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**CCD OBSERVATION OF THE 1998 OCTOBER SUPEROUTBURST
OF PU Per: CONFIRMATION AS AN SU UMa-TYPE DWARF NOVA**

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PU Per is a dwarf nova discovered by Hoffmeister (1967). The historical record of outbursts, suggesting the SU UMa-type, is reviewed in Kato and Nogami (1995). Kato and Nogami (1995) made time-resolved photometry of the short outburst in 1995 October. On the rapidly decaying stage of the outburst, they detected possible hump-like features with a period of ~ 0.06 d. The confirmation of the SU UMa-type nature has been thus awaited for.

On 1998 September 25, T. Kinnunen reported the detection of a bright ($m_v = 14.8$) outburst. Upon this alert, we observed PU Per on three nights of October 2–4. The observations were done using an unfiltered ST-7 camera attached to the Meade 25-cm Schmidt-Cassegrain telescope. The exposure time was 30 s. The images were dark-subtracted, flat-fielded, and analyzed using the JavaTM-based PSF photometry package developed by one of the authors (TK). The flux of the variable was measured relative to GSC 2337.27 (USNO r -magnitude 12.1), whose constancy was confirmed by comparison with GSC 2337.614 (USNO r -magnitude 12.4). The fluxes given in figures of this note are expressed relative to GSC 2337.27.

Figure 1 illustrates the overall light curve of the present observation. The light curve shows a steady decline characteristic of superoutbursts. After subtracting the linear declining trend, the light curve was analyzed using the Phase Dispersion Minimization (PDM) method (Stellingwerf 1978) and LANCELOT (period analysis using artificial neural networks, Gaspari 1995a,b). The resultant theta diagram (PDM) and $G(f)$ function (LANCELOT) are shown in Figure 2. The minimum and maximum points respectively correspond to the best estimates of the period.

The selection of the best superhump period suffers from some difficulties owing to the low signal-to-noise ratio and the gaps caused by clouds. From the three one-day alias candidate periods (0.0686, 0.0733 and 0.0640 d), we have chosen the period 0.0733 ± 0.0001 (corresponding to the frequency of 13.64 d^{-1}) as the best-determined period, based on the independent superhump detection information (Kemp and Vanmunster, private communication). However, there still remains the possibility for other aliases from the present data set.

