

1205 - Formation Histories and Stellar Masses of Very High-z Quasars

Cycle: 1, Proposal Category: GTO

INVESTIGATORS

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OBSERVATIONS

Folder	Observation	Label	Observing Template	Science Target
Observa	ation Folder			
	1	J120441.73-002149.6	NIRSpec IFU Spectroscopy	(1) J120441.73-002149.6
	2	2MJ12040377+001913	NIRSpec IFU Spectroscopy	(2) 2MJ12040377+0019134
	3	J134040.24+281328.1	NIRSpec IFU Spectroscopy	(3) J134040.24+281328.1
	4	2MJ13403522+274850	NIRSpec IFU Spectroscopy	(4) 2MJ13403522+2748501
	5	J033829.31+002156.26	NIRSpec IFU Spectroscopy	(5) J033829.31+002156.26
	6	2MJ03391626+004202 3	NIRSpec IFU Spectroscopy	(6) 2MJ03391626+0042023
	7	J073103.12+445949.4	NIRSpec IFU Spectroscopy	(7) J073103.12+445949.4
	8	2MJ07313244+451041	NIRSpec IFU Spectroscopy	(8) 2MJ07313244+4510416
	9	J162100.70+515544.8	NIRSpec IFU Spectroscopy	(9) J162100.70+515544.8
	10	2MJ16205978+520623 2	NIRSpec IFU Spectroscopy	(10) 2MJ16205978+5206232
	11	J120441-image	NIRCam Imaging	(1) J120441.73-002149.6

JWST Proposal 1205 (Created: Tuesday, February 20, 2018 6:04:08 PM EST) - Overview

Folder	Observation	Label	Observing Template	Science Target
	12	2MJ12040377_image	NIRCam Imaging	(2) 2MJ12040377+0019134
	13	J13404024_image	NIRCam Imaging	(3) J134040.24+281328.1
	14	2MJ13403522_imaging	NIRCam Imaging	(4) 2MJ13403522+2748501
	15	J033829_imaging	NIRCam Imaging	(5) J033829.31+002156.26
	16	2MJ03391626_imaging	NIRCam Imaging	(6) 2MJ03391626+0042023
	17	J073103_image	NIRCam Imaging	(7) J073103.12+445949.4
	18	2MJ07313244_image	NIRCam Imaging	(8) 2MJ07313244+4510416
	19	J162100_image	NIRCam Imaging	(9) J162100.70+515544.8
	20	2MJ16205978_image	NIRCam Imaging	(10) 2MJ16205978+5206232

ABSTRACT

Attempts to image the hosts of very high redshift quasars have been frustratingly difficult. What detections there are have been made in the near infrared, i.e., rest frame ultraviolet. Hence, it is difficult to interpret the results: a small amount of very recent star formation could dominate the signals. Nonetheless, the limits have raised the question of whether the local Magorrian relation holds this early in galaxy evolution. Dynamical masses from the 157 micron [CII] line, indicate a roughly normal (i.e., Magorrian) ratio of total mass to black hole mass (but of course, with no measure of the relative mass in dark matter, stars, and gas). In this program (ID 1205), we will use a combination of IFU spectroscopy and NIRCam imaging to search much more deeply and definitively for host galaxies around five high redshift quasars.

OBSERVING DESCRIPTION

We have selected five of these quasars to image with NIRCam using medium band filters, one that will include H alpha and another to sample nearby continuum. Together these images (at about 4.3 microns observed) will let us search very deeply for an extended galaxy around the quasar, and to test this identification since a significant fraction of the flux in the H alpha band will come from the emission line and hence be point-like (adding to the point-like quasar continuum). However, images do not provide a totally reliable indication if faint extended emission around the quasar is due to gas, scattered light, or stars. If the star formation has been rapid enough to support the Magorrian relation, the M/L of the stellar population should be small, and it is possible that spectroscopy of the integrated quasar/host light with JWST could detect prominent absorption features associated with the stars. We will image the quasars using the NIRSpec IFU at a spectral resolution of R = 1000 and in band II, 1.7 - 3.17 microns. We have selected the integration time for each target to achieve a high signal to noise measurement of any stellar population resolved around the quasar, if it is a reasonable fraction of the mass predicted by the Magorrian relation. If the stars are all hidden in the point spread function, the signal to noise will be higher still, sufficient to detect the higher level Balmer absorptions as well as the Balmer break. To enhance our analysis of the spectra, we are also imaging with NIRCam at 2.1 microns, and as a separate experiment at 0.7 microns, both simultaneously with the imaging in the long wavelength arm

JWST Proposal 1205 (Created: Tuesday, February 20, 2018 6:04:08 PM EST) - Overview of the instrument.

