

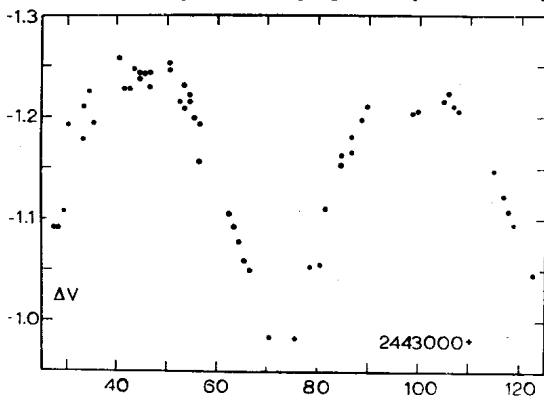
COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 1236

Konkoly Observatory
Budapest
1977 February 10

1976 PHOTOELECTRIC PHOTOMETRY OF λ ANDROMEDAE

λ And, a one-lined spectroscopic binary of orbital period 20.52^d , displays a number of the properties of the RS CVn-type binaries (Hall 1976). Among these are late spectral type (G8 IV-III), H and K emission (Herbst 1973), a quasi-sinusoidal light variability (Archer 1960), and radio emission (Bath 1976). It differs from the RS CVn binaries in that the period of light variability is very different from the orbital period: $\sim 50^d$ versus $\sim 20^d$.

On 45 different nights between 2,443, 027.5 and 2,443, 122.5 we made a total of 135 differential photoelectric observations of λ And in the visual wavelength region, all of us using 1P21 photomultipliers and using ψ And as the comparison star. At Landis Observatory, 24 observations were made with the 8-inch (20-cm); at Hickox Observatory, 83 with the 10-inch (25-cm); at Dyer Observatory, 28 with the 24-inch (60-cm). Nightly means of these observations, corrected for atmospheric extinction and transformed to V of the UBV system, are presented graphically in the figure.



The interval between the two rising branches, measured at $\Delta V = 1.1^m$, is 52^d ; the interval between the two falling branches is 55^d . Maxima occurred at approximately 2,443,045 and 2,443,100; minimum occurred at approximately 2,443,073; the amplitude in V is about 0.25^m , whereas Archer found it to vary between 0.19^m and 0.35^m in the photographic. Our two maxima appear to differ by about 0.03^m .

The data in Table IV of Archer show that successive maxima occur at intervals which range between 48 and 57 days and average about 51 days. Because of this range, which appears to be intrinsic rather than a result of observational uncertainty, proper count of the integral number of elapsed cycles cannot be maintained over intervals longer than about one year. Gaps of up to 22 years exist in Archer's Table IV. For this reason it would seem that the O-C curve in Archer's Figure 5 is not a meaningful representation of the long-term behavior of the light variation and that the value 55.82^d is of no particular significance. Our own photoelectric observations and those of Archer are separated by 18 years and therefore probably can never be phased together properly.

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