

# OSURC Nightlog 20210910 UT

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\* = from home

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## Plan:

The problem that was preventing using PEPSI was resolved. Tonight's plan will use MODS and PEPSI.

## Summary:

We started with PEPsi, and observed targets from both OSU\_BHBinaries and OSU\_AbundLowZ until 06 UT(see the summary below) when we reconfigured to MODS. With MODS, we observed UVa\_WISE\_AGN/J2345, Fe110, OSU\_ASASSN/ASASSN16ke until we reconfigured back to PEPsi at 10:39 and finished the night with another of the BHBinaries.

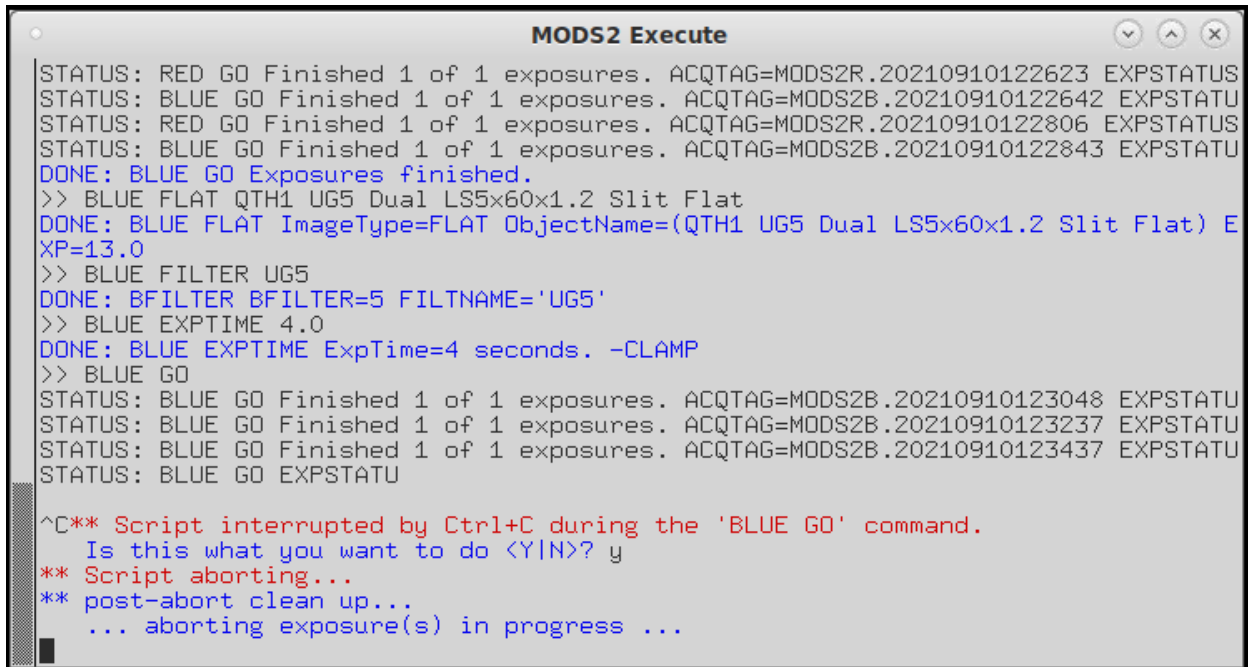
## Issues:

There were 3 more "Move Faults" (IT 5834) with the MODS2 slitmask cassette last night. They were recovered from with a retry. The IT which had been opened long ago and traced to a communications timing issue was resolved by a software change. When the script had hung at an error, the bit pattern was correct - suspecting this isn't a hardware issue, but can do some moves to check.

The first pointing star was not found after reconfiguring from MODS to PEPsi at the end of the night, even though the pointing offsets from the start of the night had been entered.

Comm glitch on MODS2B on the last mods2b 1.2" slitflat. It was saved already and at the end of the script.

