

INTRINSIC LIGHT VARIATIONS IN THE ECLIPSING BINARY RW CETI

(Letter to the Editor)

T. D. PADALIA

Uttar Pradesh State Observatory, Manora Peak, Naini Tal, India

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Abstract. Intrinsic light variations in B and V filters have been found on the three observed light curves of RW Ceti.

RW Ceti is an eclipsing binary having a period of $0^d.97518857$. The system was investigated by Tsesevich (1954) photographically during the year 1931–1934 and light curve was constructed by him. UBV observations on five nights were taken in the year 1967 by Eggen (1968). On the basis of his UBV observations, Eggen assigned it a spectral type A5. Two minima have been reported by Kizilirmak and Pohl (1974), each in B and V filters. Not much details about the photoelectric observations of the system are available in the literature.

The system was observed by us on three nights, that is, on 31 December, 1978, 8 and 9 January, 1979 in B and V filters. The telescope used was a 38-cm Cassegrain reflector of the Uttar Pradesh State Observatory using a cooled 1P21 photomultiplier tube. Two comparison stars (BD – $12^\circ 422$ and BD – $12^\circ 424$), as taken by Tsesevich, were also observed by us. Finally, BD – $12^\circ 422$ was used for differential magnitude determination. The standard deviation of the comparison star was found to be $\pm 0^m.012$ in the B filter and $\pm 0^m.010$ in the V filter. For each individual night the differential magnitudes, (Var.-Comp.) in the instrumental system, are plotted against phase and are shown in Figure 1. The maximum light variation is found to be $0^m.12$ and $0^m.13$ in B and V filters, respectively, on the night of 31 December, 1978. An inspection of the light curves reveals that the nature of light variations is intrinsic. The light variation can be attributed to one component of the system being an intrinsic variable.

References

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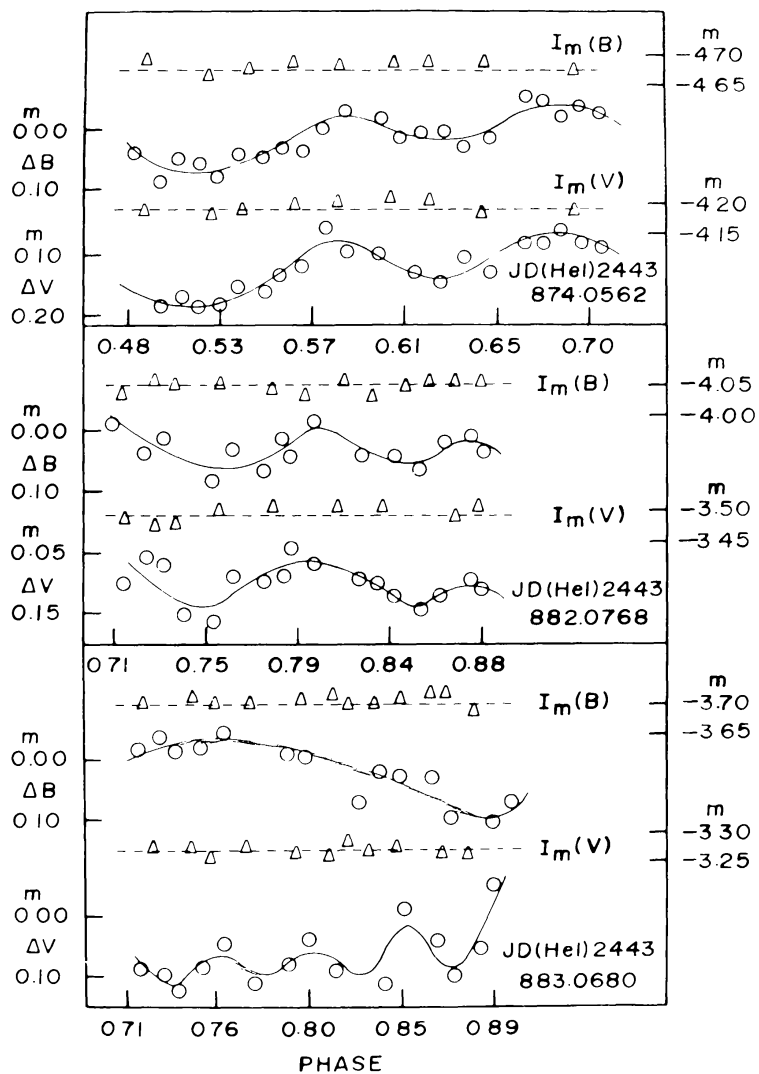


Fig. 1. Individual observations on the nights of 31 January, 1978, 8 and 9 January, 1979. J.D. (Hel.) for the first observed point in the V filter for each night's observations is given. The differential magnitudes are in the sense variable minus comparison. The solid line indicates a free-hand curve. Points with Δ are instrumental magnitudes for the comparison star used. Phases have been calculated taking the ephemeris Primary minimum = J.D. 2432478.5375 + 0^d9751857E.