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## ON THE PERIOD VARIATION IN RS CVn AND SS Cam

There is an error in sign in the theory offered to explain the period variation in RS CVn (Hall, P.A.S.P.84,323,1972) and SS Cam (Arnold, Hall, Montle, IBVS 796, 1973). Mass loss from the leading hemisphere of one star in a binary system would decrease the orbital period (not increase it, as stated in the two papers). The correlation between the orientation of the fainter hemisphere of the cool peculiar star and the period variation is, of course, unchanged. But the proper interpretation is that the mass loss is occurring preferentially from the brighter hemisphere (not the fainter hemisphere, as was stated in the two papers). We still do not know why the mass loss should be anisotropic, nor why the one hemisphere should be brighter.

CLIFFORD N. ARNOLD
Dyer Observatory
Vanderbilt University
Nashville,Tennessee 37235
U.S.A.

DOUGLAS S. HALL
Astronomisches Institut
Universität Tübingen
D-7400 Tübingen
Germany

## PHOTOELECTRIC MAXIMA OF XZ Cyg

The RR Lyrae-type variable XZ Cyg has been observed photoelectrically at the Odessa Observatory near Majaky (USSR) with the 22-inch reflector, during the period from August 8 to September 12,1972.

| Max.Hel. 2441... | Cycles | O - C | Max.Hel 2441... | Cycles | O - C |
|---|---|---|---|---|---|
| 541.5218 | 2348.853 | $-0^d.0686$ | 564.4270 | 2397.953 | $-0^d.0218$ |
| 542.4642 | 2350.873 | -0.0592 | 565.3527 | 2399.938 | -0.0291 |

The table shows the moments of four maxima in blue and the corresponding O-C's. The O-C values were calculated with the elements:

Max.Hel.= 2 440 445,789 + $0^d.466497 \cdot E$;

A more detailed analysis and reductions of the obtained 420 observations will be published later.

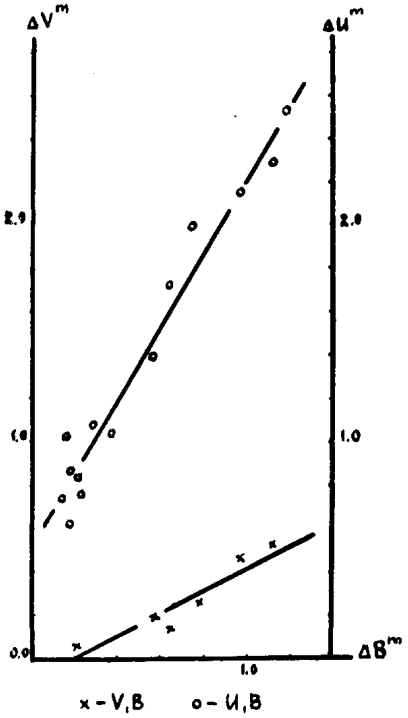
University of Sofia, Bulgaria and
Odessa Observatory, USSR.

P. KUNCHEV

THE ANALYSIS OF UBV OBSERVATIONS OF UV TYPE VARIABLES

The method of brightness gradients [1] was applied to an analysis of UBV observations of YZ CMi, EV Lac and AD Leo. Brightness gradients are angular coefficients of regression lines of V,B and U,B-relations for simultaneous photoelectric observations: $\nabla_V=\frac{\Delta V}{\Delta B}$, $\nabla_u=\frac{\Delta U}{\Delta B}$