100-sec readout delays on MODS1R affecting 19% (11 of 57 images).



```
MODS2 Execute
STATUS: RED GO Finished 1 of 1 exposures. ACQTAG=MODS2R.20210910122623 EXPSTATUS
STATUS: BLUE GO Finished 1 of 1 exposures. ACQTAG=MODS2B.20210910122642 EXPSTATU
STATUS: RED GO Finished 1 of 1 exposures. ACQTAG=MODS2R.20210910122806 EXPSTATUS
STATUS: BLUE GO Finished 1 of 1 exposures. ACQTAG=MODS2B.20210910122843 EXPSTATU
DONE: BLUE GO Exposures finished.
>> BLUE FLAT QTH1 UG5 Dual LS5x60x1.2 Slit Flat
DONE: BLUE FLAT ImageType=FLAT ObjectName=(QTH1 UG5 Dual LS5x60x1.2 Slit Flat) E
XP=13.0
>> BLUE FILTER UG5
DONE: BFILTER BFILTER=5 FILTNAME='UG5'
>> BLUE EXPTIME 4.0
DONE: BLUE EXPTIME ExpTime=4 seconds. -CLAMP
>> BLUE GO
STATUS: BLUE GO Finished 1 of 1 exposures. ACQTAG=MODS2B.20210910123048 EXPSTATU
STATUS: BLUE GO Finished 1 of 1 exposures. ACQTAG=MODS2B.20210910123237 EXPSTATU
STATUS: BLUE GO Finished 1 of 1 exposures. ACQTAG=MODS2B.20210910123437 EXPSTATU
STATUS: BLUE GO EXPSTATU
^C** Script interrupted by Ctrl+C during the 'BLUE GO' command.
  Is this what you want to do <Y|N>? y
** Script aborting...
** post-abort clean up...
  ... aborting exposure(s) in progress ...
```

## Weather:

The skies were clear and the seeing was good,  $\sim 0.8-1''$ , all night.

## Preparations:

luci[1|2].20210910.0NNN.fits  
mods[1|2][b|r].20210910.NNNN.fits  
lbc[b|r].20210910.HHMMSS.fits

## Overview (times are given in UT):

01:27 Starting a few MODS calibrations before opening

NOTE: Calibration numbers are correct for MODS1 only - for MODS2, I forgot to set UT date

mods1r.20210910.####.fits

mods2x.20210909.####.fits

	m1b	m1r	m2b	m2r	Comments
red-only imaging flats 3K		4-8		112-116	
red-only imaging flats 1K		9-13		117-121	moving M3 swing arm during these (shouldn't make a difference)
			MODS2 cals below have correct UT date in filename mods2x.20210910.xxxx.fits		
bin12 comp lamps	16-18	34-36	13-15	22-24	at 10:44UT, while reconfig from MODS→PEPSI
1.2" dual grating slitflats	19-21 22-24	37-39 40-42	16-18 19-21	24-26 27-29	in morning, after we closed.
bias 8K	25-29	43-47	22-25	30-33	
bias 1K	30-34	48-52	26-30	34-37	

So far tonight, I have had 2 mselect errors with MODS2 (adding a note to IT 5834). The first one did not cause the script to hang, but the second one (a move from Imaging to the 0.6" slit, did).

## PEPSI observations:

2:19 D300/DCIII/CDV RS Oph Seeing 0.75", mostly clear, some haze.  
RS Oph is saturated.

2:41 D300/CDIII/CDV V351 Boo. Seeing 0.83". Project BH\_Binaries (PID Thompson in PEPSI Observing Programmes)

3:02 Slew to ROTSE1. SX failed to find star. David is executing a pointing check.

3:08 D300/CDIII/CDV ROTSE1. Seeing 0.85-0.9". Project BH\_Binaries.

3:25 D300/CDII/CDIV 2MASS J16302079+1651246 AbundLowZ. Seeing 0.7"

3:42 D300/CDII/CDIV 2MASS J16575132+1047111 AbundLowZ. Seeing 0.75"

3:54 D300/CDII/CDIV 2MASS J16094298+4343574 AbundLowZ

4:12 D300/CDII/CDIV 2MASS J17140534+1407170 AbundLowZ. Seeing 0.85-0.9"

4:21 D300/CDII/CDIV 2MASS J17433617+1926072 AbundLowZ. Seeing 0.76-0.8"

4:37 D300/CDII/CDIV 2MASS J17070192+5122257 AbundLowZ. Seeing 0.8-0.85"

4:54 D300/CDII/CDIV 2MASS J18541695+4259000 AbundLowZ. Seeing 0.75-0.81"

5:01 D300/CDII/CDIV 2MASS J19263197+4904142 AbundLowZ. Seeing 0.75". Conditions remain clear.

