

Short Research Communications :

LIGHT ELEMENTS OF TT HYDRAE

A.G. Kulkarni and K.D. Abhyankar

*Centre of Advanced Study in Astronomy
Osmania University, Hyderabad 500007*

(Received June 10, 1977; Revised July 18, 1977)

TT Hydrae (HD 97528) is an Algol type eclipsing binary system, consisting of a bright (A2e) primary and a very dark companion (dG6), with a large surface-brightness ratio. The interesting spectroscopic feature is the appearance of double emission lines of hydrogen during and near totality of the primary eclipse (Sahade and Gesco 1946). The salient photometric features are: the long duration of totality in the primary eclipse, the large depth of the primary and a very shallow secondary eclipse.

This system was observed by us during 1974-77 on 65 nights in U,B and V passbands through the 48-inch reflector. We have plotted the V magnitudes on the instrumental system against phase using the light elements: Primary minimum HJD $2424615.388 + 6.9534124E$, given by Reilly (1946). We find that the primary minimum is shifted by $+0.0060P$, indicating an upward revision of the period. The mean epoch of our observation corresponds to $E = 2608$. We suggest the following improved light elements :

Primary Minimum HJD $2424615.388 + 6.9534284E$.

The primary depth was observed to be $1^m.8$ in our V passband whereas the secondary was $0^m.07 \pm 0^m.02$ in the same passband. Though the coverage of the secondary eclipse is not quite adequate, the available observations therein indicate an almost circular orbit (i.e. no shift of the secondary minimum from phase 0.5). Reduction to standard U, B, V system and derivation of the light elements of the system is in progress.

References :

- Reilly, R.F. 1946, *Harvard Bulletin*, **198**, 18.
Sahade, J. and Gesco, C.U. 1946, *Ap. J.*, **103**, 71.