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HD 91948: A NEW PROBABLE Be STAR

Gorga (1971) investigated the binary nature of the star HD 91948 (=BD+60° 1274 = SAU 15243; F8V). He found it to be a spectroscopic binary with an orbital period of 2.^d7700266. The first photoelectric (UBV) observations were carried out by Padalia (1980) from May 1973 to May 1978 on 17 nights to see its variable (eclipsing binary) nature. However, Padalia (1980) found the variability of this star only on two nights (falling at phases 0.^d09 and 0.^d25), though the star had been observed almost in the entire phase region. It was concluded that the star was a suspected variable and not an eclipsing binary. From his photoelectric observations he determined its spectral type to be AOV.

The UVB observations of this star taken by Padalia on one of the two nights, 21 March 1977 (JD 2443224) at phase near 0.^d25 showed a variation of 0.^m26 in U, 0.^m15 in B and 0.^m10 in V filter (Figure 1). However, the variation was not repeated at the same phase on other nights which indicated that the light variation of HD 91948 was not of eclipsing nature. It is clear from Figure 1 that the variation in U is larger than that in B and V. Similar type of photoelectric variation has been observed in Be stars, for example 88 Her and Pleione (Magalashvili and Kumsishvili, 1982). The variation found in different colours for HD 91948 and 88 Her are as follows:

Star	Filters			
	U	B	V	
HD 91948	0. ^m 26	0. ^m 15	0. ^m 10	(Padalia, 1980)
88 Her	0.14	0.10	0.07	(Magalashvili and Kumsishvili, 1982)
88 Her	0.30	0.15	0.15	(Harmanec et al., 1978)

In order to investigate the Be nature of this star we have carried out spectrophotometric observations.

The star was observed by us on the night of 29 April 1984 on the 104-cm reflector of the Uttar Pradesh State Observatory. A Hilger and Watts mono-

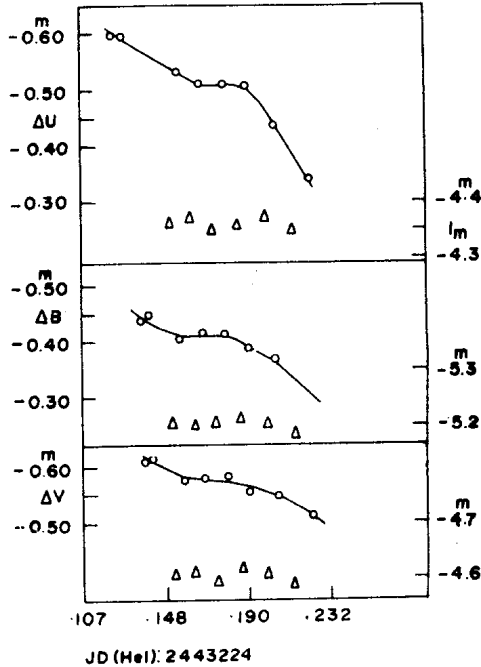


Figure 1

Individual observations on the night of JD 2443224 (Padalia, 1980). The differential magnitudes are in the sense variable minus comparison. The solid line indicates free hand curve. Points with Δ are instrumental magnitudes for comparison star used.

chromator was used for taking spectral scans. The standard star α Leo and the comparison star BD +60^o 1289 = HD 93286 (which was also used for our earlier UVB observations) was observed along with the variable star. We noticed that the H_{α} line of variable star was found to be filled-in by emission (Figure 2). An inspection of Figure 2 reveals that the standard and the comparison stars have H_{α} lines in absorption whereas the variable star has no absorption lines. We have also observed H_{β} , H_{γ} , H_{δ} , H_{ϵ} etc. lines and found that these lines are in absorption for the standard and the comparison stars used by us, but these absorption lines fade away for HD 91948.

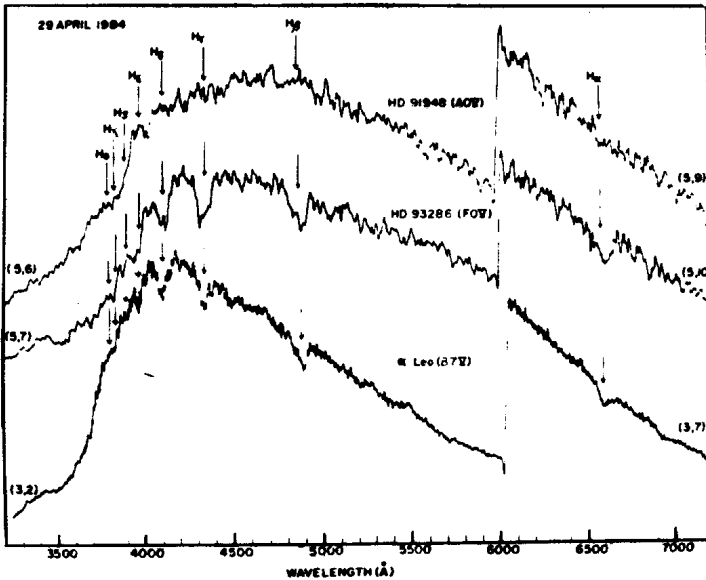


Figure 2

Spectrophotometry of HD 91948 along with the standard and comparison stars. The Balmer lines are shown by vertical arrows. The amplifier sensitivities used for various stars are indicated by numbers inside brackets. The sharp discontinuity in the spectrum at a wavelength of λ 6000 Å is due to change in sensitivities.

From this we infer that HD 91948 is an emission line (Ae) star. Further UVB and scanner observations are in progress.

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References:

- Gorga, W.: 1971, J.Roy.Astron.Soc. Canada, 65, 277
 Harmanec, P., Horn, J., Koubsky, P., Kfiž, S., Zdarsky, P., Papousek, J.,
 Doazan, V., Bourdonneau, B., Baldinelli, L., Ghedini, S., Pavlovski, K.:
 1978, Bull.Astron.Inst.Czech. 29, 278
 Magalashvili, N. and Kumsishvili, Ya.I.: 1982, Abastumanskaya Astrofiz.Obs.
 Byull. No. 55, p. 81
 Padalia, T.D.: 1980, Inf.Bull. Variable Stars, No. 1733