5:18 D300/CDII/CDIV 2MASS J19495311+1507040 AbundLowZ. Seeing 0.8-0.85"

5:31 D300/CDII/CDIV 2MASS J21124680+1331352 AbundLowZ. Seeing 0.7" Conditions remain clear.

5:44 D300/CDII/CDIV J22000466+0536403 AbundLowZ. Seeing 0.8"

6:03 Starting PEPSI internal calibrations

D200 CDIII/CDV Traces and ThAr

D300 CDIII/CDV & CDII/CDIV Traces and ThAr

The chamber is not entirely thermally stable so calibrating extra.

## Reconfiguring: PEPSI → MODS

05:57 David is reconfiguring from PEPSI to MODS

06:13 Going to a pointing star near the first target.

06:18 Collimating on-axis near the first target. Seeing is 0.8"

## UVa\_WISE\_AGN/J2345

06:21 acqBinoMODS J2345.acq

m1r: 14 & 15 → offsetxy -0.915 11.604 rel → 16

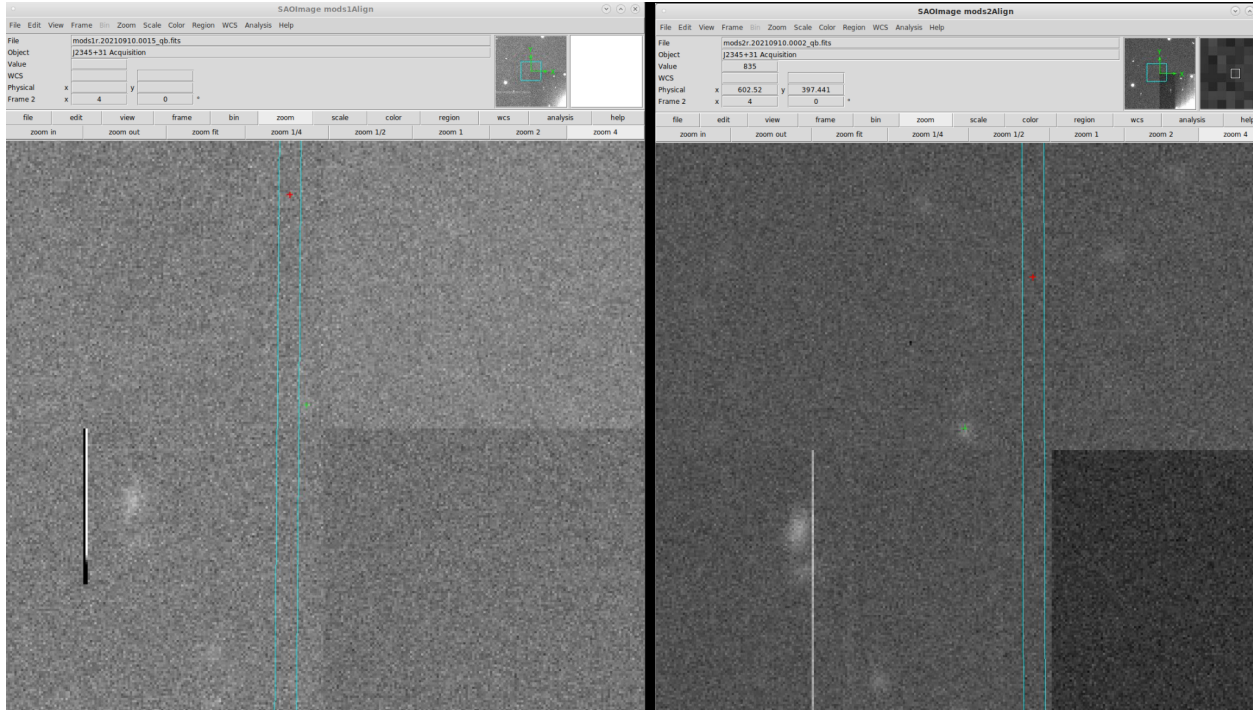
m2r: 01 & 02 → offsetxy 3.780 8.302 rel → 03

