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SEARCH FOR THE PERIOD OF THE BINARY SHELL STAR V 505
MONOCEROTIS

The variability of the radial velocity of the star HD 48 914 (V 505 Mon) was discovered by Pearce and Petrie (1950). Hoag and Smith (1959) classified it as B5 Ib, Turner (1976) as B5 II. Petrie and Pearce (1962) pointed out that the hydrogen lines are shell-like. They classified the star as B4.

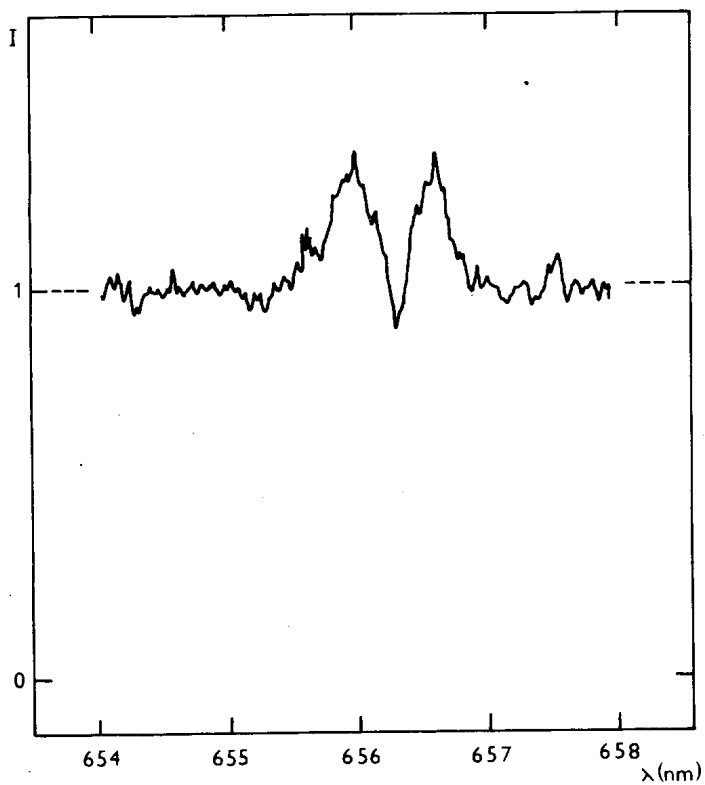


Figure 1

The light variability of the star was discovered by Wachmann (1966). According to him, the amplitude is 0.5 mag. and period shorter than one day. Eggen (1978) made (u,v,b,y,8) photometric observations of the star in the years 1975-76. He found only small light variations of 0.15 mag.

At the spectrogram with dispersion 1.7 nm/mm taken by the 2m telescope at Ondrejov Observatory on January 31, 1981 emission feature of H_α line (Fig.1) was discovered which indicate that V 505 Mon is a shell star. The spectral classification made from this spectrogram is B3 II-III.

The star was observed at Skalnaté Pleso Observatory by a photoelectric photometer installed in the Cassegrain focus of the 0.6 m telescope in V colour from 1977 to 1981. The star HD 48 956 was used as comparison star. We found the changes of the light of V 505 Mon with an amplitude of 0.5 mag. The programs for period search Hec 18 and Hec 21 (Harmanec, 1981) were used to find the period. The best period connected with the eclipses of the components is 26.94745 days (Figure 2). But the period 53.7805 days is possible too (Figure 3). The ephemeris for former period is

$$JD (\text{Min}) = 2444635.318 + 26.94745 \times E . \quad (1)$$

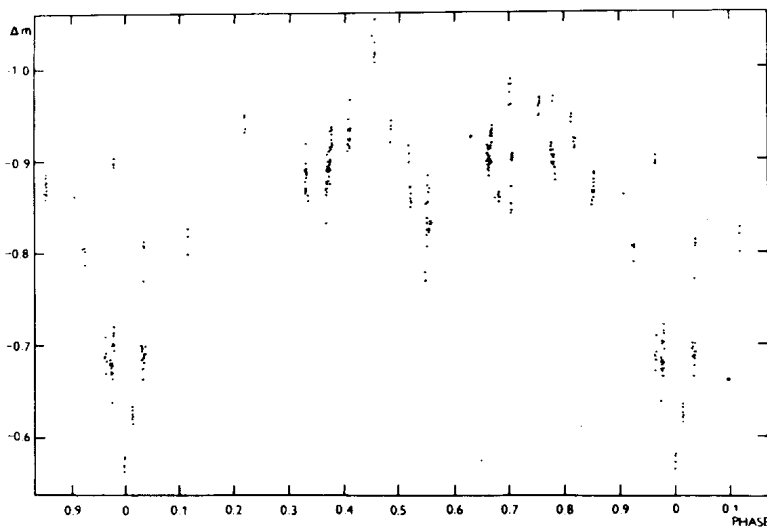


Figure 2

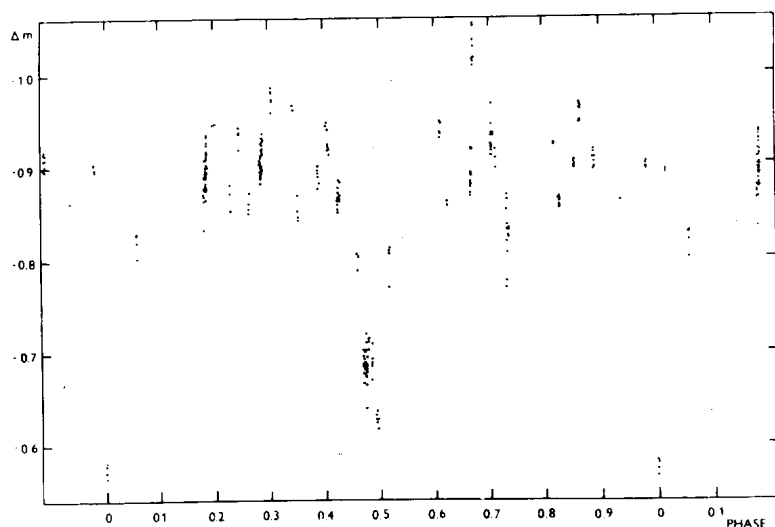


Figure 3

It is possible to see on Figure 2 and Figure 3 that short term variations with the amplitude 0.15 mag. are present on the light curve. We found the period of the variations as 0.9912467 day. It was believed that the period of eclipses is shorter than one day. These variations are responsible for it.

Pearce and Petrie (1950, 1962) measured radial velocities on 9 spectra covering a period from the year 1929 to 1959. They obtained the range of radial velocities from + 90 km/s to - 40 km/s. We tried to find the radial velocity curve with the periods mentioned above, but we failed. The determination of radial velocities in shell stars is a serious problem. There are long term variations of the radial velocities there, so it is necessary to obtain many spectra in a short time interval.

The further photometric and spectroscopic observations of the star V 505 Mon are highly desirable.

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References:

- Eggen, O.J. 1978, *Astron. J.* 83, 288.
Harmanec, P. 1981, private communication.
Hoag, A.A., Smith, E.P. 1959, *Publ. Astron. Soc. Pacific* 71, 32.
Pearce, J.A., Petrie, R.M. 1950, *Publ. Dominion Astrophys. Obs.*
8, 409.
Petrie, R.M., Pearce, J.A. 1962, *Publ. Dominion Astrophys. Obs.*
12, 1.
Turner, D.G. 1976, *Astrophys. J.* 210, 65.
Wachmann, A.A. 1966, *Astron. Abhandl. Hamburger Sternw.* 7, 341.