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INFRARED OBSERVATIONS OF LR Sco, AN RCB STAR

LR Sco (HV 6539) is classed as an SR variable of 104.4 day period ( $10^m.9 - 12^m.3$  pg) (Shapley and Swope 1934, Kukarkin et al. 1970). However recently Stephenson (1978) has classified its spectrum as similar to that of R CrB at maximum, using objective prism plates.

Table I lists JHKL (1.2, 1.6, 2.2 and 3.5 $\mu$ ) photometry of LR Sco. These were obtained with the Mk II SAAO infrared photometer (similar to the one described by Glass 1973) and using an In Sb detector on the 0.75m telescope at Sutherland. The results indicate an infrared excess for LR Sco which is very similar to that of other RCB type stars. If we take  $M_V \sim -4$  (cf. Feast 1979) then  $A_V \sim 1.6$  on the absorption model of the galaxy used by van Herk (1965). Correcting the observations for this reddening it is found that LR Sco lies in the region of other RCB stars in the J-H/H-K and H-K/K-L diagrams (cf. Feast 1979).

LR Sco can therefore be classified as an RCB star with some certainty though typical RCB type minima have not been recorded. It would be particularly valuable to confirm the 104.4 day period derived by Shapley and Swope. RY Sgr which has a similar temperature to R CrB has a pulsation period of 39 days (cf. Alexander et al.) and both R CrB itself (Ferne et al. 1972) and UW Cen (Bateson 1972) have been reported to have pulsation periods near 40 days. 104 days would be a very long pulsation period for a star of the same temperature (and luminosity) as R CrB. Longer periods may however exist for cooler RCB stars (e.g. S Aps for which a period of 120 days has been reported (Waters 1966).

Table I

| Date       | J              | H              | K              | L              |
|------------|----------------|----------------|----------------|----------------|
| 1979 May 8 | 8.20 $\pm$ .07 | 7.47 $\pm$ .05 | 6.52 $\pm$ .04 | 4.77 $\pm$ .05 |
| June 1     | 8.21 $\pm$ .06 | 7.50 $\pm$ .05 | 6.53 $\pm$ .04 | 4.70 $\pm$ .05 |

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