

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

Number 3235

Konkoly Observatory  
Budapest  
8 September 1988  
HU ISSN 0374-0676

VARIABILITY IN THE HIGH LATITUDE Be STAR JL212 (=CPD-56°154)

Star number 212 in the survey by Jaidee & Lynga (1969) has Ström-gren photometry by Kilkenny (1984) which indicates it to be of spectral type near B2. An analysis by Keenan, Dufton & McKeith (1982) found JL212 to have normal abundances for a population I star although it apparently lies at  $z = -3.2$  kpc from the galactic plane. They also noted that differences between surface gravity determinations using spectroscopic measurements of He and photometry of the H $\beta$  line suggested that JL212 might be an emission line star. Subsequently, spectroscopy by Kilkenny & Muller (1988) showed that JL212 did indeed have H $\beta$  in emission. Keenan et al (1982) found ( $T_{\text{eff}}$ ,  $\log g$ ,  $V \sin i$ ) = (19200, 3.7, 219) from high dispersion spectroscopy; using moderate dispersion (30 Å/mm) Kilkenny (1989) obtains (17500, 3.5, 225) with a distance from the galactic plane  $z = -3.3$  kpc, which is in good agreement with the Keenan et al (1982) result and is also extremely unusual for a Be star.

A very similar star, SB357 (=CD-37°316) at  $z = -6$  kpc has recently been shown by Kilkenny (1988) to be a variable star with no obvious short-term ( $\sim$  hours) variation but clear variability on a time scale of a few days or longer. It therefore seemed worthwhile to examine the SAAO 'archive' photometry of JL212 in a search for possible variability. The uvby and UB $V$ (RI) $_C$  data are summarised in Tables 1 and 2 where the second row of figures for each date are the standard deviations of the mean values in units of 0.001 mag. All data were corrected to observations of the nearby star CPD-56°153 for which we find:

	s.d	n		s.d	n
V	= 9.802 ± 0.009	44	y	= 9.805 ± 0.004	15
(B-V)	= +0.895 ± 0.005	44	(b-y)	= +0.546 ± 0.005	15
(U-B)	= +0.494 ± 0.007	44	m <sub>1</sub>	= +0.258 ± 0.007	15
(V-R) <sub>c</sub>	= +0.480 ± 0.004	17	c <sub>1</sub>	= +0.439 ± 0.014	15
(V-I) <sub>c</sub>	= +0.951 ± 0.005	17			

Table 1 Strömgren photometry of JL212 (=CPD-56°154)

HJD	V	(b-y)	m <sub>1</sub>	c <sub>1</sub>	n
2444109.51	10.320	-0.062	+0.076	+0.291	2
	2	1	4	2	
4119.54	10.345	-0.067	+0.089	+0.277	5
	5	3	5	8	
4120.58	10.340	-0.065	+0.080	+0.281	2
	2	1	2	7	
5251.43	10.313	-0.060	+0.087	+0.261	1
5252.45	10.318	-0.065	+0.085	+0.278	1

Although CPD-56°153 is not an ideal comparison star for JL212, being much redder (early K by colour) it is of similar brightness and is only ~ arcminutes away from JL212. CPD-56°153 was always reduced to the usual 'all-sky' standards for UBVR(I)<sub>c</sub> (Menzies, Banfield & Laing 1980) and uvby photometry (Crawford & Barnes 1970) and appears to be of constant brightness.

For JL212 there is only one reasonably long sequence of monitoring, that on HJD 2447005, which shows no variation bigger than about 0.01 mag over ~2.5 hours. From night to night comparison, it seems quite clear that JL212 is variable with an observed range of ~0.04 mag. The data obtained are from 1979, 1981 and 1982 (uvby) and 1987 (UBVRI) and show no sign of the much larger scale variations (~0.2 mag) seen in SB357.

Table 2 UB<sub>V</sub>(RI)<sub>C</sub> photometry of JL212

HJD	V	(B-V)	(U-B)	(V-R)	(V-I)	n
2447005.51	10.329 3	-0.158 3	-0.646 3			28
7006.62	10.330 1	-0.155 3	-0.653 3			6
7007.62	10.341	-0.160	-0.656	-0.070	-0.163	1
7009.61	10.323 4	-0.158 4	-0.652 4			11
7011.58	10.326 3	-0.165 5	-0.654 4			7
7013.55	10.343 2	-0.154 4	-0.651 3			4
7021.62	10.321 5	-0.157 6	-0.651 3			18
7023.59	10.316 4	-0.152 1	-0.661 4	-0.061 10	-0.142 4	2
7025.62	10.351 2	-0.158 5	-0.656 2	-0.063 5	-0.145 9	8
7068.49	10.356 2	-0.155 1	-0.650 1	-0.065 8	-0.150 9	2
7070.52	10.347 1	-0.157 1	-0.647 1	-0.071 1	-0.149 9	2
7071.47	10.351 2	-0.164 2	-0.646 1	-0.068 2	-0.156 4	2
7078.43	10.309 6	-0.161 6	-0.654 2	-0.061 3	-0.139 8	2

D KILKENNY  
 J SPENCER JONES  
 F MARANG

S A Astronomical Observatory  
 P O Box 9  
 Observatory 7935  
 South Africa

## References

- Crawford, D.L. & Barnes, J., 1970. Astr. J. 75, 978.
- Jaidee, S. & Lynga, G., 1969. Arkiv Astronomi 5, 345.
- Keenan, F.P., Dufton, P.L. & McKeith, C.D., 1982. Mon. Not. R. astr. Soc., 200, 673.
- Kilkenny, D., 1984. Mon. Not. R. astr. Soc., 211, 969.
- Kilkenny, D., 1988. Inf. Bull. Var. Stars 3179.
- Kilkenny, D., 1989. In preparation.
- Kilkenny, D. & Muller, S., 1988. SAAO Circular 13, in press.
- Menzies, J.W., Banfield, R.M. & Laing, J.D., 1980. SAAO Circular 5, 149.