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REDISCUSSION OF THE PHOTOMETRIC ELEMENTS OF SW LYN

The light variation of the eclipsing binary SW Lyn has been the subject of several photoelectric investigations (Gleim 1967, Vetešník 1968, Vetešník 1977). Vetešník (1977) also obtained a single-lined radial velocity curve, but the eccentricity reported by him is probably spurious according to Wilson's (1979) rediscussion of Vetešník's (1968) lightcurve in yellow light.

In view of the appreciably discordant photometric elements computed by Gleim (1967), Vetešník (1968), and Wilson (1979), we have reanalyzed Vetešník's (1968) two-colour photoelectric observations by using Wood's (1972; 1973-1978) lightcurve synthesis numerical model. In the table we list our new photometric elements (for the explanation of the symbols see Mardirossian et al. (1980)). The chief variable parameters are the orbital inclination angle i , the unperturbed radius r_h of the hotter component, the ratio $k=r_c/r_h$ of the unperturbed radii and the temperatures T_h and T_c of the two components. The mass ratio $q=M_c/M_h$ was also taken as a free parameter.

That no good concordance exists between our two photometric solutions emphasizes that SW Lyn is a very complicated system; for any formalized binary model it is probably difficult to represent this binary well. However, it is likely that SW Lyn is a contact system; its secondary member (probably around K0 according to our values of T_c) seems to be slightly farther from the ZAMS than its F2V companion, whenever a mass typical of dwarfs of the same spectral type is assumed for this hotter star.

Table

λ	yellow	blue
i	77.7 ± 0.6	84.7 ± 0.6
r_h	0.398 ± 0.005	0.395 ± 0.003
k	0.747 ± 0.019	0.642 ± 0.005
a_h	0.422	0.417
b_h	0.408	0.404
c_h	0.390	0.387
a_c	0.338	0.276
b_c	0.296	0.252
c_c	0.276	0.241
T_h (eq)	6910 ± 110	6860 ± 160
T_h (pol)	7200	7130
T_c (eq)	4740 ± 40	4640 ± 50
T_c (pol)	4820	4700
u_h	0.59	0.84
u_c	0.75	1.00
β_h	0.25	0.25
β_c	0.08	0.08
w_h	1	1
w_c	0.5	0.5
L_h	0.896	0.924
L_c	0.104	0.076
q	0.37 ± 0.02	0.34 ± 0.01
	1.59	1.36

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