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HD 17 978: A NEW δ SCUTI VARIABLE*

HD 17 978 is a 9.9 magnitude A2 star in the constellation Fornax. We used it as a comparison star in a photometric program, carried out in 1986 with the uvby photometer attached to the Danish 50 cm telescope. Ten observations made on two nights, November 29 and 30, indicate that HD 17 978 is a small-amplitude variable. Since we do not plan to observe the star in the future, we present here a brief account of the data we collected.

The period of the variation is short, certainly shorter than three hours. Unfortunately, it cannot be uniquely determined from our scarce data. Figure 1 (upper panel) shows the differential b magnitudes of the star in the sense "HD 17 978 minus the mean of HD 18 225 and HD 18 100" phased with a period of

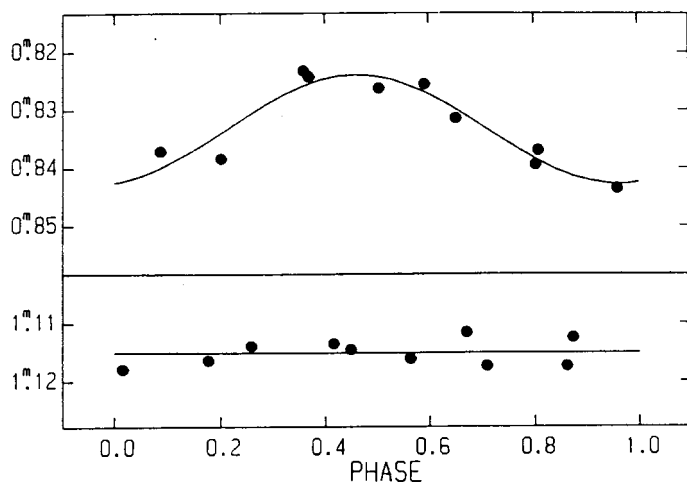


Figure 1. The differential b magnitudes of HD 17 978 (upper panel) and of the comparison stars (lower panel) plotted as a function of phase of the 0.0577 day period. Zero phase corresponds to $JD_{hel} 2446750$.

* Based on observations collected at the European Southern Observatory, La Silla, Chile

0.0577 days, which is one of the series of possible values. Zero phase corresponds to $JD_{hel} 2446\ 750$. The differential magnitudes "HD 18 225 minus HD 18 100" are plotted in the lower panel of the figure. The sine curve (solid line) fitted to the variable star data by the method of least squares has an amplitude (half range) of 0.0094 ± 0.0012 mag. The maximum occurs at phase 0.460 ± 0.020 . Standard deviation of the fit amounts to 0.0026 mag. This can be compared with 0.0022 mag, the standard deviation with which the mean level line (horizontal straight line in the lower panel) fits the comparison stars' data. The amplitudes in u, v, and y amount to 0.0072 ± 0.0019 mag, 0.0101 ± 0.0017 mag, 0.0073 ± 0.0020 mag, respectively, and the phases of maximum in these bands do not differ significantly from the phase of maximum in b.

The time scale and the amplitudes of the light variation of HD 17 978, together with its spectral type of A2, indicate that the star is a δ Scuti variable.

C. STERKEN
Astrofysisch Instituut
Vrije Universiteit Brussel
Pleinlaan 2
1050 Brussel
Belgium

M. JERZYKIEWICZ
Wroclaw University Observatory
ul. Kopernika 11
51-622 Wroclaw
Poland