

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

Number 3025

Konkoly Observatory
Budapest
18 May 1987
HU ISSN 0374-0676

NO PERIODICITY IN RZ GRUIS

RZ Gruis is a bright and recently discovered cataclysmic variable (Kelly, Kilkenny, and Cooke 1981). Stickland *et al.* (1984) have presented extensive spectral observations and assign RZ Gru to the UX UMa subclass of cataclysmic variables. The observations reported below agree with this assignment, but do not confirm the one hundred three day photometric period suggested by Siedel (1957).

The variable of RZ Gru was first detected by Hoffmeister (1949), who tentatively included the star in the RW Aur category. Siedel (1957) used two hundred archival plates to find a 103^d periodicity, with brightness variations between 11.5^m and 13.0^m . Since there is no precedent for so long a period (if strictly coherent) among cataclysmic variables, we decided to check the claimed periodicity with the archival plate collection at Harvard. We examined roughly fourteen hundred blue sensitive plates which were exposed between 1890 and 1952. We found no plates which showed RZ Gru significantly brighter than its usual magnitude of ~ 12.5 . We did find seventeen plates on which RZ Gru was roughly one magnitude fainter than usual. The Julian dates of these plates are given in Table I along with other "low-state" times from Siedel (1957) and Stickland *et al.* (1984). In conjunction with our observed times of normal brightness, we have analyzed the "low-state" times for periodicity. With this much larger data base, we do not confirm the one hundred three day period, or find any statistically significant periodicity.

In October 1982, we performed high speed photometry on RZ Gru with the thirty-six inch telescope on Cerro Tololo through a B filter with integration times between one and ten seconds. Our ten hours of observations (see Table II) included one continuous interval of nearly six hours length. No eclipses were seen, while rapid, large amplitude flickering was always present. If RZ Gru does show eclipses, then we constrain its orbital period to be certainly longer than six hours, and probably much longer. In such a case, the Roche lobe filling secondary star should probably be visible. Hence, it

Table I
"Low-State" Times

J.D.	2,425,154.57		2,431,312.44
	7,606.63		1,375.41
	7,610.50		3,427.63
	7,992.**		3,428.62
	8,373.**		3,430.63
	8,777.41		4,245.**
	8,779.**		4,287.**
	9,756.61		4,347.**
	9,885.49		4,556.**
	31,243.62		45,292.4*
	1,244.62		5,293.3*
	1,282.52		5,293.4*
	1,286.42		5,294.3*
	1,295.57		5,295.3*
	1,303.40		

*Stickland et al. (1984)

**Siedel (1957)

Table II
High Speed Photometry

J.D.	2,445,255.530	-	2,445,255.603
	56.526	-	56.760
	57.495	-	57.512
	57.618	-	57.633
	57.683	-	57.731
	59.510	-	59.526
	59.550	-	59.571
	59.647	-	59.656

seems probable that RZ Gru is a low inclination system.

In summary, we concur with Stickland et al. that RZ Gru is probably a UX UMa-type cataclysmic variable, but, as usual for these stars, shows no evident periodicity in its excursions to a fainter state.

BRADLEY E. SCHAEFER
Goddard Space Flight Center

JOSEPH PATTERSON
Columbia University

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