The Intermediate Polars Campaign at AO Kolonica Saddle

Dubovský P.[1], Kudzej I.[1], Parimucha Š.[2]

1 – Vihorlat Observatory, Humenné, Slovakia

2 – Institute of Physics, Faculty of Natural Sciences, Šafárik University, Košice, Slovakia

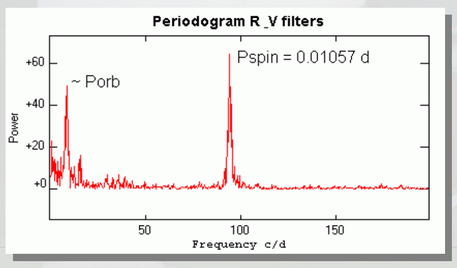
Introduction :

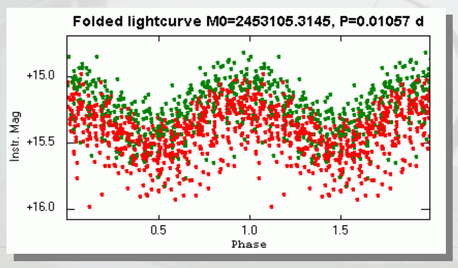
We presents the new observing program for 1 meter telescope at Astronomical Observatory in Kolonica Saddle.
The 1 meter telescope (Kudzej et al. 2008) was originally designed for two-stars photoelectric photometry in the Cassegrain focus. After CCD camera installation in the Nasmyth focus we have the opportunity to perform fast multicolor photometry of relatively faint objects. We decided to join the "Inter-Longitude Astronomy" project of regular monitoring of cataclysmic variables with different degree of influence of the magnetic field onto accretion (Andronov et al. 2003). Intensive collaboration exists with Crimean Astrophysical Observatory and Chungbuk National University, South Korea. We have finished the winter 2007/2008 campaign on several intermediate polars. Until now we have observed and successfully determined the spin periods in the following targets: RXJ2133.7+5107, MU Cam, BG CMi, PQ Gem, 1RXS J063631.9+353537, 1RXS J070407.9+262501. Additionally we had the chance to observe two objects during outbursts: DO Dra and HT Cam.
The summer campaign contains the following targets: V795 Her, RXJ180340+401214, V603 Aql, FO Aqr, AO Psc.
We presents some examples of lightcurves and period analysis. More detailed data analysis will be done by prof. Andronov team including data from Korea and Crimea.

BG CMi *Well Known IP*

Ra (2000) = 07h31m29.10s Dec (2000) = +09°56'23.0"

Porb = 194.04 min = 0.13475 d Kim et al. (2005)
Pspin = 913 sec = 0.010567 d Kim et al. (2005)
V mag ~ 14.5
Mean comparison: GSC 00768-01846 V=12.457, Henden & Honeycutt (1995)
Observed: Pspin = **0.01057 +/- 0.00001d**
Conclusion: Needs regular monitoring.





Instrument :

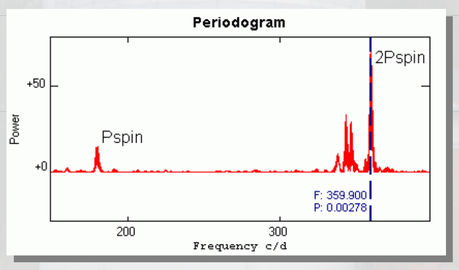
- **VNT** = Vihorlat National Telescope
- Main mirror diameter = 1000 mm
- Nasmyth focus focal lenght = 9000 mm
- Focal reducer 3.3 => focal lenght = 3400 mm
- CCD camera **SBIG ST9-XE** from Hlohovec observatory
- Pixel scale: 1 px = 1.21 arcsec
- Data reduction: instrumental aperture photometry with **C-Munipack** software (Motl 2006)
- Final determination of magnitudes: The multiple comparison star method (Kim et al. 2004) had been applied as implemented in computer program **MCV** (Andronov & Baklanov 2004)
- Period analysis performed with **Peranso** software (Vanmuster 2006), Lomb -Scargle method derived by Lomb (1976) and Scargle (1982)
- Other telescopes: **Pointer** 300/2400 mm (on the same mount with VNT)
  Pupava 280/1500 mm

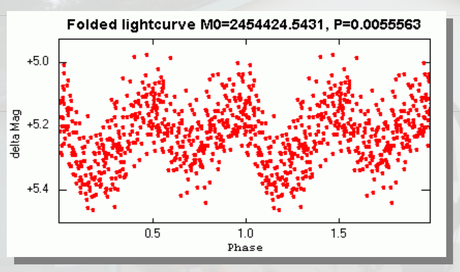
Designation on lightcurve panels: V filter - green points, R filter - red, Pupava telescope (V filter)- yellow

1RXS J070407.9+262501 *New Discovered IP*

Ra (2000) = 07h04m08.67s Dec (2000) = +26°25'10.9"