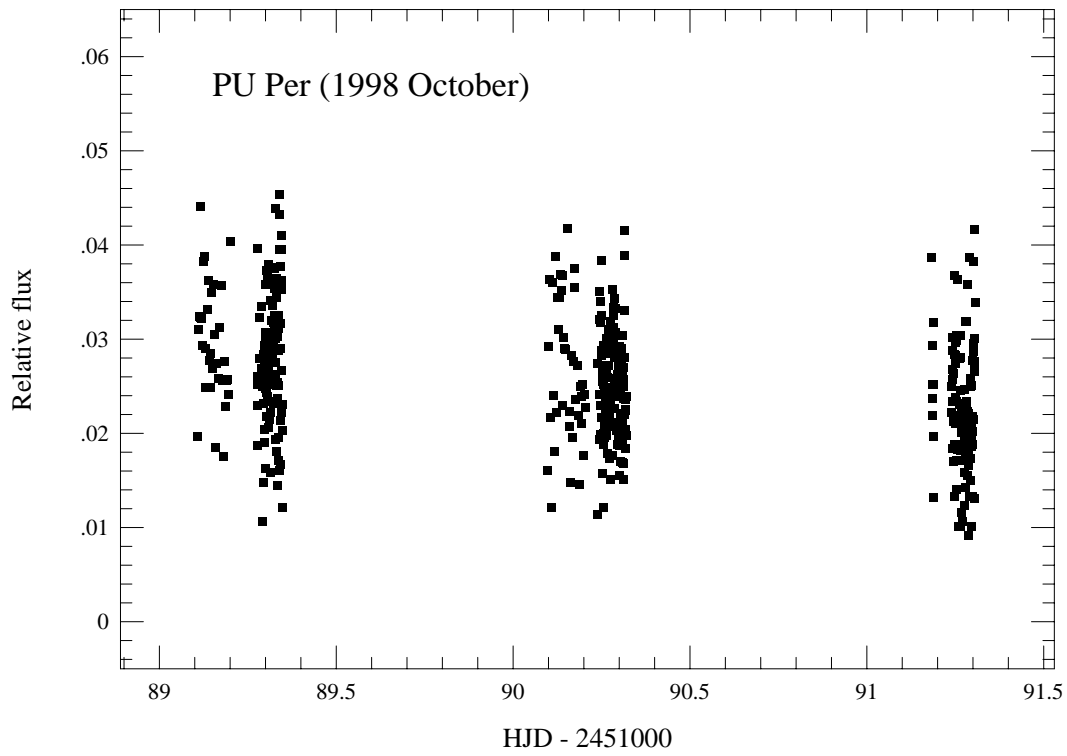


Figure 1. Overall light curve of PU Per

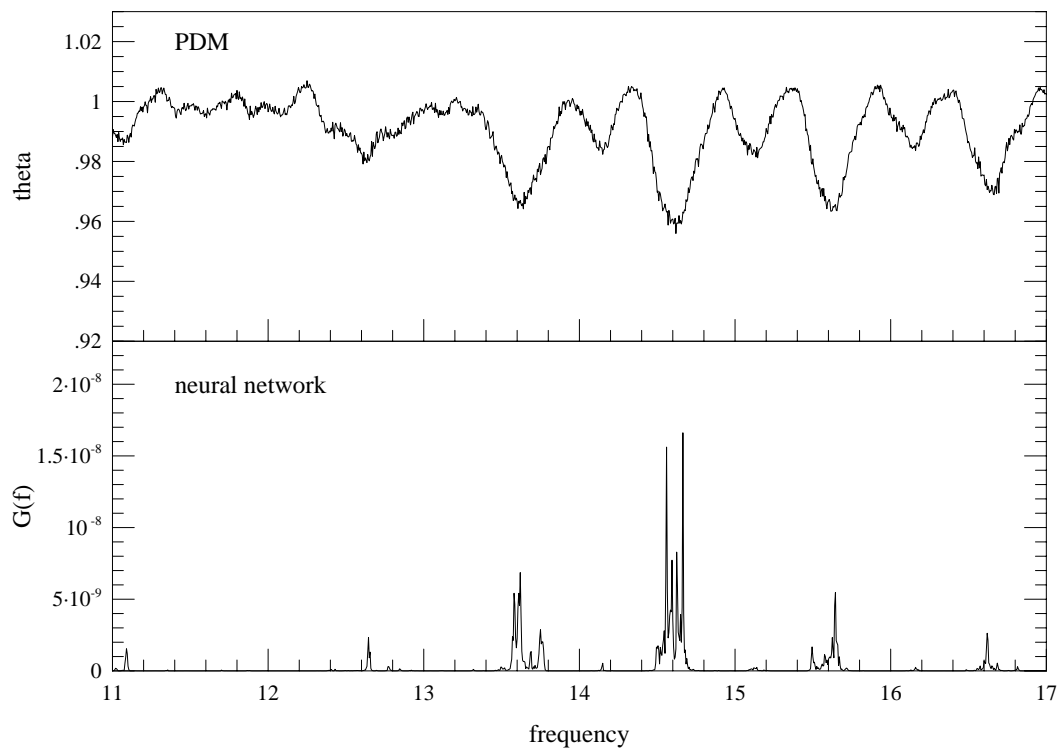


Figure 2. Period analysis of PU Per

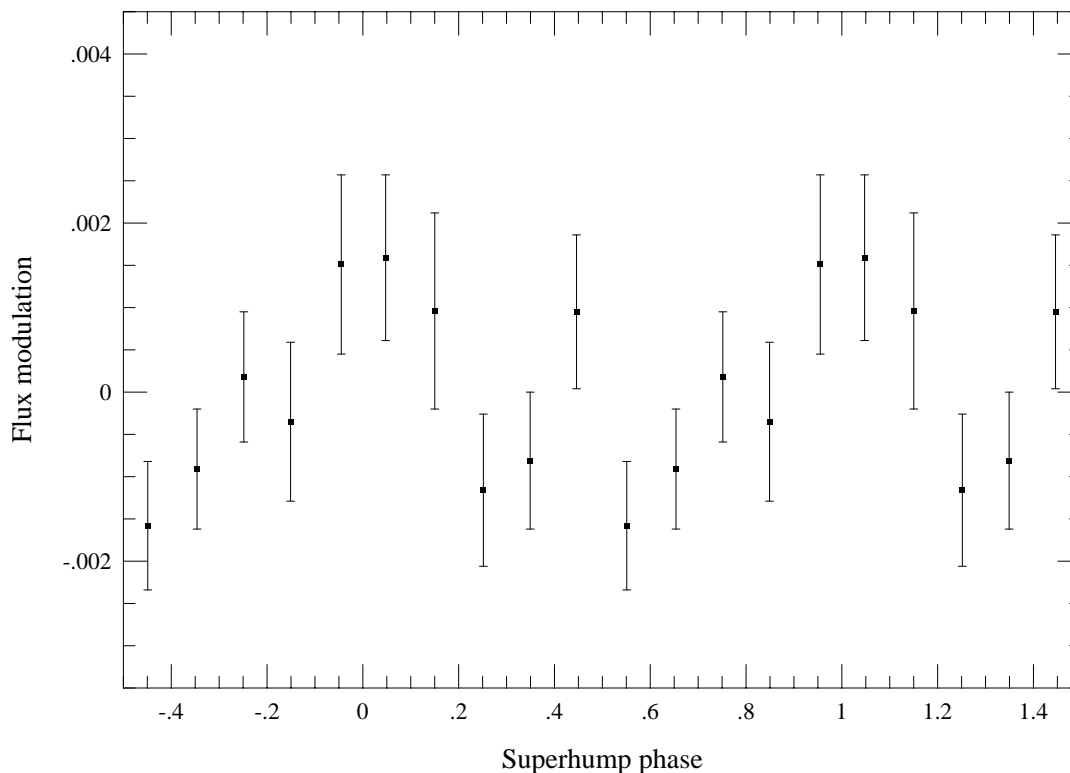


Figure 3. Superhump profile of PU Per

Figure 3 shows the averaged superhump profile, folded by the period of 0.0733 d. The mean superhump amplitude is ~ 0.2 magnitude. PU Per can now be safely classified as an SU UMa-type dwarf nova.

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