We have selected quasar targets to place the H alpha and the continuum between 0.35 and 0.45 microns optimally, which emphasizes redshifts of 5 - 5.5. Our targets are J120441.73-002149.6, J134040.24+281323.1, J033829.31+002156.26, J073103.12+445949.4, and J162100.70+515544.8. To calibrated the PSFs, we have selected the stars, respectively, of 2MJ12040377+0019134, 2MJ13403522+2748501, 2MJ03391625+0042023, 2MJ07313244+4510416, and 2MJ16205978+5206232. These stars are of types B through F and should have minimal spectral features at the wavelengths of interest in the quasars.

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Special Requirer	5												
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Pro	posal 120	<u>5 - Observa</u>	tion 10 - Fo	ormation His	stories and	Stella	ar Masses o	of Very High-	z Quasars			
uo	Proposal 1205,	Observation 10: 2	MJ16205978+520	06232							Tue Feb 20 2	3:04:08 GMT 2018
ă;	Diagnostic Stat	us: Warning										
Observation	Observing Temp	plate: NIRSpec IFU	Spectroscopy									
SS												
ō												
cs	(Visit 10:1) War	rning (Form): Overl	heads are provision	nal until the Visit I	Planner has been ru	ın.						
Diagnostics												
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Ŋ		lame		et Coordinates				ord. Corrections		Miscellaneou	ıs	
Targets	(10) 2	MJ16205978+5206		6 20 59.7800 (245			_	otion RA: 1.2 mas/yr				
ä				+52 06 23.30 (52.1	(0647d)			otion Dec: 0.1 mas/y	r			
lË			Equin	ox: J2000			Epoch of	Position: 2000				
Fixed	Comments: Category=Star											
ᄪ	Description=[F Extended=NO	dwarfs]										
	#	AcqTarget	TA Method	Acq Subari	ray AcqFilter		Acq Readout	Acq Groups/Int	Acq	Acq Total	Acq Total	Acq ETC
Acquisition	1	Same Target as	WATA	SUB32	F110W		Pattern NRSRAPID	3	Integrations/Exp	Integrations	Exposure Time 0.08	Wkbk.Calc ID 12587.0
ĮΞ		Observation	***************************************	50532	1110,,		TARSIU II IB	3	•	•	0.00	12307.0
۲												
	#		Dither Type		Size		Startin	g Point	Number of 1	Points	Points	
ē	1		4-POINT-NOD					9				
Dithers												
Spectral Elements	#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Ex	Leakca	al Dither	Autocal	Total Dithe	rs Total Integrations	Total Exposure	e ETC Wkbk.Calc ID
Je.	1	G235M/F170LP		7	2	false	true	NONE	4	8	687.153	VV NONCOLE 12
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Pro	posal 120	05 - Observatio	n 11 - Forma	tion Histories a	nd Stellar N	Masses of Very	High-z Quasa	ars		
	Proposal 1205	, Observation 11: J120- ntus: Warning							Tue Feb	20 23:04:08 GMT 2018
Observation	Observing Ten	nplate: NIRCam Imaging	Ţ							
Diagnostics	(Visit 11:1) W	arning (Form): Overhead	ls are provisional unti	l the Visit Planner has be	een run.					
Ŋ		Name	Target Coor			Targ. Coord. Correc	tions	Misce	llaneous	
get	(1)	J120441.73-002149.6		.7300 (181.1738750d)						
Tar			Dec: -00 21 4 Equinox: J20	9.60 (36378d) 00						
Fixed Targets	Comments: Category=Gal Description=[Extended=NO	axy Active galactic nuclei, Q								
ţ	Module					Subarray				
pla	В					SUB400P				
Template										
S	#	Pri	imary Dither Type	Primary Di	thers	Subpixel Dither Ty	pe Dithe	er Size	Subpixel P	ositions
Dithers	1	NO	ONE			STANDARD			4	
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
Ĭ	1	F210M	F410M	BRIGHT1	10	2	8	4	265.162	
Ĭ	2	F210M	F430M	BRIGHT1	8	4	16	4	424.325	
ra										
ec										
S										
Special Requirements	11 After 1 12 After 11									
eci										
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Pro	posal 12	05 - Observation	n 12 - Forma	tion Histories a	nd Stellar N	Masses of Very	High-z Quasa	ırs		
_	Proposal 120	5, Observation 12: 2MJ1							Tue Feb	20 23:04:08 GMT 2018
Observation	_	tatus: Warning								
Ĭ	Observing Te	emplate: NIRCam Imaging								
Se										
ō										
SS	(Visit 12:1) V	Varning (Form): Overhead	s are provisional unti	the Visit Planner has be	een run.					
Diagnostics										
2										
ag										
٥										
S	#	Name	Target Coor	dinates		Targ. Coord. Correc		Miscel	laneous	
Targets	(2)	2MJ12040377+0019134	RA: 12 04 3.	7700 (181.0157083d)		Proper Motion RA: -2				
l ŝ				13.40 (.32039d)		Proper Motion Dec: -8				
ΙË			Equinox: J20	00		Epoch of Position: 20	02			
Fixed	Comments: Category=Sta	ar								
ΙÊ	Description= Extended=NO	[F dwarfs]								
)				G 1				
ate	Module					Subarray				
틸	В					SUB160P				
Template										
_	#	Pri	mary Dither Type	Primary Di	thers	Subpixel Dither Ty	vne Dithe	er Size	Subpixel Po	ositions
je	1	NO			thers.	STANDARD	, pe Dille	i Size	4	oblitions
Dithers										
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
ΙË	1	F210M	F410M	BRIGHT1	5	4	16	4	44.664	
<u>=</u>	2	F210M	F430M	BRIGHT1	5	4	16	4	44.664	
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ements	2 After 12 12 After 11									
l e	12 After 11									
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Special Requir										
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Pro	posal 12	<u> 205 - Observation</u>	n 13 - Formati	on Histories a	nd Stellar M	Masses of Very	High-z Quasa	ırs		
