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THE DISCOVERY OF 6.8 MINUTE OSCILLATIONS IN α Cir

Rapid oscillations have been discovered in the cool magnetic Ap stars HD 101065 (Kurtz and Wegner 1979), HD 24712 (Kurtz 1981), HR 3831, and 33 Lib (Kurtz - unpublished). HR 3831 oscillates primarily with a period of 11.67 minutes and 33 Lib (HD 137949) oscillates with a period of 8.27 minutes. While searching for more of these rapidly oscillating Ap stars, we have discovered light variations with a period of 6.8 minutes in the FOp star α Cir (HR 5463, HD 128898).

Figure 1 shows a 6.5 hour long light curve of this star obtained by M.S.C. on 1981 May 02/03 with the University of Cape Town photometer attached to the 0.75-m telescope of the South African Astronomical Observatory (S.A.A.O.). The light curve is divided up in to 1 hour sections which can be read continuously from left to right, top to bottom. Each panel is 0.04 mag high with the central solid line representing the mean magnitude of the star for the night. The conditions on the night this light curve was obtained were not good with some very light cirrus. Sky transparency changes account for the slow erratic changes in this light curve. Superimposed on the sky transparency changes are the 6.8 minute variations which are easy to see. Figure 2 shows an amplitude spectrum of the light curve shown in Figure 1 where the 8.8 hour⁻¹ frequency stands out. The low frequency peaks in Figure

