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PHOTOELECTRIC UBV OBSERVATIONS OF AQ Tau AND THE PROBLEM OF ITS PERIOD

The variability of this star was discovered by Hoffleit (1939). Kurochkin (1951) lists this star as having an Algol type light curve and light elements: J.D. hel. 2429651.348 + $1^d.215904 \cdot E$. According to the GCVS its spectral type is A5.

UBV photoelectric observations of AQ Tau were made using the 0.91 m reflector and a photoelectric photometer at McDonald Observatory from Nov. 1984 to Jan. 1985.

The comparison star a was used according to the chart given by Kurochkin (1951) (see Figure 1). Over 1494 observations in U, B, and V for 17 nights have been obtained and delta magnitude curves are shown in Figure 2. The light curves indicate that the components form an Algol type binary.

Figure 1. Identification chart

It is noteworthy that we hardly find any secondary minimum according to the period of $1^d.215933$ which was listed in the GCVS.

According to the light curves we consider that the period of AQ Tau is $2^d.431808$, i.e. two times longer than the original period. The two components are almost equal in temperature.

The light elements are as follows:

Min. = J.D. Hel. 2446012.94513 + $2^d.431808 \cdot E$

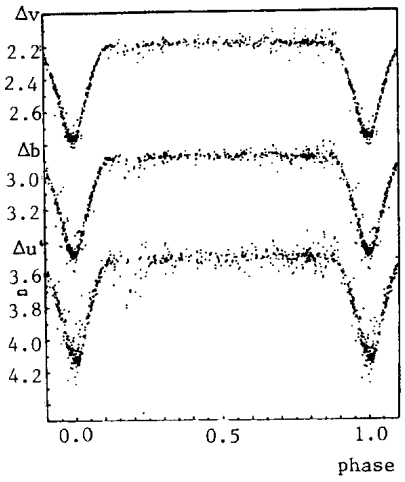

Figure 2
The light curves of AQ Tau with P_o

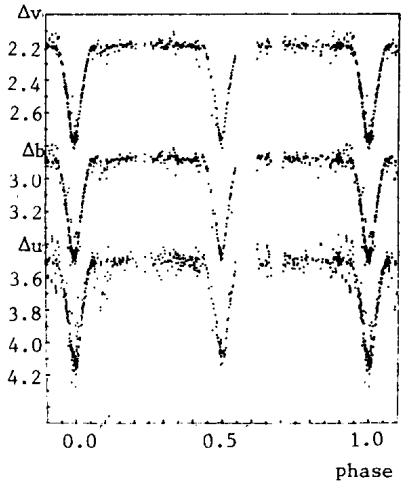

Figure 3
The light curves of AQ Tau with $2P_o$

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