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OUTBURST PHOTOMETRY OF FX Cep

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FX Cep (= GR 95) was discovered by Rosino (1962) as a dwarf nova. Rosino (1962) reported frequent outburst, with the shortest interval between them being 11 d, and the presence of a long outburst. The pattern of outbursts is thus somewhat reminiscent of an active SU UMa-type dwarf nova. The detection of an outburst was announced by Vanmunster (1995). We started time-resolved CCD photometry in order to search for possible superhumps.

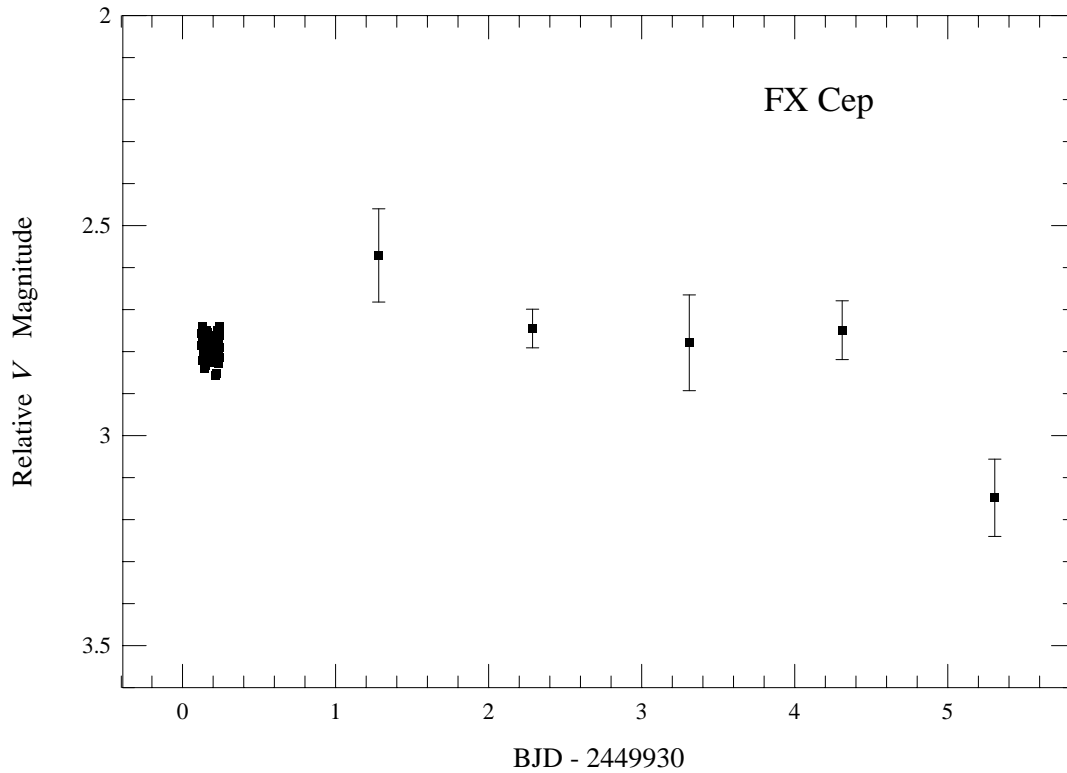
The outburst observations were done between 1995 July 31 and August 5, using a CCD camera (Thomson TH 7882, 576×384 pixels, on-chip 2×2 binning adopted) attached to the Cassegrain focus of the 60-cm reflector (focal length = 4.8 m) at Ouda Station, Kyoto University (Ohtani et al. 1992). An interference filter was used which had been designed to reproduce the Johnson *V* band. The exposure time was 60–90 s, depending on the transparency. The frames were first corrected for standard de-biasing and flat fielding, and were then processed by a microcomputer-based aperture photometry package developed by one of the authors (TK). A total of 134 useful frames were obtained during this outburst. In addition to this, we observed this star in quiescence in two occasions on 1990 August 10 and 1995 February 27. The magnitudes were determined relative to GSC 4259.2106 (GSC magnitude 12.00), whose constancy during the run was confirmed using GSC 4259.690 (GSC magnitude 11.64). Barycentric corrections were applied to the observed times before the following analysis. Table 1 lists the log of observations, together with nightly averaged magnitudes.

