

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

Number 4074

Konkoly Observatory
Budapest
18 August 1994
HU ISSN 0374 - 0676

SPECTROSCOPY OF FAINT CATAclySMIC VARIABLES III

RU LMi (CBS 119)

RU LMi was classified as a cataclysmic variable by Wagner et al. (1987). It shows a rather odd light curve (Howell et al. 1990) and a rising blue continuum (Mukai et al. 1990). Mukai et al. obtained spectral information from 4000-9500Å while RU LMi was near its faint limit of $V \sim 19.5$. Our new data presented here (Figure 1) shows strong emission lines of the Balmer series as well as fairly strong He I emission. He II emission is also present but weaker and the Balmer jump is apparently in emission as well. High excitation lines, such as those seen in this data, can indicate the presence of a highly magnetized white dwarf, but RU LMi shows no other evidence for this interpretation. Howell et al. (1990) suggested an orbital period of near 350 minutes based on photometric observations made when RU LMi was near $V \sim 17.8$. The spectrum (Fig. 1) appears typical of a dwarf nova near quiescence with the strong emission lines being indicative of a fairly low mass transfer rate. This latter fact is not what is expected for an orbital period of ~ 6 hrs. However, a similar case exists for AR Cnc which has an orbital period of 5.15 hrs, but shows a spectrum containing strong emission lines.

2006-17

This newly discovered CV was found serendipitously during a Palomar Schmidt plate search for asteroids (Epoch 1950 position is: $\alpha = 20^{\text{h}}06^{\text{m}}55^{\text{s}}$; $\delta = -17^{\circ}25'27''.5$ Holt, 1990). On 1990 July 27 the star was fainter than $m_{pg} \sim 18$ th magnitude and on 1990 July 28 it was seen in outburst at $m_{pg} \sim 16$. These are the only two observations known for that outburst so the exact level of maximum light and the outburst duration cannot be determined. Examination of the POSS plates showed no candidate, but a deep CCD image revealed a candidate star at approximately $V \sim 21.5$ (Howell 1990).

Our MMT spectrum is seen in Figure 2 and shows a steeply rising blue continuum with no secondary features visible. (Due to the observation being made with the slit not at the parallactic angle and a modest telescope positional error, the extremely steep blue continuum rise is not real.) The H lines are moderately strong in emission as well as some of the prominent He lines. There are indications of other possible emission lines but the spectrum has too low a S/N to be certain. Our magnitude estimate (Table 1) shows that our MMT observation of 2006-17 was apparently obtained while rising to or falling from an outburst. Thus, we have likely confirmed a second confirmed outburst for 2006-17.

Observations presented here were made at the Multiple-Mirror Telescope and at Steward Observatory.

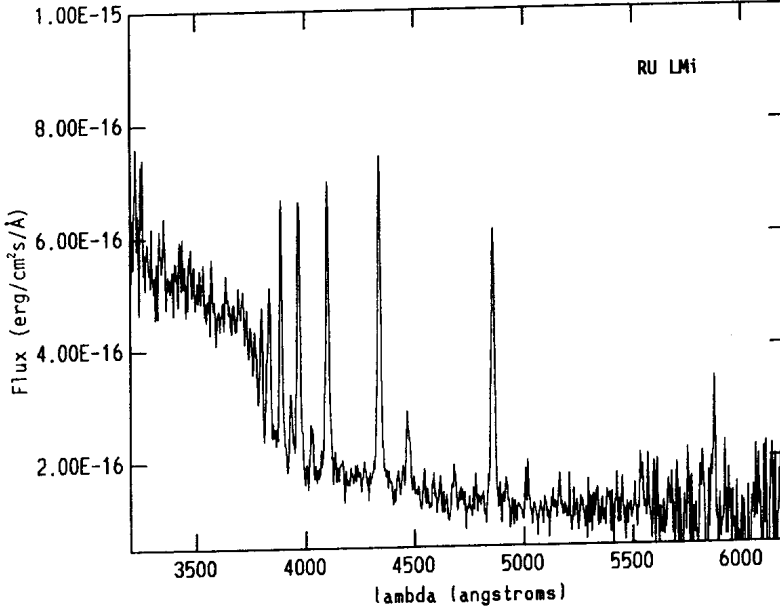


Figure 1. Steward Observatory 90" Reticon spectrum.

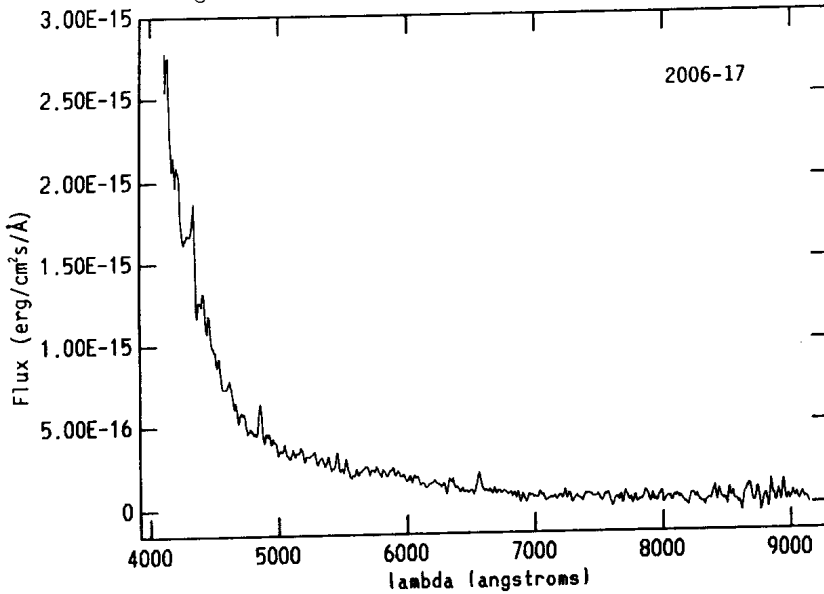


Figure 2. MMT spectrum of 2006-17.

Table 1. Observing log

Star	UT Date	UT Start	Int. Time	Spectral Resolution	V ^{a)}
RU LMi	1986 Jan 20	09:55	1200 sec	–	18.0
2006-17	1992 Sep 02	04:41	1800 sec	15Å	18.3

^{a)} V magnitude derived from numerical filter convolutions of the spectra.

Steve B. HOWELL
Planetary Science Institute
620 N. 6th Avenue
Tucson AZ 85705
USA

James LIEBERT
Steward Observatory
University of Arizona
Tucson AZ 85721
USA

R. Mark WAGNER
Lowell Observatory
1400 W. Mars Hill Road
Flagstaff AZ 86001
USA

References:

- Holt, H., 1990, private communication
Howell, S.B., et al., 1990, *PASP*, **102**, 758
Howell, S.B., 1990, unpublished
Mukai, K., et al., 1990, *MNRAS*, **245**, 385
Wagner, R.M., et al., 1987, *ApJ*, **328**, 213