

NSV 05513 = 69 (Δ) UMA – A LONG-PERIODIC ECLIPSING VARIABLE?

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ABSTRACT. The star NSV 05513 is suggested to be an eclipsing variable with a period of $1030^m - 1180^m$ (1115^m) and a range 3^m3-4^m3 V.

Key words: Stars: eclipsing: NSV 05513

According to the "New Catalogue of Suspected Variable Stars" (NCSVS, Kholopov et al., 1981), 69 UMa is NSV 05513 with a spectrum A3V and a range 3.27–3.34(V). The variability type was not recognized. Its variability was suspected by Zinner (1929). In the "Catalogue of the WBVR-magnitudes of the bright northern stars" (Kornilov et al., 1991), the object NSV 05513 (69 UMa) is marked as HD 106591 A (p.171), and also BD+57°1363 - ZI 919 with a spectrum A3V, $V=3^m308$, $W-B=0^m099$, $B-V=0^m082$ $V-R=0^m050$. In the remarks to the Catalogue it was noted that 69 Uma = IDC 12105+5735 A, where $\rho_{AB} = 189''$, $\rho_{AC} = 186''$ (p. 355).

In May and June 1995 the weakening down to 4^m0-4^m3 mag was observed by the authors. Such type of event was not mentioned neither in the "General Catalogue of Variable Stars" (Kholopov et al., 1987), neither in NCSVS. The regular visual observations started in the end of July, 1995. The comparison stars were HD 103287, HD 95418, HD 81937 A, HD 71369 AB, HD 84999 AB, HD 123299, HD 126660 A, HD 125162. Their V magnitudes were used for our photovisual systems. From 28.07.95 to 17.08.95, the brightness of 69 UMa was about 4^m0 ; from 18.08.95 the star began to brighten.

I.S.B. used the negatives of the new "SPEZ" collection (panchrom film with a GOST 250 sensitivity, the yellow-green filter ZhZ-2*, the photocamera "Zenith-ET" with an objective "Helios-44-7", limiting magnitude 8^m5). On 24 negatives the star is faint being at 4^m2-4^m3 V in June and brightens up to 3^m3-3^m4 V in September.

V.M.A. measured 13 negatives (panchrom GOST 130, the yellow-blue filter ZhS-18, the photocamera "Zenith-ET" with an objective "Helios-44-7", and on the film A500 at the same camera without fil-

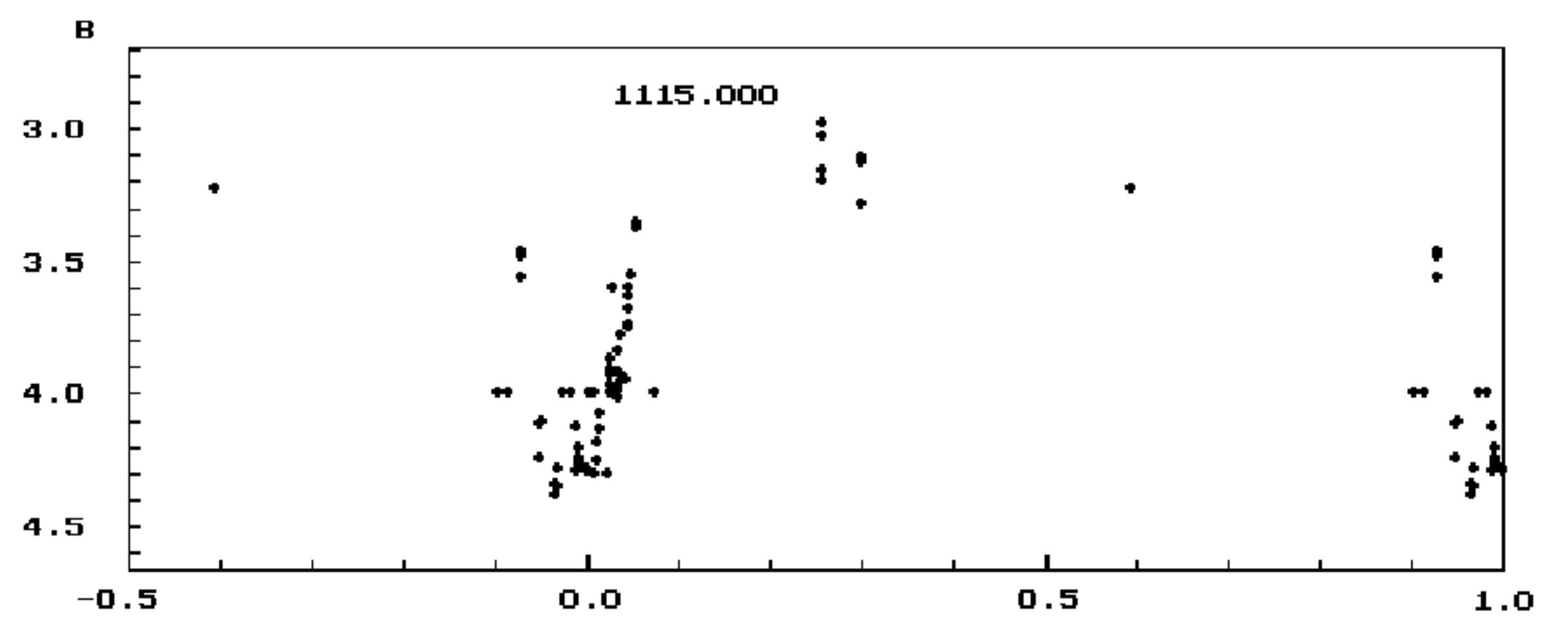


Figure 1. The phase curve of NSV 05513 corresponding to a period $P = 1115^m$.

ters (experimental photothek, 1991–92). One may note that a white star (Sp A3) seems to be more bright 3^m0-3^m3 on the panchrom negatives rather than on A500 (3^m6-3^m7). This argues for a systematic difference between the two instrumental systems.

Based on our photographic data and on the information by Goranskij (private communication) that 69 UMa was suspected to be variable by E.Zinner in 1928 and L.Campbell in 1946, we suggest that the star 69 UMa = NSV 05513 is an eclipsing variable with a period of $1030^m - 1180^m$ (1115^m) and a range 3^m3-4^m3 .

Our observations were confirmed by L.N.Champion (England), Yu.Strigelskij, D.Babinovich and Yu.Beletskij (Belorussia).

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