The object was very, very hard to see on the MODS1 acq image, but easier on the MODS2 image. I used "x" to mark the center manually and I noted these positions relative to the brightest smudge in the lower left quadrant as follows:

mods1: target marked at (504.95, 522.54)

mods2: target "" "" (473.27,522.39)

I think that I marked the object center on the MODS1 acq image (15) about 0.4" to the right of where I marked it on MODS2, where it was so much easier to see. (I measured this by blinking the two quick-biases acq images). The target should still be in the 1.2" slit, but probably slightly offset for MODS1 relative to MODS2.



06:39 execBinoMODS J2345.obs

	m1b	m1r	m2b	m2r	seeing	airmass
06:40	4-6	17-19	1-3	4-6	0.8"	1.001

On the first MODS2R spectrum, two faint traces are visible crossing the vertical center at about Y=1635 & 1650, and on the first MODS1R spectrum, a very faint trace at about Y=1650.

Ran mods\_quickreduce on MODS1 spectrum to subtract sky & wavelength calibrate (on obs3 @ /scratch/osurc/20210910) It looks like there's a broad emission line at 7915 Ang in the lower trace. In the average, the 2nd trace may just be visible in MODS1.

07:46 Finished

**Feige 110**

07:46 acqBinoMODS feige110.acq

m1r 20 → -0.99 11.829 → 21

m2r 7 → 3.124 8.212 → 8

07:55 execBinoMODS feige110\_dualGrating.obs

	m1b	m1r	m2b	m2r	seeing	airmass
	7-9	22-24	4-6	9-11	1"	1.28

08:08 Finished

## OSU\_ASASSN/ASASSN16ke

08:12 acqBinoMODS ASASSN16ke\_UT1200.acq

m1r: 25 & 26: -0.839 10.464 → 27, a tad to the right of center in the slit, but close enough that we did not take the time to adjust it and take a 2nd exposure.

m2r: 12 & 13: 3.251 7.725 → 14, well-centered in the slit

08:22 Seeing is 0.7" during the acquisition

08:24 execBinoMODS ASASSN16ke.obs

	m1b	m1r	m2b	m2r	seeing	airmass
08:24	10-15	25-30	7-12	12-17	0.7/0.75"	1.028

In the first red spectrum, we see strong emission lines at 6750Ang and redwards (Halpha + SII?) and [OII], Hbeta & [OIII] in the blue.

06:36 Finished

## Reconfiguring: MODS → PEPSI

06:39 David is starting to reconfigure

06:46 While taking a set of MODS calibrations, another slitmask Move Fault while moving from 1" to 0.6" slit (position 7 to 5). Retry worked.

2021-09-10T10:45:12.405179 M2.IE>MC2 ERROR: SLITMASK SLITMASK=7 Move Fault, position at end of move 7 but requested position 5

While in error state, before hitting "r" to retry "mselect rdbits" 100100 b36-b31. When in position slitmask 5, same bit pattern (1st bit is in/out and the remainder add up to 4 = position #-1).

10:52 Slewing to a pointing star

11:07 D200 CDIII/CDV 2MASS J04123153+6738486. For BH Binaries. Seeing 0.55"  
Started Science late so we may have to adjust depending on sky brightness.

12:03 Seeing has slowly been deteriorating up to 0.9" throughout this exposure. Still clear. Sky brightness is starting to come up. Monitoring.

