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PHOTOMETRY OF THE NEW ECLIPSING BINARY DHK 14 - HD 31679

Kaiser (1990) discovered eclipses of the 8th-magnitude star BD +24°719 = HD 31679 = SAO 76863, which was designated DHK 14 in his discovery list. The spectral class is B5, the position is RA 4h 55m 50s, Dec. 24° 25' 14" (1950).

Following discovery, Williams and Wood obtained photoelectric observations in the V band on several nights and found continuous variation. A discrete Fourier transform analysis by Kaiser showed a likely period of 0.69 days, which proved to be the half-period of a Beta Lyrae-type eclipsing binary (Figure 1).

Neither observer was able to obtain a continuous series of observations with sufficient phase coverage to determine a time of mid-eclipse. However, Williams observed a portion of the descending branch of a primary minimum and Wood observed much of the ascending branch on the same night. The time of minimum determined by combining these observations, HJD 2447942.655, and the time of the discovery photo, HJD 2447151.652, were used to refine the period. Preliminary light elements are:

$$\text{Min. I} = \text{HJD } 2447942.655 + 1^d 38529 \text{ E} \quad (1)$$

The comparison star was 98 Tau. Based on its magnitude, 5.81 V, 0.00 B-V, in the Bright Star Catalogue (Hoffleit and Jaschek 1982), the variable is 7.95 V, +0.34 B-V, at the maxima. The depths of the two minima remain somewhat uncertain, but the secondary eclipse is close to 0^m.28 and the primary eclipse may be 0^m.45-0^m.50.

Some of the information in this report was obtained from SIMBAD, data retrieval system of the Strassbourg, France, Astronomical Data Center, for

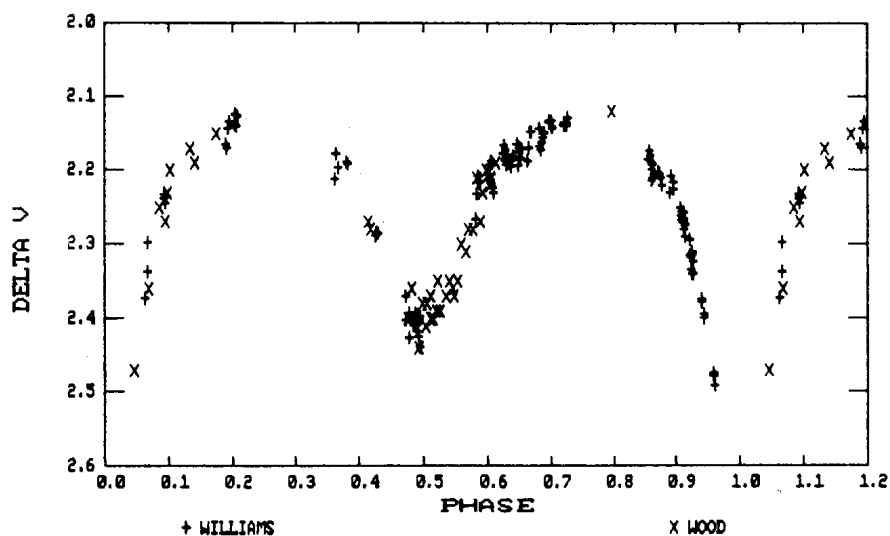


Figure 1. DMK 14, V-band differential photometry by Williams (28-cm Schmidt-Cassegrain) and Wood (25-cm Schmidt-Cassegrain); both used Optec SSP-3 photometers. The phases are calculated according to Equation 1.

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