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PHOTOELECTRIC OBSERVATIONS OF XY LEONIS

XY Leonis (BD +18^o2307) is a W Ursae Majoris type star with a variable period. Because of the shortage of published data on XY Leonis, as pointed out by Mauder (1972), Binnendijk (1970), Ruciński (1974) and Koch and Shanus (1978), we present here UBV data, which we obtained as part of a senior undergraduate laboratory project in the Astrophysics program at the University of Calgary. Though incomplete, these data may be useful for comparison to Shanus' 1978 observations (Koch and Shanus, 1978), obtained about the same time as ours. In particular, our data substantiate those authors' decision to exclude from analysis Shanus' data of JD 2,443,573.

XY Leonis was observed using the 41 cm telescope at Rothney Astrophysical Observatory (University of Calgary) employing a dry-ice cooled EMI 6256 photometer at -1000 V (DC). Magnitudes were measured in the U, B and V, then transformed to the Johnson system. The comparison star chosen was BD +18^o2309. Data was acquired on six nights during the period February 26 to April 7 of 1978. The ephemeris used is that due to Gehlich et al. (1972):

$$2,435,484.0222 \pm 0.0016 + (0.28410282 \pm 0.00000007) \cdot E \quad (1).$$

Our light curves, presented in Figures 1 to 3, show a phase shift of approximately +0^p.04, resulting in an O-C of 0^d.012 ± 0.006 at JD 2,443,587.783 ± 0.003,* which is not significantly different from

*This represents an average over all six nights, assuming the period remained approximately constant.

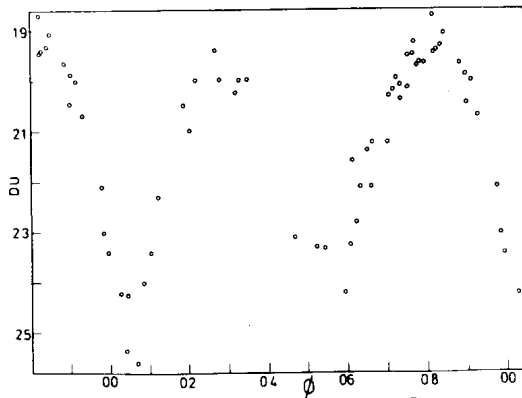


Fig.1.: Differential U magnitude (XY Leonis-BD+18°2309) versus phase for XY Leonis between JD 2,443,566 and JD 2,443,605.

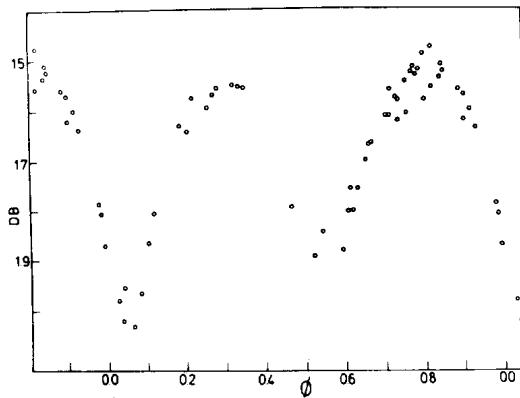


Fig.2.: Differential B magnitude (XY Leonis-BD+18°2309) versus phase for XY Leonis between JD 2,443,566 and JD 2,443,605.

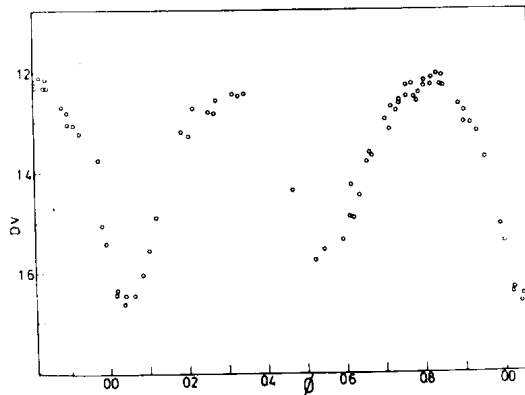


Fig.3.: Differential V magnitude (XY Leonis-BD+18°2309) versus phase for XY Leonis between JD 2,443,566 and JD 2,443,605.

that of Koch and Shanus (1978), and essentially confirms the departure from the O-C curve of Gehlich et al., first suggested by the data of Pohl and Kizilirmak (1977).

The present results support the conclusion of Koch and Shanus (1978) that XY Leonis is best considered a double, and not a triple, system.

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JOHN S. HEBRON and MARK R.A. SHEGELSKI
Department of Physics, University of Calgary,
Calgary, Alberta, Canada T2N 1N4

References:

- Binnendijk, L. 1970, *Vistas in Astronomy*, Vol. 12, ed. A. Beer
(Oxford: Pergamon Press), p. 217
- Gehlich, U.K., Pröls, J. and Wehmeyer, R. 1972, *Astron. Astroph.*
18, 477
- Koch, R.H. 1960, *A.J.* 65, 374
- Koch, R.H. and Shanus, C.R. 1978, *A.J.* 83, 1452
- Mauder, H. 1972, *Astron. Astroph.* 17, 1
- Pohl, E. and Kizilirmak, A. 1977, *I.B.V.S.* No. 1358
- Ruciński, S.M. 1974, *Acta Astr.* 24, 119