		05, Observation 13: J1340							Tue Feb 2	20 23:04:08 GMT 2018
Ħ,		tatus: Warning								
Įξ	Observing Te	emplate: NIRCam Imaging								
Observation										
ō										
cs	(Visit 13:1) V	Varning (Form): Overhead	s are provisional until	the Visit Planner has be	een run.					
Diagnostics										
2										
iag										
တ	#	Name	Target Coord			Targ. Coord. Correc	etions	Miscel	laneous	
Fixed Targets	(3)	J134040.24+281328.1		2400 (205.1676667d)						
a.				3.10 (28.22447d)						
ΙĘ			Equinox: J200	0						
×	Comments: Category=Go	alaxy								
፲	Description= Extended=No	[Active galactic nuclei, Qu	uasars]							
в	Module	<u> </u>				Subarray				
at	В					SUB400P				
ΙĒ										
Template										
rs	#	Pri	mary Dither Type	Primary Di	thers	Subpixel Dither Ty	ype Dithe	er Size	Subpixel Po	ositions
Dithers	1	NO	NE			STANDARD			4	
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
E E	1	F210M	F410M	BRIGHT1	7	2	8	4	185.663	
 음	2	F210M	F430M	BRIGHT1	7	4	16	4	371.325	
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Special Requir										
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Pro	posal 12	05 - Observation	n 14 - Format	ion Histories a	nd Stellar N	Masses of Very	High-z Quasa	ırs		
	Proposal 120	5, Observation 14: 2MJ1							Tue Feb 2	20 23:04:08 GMT 2018
Observation	_	tatus: Warning								
<u> </u>	Observing Te	mplate: NIRCam Imaging								
Se										
ō										
cs	(Visit 14:1) V	Varning (Form): Overheads	s are provisional until	the Visit Planner has b	een run.					
Diagnostics										
1 2										
ia ĝ										
ഥ										
က္	#	Name	Target Coord			Targ. Coord. Correc		Miscell	aneous	
Targets	(4)	2MJ13403522+2748501		2200 (205.1467500d)		Proper Motion RA: -6	•			
a.				0.10 (27.81392d)		Proper Motion Dec: 4				
١Ę	C		Equinox: J200	00		Epoch of Position: 20	00			
Fixed	Comments: Category=Sta	ır								
<u> </u>	Description= Extended=NO	[F dwarfs]								
(e)	Module	,				Subarray				
<u>a</u>	В					SUB160P				
Template										
le L										
Dithers	#	Pri	mary Dither Type	Primary Di	thers	Subpixel Dither Ty	vpe Dithe	er Size	Subpixel Po	ositions
‡	1	NO	NE			STANDARD			4	
ق										
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
ΙĔ	1	F210M	F410M	BRIGHT1	9	2	8	4	40.165	
I≗	2	F210M	F430M	BRIGHT1	9	2	8	4	40.165	
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ements	4 After 14 14 After 13									
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Special Requir										
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Pro	posal 12	05 - Observatio	n 15 - Forma	tion Histories a	nd Stellar N	Masses of Very	High-z Quasa	ırs		
		5, Observation 15: J033							Tue Feb	20 23:04:08 GMT 2018
Jặ.	Diagnostic St	tatus: Warning								
Įξ	Observing Te	mplate: NIRCam Imaging								
Observation										
õ										
SS	(Visit 15:1) W	Varning (Form): Overhead	s are provisional unti	the Visit Planner has be	een run.					
Diagnostics										
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ag										
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(0	#	Name	Target Coor	dinates		Targ. Coord. Correc	etions	Miscel	laneous	
Targets	(5)	J033829.31+002156.26	RA: 03 38 29	.3100 (54.6221250d)						
arg I				56.26 (.36563d)						
=			Equinox: J20	00						
Fixed	Comments: Category=Ga	ulary								
筪	Description=	ılaxy [Active galactic nuclei, Qı)	uasars]							
)				Cl				
Template	<i>Module</i> B					Subarray SUB400P				
립	Б					30 D 400F				
<u>ē</u> l										
_	#	Pri	mary Dither Type	Primary Di	thers	Subpixel Dither Ty	vpe Dithe	er Size	Subpixel Po	ositions
le l	1		ONE .			STANDARD			4	
Dithers										
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
l e	1	F210M	F410M	BRIGHT1	8	4	16	4	424.325	
l a	2	F210M	F430M	BRIGHT1	9	4	16	4	477.325	
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ements	15 After 5 16 After 15									
l e	10 Alter 13									
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Special Requir										
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Pro	posal 12	205 - Observation	n 16 - Formati	ion Histories a	nd Stellar N	Masses of Very	High-z Quasa	ırs		
	Proposal 120	05, Observation 16: 2MJ0 tatus: Warning							Tue Feb	20 23:04:08 GMT 2018
Observation	_	emplate: NIRCam Imaging								
Diagnostics	(Visit 16:1) V	Warning (Form): Overhead	s are provisional until	the Visit Planner has be	een run.					
ွ	#	Name	Target Coord			Targ. Coord. Correc		Miscel	laneous	
Targets	(6)	2MJ03391626+0042023		2600 (54.8177500d)		Proper Motion RA: -0				
arç.			Dec: +00 42 2			Proper Motion Dec: -				
Fixed T	Comments: Category=Sta Description= Extended=No	ar :[A dwarfs] O	Equinox: J200	0		Epoch of Position: 20	00			
ţ	Module					Subarray				
Template	В					SUB160P				
_	#	Pri	mary Dither Type	Primary Di	thers	Subpixel Dither Ty	pe Dithe	er Size	Subpixel Po	ositions
Dithers	1		DNE			STANDARD			4	
_	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
١٤	1	F210M	F410M	BRIGHT1	5	4	16	4	44.664	
I₩	2	F210M	F430M	BRIGHT1	5	4	16	4	44.664	
Spectral Elements										
Special Requirements	6 After 16 16 After 15									

