

COMMISSION 27 OF THE I. A. U.
 INFORMATION BULLETIN ON VARIABLE STARS

Number 3433

Konkoly Observatory
 Budapest
 19 February 1990
 HU ISSN 0374 - 0676

A NEW SUSPECTED POLARIZATIONAL VARIABLE IN CYGNUS

Two stars, N2 (cl) and N3 (sv-suspected variable) in Fig.1, were used as comparison stars during the R-band photometry and spectropolarimetry of the Wolf-Rayet star HD 191765 (WR) in October 1989. The measurements were carried out with the 0.6m telescope of Mid-Asia expedition of the Main astronomical observatory. The N3 star was found to have highly variable first three Stokes parameters: I , q_R , u_R (Fig.2.). The standard deviation of the R-band flux ratio $F(sv)/F(cl)$ was $\sigma_R=3.2\%$, and simultaneously $\sigma_R(F(WR)/F(cl)) = 1.9\%$. There were one-measurement-accuracies $\sigma_q=0.19\%$, $\sigma_u=0.21\%$, but $\sigma_q(sv)=0.79\%$, $\sigma_u(sv)=0.60\%$. There are obvious systematical night-to-night variations on q,u -plane (Fig.3). The star N3 may be a binary system with $P > 12^d$, because on q,u -plane we can see roughly less than a half of full q,u -locus.

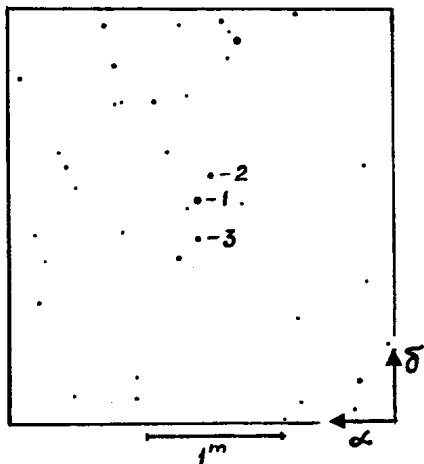


Fig.1. Finding chart. 1 - HD 191765 (WR), $\alpha(1950)=20^h08^m22^s$, $\delta(1950) = 36^{\circ}01'40''$; 2 - BD+35°4000 (cl); 3 - the suspected variable (sv).

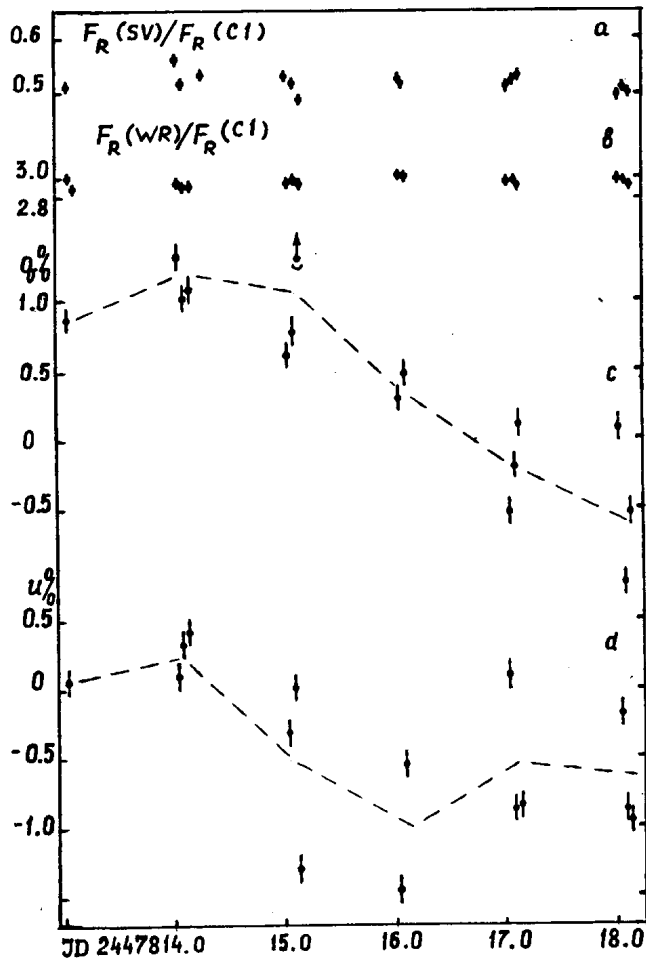


Fig.2. The variations of R-band flux and polarization. a) $F_R(sv)/F_R(cl)$; b) $F_R(wr)/F_R(cl)$. The variations of the Stokes parameters; c) $q\%$; d) $u\%$.

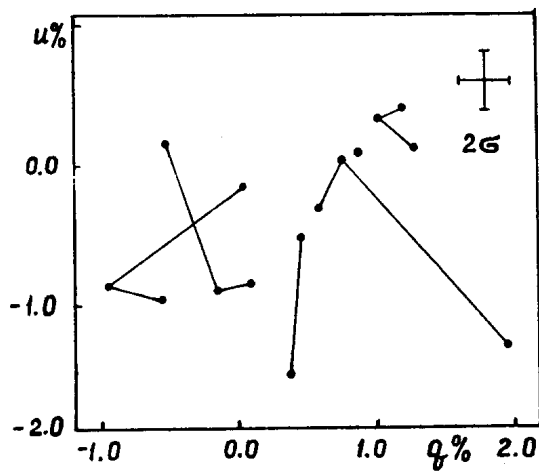


Fig.3. Polarimetric observations of the suspected variable. Consecutive observations (during one night) are joined by a line.

Table I. The observations of the suspected variable

JD	F_R (sv/cl)	p%	q%	σ_q %	u%	σ_u %	θ°	σ_θ
244 7800.+								
13.101	0.510	0.86	0.86	0.20	0.06	0.22	182.1	9.9
14.098	0.561	1.32	1.32	0.18	0.11	0.21	182.3	6.5
14.201	0.515	1.06	1.01	--	0.32	--	188.8	--
14.278	0.531	1.24	1.16	--	0.42	--	189.9	--
15.098	0.527	0.67	0.59	0.16	-0.32	0.21	165.5	6.0
15.197	0.517	0.77	0.77	--	0.02	--	180.9	--
15.299	0.491	2.38	1.99	--	-1.30	--	163.5	--
16.096	0.525	1.51	0.39	0.17	-1.46	0.18	127.4	6.3
16.192	0.519	0.72	0.47	--	-0.54	--	155.5	--
17.085	0.512	0.54	-0.53	0.16	0.12	0.20	83.6	9.6
17.176	0.520	0.89	-0.17	--	-0.87	--	129.4	--
17.269	0.529	0.85	0.10	--	-0.84	--	131.4	--
18.091	0.494	0.18	0.07	0.24	-0.16	0.26	146.8	11.9
18.190	0.509	1.28	-0.94	--	-0.87	--	111.3	--
18.282	0.504	1.10	-0.54	--	-0.96	--	120.3	--