The 1995 July–August outburst lasted at least six days, which is comparable to the long outburst reported by Rosino (1962). The outburst rose and faded slowly, and did not resemble a superoutburst of an SU UMa-type star, which has a linear plateau portion. Figure 2 depicts the detailed light curve obtained on 1995 July 31. A 3.8 hour continuous run did not reveal any hint of superhumps. This object is thus classified as an SS Cyg-type dwarf nova (UGSS type in GCVS). The object was spectroscopically observed by Liu et al. (1999). They reported the detection of features of the secondary, which implies that FX Cep is a relatively long-period system. This finding is consistent with our classification as an SS Cyg-type star.

The average of three frames taken in quiescence has yielded an averaged magnitude (relative to GSC 4259.2106) of 6.78 ± 0.50 . The total amplitude of the outburst is thus

Table 1: Nightly averaged relative magnitudes of FX Cep

start ^a	end ^a	rel. mean mag ^b	error ^c	N^d
48114.167	48114.168	6.82	0.73	2
49776.329	49776.329	6.71	-	1
49930.124	49930.243	2.790	0.003	100
49931.279	49931.284	2.571	0.111	5
49932.281	49932.292	2.745	0.046	13
49933.309	49933.312	2.779	0.114	6
49934.307	49934.312	2.749	0.070	6
49935.305	49935.309	3.148	0.092	4

^a BJD - 2400000^b Magnitude relative to GSC 4259.2106^c Standard error of nightly average^d Number of frames**Figure 1.** Light curve of the 1995 July-August outburst of FX Cep. Nightly averaged magnitudes and errors are given except for the first night

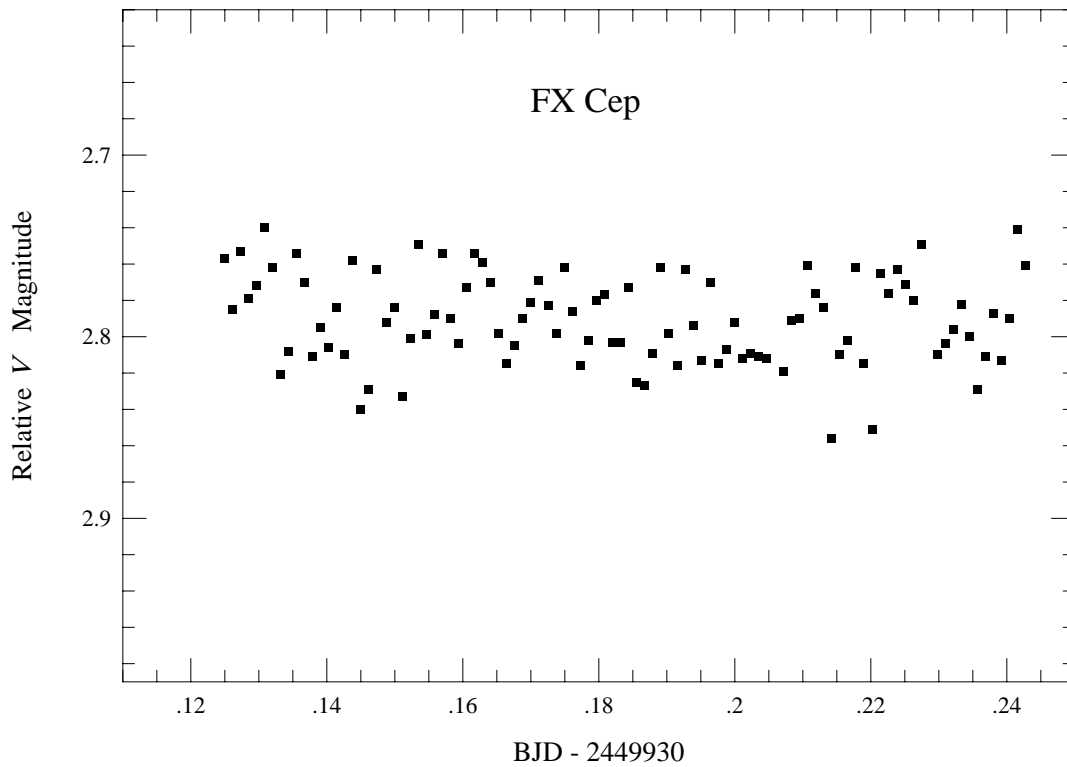


Figure 2. Light curve on 1995 July 31

4.2 ± 0.5 mag. This value is remarkably larger than was originally reported (2^m5 mag), which may have been due to the confusion with the close companion by Rosino (1962). The correct identification is given in Downes et al. (1997).

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