

The variable light curve of BH Virginis^{*,**}

F.Y. Xiang¹ and Q.Y. Liu²

¹ Physics Department of Xiangtan University, Xiangtan, Hunan, 411105, China

² Yunnan Observatory, Chinese Academy of Sciences, Kunming, Yunnan, China

Received January 2; accepted November 6, 1996

Abstract. Photoelectric observations of the short period eclipsing binary BH Vir in *B* and *V* bands are presented. Comparing with earlier published observations, we found that there were smaller variations in the the light curve (outside eclipse) in 1991 than in the previous data.

Key words: stars: BH Vir — binaries: eclipsing

1. Introduction

Photometric studies of BH Vir (BD – 0⁰2769) were published by Kitamura et al. (1957), Koch (1967), Hoffmann (1982), Scaltriti (1988) and Arevalo et al. (1987). These authors found large intrinsic variations on BH Vir light curves on all phases. Hoffmann (1982) concluded that these intrinsic variations were due to both components and suggested that BH Vir should join the short-priod RS CVn group. Scaltriti et al. (1985) attributed the activity to the primary star. Zeilik et al. (1990) and Zhai et al. (1990) made some starspot models to fit the light curves. Since the variation of the light curve is very complicated, we selected this system in our programme and made photometric observations.

2. Observations

Photoelectric observations in Johnson's *B* and *V* filters of BH Vir were made with the 60 cm reflecting telescope at Yunnan Observatory, Academy of Sciences, Sinica, on nine nights from April to May 1991. The extinction coefficients were low. The EMI6256B photomultiplier tube was cooled. BD – 1⁰2897(F5) was chosen as the comparison

star and BD – 1⁰2868(F8) as the check star. Both stars were constant inside the observational errors in all observing nights. The intrinsic errors of one magnitude difference (variable-comparison) are 0^m020(*B*) and 0^m017(*V*).

The light curves obtained in the two colours are shown in Figs. 1 and 2 and presented in Tables 1 and 2. The phases used are based on the light elements given by Koch (1967):

$$JD = 2438107.19047 + 00.81687099E.$$

The outside eclipse part of the first half of the light curve shows a very smooth curvature. Comparing with former light curves, the most striking aspects are:

- 1) The depth of both minima are similar to the observations of 1977 and 1986, but are different from data of 1963-1964.
- 2) On the contrary of what observed from 1963-1964 to 1986, only a small decrease in the system brightness occurred around phase 0.65 in 1991.

A photometric analysis of these and of previous data of BH Vir, including new times of minima, will be published separately (Xiang et al. 1996).

References

- Arevalo M.J., Robayna B., Fuensalida J.T., Bedford D.K., 1987, IBVS 3117
 Hoffmann M., 1982, A&AS 47, 561
 Kitamura M., Nakamura T., Takahashi C., 1957, PASJ 9, 191
 Koch R.H., 1967, AJ 72, 411
 Scaltriti F., 1988 (private communication)
 Scaltriti F., Celino A., Busso M., 1985, A&A 149, 11
 Xiang F.Y., Zeng Y.C., Liu Q.Y., 1996, A&A (submitted)
 Zeilik M., Leedlow M., Arevalo M., Budding E., 1990, ApJ 354, 353
 Zhai D.S., Qiao G.J., Zhang X.Y., 1990, A&A 237, 148

* Tables 1 and 2 will be only accessible in electronic form at the CDS via anonymous ftp to cdsarc.u-strasbg.fr (130.79.128.5) or via <http://cdsweb.u-strasbg.fr/Abstract.html>

