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THE DISCOVERY OF A W URSAE MAJORIS VARIABLE IN THE VISUAL BINARY SYSTEM ADS 9019

During observations to obtain UBV data of visual binaries (Walker, 1977) the light of the system ADS 9019 (13411+0537, or ADS 9019 = BD+5°2794 = SAO 120102) was discovered to be varying. Over 1200 photoelectric observations in U, B and V have been obtained and delta magnitude curves are shown in Figure 1. The light curves indicate that the components form a contact binary of the W UMa type. The observations were carried out with the 1-m Ritchey-Chretien reflector at the Flagstaff Station.

Visual observations of ADS 9019, made by the author with the 0.91-m re-

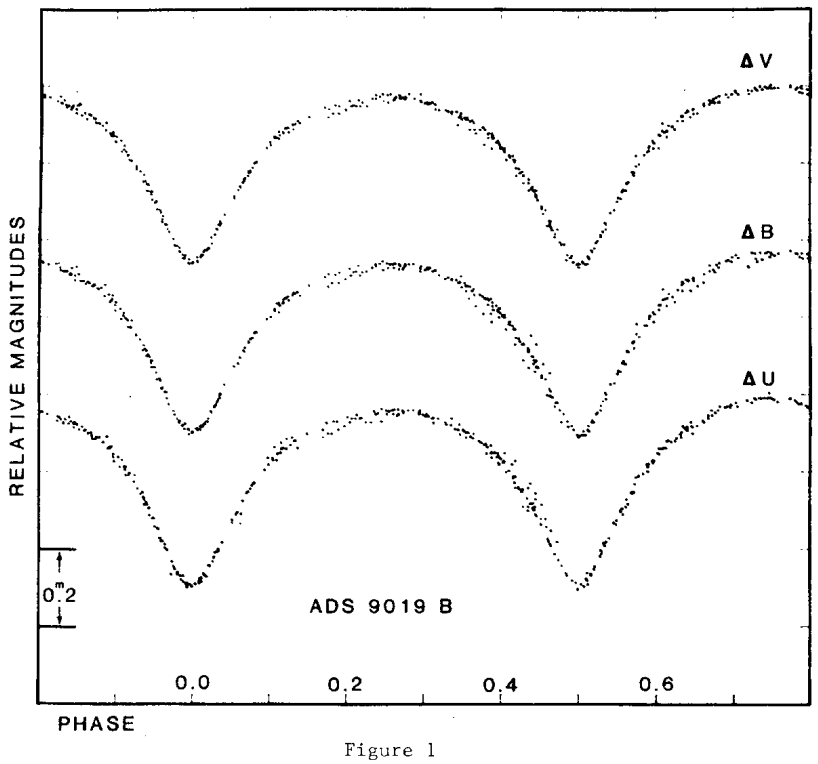

Figure 1

fractor on Mt. Hamilton, indicate that it is the B component that is the variable. In 1979 the position angle of B relative to A was 100^{o}, and the separation was 0".26 . An orbit of the visual binary was computed by W. Heintz (1975) who derived a period of 312 years.

The times of minimum light were determined by the Hertzsprung method (Kwee and van Woerden, 1956). Ten observed minima were combined by least squares to determine the light elements of the system, which are:

$$T = 244\ 4044.5178 + 0^{d}.40767009\ E$$
$$\pm 0.0002 \pm 0.00000008 \text{ p.e.}$$

The magnitudes and colors of the system as a function of phase are given in Table I. These data include the light of the A component. The stars SAO 120108 and SAO 120196 were used as the comparison and check stars, respectively. Their magnitudes and colors are listed in Table II.

Table I. Magnitudes and Colors of ADS 9019

Phase	V	B-V	U-B
0.00	7.48	0.56	0.05
0.25	7.06	0.55	0.04
0.50	7.48	0.56	0.05
0.75	7.06	0.55	0.04

Table II. Magnitudes and Colors of the Comparison and Check Stars

Star	V	B-V	U-B	Sp(HD)
Comp. SAO 120108	6.35	0.62	0.16	G0
Check SAO 120196	7.12	0.93	0.57	G5

The Wood method (Wood, 1972) was used to obtain a light curve solution for ADS 9019 B. This solution, the data, and an analysis will be published elsewhere. In addition a study of the relative orientation of the orbital planes is in progress.

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