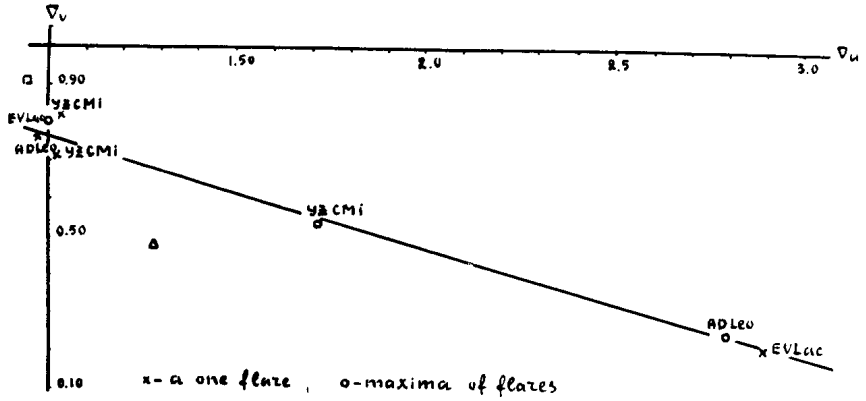
Figure 1




In [2] $\nabla_u$ and $\nabla_V$ were obtained for the light variations between maxima and minima for two flares of YZ CMi and one flare of AD Leo. They are given in the table as well as $\nabla_u$ and $\nabla_V$ for one flare of EV Lac, obtained from observations [3]. On Fig.1. V,B and U,B relations are given for maxima of YZ CMi flares according to synchronous observations in [4]. The relations are similar for the flares of EV Lac and AD Leo (photometric data taken from [5-8] and [9], correspondingly). All the obtained $\nabla_u$ and $\nabla_V$ are given in the table with their errors and plotted on the $(\nabla_u, \nabla_V)$ plane (Fig.2). They are situated inside a narrow band determined by the equation: $\nabla_V = 1.09 - 0.31\ \nabla_u$.

The brightness gradients are determined by intensity variations in UBV regions of spectra. Therefore their values and the relation between them are directly connected with the nature of radiation. Taking this into account it can be said that the results of the analysis carried out are in agreement with the following conclusions about the basic continuous radiation of UV type flares that correspond to regression lines: 1.The nature of radiation is the same at all stages of brightness descent of a flare, so breaks are absent on the V,B, and U,B - relations. [2]. 2. The nature of radiation in maxima is the same for flares

of different intensity (Fig.1). 3. The nature of radiation on the descending branches is the same as in the maxima, so the relation between $\nabla_u$ and $\nabla_v$ is described by the same equation. The reddening of flare radiation in early descent [10] has apparently a secondary nature as well as [11] other differences in continuous radiation in maxima of flares.




Table

| Flare | $\nabla_v$ | $\sigma\nabla_v$ | $\nabla_u$ | $\sigma\nabla_u$ | Annot. to observations or calculations |
|---|---|---|---|---|---|
| YZ CMi 1965,1 27.3264 | 0.82 | 0.13 | 1.03 | 0.06 | [11] |
| YZ CMi 1965,1 28.2499 | 0.72 | 0.04 | 1.02 | 0.04 | " |
| AD Leo 1965,11 10.1708 | 0.76 | 0.02 | 0.97 | 0.05 | " |
| EV Lac 1968,VIII 18 | 0.22 | 0.04 | 2.90 | 0.04 | [3] |
| YZ CMi | 0.54 | 0.06 | 1.72 | 0.04 | [4] |
| EV Lac | 0.80 | 0.01 | 1.00 | 0.06 | [5-8] |
| AD Leo | 0.26 | 0.02 | 2.80 | 0.01 | [9] |
| Sum of bremsstrahlung and invers Compton-effect rad. | 0.91 | | 0.94 | | [12] (□ on fig.2) |
| Hydrogen plasma optically thick in Balmer lines | 0.48 | | 1.28 | | [13] (Δ on fig.2) |

As here the results of the analysis made by a new method are presented it seems expedient to point out the advantages of this method comparitively with the widely used method of analysis of UBV observations by U-B and B-V color-indices. $\nabla_u$ and $\nabla_v$ do not depend on interstellar absorption, errors in magnitudes of comparison stars and intensities of spectral lines. They are unrandom parameters of irregular light variation processes and describe them in UBV regions by two numbers, for which the errors can be easily calculated. Different types of pure radiations (thermal, nonthermal of different types, hot gas of small optical thickness, hydrogen plasma optically thick in Balmer line frequences and others) are represented by points on the ($\nabla_u$, $\nabla_v$) plane if only one parameter is variable.

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F.I. LUKATSKAYA
Main Astronomical Observatory
of the Ukrainian Academy of
Sciences, Kiev-127
USSR