Porb ~ 250 min = 0.17 d Gaensicke et al. (2005)
Pspin = 480.7 sec = 0.005564 d Gaensicke et al. (2005)
Strong first harmonic => Both accretion regions contribute to a similar extent to the optical light.
V mag ~ 17.0
Mean comparison: TYC1903-00289-1, V=12.11 mag, B-V=0.41 mag
Observed: **Pspin = 0.00556 +/- 0.00001 d**
two humps well pronounced
Conclusion: new system, nice target for Inter Longitude Astronomy project





Log of the observations :

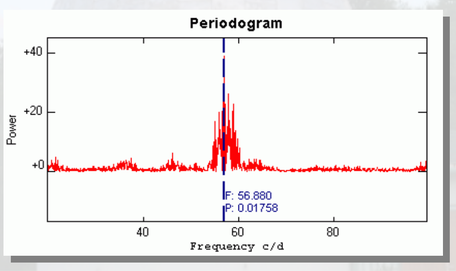
Star	Porb [min]	Pspin [sec]	Vmag ~	Type of observations	Done [po = 30cm Pointer, pu = 28cm Pupava telescope]
RXJ2133.7+5107	431	571	16.0	R filter, 120 s	2xR
MU Cam	283	1187	15.0	R V filters, 120 s	1xVR
BG CMi	194	913	14.5	R V filters, 60 s, with Moon only R	2xVR, 1xVRPo
PQ Gem	311	834	14.0	R V filters, 60 s, with Moon only R	3xVpu, 1xVRpo
1RXS J063631.9+353537	201	1008	17.0	R filter, 120 s, V filter, 180 s	1xVR, 2xR, 1xV
1RXS J070407.9+262501	250	481	17.0	R filter, 120 s, V filter, 120 s	3xR
DO Dra	238	528	14.5	V filter, 60 s	1xVR, 2xV
V1084 Her	173		12.5	R V filters, 60 s	4xVRpo, 1xVpu
V795 Her	156	950 ?	12.5	R V filters, 60 s	2xVR, 5xVpu, 1xVRpo, 2xRpo, 2xVpo
RXJ180340+401214	160	1520	17.0	R 180 s	4xR

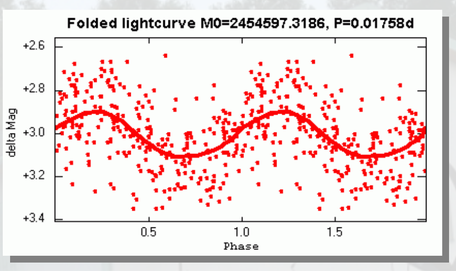
1RXS J180340.0+401214 *New Discovered IP*

Ra (2000) = 18h03m39.67s Dec (2000) = +40°12'20.6"

Porb ~ 160 min = 0.1113 d Gaensicke et al. (2005)
Pspin = 1520.51 sec = 0.0175985 d Gaensicke et al. (2005)
Orbital period in the period gap but not observable in optical photometry
V mag ~ 18.0

Mean comparison: GSC 3106-1364, R=14.44 mag, B-V=0.70 mag (Henden)
Observed: **Pspin = 0.01758 +/- 0.00001 d**
Conclusion: It is possible to observe such faint object with 1 meter telescope

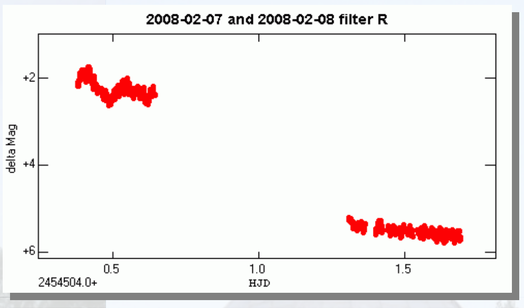


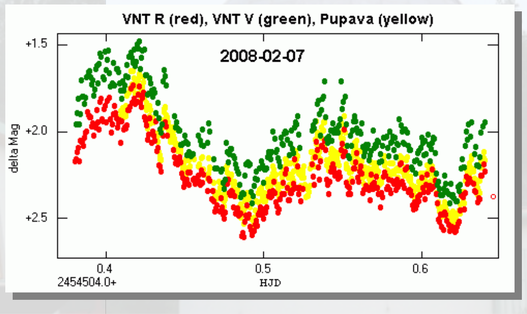


HT Cam *Short Outburst*

Ra (2000) = 07h57m01.33s
Dec (2000) = +63°06'01.4"

Porb ~ 85.99 min = 0.059712 d
Pspin = 515.06 sec = 0.00596133 d
Kemp et al. (2002)
V mag ~ 17.8 quiescence
Mean comparison: TYC4117-00631-1, V=11.45 mag, B-V=0.83 mag (Henden)
Conclusion: unique observation. First night in outburst, second in decline





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