **16**, 326.

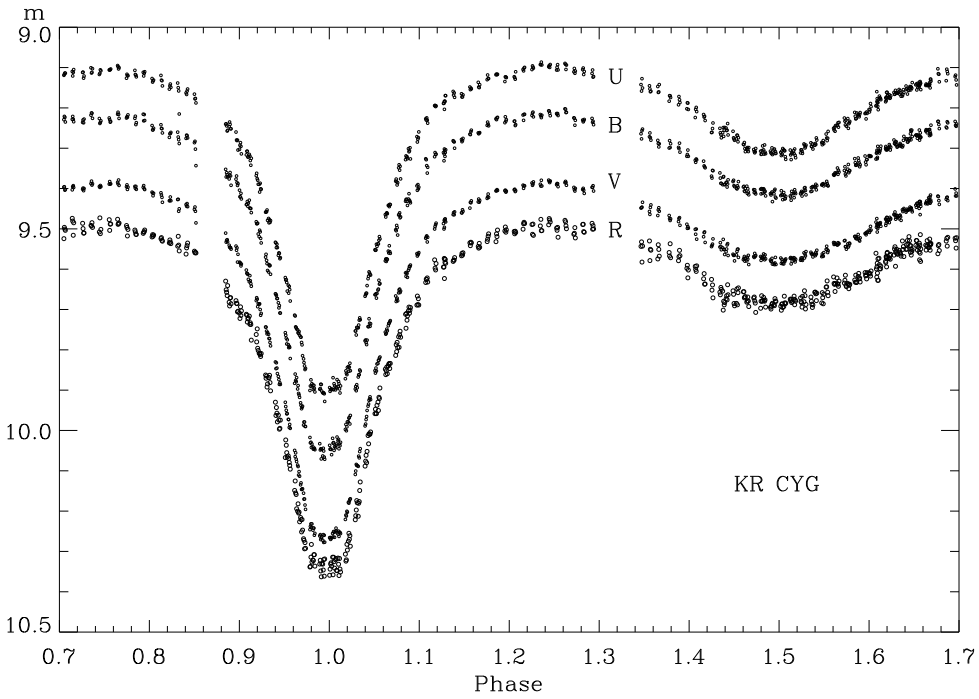

Figure 1. The UBVR light curves of KR Cyg.

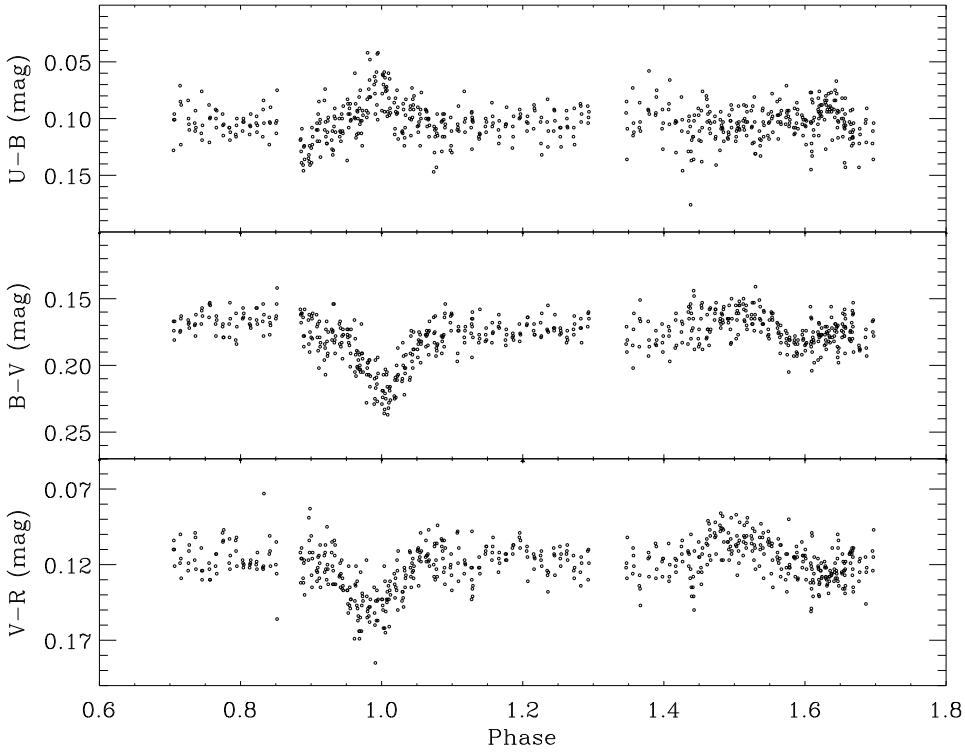

Figure 2. The colour curves of KR Cyg.

ERRATUM FOR IBVS 5549

There is a typographical error in the GSC identification of V3886 Sgr as listed in IBVS 5549. The article identified the variable as GSC 7492 3038. The correct identification is GSC 7942 3038.

Shawn Dvorak