COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 956

Konkoly Observatory
Budapest
1975 January 15

RZ Eri

This eclipsing binary with a period of 39 days consists of an early type primary and a late type secondary with CaII H and K in emission. Cesco and Sahade (1945) studied the system spectroscopically and determined an orbit for the primary component. Later Gaposchkin (1951) and Gadomski (1957) derived photometric elements from photographic observations.

As the light curve shows total primary eclipses it is possible from a few observations to determine photometric indices for the two components. In the bottom of primary eclipse we measure only the light of the cool secondary and by subtracting this light from the out-of-eclipse observations we get the light of the primary. In November,1973 observations were carried out on six nights around a primary minimum which was predicted to happen at HJD 2442002.89. The observations were obtained by means of the Copenhagen 50 cm telescope at Cerro La Silla and a four channel uvby-photometer. HR 1545 was used as a comparison star. Table 1 lists the observations.

Table 1

RZ Eri - HR 1545

HJD 24	Δu	Δv	Δb	Δy	Phase
42000.796	2.274	1.774	1.579	1.450	
000.827	2.280	1.770	1.582	1.454	
001.743	2.296	1.782	1.591	1.459	partial
001.793	2.318	1.805	1.612	1.476	partial
002.673	3.944	3.452	2.843	2.453	total
002.730	3.928	3.450	2.834	2.452	total
002.752	3.918	3.439	2.836	2.438	total
002.815	3.929	3.449	2.844	2.452	total
003.754	2.355	1.840	1.640	1.498	partial
004.672	2.276	1.766	1.576	1.445	
005.759	2.268	1.768	1.573	1.444	

From observations of standard stars we derive for HR 1545:

V = 6.261 b-y = 0.302 m_1 = 0.139 c_1 = 0.411,

hence we get for the two components of RZ Eri:

Primary:

V = 8.26 b-y = 0.285 m_1 = 0.200 c_1 = 0.867

Secondary:

V = 8.71 b-y = 0.717 m_1 = 0.307 c_1 = 0.340 .

The $([m_1],[c_1])$ indices for the primary component correspond to an F5 giant or an Am star. This may be compared with the classification by Morgan (Cesco and Sahade, 1945), who finds a spectral type of F5 from the metallic lines alone but A5 from the H/K ratio, indicating a metal-line star. Popper once questioned this (1967), but in a recent private communication (1974), he no longer disputes Morgan's classification. Thus the problem of spectral type of the primary component is still not solved. The indices of the secondary correspond to a K giant.

BENT GRØNBECH
Copenhagen University Observatory
and
European Southern Observatory

References:

Cesco, C.U. and Sahade, J. :Ap.J. 101, 370 (1945).
Gadomski, J. : Acta Astron. 7, 83 (1957).
Gaposchkin, S. : Harvard Bull. No. 920 (1951).
Popper, D.M. : PASP 74, 129 (1962).
Popper, D.M. : Private communication (1974).

TIMES OF MINIMA FOR V523 Sgr AND V526 Sgr

The following observations of apsidal motion systems were obtained by means of the 50 cm Copenhagen Telescope at Cerro La Silla, Chile and a four channel uvby photometer. Each time of minimum is the mean for all four colours.

V523 Sgr.

A primary minimum was observed at

Min I: HJD 24 41836.8745 ± 4

The latest discussion of the apsidal motion is given by de Kort (1956), who arrived at an apsidal motion period of 248 years and eccentricity 0.2. Using the revised phase formula we obtain by plotting in his Fig.2. an O-C of about $-^{p}.02$, indicating an eccentricity slightly lower than 0.2.

V526 Sgr.

Two minima were observed as follows:

Min II::HJD 24 41828.7271 ± 3 O-C=$-^{d}.0027$

Min I : HJD 24 41829.9003 ± 2 O-C=$+^{d}.0105$

An extensive discussion of the apsidal motion is given by O'Connell (1967). The residuals to his ephemeris (formula 4) are given above, and although they seem to be quite large, it is probably not possible to improve the apsidal motion parameters significantly with the material available.

BENT GRØNBECH
Copenhagen University Observatory
and
European Southern Observatory

References:

de Kort, J. 1956: Vistas in Astronomy, 2, 1187.

O'Connell, D.J.K. 1967: Ricerche Astron., 7, No.11.