

**DISCOVERY OF 10.2-MINUTE OSCILLATIONS  
IN THE Ap Sr (EuCr) STAR HD 185256**

Using the Strömngren photometry of Martinez (1993) as a guide, we have found a new rapidly oscillating Ap (roAp) star, HD 185256, the 28th now known. Kurtz & Martinez (1993) list the first 26 members of the class, Kurtz & Martinez (1994) announced the 27th.

HD 185256 was classified by Houk (1982) as Ap Sr(CrEu). Martinez (1993) measured the Strömngren indices to be  $V = 9.938$ ,  $b-y = 0.277$ ,  $m_1 = 0.185$ ,  $c_1 = 0.615$  and  $\beta = 2.738$ . The calculated dereddened metallicity and luminosity indices are  $[\delta m_1] = -0.054$  and  $[\delta c_1] = -0.094$ , both of which indicate strong metallicity and heavy line blocking in the Strömngren  $v$  band, characteristics we associate with the roAp stars. It is important when searching for roAp stars to deredden  $\delta m_1$  and  $\delta c_1$ ; reddening makes both indices appear much more normal.

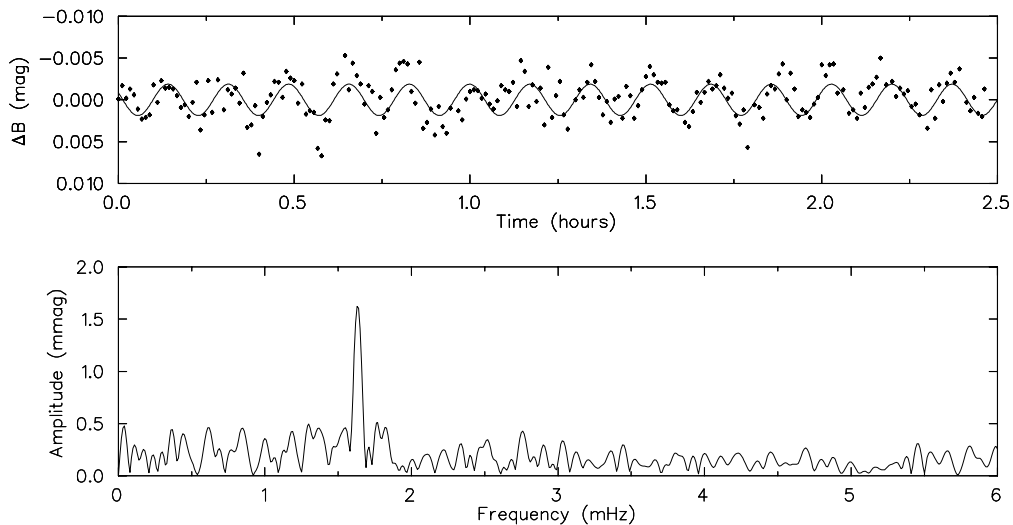


Figure 1

On the night of 1995 May 12/13 we obtained 1 hour of continuous 10-s photometric integrations on HD 185256 through a Johnson B filter using the 0.75-m telescope and University of Cape Town Photometer at the Sutherland station of the South African Astronomical Observatory. The following night we obtained 5.2 hours of observations, 2.5 hr of which are shown in the light curve in the top panel of Fig. 1. The data were corrected for coincidence losses, sky background, extinction and low frequency transparency variations and averaged to 40-s integrations. The bottom panel of Fig. 1 shows the amplitude spectrum of the full 5.2-hr light curve. The highest peak is at 1.63 mHz with a semi-amplitude of 1.61 mmag. The solid line in the top panel is a least squares fit of a sinusoid of this frequency and amplitude to the light curve.

We have an additional 6 hours of observations of this star in 1995 June which have a much lower amplitude. The pulsation amplitude is, therefore, either rotationally modulated and/or the pulsation is multiperiodic.

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