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QUIESCENT LIGHT VARIATION OF UV Per

UV Per was confirmed as an SU UMa type dwarf nova with the superhump period of 95.5 minutes (Udalski and Mattei, 1989). But neither radial velocity study nor search for photometric periodicity in quiescence have been undertaken to determine the orbital period.

Our observations were done with Thomson CCD (576 × 384 pixels, on chip summation of 2 × 2 pixels) attached to the Cassegrain focus of the 60cm reflector at the Ouda Station on August 5, 1990. The Johnson V filter was employed and the exposure time was 480 seconds.

The frames were processed with the point spread function (PSF) photometry package developed by the author. PSF profiles were empirically determined from other nine brighter stars in the same frame. We converted our instrumental (differential) magnitudes into the V mags., using the Guide Star Catalog (GSC) for 12 stars between V=10.8 and V=13.4 in the same frame. The resulting zero point is 11.6 ± 0.1 in magnitude.

Figure 2 illustrates the processed CCD image containing the variable (V) and the check star (C). When compared with the position in POSS print (Bruch, Fischer and Wilmsen, 1987), UV Per shifts roughly 3 arcsec towards east. This large proper motion deserves further astrometric observations.

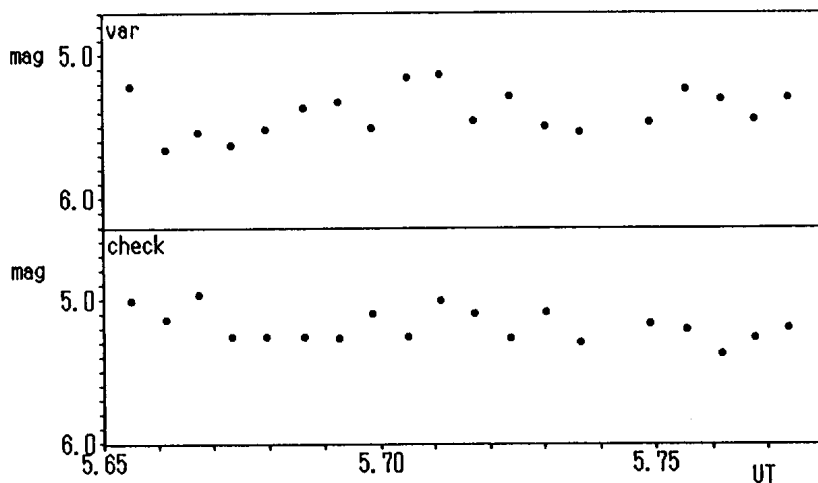


Figure 1.

The mean brightness of UV Per in this run was $V=17.0 \pm 0.1$, in good agreement with that given by Szkody (1985). Table 1 and Figure 1 gives our result for UV Per and the check star. The expected r.m.s. error of a single observation of UV Per is about 0.11 mag., due to the high sky count in the nearly full moon. One can see roughly sinusoidal variation with an amplitude of 0.6 magnitude and two rather distinct minima separated by about 1.5 hours. The maximum entropy method gives the most probable period of 89.6 minutes and expected one sigma error of 0.4 minutes. Superhump periods in SU UMa systems are generally a few percent longer than the orbital period (Stolz and Schoembs, 1984), thus our light curve likely reflects the orbital period.

Table I.

UT(Geo)	UV Per	Check
Aug., 1990	Δm	Δm
5.6551	5.22	5.01
5.6612	5.65	5.14
5.6673	5.53	4.97
5.6734	5.63	5.25
5.6796	5.52	5.26
5.6862	5.37	5.26
5.6924	5.32	5.27
5.6986	5.51	5.10
5.7049	5.15	5.25
5.7110	5.14	5.00
5.7171	5.45	5.10
5.7238	5.29	5.27
5.7303	5.49	5.09
5.7364	5.53	5.30
5.7490	5.47	5.17
5.7555	5.23	5.20
5.7616	5.31	5.38
5.7677	5.44	5.27
5.7738	5.30	5.19

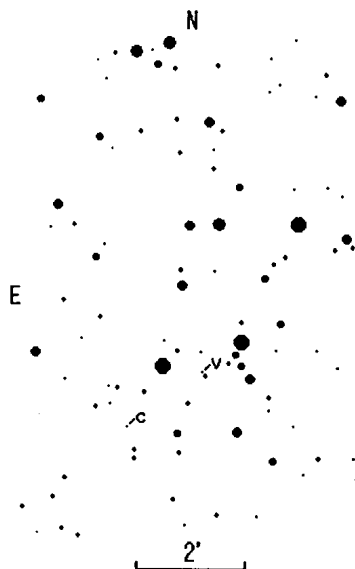


Figure 2.

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