COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 1549

Konkoly Observatory
Budapest
1979 February 12

THE SPECTRAL TYPE OF BQ SERPENTIS

In the course of our observation of double mode Cepheids, several spectrograms of BQ Ser[1] have been obtained at the Okayama Astrophysical Observatory. The observations were carried out on July 1978 with the use of image intensifier spectrograph attached the Cassegrain focus of the 188cm reflector. The dispersion is about 108Å/mm for the first order of the grating. All the plates were taken with the Kodak 103a-O emulsion. The covered wave length range is about λλ3900-5400.

For the spectral type determination, the Balmer H_β, H_γ, H_δ lines and the appearance of G band were used from a comparison with the spectra of MK standard stars obtained with same spectrograph. Table 1 lists the adopted standard stars. These are taken from Morgan and Abt[2], Morgan and Keenan[3], and Cowley[4].

Table 1

Adopted MK standard stars

Standard star	Spectral type	References
HR 8025	F1 III	4
HR 7222	F2 III	2,4
HR 6577	F6 III	2,3,4
HR 9057	F8 III	4

Results are presented in Table 2. The last column gives the obtained ones from the $H_{\beta,\gamma,\delta}$ lines and the features of G band, respectively. The errors, based on the uncertainties of continuum level and the fluctuation of intensity curve, roughly correspond to the accuracy of 1-2 subdivision of spectral class. Especially using the H_γ profile, which is blended by the strong HgI emission line of city light, lacks the sufficient accuracy. Because of the above reason, no concerning is paid to the phase variation.

Table 2

Spectral type of BQ Ser

Plate No.	Date 1978	JD 2443000+	Spectral type $H_{\beta,\gamma,\delta}$	G band
IS 549	July 8	698.006	F5~F6	-
IS 550	July 9	698.154	F5~F6	F6
IS 552	July 14	703.149	F6~F7	F6

In conclusion, the mean spectral type of BQ Ser is F6. This result gives somewhat late type in comparison with the early reports of Herbig[5] (F3 III) and Kukarkin et al.[6] (F5 III).

The author would like to thank Dr. M. Takeuti for helpful advices. Messrs.S. Egawa and K. Hara are also acknowledged for their cooperation in the observations.

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