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

Number 3036

Konkoly Observatory
Budapest
22 June 1987
HU ISSN 0374-0676

INSTABILITIES IN THE LIGHT CURVE OF THE RR LYRAE STAR SS Leo

As part of a long-term project to calculate Baade-Wesselink radii, and hence absolute magnitudes, of RR Lyrae stars (Longmore et al. 1985, Jameson et al. 1987) we obtained UBV photometry of SS Leo (P = 0.62634289 day) on the night of 13/14 March 1987 using the 1m. telescope at the South African Astronomical Observatory. During the ascending branch of the light curve the star showed large fluctuations at all three wavelengths. The comparison star HD 100269, which is less than half a degree distant, was observed at 15 minute intervals and remained constant to within 0.02 mags in each filter. The light curves of SS Leo are shown in the attached figure.

On the night of 9/10 April 1987 one of us reobserved the star. The ascending branch on this occasion was quite normal.

As far as we are aware, the behaviour of SS Leo on the night of 13/14 March 1987 is unique not just for this star but for any RR Lyrae (e.g. Lub 1977). We can find no reason to disbelieve our data; however, until these observations have been independently reproduced there must be an obvious question mark against their reality, and for this reason we feel further analysis or comment is premature.

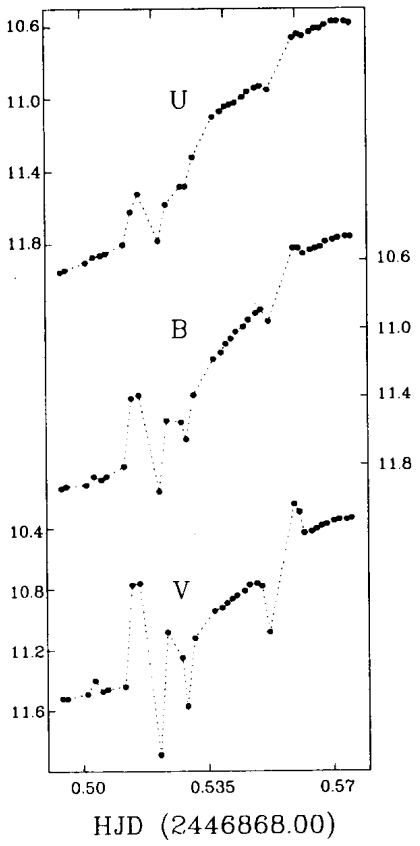

Figure 1

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