COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 3611

Konkoly Observatory
Budapest
28 May 1991
*HU ISSN 0374 - 0676*

# THE DISCOVERY OF RAPID OSCILLATIONS IN THE Ap STAR HD 119027

The star HD 119027 was observed for 5.0 hr on the night JD2448377 as part of the *Cape Rapidly Oscillating Ap Star Survey*. Inspection of the real-time data display at the telescope revealed the presence of rapid oscillations with a period $P = 8.63$ min and an amplitude $A \approx 1.8$ mmag (Fig. 1). The observations were acquired with the University of Cape Town photometer attached to the 1.0-m Elizabeth telescope of the South African Astronomical Observatory at Sutherland. The data comprise continuous 10-s integrations through a Johnson *B* filter with occasional interruptions for measurements of the sky background.

The data were corrected for coincidence-counting losses, sky background and extinction, in that order. We then removed some gradual ($T > 0.5$ hr) sky transparency variations and binned the data to 40-s integrations. The light curves were then Fourier analyzed individually and as a group.

Figure 1

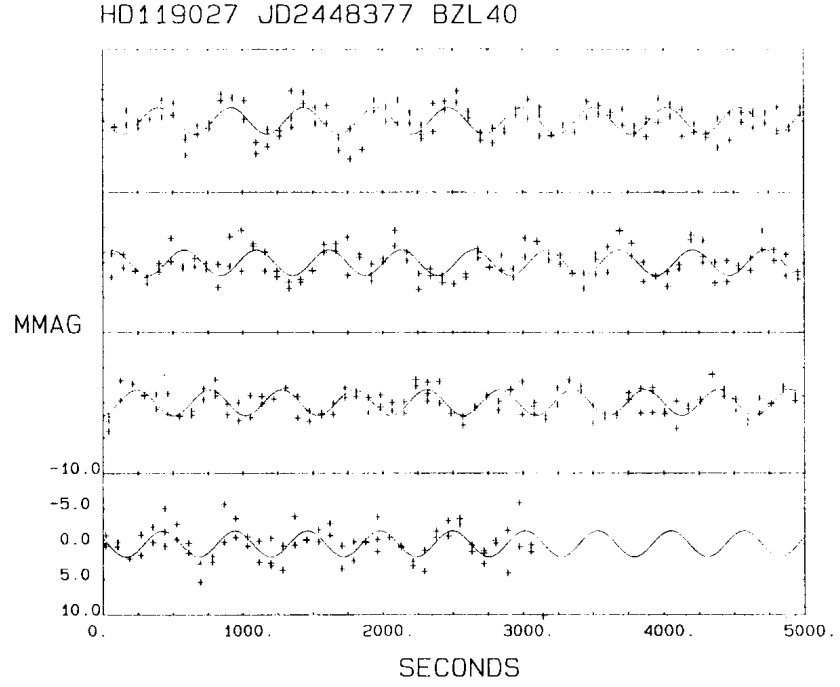
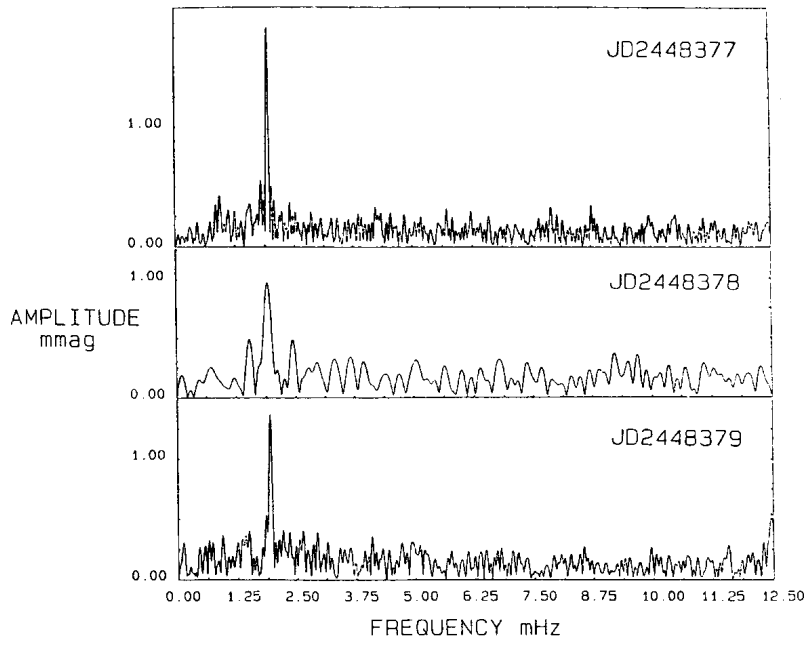


Figure 2




The amplitude spectrum of the data acquired on night JD2448377 is presented in the upper panel of Fig. 2. The prominent peak is at $\nu_1 = 1.93$ mHz. We observed this star again on the following two nights, JD2448378 & 8379, and the amplitude spectra of those two nights are shown in Fig. 2 in the middle and lower panel, respectively. We also Fourier analyzed the three nights together to refine our determination of $\nu_1$ to $\nu_1 = 1.9302$ mHz.

Note that the height of the peak $\nu_1$ differs among the panels by somewhat more than the level of the noise. This suggests that the oscillations in HD 119027 are amplitude modulated on a time-scale of $\approx$ 1 day. We are unable to investigate the nature of this modulation with that data currently at hand. Further observations of this star are scheduled and a detailed frequency analysis will be presented in a future publication.

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