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ON THE  $\delta$  Sct-LIKE VARIABILITY OF THE Ap STAR HD 10088

The Ap star HD 10088 (BD +21<sup>o</sup>224, SAO 74848, sp = A0,  $m_v = 7.9$ ) was found by Weiss (1983) to exhibit light variations characteristic of  $\delta$  Sct variables. This group of Ap stars with  $\delta$  Sct characteristics is described by Kurtz (1982 a). Weiss found a period of about 1<sup>d</sup>29<sup>m</sup> and an amplitude of about 0.03 in Strömgren  $v$  on two nights. Efforts were undertaken to obtain additional photometry.

Photometry was carried out on several nights using Lowell Observatory's 1.1 m and 0.8 m telescopes, employing either a single-channel or dual-channel photometer and electronically cooled EMI tubes. Three integrations of either 10 or 15 sec were obtained on the program star, followed by an equivalent number on the comparison star. This produced an equal number of observations for each star. The comparison star used was HD 9985 (BD +20<sup>o</sup>261, SAO 74837), which is classified in the SAO catalog as sp = A0,  $m_v = 8.0$ , and lies only about 1<sup>o</sup> from HD 10088. The means of the data triplets were first formed. The differential photometry was obtained by subtracting from HD 10088 the interpolated values from a spline fit through the HD 9985 data. The resulting values are plotted in relative differential magnitudes, as shown in the Figure. No corrections were made to heliocentric time.

There appears to be no evidence of variability in any of the data sets. However, it is perhaps not entirely surprising, as the coming and going of variability in  $\delta$  Sct stars has been well known for some time (Danziger and Dickens, 1967), and may be due to destructive interference of two or more frequencies (Wehlau and Leung, 1964, Fitch and Wehlau 1965). To see a similar phenomenon in an Ap star would strongly support Kurtz' assertion that at least some of the Ap stars showing short-period variability might be  $\delta$  Sct stars (Kurtz, 1982 a, 1982 b). HD 10088 might be just on the edge of the instability strip, and may, therefore, only occasionally show pulsational instability.

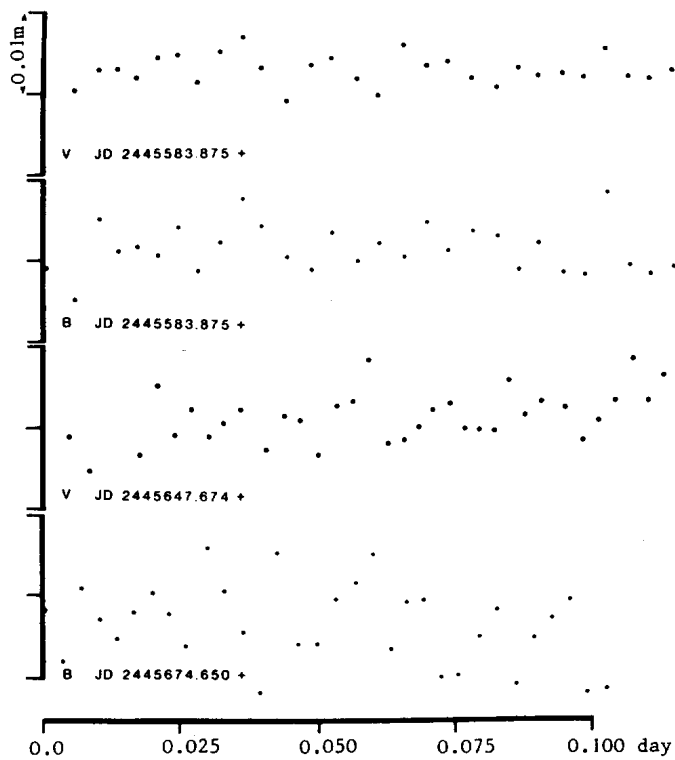


Figure 1  
Differential mag. (HD 10088-HD 9985)

Additional monitoring of HD 10088 is desirable to see over what time spans variability is present. If this star pulsates infrequently, a great deal of effort may be necessary to detect it in an active state.

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