COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS
Number 3734

Konkoly Observatory
Budapest
1 June 1992
HU ISSN 0324 - 0676

R Canis Majoris — Times of Eclipse Minima

R CMa is one of the nearest and best known systems of Algol-like general type. Its bright (mag 6) partially eclipsing light variation, with the relatively short period of 1.1359 days, makes it a productive astronomical target (Guinan, 1977).

An inherently peculiar group of 'R CMa stars' was once postulated (Kopal, 1959). Using 'reasonable' values for the mass ratio, and with a known 'mass function', the derived masses of stars in this group were far too low to allow them to accord with the normal mass-luminosity relation. Although part of this peculiarity has been removed (cf. eg. Okazaki, 1978), Algols with very low mass ratios *and at low periods* remain odd to interpret in terms of interactive evolution. R CMa is in a very peculiar position in this respect (Budding, 1985). Problems associated with this were recently revisited (Budding and Banks, 1991), in the light of Edalati *et al.*'s (1989) narrowband photometry, and Tomkin and Lambert's (1989) updated spectroscopic evidence.

From a study of the observed period changes, Radhakrishnan *et al.*, (1984) inferred the presence of a *third body* in the system with a mass of $\sim 0.5 M_{\odot}$, a period of about 90 years, the high eccentricity of 0.45, and semi-major axis of some 10^9 km. Such a third body could go a long way toward explaining the outstanding peculiarities of this and similar 'R CMa' systems. Radhakrishnan *et al.*'s solution predicts that the next periastron passage of the third body should take place over the next few years. If this is the case, then the time is right to start careful monitoring of the times of eclipse minima to confirm, or otherwise, this third body hypothesis.

The purpose of the present note is thus to alert and encourage observers about the situation, and to report observed times of minima to the above authors where conveniently possible. A comparison star which has been cited as reliable is BD -15° 1734 = HD56405, with HD 56310 as a check (Guinan, 1977).

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