Pro	posal 120	5 - Observation	n 17 - Forma	tion Histories a	nd Stellar N	Masses of Very	High-z Quasa	ırs		
		, Observation 17: J073				·			Tue Feb	20 23:04:08 GMT 2018
ä∐	Diagnostic Sta									
<u>Š</u>	Observing Ten	plate: NIRCam Imaging	5							
Observation										
ō										
SS	(Visit 17:1) W	arning (Form): Overhead	ls are provisional until	the Visit Planner has be	een run.					
Diagnostics										
2										
iag										
S		Name	Target Coor			Targ. Coord. Correc	etions	Misce	llaneous	
Fixed Targets	(7)	J073103.12+445949.4		1200 (112.7630000d)						
arç				49.40 (44.99706d)						
<u></u>			Equinox: J20	00						
×	Comments: Category=Gal	arv								
证	Description=[A	Active galactic nuclei, Qi	uasars]							
0	Extended=NO Module					Carlo annon				
<u>a</u>	В					Subarray SUB400P				
립	Б					30B400F				
Template										
_	#	Pri	imary Dither Type	Primary Di	thers	Subpixel Dither Ty	vpe Dithe	er Size	Subpixel P	ositions
틸	1)NE			STANDARD			4	
Dithers										
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
l e	1	F210M	F410M	BRIGHT1	9	2	8	4	238.662	
<u> </u>	2	F210M	F430M	BRIGHT1	9	4	16	4	477.325	
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Special Requir										
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Pro	posal 12	205 - Observation	n 18 - Format	ion Histories a	nd Stellar N	Masses of Very	High-z Quasa	ars		
	Proposal 120	05, Observation 18: 2MJ0 tatus: Warning							Tue Feb	20 23:04:08 GMT 2018
Observation	Observing Te	emplate: NIRCam Imaging								
Diagnostics	(Visit 18:1) V	Warning (Form): Overhead	s are provisional until	the Visit Planner has bo	een run.					
တ	#	Name	Target Coord			Targ. Coord. Correc		Misce	llaneous	
Jet	(8)	2MJ07313244+4510416		4400 (112.8851667d)		Proper Motion RA: -5				
Targets				1.60 (45.17822d)		Proper Motion Dec: 1				
Fixed T	Comments: Category=Standescription= Extended=No	ar :[F dwarfs] O	Equinox: J200	0		Epoch of Position: 20	00			
Ite	Module					Subarray				
Pa	В					SUB160P				
Template										
SI.S	#		mary Dither Type	Primary Di	thers	Subpixel Dither Ty	ype Dithe	er Size	Subpixel P	ositions
Dithers	1	NC)NE			STANDARD			4	
ents	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
٦	1	F210M	F410M	BRIGHT1	5	4	16	4	44.664	
l≝	2	F210M	F430M	BRIGHT1	5	4	16	4	44.664	
Spectral Elements										
Special Requirements	8 After 18 18 After 17									

