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HD30861, A NEW ELLIPSOIDAL VARIABLE *

The first announcement for variability of HD30861 (spectral type according to the Michigan catalogue: A2V, Houk,1978) was given by Hensberge et. al. (1981). They used this star as a comparison for the CP2 star HD30849, but rejected it later due to evident variability.

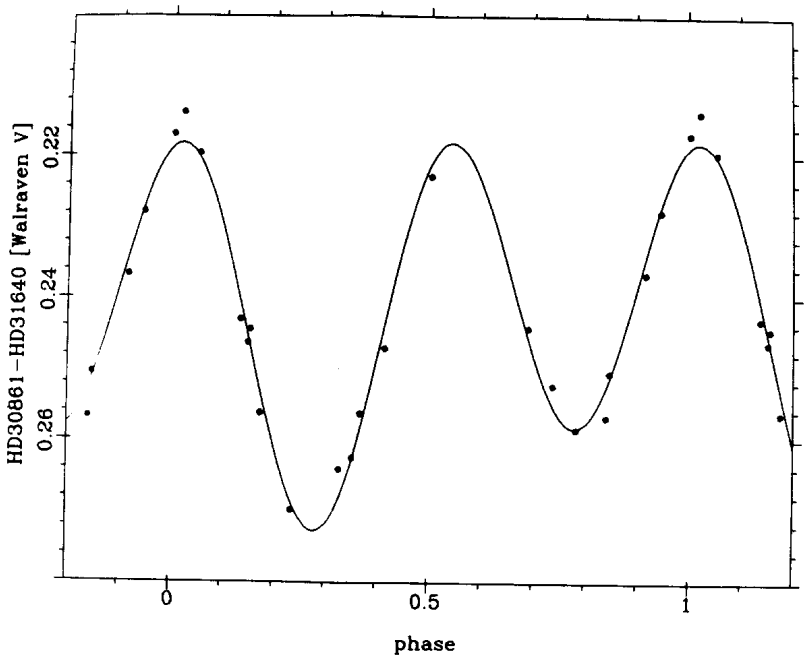

Figure 1

* Based on observations obtained at ESO, La Silla/Chile.

In order to check independently the variability and to determine the period we observed HD30861 in 1981 and 1986 at La Silla/Chile. The ESO 50cm (Strömgren photometry) and the Dutch 90cm (simultaneous Walraven photometry) telescope, respectively, were used. The comparison star was HD31640 (spectral type according to the Michigan catalogue: A3/5m, A5-7, derived from CaII K, Hydrogen and metal lines, respectively), for which the constancy was already well established (Hensberge et al.).

Our investigations were successful. We found a double wave variation and estimated a preliminary period of 0.852 days. The phase relation, refering to the first observation, is given by

$$JD = 2446775.5520 + E \cdot 0.852^{\mathrm{d}}.$$

Figure 1 presents the light curve in Walraven V. Notice that Walraven V is given as $\log_{10}$ intensity (multiply with -2.5 to be on a magnitude scale). The fit was obtained by a function of the type

$$a_0 + a_1 \cdot \cos(\phi - \phi_0) + a_2 \cdot \cos 2(\phi - \phi_0)$$

with ϕ = phase and $\phi_0 = 0.28$. In the case of Walraven V we obtained $a_0 = 0.2420, a_1 = .0072$ and $a_2 = .0236$. It seems that a_2 is independent of wavelength (0.0234 ± 0.0002 in all Walraven passbands), while a_1 reaches a maximum near the Balmer jump ($a_1 = 0.0090$ in Walraven L). The standard deviation for individual V measurements, as computed from the scatter of the absolute Walraven V for the comparison star (relative to their average), is $\sigma_V = .0019$.

The final analysis of the complete photometry is under way and will be published elsewhere.

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