

COMMISSION 27 OF THE I. A. U.  
 INFORMATION BULLETIN ON VARIABLE STARS  
 NUMBER 556

Konkoly Observatory  
 Budapest  
 1971 May 26

PHOTOMETRY OF DELTA SCUTI VARIABLES HR 2107 and HR 5005

In the course of a survey on Delta Scuti stars observations of HR 2107 and HR 5005 were made at the Pic-du-Midi Observatory in January and April 1970.

We used a refrigerated photomultiplier associated with the one-meter telescope, the measurements were made with pulse counting technique. The interference filters are

filter I	$\lambda_{\text{eff}} = 4220 \text{ \AA}$	width = 50 \AA
filter II	$\lambda_{\text{eff}} = 4700 \text{ \AA}$	width = 30 \AA

HR 2107 = 1 Monocerotis ( $m_V = 6, 28$ )

The comparison star was HR 2001 ( $m_V = 6, 02$ ), the root square standard deviation of the observations was less than  $0.004 m_V$ , each data point was the mean of eight or nine observations using an integration time of ten seconds.

Table 1

Photometric results  $\Delta m = (\text{HR 2001} - \text{HR 2107})$   
 Night of 6 - 7 January 1970

J.D. hel.	$\Delta m_1$	J.D. hel.	$\Delta m_2$
2440593		2440593	
.449	0.558	.449	0.446
.457	0.565	.459	0.477
.497	0.327	.466	0.448
.511	0.189	.495	0.259
.525	0.165	.510	0.129
.536	0.200	.523	0.095
.544	0.259	.535	0.103
.555	0.350	.542	0.154
.566	0.399	.554	0.231
		.565	0.276

The results are in Table 1, the light curves in Figure I. The measured period is  $p = 0.139$  day which is nearly the same as that found by DANZIGER and DICKENS (0.137 day). Amplitudes are 0.19 for filter I and 0.18 for filter II.

max light filter I = J.D. hel. 2440593.525

and 0.002 days later for filter II observations.

A second observation was made seven nights later and although it was short, it is interesting, because it contains the minimum of the light curve. The results are in Table 2.

Table 2

Photometric results  $m = (HR 2001 - HR 2107)$   
Night of 13-14 January 1970

J.D. hel.	$\Delta m_1$	J.D. hel.	$\Delta m_1$
2440600.375	0.397	2440600.412	0.551
.387	0.456	.429	0.443
.401	0.500		

The time of minimum intensity for filter I was

J.D. hel. 2440600.408

The addition of 49,5 periods of 0.139 day onto the maximum observed on the 6th January gives the minimum at 2440600.4055 J.D. hel which agrees well with the observed minimum, the period of 0.137 days measured by DANZIGER and DICKENS would give a phase error of about  $\pi/2$ .

HR 5005 ( $m_V = 6, 49$ )

The comparison star was HR 5014, the light curve is in Figure II. The time covered by observations is four hours and forty minutes. No significant variations in the light curve were found during this night, DANZIGER and DICKENS' observations on this star were too short to determine a period and our observations are not conclusive.

In conclusion, the similitude of the two measured periods of HR 2107 seems to be a good first approximation. In the case of HR 5005 it seems necessary to make more observations before we may conclude that it is really a Delta Scuti star.

Groupe "Etoiles Variables à Courtes Périodes"

PARIS, France  
May 1, 1971

J. -C. VALTIER  
Observatoire de Nice  
Le Mont-Gros  
O6-NICE  
France

Reference:

DANZIGER, I. J., and DICKENS, R. J., 1967, Astrophys. Journal, 149, 55

FIG I

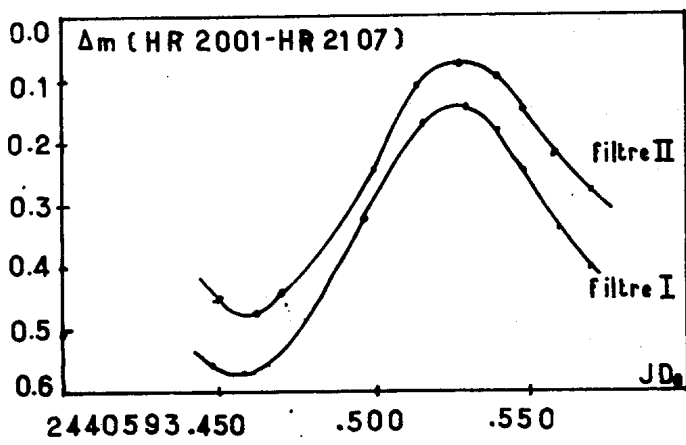
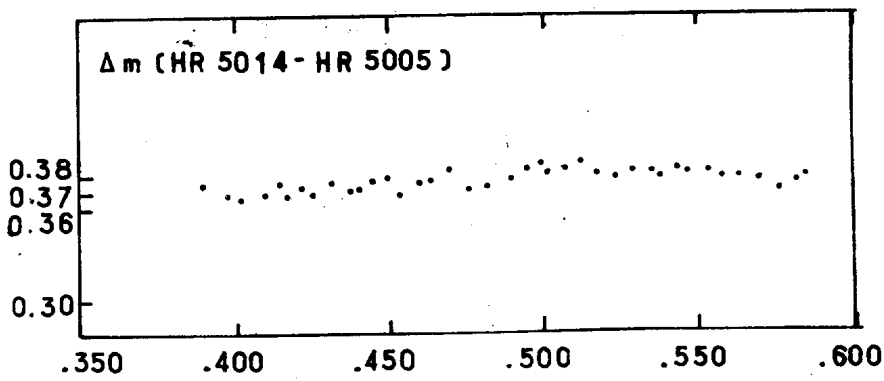


FIG II



JD: 2440682