

## THE ULTRAVIOLET SPECTRUM OF BETA LYRAE

M.Hack<sup>1</sup>, J.B.Hutchings<sup>2</sup>, Y.Kondo<sup>3</sup>, G.E.McCluskey<sup>4</sup>  
<sup>1</sup>Osservatorio Astronomico, Trieste  
<sup>2</sup>Dominion Astrophysical Observatory, Victoria B.C.  
<sup>3</sup>Johnson Space Center, Houston  
<sup>4</sup>Lehigh University, Bethlehem

ABSTRACT. Selected regions of the ultraviolet spectrum of Beta Lyrae were observed in 1973 and 1974 at the epochs of the two eclipses and of the two quadratures with the Copernicus Princeton University spectrometer. The results were published in the Astrophysical Journal (Hack *et al.* 1975, 1976). Here we summarize the results of a third series of observations with the same instrument covering the whole period of 12.93 days. The following spectral regions were observed in June 1975 during 13 consecutive days:

$\lambda$  1036-1060; 1300-1326; 1398-1416; 2050-2098; 2580-2632; 2777-2812 in the low resolution mode;  $\lambda$  1172-1177 and 2795-2799 in the high resolution mode. The main results are the following: 1) The radial velocity curve for  $\lambda$  1175 C III is almost 180° out of phase with the orbital velocity curve of the primary star and the mean velocity is  $-240 \text{ km s}^{-1}$ ;  $K = 70 \text{ km s}^{-1}$ . This suggests that  $\lambda$  1175 C III is formed in an expanding envelope associated with the secondary. The mass ratio can be determined:  $m_2/m_1 = 2.7^{+0.2}_{-1.1}$ . 2) The continuum variation confirms the results obtained with OAO-2. At  $\lambda$  2100 we observe the light of a continuum indicating that the temperature of the body eclipsing the primary star is lower than that of the primary and of about 9000 K. The light curves at  $\lambda$  1900, 2100 can be explained with the contribution of Fe III emission in the circumbinary plasma. On the contrary, the depth of the secondary minimum at  $\lambda$  1311-1326 and at  $\lambda$  1410 cannot be explained with the Si III and Si IV emissions. A possible explanation is the presence of a hot spot in the region of the eclipsing body (probably a disk surrounding the companion) where the stream from the primary impinges on the disk. The hot spot can also explain the behavior of the infrared light curves observed by Jameson and Longmore (1976).

The full paper will be submitted to the Astrophysical Journal.

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