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UBV OBSERVATIONS OF SN1991T

We report on UBV observations of SN1991T in the galaxy NGC 4527 ($\alpha_{1950.0} = 12^h 31^m 14^s$, $\delta_{1950.0} = +2^{\circ} 56' 28''$) carried out at Serra La Nave stellar Station of Catania Astrophysical Observatory in 1991 from May 7 to May 22, with the 91cm Cassegrain telescope equipped with a photon counting cooled photometer using an EMI 9789QA tube.

As comparison stars we used HD 108202 and HD 107498, the same employed by Cutispoto (1991) in his observations of the supernova at La Silla in May, 16 (IAU Circ. No. 5239). For these stars we have derived the following magnitudes and color indices by observing standard stars in the Coma cluster:

| star | V | B-V | U-B |
|-----------|-------------|------------|------------|
| HD 108202 | 10.265±.006 | 1.176±.012 | 1.225±.022 |
| HD 107498 | 8.415±.014 | 0.824±.007 | 0.549±.015 |

Mean nightly $JD_{hel.}$, V magnitudes, colors and the number of measurements during each run of observations of SN1991T are shown in Table 1.

Table 1. SN1991T: UBV measurements from Serra La Nave

| $J.D_{hel.}$ | V | B-V | U-B | No. |
|---------------|----------------|---------------|----------------|-----|
| 2448384.4496 | 11.6558±0.0030 | 0.3722±0.0061 | -0.1903±0.0050 | 24 |
| 2448388.4751 | 11.8314±0.0092 | 0.5166±0.0066 | -0.0400±0.0119 | 4 |
| 2448389.3921 | 11.9307±0.0030 | 0.5343±0.0033 | -0.0152±0.0066 | 24 |
| 2448392.4247 | 12.0754±0.0050 | 0.7065±0.0047 | 0.1349±0.0082 | 16 |
| 2448394.4904 | 12.1776±0.0063 | 0.8429±0.0083 | 0.1589±0.0157 | 12 |
| 2448398.3889 | 12.3984±0.0021 | 1.0474±0.0231 | 0.2125±0.0215 | 4 |
| 2448398.4636 | 12.4177±0.0137 | 1.0487±0.0152 | 0.1762±0.0209 | 4 |
| 2448399.4152† | 12.5938±0.0300 | 1.1214±0.0289 | 0.3334±0.0718 | 8 |

†bright moon

Our B and V magnitudes are plotted in Figure 1 together with values deduced from photoelectric measurements by other observers, from April 16 to July 18, as communicated in IAU circulars. The time in the abscissa is given in days starting from April 16, i.e. the date of the first UBV photoelectric measurement of the supernova by Cutispoto (IAU Circ. No. 5239). In the V magnitude plot, estimates of visual magnitudes are also shown for the period of exponential decline of the light curve.

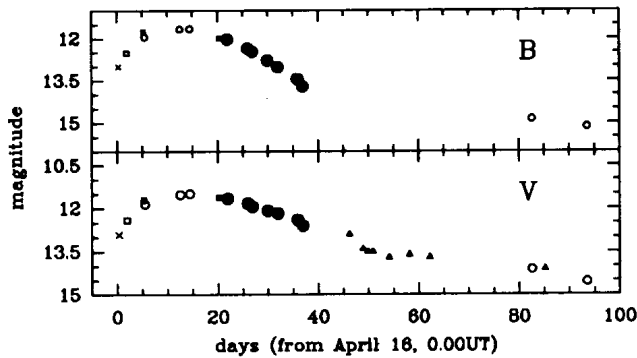


Figure 1: B and V light curves of $SN1991T$ from April 16 to July 15. Filled circles represent our observations.

The decrease of B magnitude (≈ 0.1 mag./day) during the declining phase after the peak brightness, is consistent with a typical $SN1a$ light curve, as confirmed by the presence of $SiII$ absorption in the spectra taken near the peak (Sivaraman 1991). On the other hand, from the inspection of $B - V$ values, dereddened for a color excess $E(B - V) = .15$ typical of NGC 4527 galaxy (de Vaucouleurs *et al.* 1976), we deduce a trend similar to that of the mean $B - V$ curve for $SN1a$ phenomena (Wheeler 1991).

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