** Based on observations obtained at the Yunnan Observatory, Sinica Academy of Sciences, Popular Republic of China.

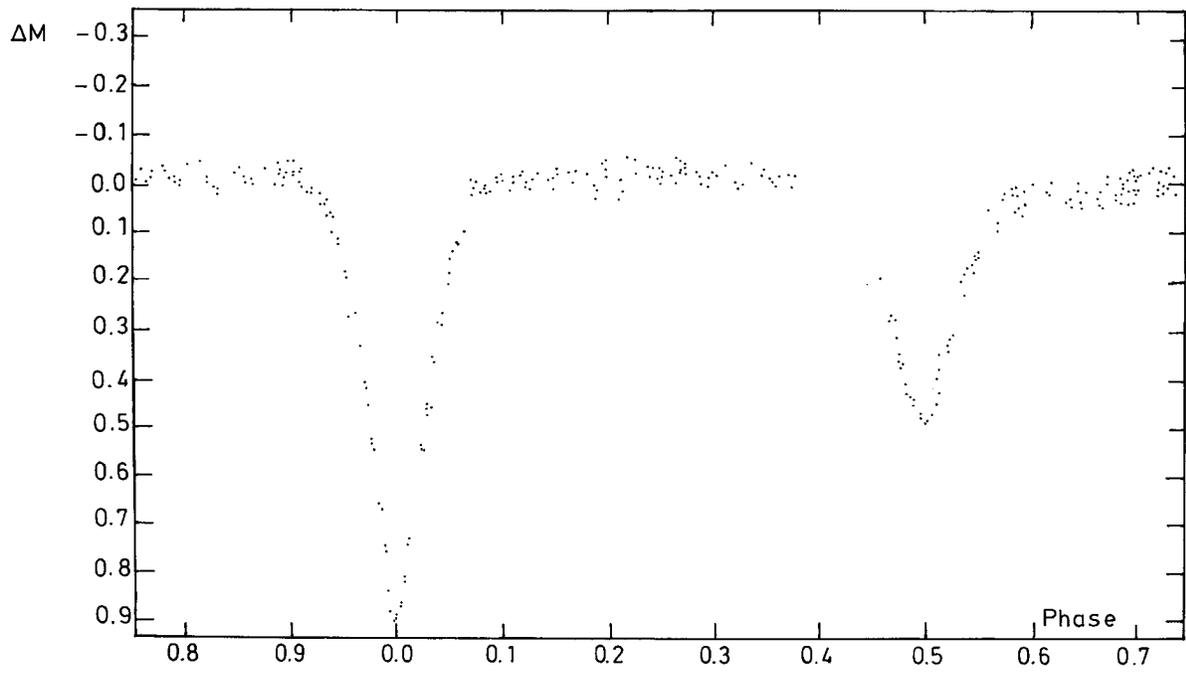


Fig. 1. *B* observations of BH Vir

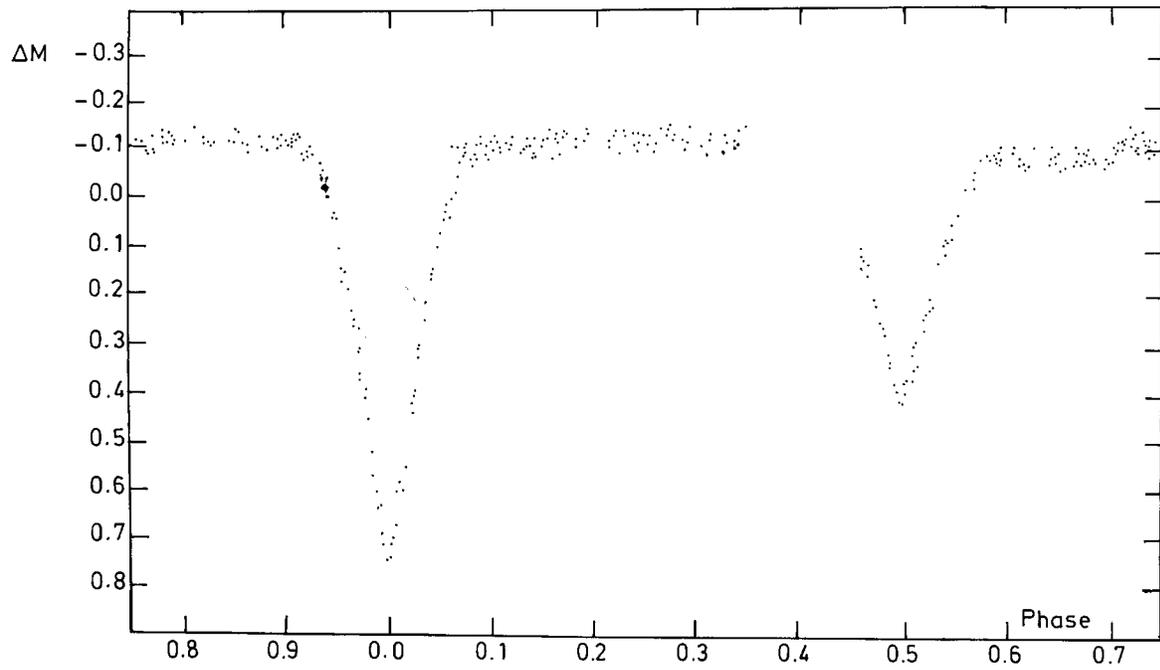


Fig. 2. *V* observations of BH Vir