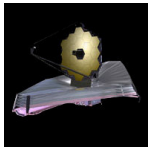

1219 - NIRSpec and MIRI spectroscopy of QSOs - part #3

Cycle: 1, Proposal Category: GTO

INVESTIGATORS

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OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
NIRSpec MSA of J2348				
	6	Quasar in S200A1 and S200A2 v2	NIRSpec MultiObject Spectroscopy	(4) TARGET-OBSERVATION-6
NIRSpec IFU of J2348 new				
	3	J2348 with NIRSpec IFU	NIRSpec IFU Spectroscopy	(2) J2348-3054
MIRI observations of J2348 new				
	4	J2348	MIRI Medium Resolution Spectroscopy	(2) J2348-3054
	5	J2348-Imager	MIRI Imaging	(3) J2348-3054-IMAGER

ABSTRACT

This proposal is associated with:
NIRSpec Proposal IDs: FERRUIT_4004 and FERRUIT_4104
NIRSpec Proposal ID: FERRUIT_3054
MIRI Proposal ID: WRIGHT_0601 and WRIGHT_0602

MIRI, with its spectral coverage from 5 to 28 um and sensitivity, is the only instrument onboard JWST able to explore the optical and near-infrared spectrum and light distribution of galaxies and QSOs at redshifts above 6.7. A complete 5 to 28 spectrum (~0.6 to 3.5 microns rest-frame) of the IR-luminous QSO J2348-3054 (z=6.9018), will be obtained, together with, MIRI imaging to map the rest-frame near-IR light distribution of the host galaxy at ~0.2-0.3 arcsec angular resolution.
The same APT file includes the NIRSpec observation of the same target with the IFU with the G395H grating (aimed primarily at mapping the primary optical nebular lines Hbeta, [OIII], Halpha, [NII]) and with the fixed slit with the G140H grating (aimed primarily at detecting IGM metal absorption systems). Simultaneously with the fixed slit observation (centered onto the quasar) the MSA will be used to observe galaxies imaged by the HST in the field of view.

OBSERVING DESCRIPTION

NIRSpec MSA OBSERVATION

This corresponds to NIRSpec Proposal IDs: FERRUIT_4004 and FERRUIT_4104

(NIRSpec Contact Person: Chris Willott, chriswillott1@gmail.com)

The quasar will be placed in the fixed slits S200A1 and S200A2 whilst simultaneously configuring MSA shutters to target other galaxies identified in HST imaging. We use NIRSpec team software to design the MSA configurations and ensure they agree with positions in the APT MPT software.

We use the G140H/F070LP grating and filter combination to do spectroscopy at 0.7 to 1.8 microns. We realise there will be some spectral overlap at >1.4 microns but our prime targets have almost zero flux below 0.9 microns so this will not strongly affect the spectra.

NIRSpec IFU OBSERVATION

This corresponds to NIRSpec Proposal ID: FERRUIT_3054

(NIRSpec Contact Person: Roberto Maiolino, r.maiolino@mrao.cam.ac.uk)

The NIRSpec IFU observation is done with the G395H grating and it is aimed aimed primarily at mapping the strongest optical nebular lines (Hbeta, [OIII], Halpha, [NII]).

We are using no target acquisition (i.e. point-and-shoot).
At any of the constrained PA range there are Gaia GS that can be selected for guiding and which will
ensure the proper location of the target within the IFU aperture, with the required accuracy.

We are using NRSIRS2RAPID for a better identification and rejection of cosmic rays.

MIRI OBSERVING DESCRIPTIONS:

This corresponds to MIRI Proposal ID: WRIGHT_0601 and WRIGHT_0602

(MIRI Contact Person: Javier Alvarez-Marquez, javier.alvarez@cab.inta-csic.es)

The purpose of the program is to get a full 5 - 30 um spectrum of J2348 using the 3 MRS configurations with simultaneous Imager observations (see

additional note 1). In addition, we request the imaging of the target in two filters: F560W, F770W.

The dithering strategies (4-pt, point source) were selected to optimize the PSF and detector effects in all MRS channels, and IMAGER filters. These strategies could be subject to change without modifying the total time.

Common notes:

The PA_V3 constraints (30 < PA_V3 (deg) < 43) for MIRI and NIRSpec IFU observations were done not to obtain:

- bright stars located in the IMAGER of MIRI that can saturate
- bright stars located in the MOS area that can contaminate the NIRSpec IFU observation

Observation

Proposal 1219, Observation 6: Quasar in S200A1 and S200A2 v2 Tue Feb 20 23:19:00 GMT 2018

Diagnostic Status: Warning

Observing Template: NIRSpec MultiObject Spectroscopy

Diagnostics

(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	TARGET-OBSERVATION-6	RA: 23 48 34.4716 (357.1436317d) Dec: -30 54 10.28 (-30.90286d) Equinox: J2000		

