

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

Number 3132

Konkoly Observatory
Budapest
19 January 1988
HU ISSN 0374-0676

A RECENT LIGHT CURVE FOR THE BRIGHT W UMa TYPE ECLIPSING
BINARY GR Vir

GR Vir = HD 129903 has been found to be an eclipsing binary of the W UMa type. First indications of its variability were given by Strohmeyer et al. (1965), who stated that the photographic amplitude was 0.4 magnitudes. A partial light curve was published by Harris (1979) who gave a provisional period of 0.3472 days on the basis of 3 nights of observation. Hoffmann (1983) published a radically different period (0.419757 days) which was adopted for the most recent edition of the General Catalog of Variable Stars. No recent spectral classifications beyond that of G0 given in the SAO Catalog could be located.

GR Vir has been observed in BV colors at intervals between JD 2446121 - 6952 with the 0.6-m. telescope of the Corralitos Observatory and its single channel photon-counting photometer and uncooled EMI 9924A photomultiplier tube, and on JD 2446866 - 7 with the Kitt Peak Observatory #2 0.9-m. telescope with its automated filter photometer and cooled 1P21 tube. Observations of standard stars revealed no systematic color differences to > 0.002 magnitudes between the Corralitos and Kitt Peak systems. The primary comparison star chosen was HD 129870 ($V = 8.99$; $B-V = +.62$; G0) with HD 129976 ($V = 9.43$; $B-V = +.90$; G) used as a check of its non-variability. The standard errors of the mean magnitude of (HD 129976 - HD 129870) were 0.012 in V magnitude and 0.016 in B-V.

A period of 0.346975 days was found for GR Vir on the basis of 916 observations over a total of nearly 2400 cycles. This period is in good agreement with that originally suggested by Harris. Plotting the same data with the Hoffmann period showed that his period is in error and does not represent the observations very well. The V magnitude of the symmetrical maxima is approximately 7.81 and the eclipse depths of primary and secondary minima, 0.36 and 0.31 V magnitudes respectively. There is a slight reddening during primary eclipse of about 0.03 magnitudes in B-V, leading to the conclusion that the secondary star is slightly later in spectral type and less luminous.

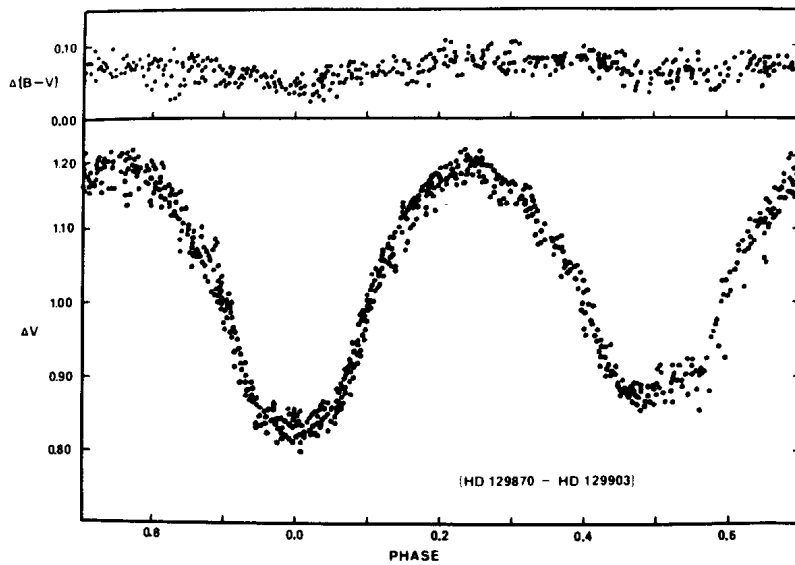


Figure 1 : V magnitude light curve and B-V color changes for GR Vir. These are shown as differences between the comparison star HD 129870 and the variable GR Vir.

The eclipses may be total. Graphic depiction of the light curve and color changes appear in Figure 1, with phase calculated by the following ephemeris:

$$\text{Prim. Min.} = \text{Hel. JD } 2446560.85006 + 0.346975 \cdot E$$

An analysis of the light curve will be published later. Kind thanks are tendered to L. Szabados for pointing out the variable designation and a helpful reference.

E.M. HALBEDEL
 Corralitos Observatory
 P.O. Box 16314
 Las Cruces, NM 88004
 U. S. A.

References:

- Harris, A.W. 1979, Inf. Bull. on Var. Stars, No. 1691.
 Hoffmann, M. 1983, Inf. Bull. on Var. Stars, No. 2344.
 Strohmeier, W., Knigge, R., and Ott, H. 1965, Inf. Bull. on Var. Stars, No. 115.