HR5463 JD2444727 B

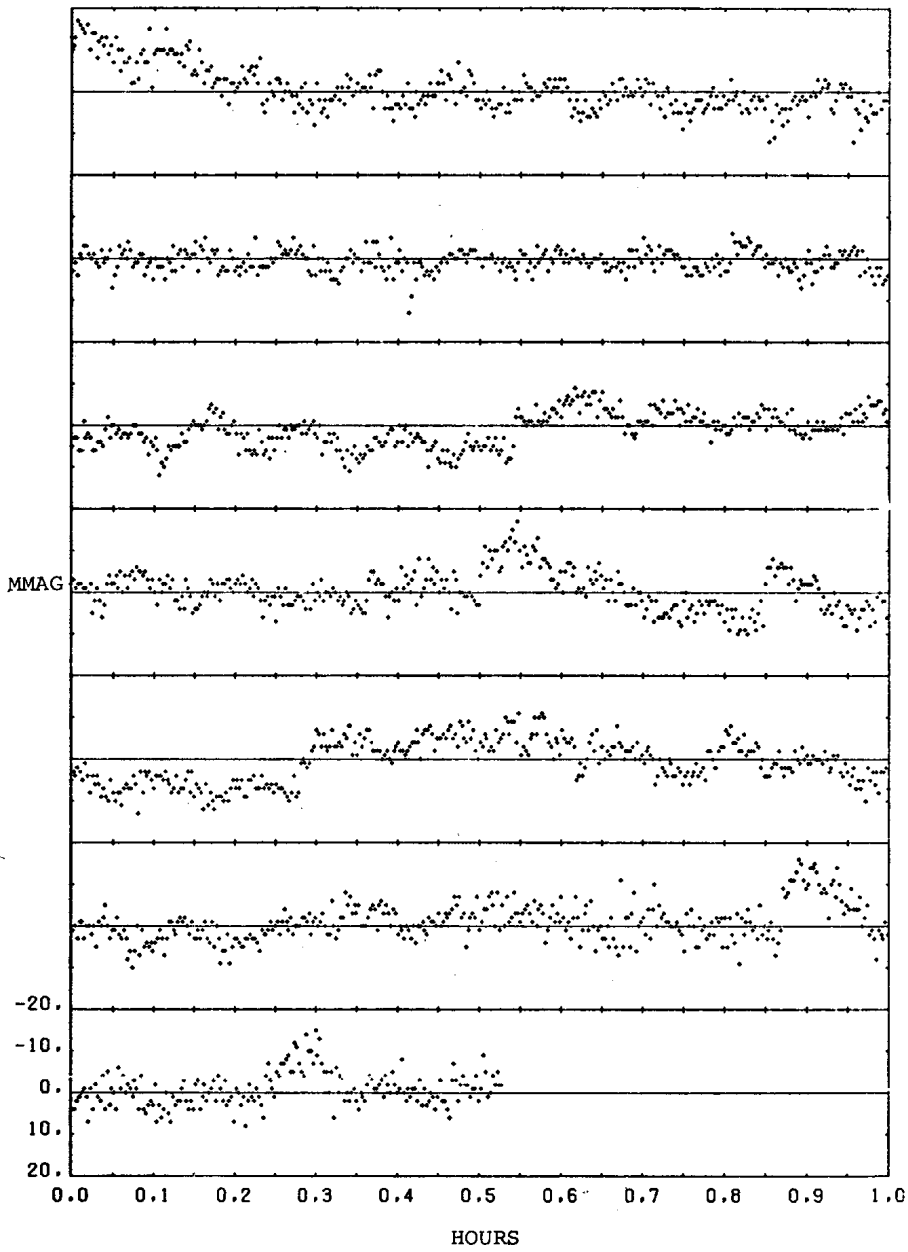


Figure 1

2 are due to the sky transparency changes. We have confirmed these oscillations on several additional nights with one hour observing runs using the S.A.A.O. 0.5-m telescope.

This brings to five the number of rapidly oscillating Ap stars known. The first author will publish a complete analysis of these stars in the near future.

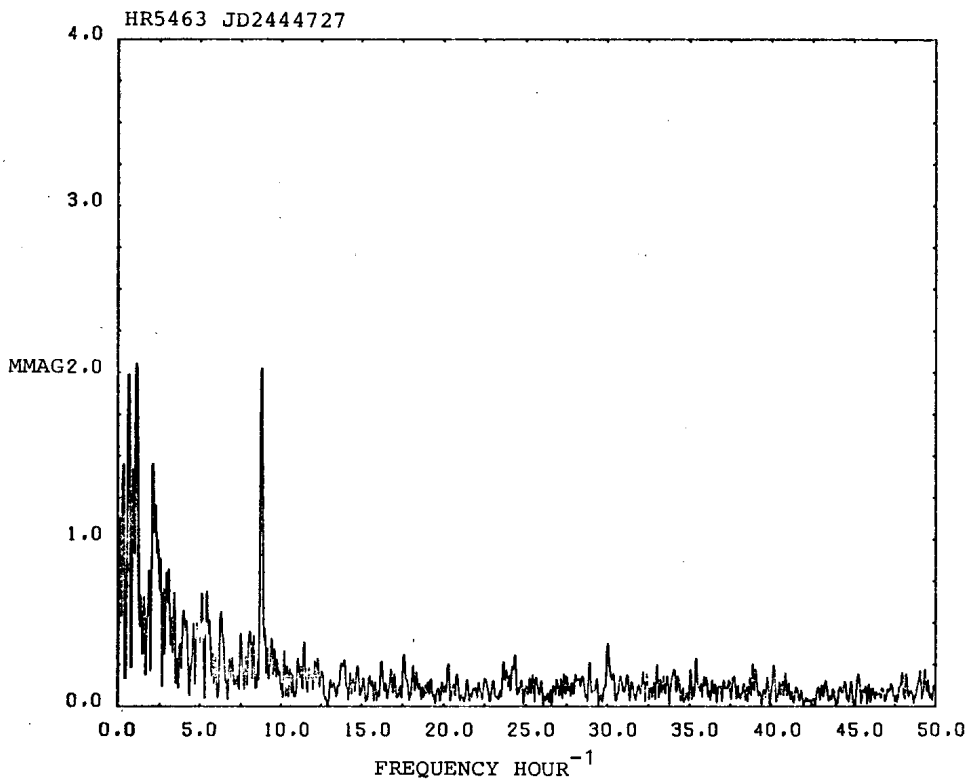


Figure 2

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