COMMISSIONS 27 AND 42 OF THE IAU
INFORMATION BULLETIN ON VARIABLE STARS

Number 5621

Konkoly Observatory
Budapest
30 March 2005

HU ISSN 0374 – 0676

IL Lac: AN ECLIPSING BINARY WITH DISPLACED SECONDARY MINIMUM

BAV Mitteilungen Nr. 169

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This star (GSC 3617.1169 = VV318) was discovered to be variable by Miller and Wachmann (1971). The GCVS lists IL Lac as an eclipsing binary with only the epoch given. No period was published until today. Extensive photoelectric monitoring carried out by one of us (FA, 1998 - 2005, C8 with ST6 CCD camera attached) has confirmed the type of variability as well as unveiled the length of the period with approximately $7\overset{d}{.}4$ days. The secondary minimum was found to be displaced; its actual position is at $0\overset{p}{.}4365$. GSC 3617.1387 and GSC 3617.1181 were used as comparison star and check star resp.

To confirm the elements, photographic plates (1926 - 1991) taken with the Sonneberg Observatory 40cm Astrograph and several other cameras used for the Sonneberg Field Patrol were inspected by TB.

Individual data (photoelectric as well as photographic) are available upon request.

The elements listed below were obtained by means of a weighted least-squares solution. It was not possible to distinguish between primary and secondary eclipses on the basis of our data. Hence, the assignment was chosen to point with the original GCVS epoch towards a primary minimum. Further photometry and/or spectroscopy is needed to solve this problem.

$$\begin{array}{c} \text{Min I} = \text{HJD } 2453226.617 + 7\overset{d}{.}395656 \times E. \\ \qquad\qquad\quad \pm 14 \qquad\quad \pm 7 \end{array} \tag{1}$$

$$\begin{array}{c} \text{Min II} = \text{HJD } 2453222.449 + 7\overset{d}{.}395665 \times E. \\ \qquad\qquad\quad \pm 5 \qquad\quad \pm 4 \end{array} \tag{2}$$

This research made use of the SIMBAD data base, operated by the CDS at Strasbourg, France.

Reference:

Miller, W., Wachmann, A.A., 1971, *Ricerche Astron*, **8**, 12

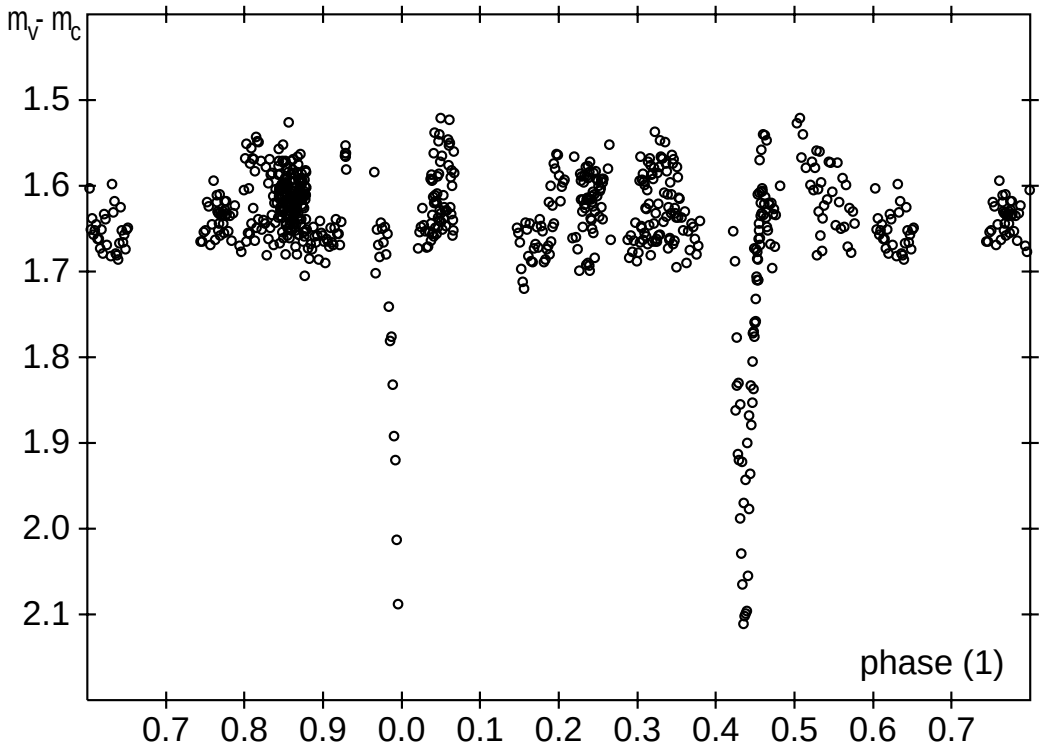

Figure 1. Unfiltered photoelectric observations folded with the ephemeris (1).

Table 1. Observed minima

Number	JD hel.	Weight	Epoch(1)	Epoch(2)	$(O-C)$	Source
1	24849.528	1	−3837		+0.043	[1]
2	25152.595	1	−3796		−0.112	[1]
3	25503.530	1		−3748	+0.034	[1]
4	25648.280	1	−3729		+0.064	[1]
5	25651.290	1		−3728	−0.119	[1]
6	29985.317	1		−3142	+0.048	[1]
7	33187.627	1		−2709	+0.035	[2]
8	33295.302	1	−2695		−0.022	[2]
9	33357.649	1		−2686	−0.043	[2]
10	34304.418	1		−2558	+0.081	[2]
11	34715.289	1	−2503		−0.001	[2]
12	47554.250	1	−767		+0.102	[1]
13	51780.291	5		−195	−0.003	[3]
14	51817.254	5		−190	−0.018	[3]
15	53222.4516	10		0	+0.0029	[3]
16	53226.609	10	0		−0.008	[3]
17	53259.4313	10		5	+0.0042	[3]

Sources: [1] Berthold (this paper), [2] Miller and Wachmann (1971), [3] Agerer (this paper)