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OBSERVATIONS OF SN 1993ad

Supernova (SN) 1993ad in IC 1501 was discovered by Pollas (1993) on November 7, 1993. Pollas also reported the brightness estimate $B = 18^m$ at discovery date and the offsets from the nucleus of the parent galaxy $13''$ east and $22''.7$ south.

Spectrogram of SN 1993ad was obtained on Nov. 10 by Cappellaro and Della Valle (1993). It showed that SN was of type II at a very early stage. Narrow emission lines of the Balmer series from H_α to H_ϵ superimposed on a very blue continuum were observed.

It was also noted that spectrum of SN 1983K, obtained ten days before maximum, was similar to that of SN 1993ad. Preliminary photometry gave $B = 16.3$, $B - V = -0.3$, $V - R = 0.0$ on Nov. 10.1 UT.

Four plates of SN 1993ad were obtained with the 40-cm astrograph at Sternberg Astronomical Institute Crimean Station. The brightness estimates are reported in Table I.

Table I.

Date	J.D. 2440000+	B
Nov 14.74	9306.24	16.24
Nov 15.76	9307.26	16.26
Nov 17.75	9309.25	16.45
Nov 18.83	9310.33	16.37

The light curve is shown in Figure 1. We can estimate the date and magnitude of maximum brightness: $B_{max} = 16.1$ on JD 2449303 (November 11).

According to the RC3 the parent galaxy type is Sbc, the radial velocity $v = 5165$ km s⁻¹, and galactic absorption $A_b = 0.12$. As the SN was very blue near maximum, the absorption in the parent galaxy should be negligible and we can estimate the absolute magnitude at maximum $M_B = -18.2$ (with $H_0 = 75$ km s⁻¹ Mpc⁻¹). This means that SN 1993ad was fainter than SN 1979C and 1983K ($M_B = -19.6$), but significantly brighter than average type II SNe.

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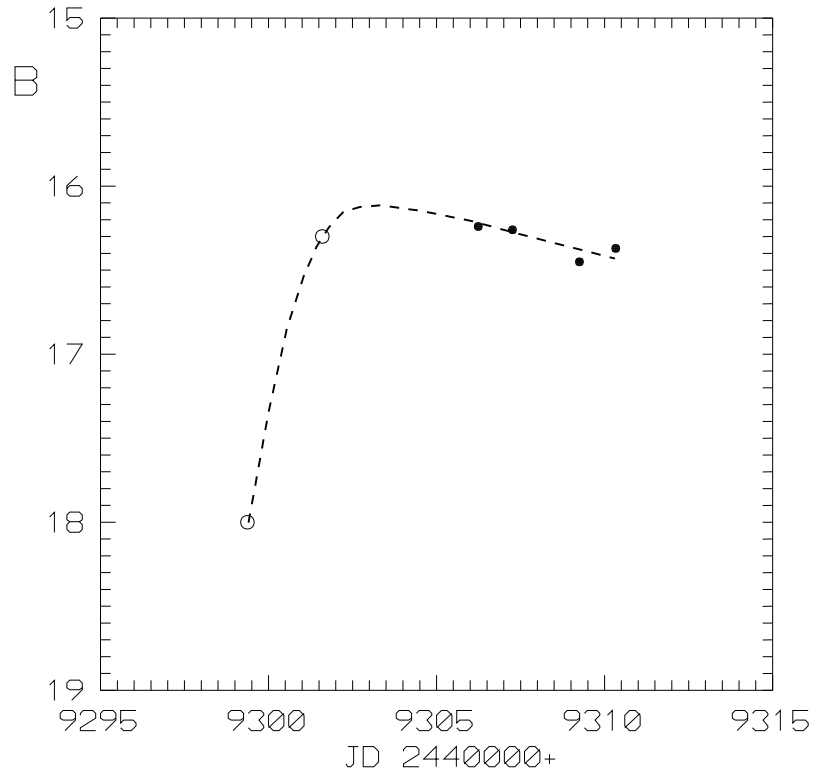


Figure 1. Light curve of SN 1993ad. Dots – our data, circles – data from the literature.

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