Pro	posal 1205 - (Observation	19 - Format	tion Histories a	nd Stellar M	lasses of Very	High-z Quasa	ırs		
	Proposal 1205, Obser					·	•		Tue Feb	20 23:04:08 GMT 2018
äil	Diagnostic Status: W	Varning								
Įξ	Observing Template:	NIRCam Imaging								
Observation										
ō										
cs	(Visit 19:1) Warning ((Form): Overheads	are provisional until	the Visit Planner has be	een run.					
Diagnostics										
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<u>i</u>										
ഥ										
छ	# Name		Target Coord			Targ. Coord. Correc	tions	Misce	llaneous	
Targets	(9) J16210	00.70+515544.8		7000 (245.2529167d)						
ā				14.80 (51.92911d)						
٦	Comments:		Equinox: J200	00						
Fixed	Catagomy-Calary									
╽╙	Description=[Active g Extended=NO	galactic nuclei, Qua	asars]							
ē	Module					Subarray				
<u>a</u>	В					SUB400P				
Template										
Dithers	#		nary Dither Type	Primary Di	thers	Subpixel Dither Ty	pe Dithe	er Size	Subpixel P	ositions
<u>ٿ</u> ا	1	NON	NE			STANDARD			4	
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
ΙĔ	1	F210M	F430M	BRIGHT1	7	4	16	4	371.325	
lщ	2	F210M	F460M	BRIGHT1	9	4	16	4	477.325	
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_	19 After 9									
ements	20 After 19									
ΙĔ										
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Special Requir										

Pro	posal 12	205 - Observatio	n 20 - Format	ion Histories a	nd Stellar N	Masses of Very	High-z Quasa	ırs		
	Proposal 120	05, Observation 20: 2MJ							Tue Feb	20 23:04:08 GMT 2018
Observation	_	Status: Warning								
≥	Observing To	emplate: NIRCam Imaging								
pse										
_										
Diagnostics	(Visit 20:1) V	Warning (Form): Overhead	s are provisional until	the Visit Planner has be	een run.					
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<u>a</u> i										
\vdash	ш	NT	T	P 4		T	4*	3.6		
ts	(10)	Name 2MJ16205978+5206232	Target Coord	7800 (245.2490833d)		Proper Motion RA: 1.		Misce	llaneous	
l g	(10)	ZIVIJ 102039 / 8+3200232		3.30 (52.10647d)		Proper Motion Dec: 0				
<u>a</u> ∐			Equinox: J200			Epoch of Position: 20				
Fixed Targets	Comments:		Equiliox. 3200			Epoch of Fosition. 20	50			
اِ≍ّا	Category=St	rar								
۱۳	Category=Standard Description= Extended=No	=[F dwarfs] O								
ţ.	Module					Subarray				
	В					SUB160P				
Template										
_										
SIS	#	•	mary Dither Type	Primary Di	thers	Subpixel Dither Ty	pe Dithe	er Size	Subpixel P	ositions
Dithers	1	NC	ONE			STANDARD			4	
_	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure	ETC Wkbk.Calc
Spectral Elements	1	E210M	E420M	DDICUT1	<u> </u>		16		Time	ID
e l	2	F210M F210M	F430M F460M	BRIGHT1 BRIGHT1	5 5	4	16 16	4	44.664 44.664	
	2	F210M	F400M	BRIGHTI	5	4	10	4	44.004	
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