Comments: This target was generated automatically for MSA Observation 6
Category=Galaxy
Description=[Quasars]
Extended=Unknown

Acquisition

#	Reference Star Bin	AcqTarget	AcqFilter	Acq MSA Configuration	Acq Readout Pattern	Acq Groups/Int	Acq Integrations/Exp	Acq Total Integrations	Acq Total Exposure Time	Acq ETC Wkbk.Calc ID
1		Same Target as Observation	F140X		NRS	3	1	4	558.312	

Template

TA Method	*Obtain Confirmation Images*	*Science Aperture*
MSATA	No	MSA Center

Reference Stars

Spectral Elements

#	Grating/Filter	MSA Configuration	Readout Pattern	Groups/Int	Integrations/Exp	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G140H/F070LP	Configuration: p1c0	NRSIRS2RAPID	65	3	NONE	3	9	8665.801	
2	G140H/F070LP	Configuration: p2c0	NRSIRS2RAPID	65	3	NONE	3	9	8665.801	

Special Requirements	MSA Planned Aperture PA 173.492 to 173.492 Degrees (V3 34.99966 to 34.99966)

Observation

Proposal 1219, Observation 3: J2348 with NIRSpec IFU Tue Feb 20 23:19:00 GMT 2018

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	J2348-3054	RA: 23 48 33.3500 (357.1389583d) Dec: -30 54 10.28 (-30.90286d) Equinox: J2000		

Comments:
Category=Galaxy
Description=[Quasars]
Extended=Unknown

Template

TA Method

NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	CYCLING	MEDIUM	1	4	

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G395H/F290LP	NRSIRS2RAPID	185	1	false	true	NONE	4	4	10854.134	

Special Requirements

Aperture PA Range 168.893 to 181.893 Degrees (V3 30.000025 to 43.000025)

Observation

Proposal 1219, Observation 4: J2348

Tue Feb 20 23:19:00 GMT 2018

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Diagnostics

(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	J2348-3054	RA: 23 48 33.3500 (357.1389583d) Dec: -30 54 10.28 (-30.90286d) Equinox: J2000		

Comments:
Category=Galaxy
Description=[Quasars]
Extended=Unknown

Acquisition

#	AcqTarget	AcqFilter	Acq Readout Pattern	Acq Groups/Int	Acq Integrations/Exp	Acq Total Integrations	Acq Total Exposure Time	Acq ETC Wkbk.Calc ID
1	Same Target as Observation	F560W	FAST	23	1	1	63.826	12567.0

Template

Primary Channel	*Simultaneous Imaging*	*Imager Subarray*
ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	ALL	Positive

Spectral Elements

#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1		IMAGER	F560W	FAST	103	3	1	Dither 1	4	12	3429.949	
1	SHORT(A)	MRSLONG		SLOW	36	1	1	Dither 1	4	4	3440.148	
1	SHORT(A)	MRSSHORT		SLOW	36	1	1	Dither 1	4	4	3440.148	
2		IMAGER	F1000W	FAST	103	3	1	Dither 1	4	12	3429.949	
2	MEDIUM(B)	MRSLONG		SLOW	36	1	1	Dither 1	4	4	3440.148	
2	MEDIUM(B)	MRSSHORT		SLOW	36	1	1	Dither 1	4	4	3440.148	
3		IMAGER	F1000W	FAST	103	3	1	Dither 1	4	12	3429.949	
3	LONG(C)	MRSLONG		SLOW	36	1	1	Dither 1	4	4	3440.148	
3	LONG(C)	MRSSHORT		SLOW	36	1	1	Dither 1	4	4	3440.148	

Special Requirements	
	Aperture PA Range 30.0 to 43.0 Degrees (V3 30.0 to 43.0) Group Observations 4, 5, Non-interruptible

Observation

Proposal 1219, Observation 5: J2348-Imager

Tue Feb 20 23:19:00 GMT 2018

Diagnostic Status: Warning

Observing Template: MIRI Imaging

Diagnostics

(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(3)	J2348-3054-IMAGER	RA: 23 48 32.0446 (357.1335192d) Dec: -30 54 45.68 (-30.91269d) Equinox: J2000		

Comments:
Category=Galaxy
Description=[Quasars]
Extended=Unknown

Template

Subarray

FULL

Dithers

#	Dither Type	Starting Point	Number of Points	Points	Starting Set	Number of Sets	Optimized For	Direction	Pattern Size
1	4-Point-Sets	1	4		8	1	POINT SOURCE	POSITIVE	SMALL

Spectral Elements

#	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Exposures/Dith	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F560W	FAST	95	1	1	Dither 1	4	4	1054.515	
2	F770W	FAST	95	1	1	Dither 1	4	4	1054.515	

Special Requirements

Aperture PA Range 34.449705 to 47.449705 Degrees (V3 30.0 to 43.0)

Group Observations 4, 5, Non-interruptible