12:10 Stopping and reading out. Sky was getting bright. 1h:01:31.742 taken

12:16 Traces and Ar started D200 CDIII/CDV

## PEPSI Summary

10/09/2021	02:20:39.8	00:20:00.000	RS Oph	5: 6278 - 7419	300	1157	Nova	0.65
10/09/2021	02:20:39.8	00:20:00.000	RS Oph	3: 4800 - 5441	300	963	Nova	0.65
10/09/2021	02:44:55.5	00:15:00.000	V351 Boo	5: 6278 - 7419	300	125	Thompson	0.95
10/09/2021	02:44:55.5	00:15:00.000	V351 Boo	3: 4800 - 5441	300	59	Thompson	0.95
10/09/2021	03:09:36.3	00:15:00.000	ROTSE1 J180425.29+275323.8	3: 4800 - 5441	300	114	Thompson	0.61
10/09/2021	03:09:36.3	00:15:00.000	ROTSE1 J180425.29+275323.8	5: 6278 - 7419	300	239	Thompson	0.61
10/09/2021	03:27:30.1	00:15:00.000	2MASS J16302079+1651246	2: 4265 - 4800	300	81	Griffith	0.79
10/09/2021	03:27:30.1	00:15:00.000	2MASS J16302079+1651246	4: 5441 - 6278	300	179	Griffith	0.79
10/09/2021	03:44:27.7	00:10:00.000	2MASS J16575132+1047111	4: 5441 - 6278	300	180	Griffith	0.72
10/09/2021	03:44:27.7	00:10:00.000	2MASS J16575132+1047111	2: 4265 - 4800	300	80	Griffith	0.72
10/09/2021	03:57:12.4	00:15:00.000	2MASS J16094298+4343574	2: 4265 - 4800	300	89	Griffith	0.90
10/09/2021	03:57:12.3	00:15:00.000	2MASS J16094298+4343574	4: 5441 - 6278	300	184	Griffith	0.90
10/09/2021	04:14:35.2	00:05:00.000	2MASS J17140534+1407170	4: 5441 - 6278	300	272	Griffith	0.75
10/09/2021	04:14:35.2	00:05:00.000	2MASS J17140534+1407170	2: 4265 - 4800	300	124	Griffith	0.75
10/09/2021	04:21:26.8	00:15:00.000	2MASS J17433617+1926072	4: 5441 - 6278	300	162	Griffith	0.82
10/09/2021	04:21:26.9	00:15:00.000	2MASS J17433617+1926072	2: 4265 - 4800	300	78	Griffith	0.82
10/09/2021	04:38:58.4	00:15:00.000	2MASS J17070192+5122257	4: 5441 - 6278	300	189	Griffith	0.79
10/09/2021	04:38:58.5	00:15:00.000	2MASS J17070192+5122257	2: 4265 - 4800	300	88	Griffith	0.79
10/09/2021	04:55:56.8	00:05:00.000	2MASS J18541695+4259000	2: 4265 - 4800	300	161	Griffith	0.74
10/09/2021	04:55:56.8	00:05:00.000	2MASS J18541695+4259000	4: 5441 - 6278	300	333	Griffith	0.74
10/09/2021	05:03:10.4	00:15:00.000	2MASS J19263197+4904142	2: 4265 - 4800	300	97	Griffith	0.87
10/09/2021	05:03:10.4	00:15:00.000	2MASS J19263197+4904142	4: 5441 - 6278	300	206	Griffith	0.87
10/09/2021	05:21:11.5	00:10:00.000	2MASS J19495311+1507040	4: 5441 - 6278	300	212	Griffith	0.76
10/09/2021	05:21:11.5	00:10:00.000	2MASS J19495311+1507040	2: 4265 - 4800	300	92	Griffith	0.76
10/09/2021	05:34:10.4	00:10:00.000	2MASS J21124680+1331352	2: 4265 - 4800	300	94	Griffith	0.77
10/09/2021	05:34:10.3	00:10:00.000	2MASS J21124680+1331352	4: 5441 - 6278	300	205	Griffith	0.77



10/09/2021	05:46:39.3	00:10:00.000	2MASS J22000466+0536403	4: 5441 - 6278	300	Griffith	0.74
10/09/2021	05:46:39.3	00:10:00.000	2MASS J22000466+0536403	2: 4265 - 4800	300	Griffith	0.74
10/09/2021	11:09:05.5	01:01:31.742	2MASS J04123153+6738486	3: 4800 - 5441	200	39 Thompson	0.77
10/09/2021	11:09:05.5	01:01:31.966	2MASS J04123153+6738486	5: 6278 - 7419	200	119 Thompson	0.77

12:32 David closed up

I ran a few sets of MODS calibrations: 1.2" slitflats, bias 8K and bias 1K and put both MODS to sleep.

## LBTplot

The SX (black) and DX (green) guide star FWHM and flux are plotted below.

