

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

Number 2626

Konkoly Observatory
 Budapest
 14 November 1984
 HU ISSN 0374 - 0676

A POSSIBLE DELTA SCUTI VARIABLE IN NGC 6405 *

During the photometric search for CP2 stars in open clusters (Maitzen, and Schneider, 1984) star no. 31 (number from Rohlfs et al., 1959) was found to be slightly variable. The observations were carried out during May 1981 with the ESO 50 cm telescope at La Silla, Chile. The Strömgren data, obtained during six nights, are as follows :

No	V	b-y	m1	c1	b	v	u	J.D.	phase
1	11.581	0.252	0.108	0.900	11.833	12.193	13.453	4739.64679	.00
2	11.625	0.252	0.165	1.011	11.877	12.294	13.722	4741.60126	.97
3	11.580	0.284	0.113	1.043	11.864	12.261	13.701	4746.73163	.03
4	11.631	0.263	0.161	1.021	11.894	12.318	13.763	4748.57666	.48
5	11.671	0.229	0.198	1.025	11.900	12.327	13.779	4748.71271	.61
6	11.679	0.213	0.187	1.020	11.892	12.292	13.712	4751.71008	.58
7	11.658	0.242	0.182	0.906	11.900	12.324	13.654	4751.88367	.58
8	11.574	0.263	0.165	0.958	11.837	12.265	13.651	4752.60559	.12
9	11.621	0.256	0.140	1.115	11.877	12.273	13.784	4752.70569	.49
10	11.584	0.306	0.041	1.109	11.890	12.237	13.693	4752.76788	.92
11	11.514	0.277	0.141	0.983	11.791	12.209	13.610	4752.86444	.15
12	11.538	0.297	0.088	0.980	11.835	12.220	13.585	4752.90723	.13

A straightforward sine fit through the data yields a period of 1.043 hours. This and the position inside the M_V -(b-y) diagram points to a possible δ Sct nature of this star (Breger, 1979), while the Δ_a photometry (Maitzen, Schneider, 1984) does not show any CP2 character (both, δ Sct and radially pulsating CP2 stars, occupy the same range inside the CM-diagram). In Figure 1 the data for each Strömgren filter are plotted vs. the phase. The phases are calculated by using

$$J.D. = 2444739.64679 + 0.04346 E$$

The amplitudes obtained from the sine fit are:

$$y : 0.09 \quad b : 0.05 \quad v : 0.07 \quad u : 0.12 \quad (\text{mag.})$$

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

variations of star NGC6405-31

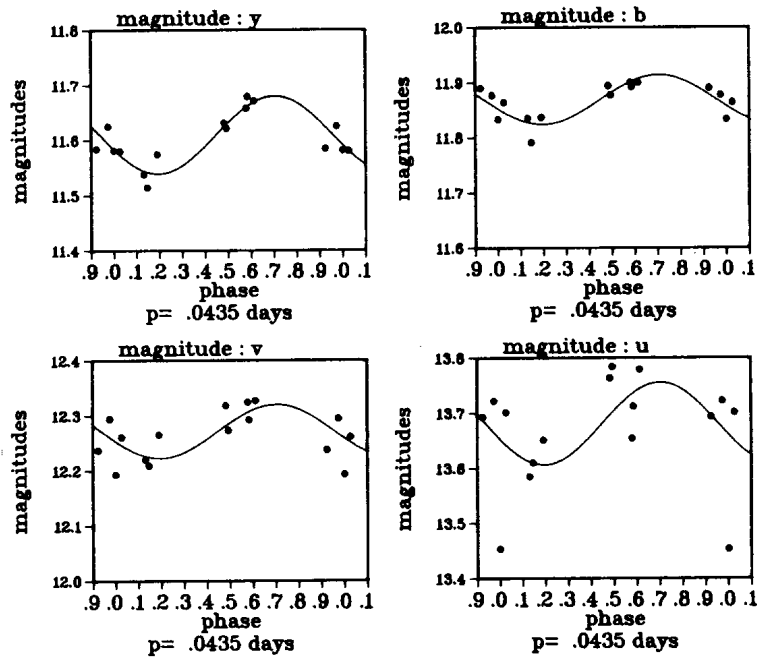


Figure 1

Because of the small aperture of the telescope and the relatively small brightness of the star the S/N ratio of the 120 second integrations is fairly small. This and the small sample of data causes greater uncertainties in determining the period, phase lag and amplitude. To obtain more accurate values of this object further observations are needed.

H. SCHNEIDER
 Universitäts-Sternwarte
 Geismarlandstr. 11
 D-3400 Göttingen
 F.R.G.

References:

- Breger, M. 1979, *PASP*, **91**, 5.
 Maitzen, H.M., Schneider, H. 1984, *Astron. Astrophys.*, **138**, 189.
 Rohlfs, R., Schrick, K.-W., Stock, J. 1959, *ZfA*, **47**, 15.