

1854 - It's COMplicated: Disentangling the formation pathways of complex organic molecules from molecular clouds to comets.

Cycle: 1, Proposal Category: GO

INVESTIGATORS

Name	Institution
Dr. Melissa McClure (PI) (ESA Member)	Universiteit Leiden
Prof. Harold Linnartz (CoI) (ESA Member)	Universiteit Leiden
Dr. Sergio Ioppolo (CoI) (ESA Member)	Queen Mary University of London
Ms. Marina Gomes Rachid (CoI) (ESA Member)	Universiteit Leiden
Dr. Danna Nedal Qasim (CoI)	Southwest Research Institute
Dr. Jennifer Noble (CoI) (ESA Member)	Laboratoire d'Astrophysique de Marseille
Dr. Maria Nikolayevna Drozdovskaya (CoI) (ESA Member)	University of Bern
Daniel Harsono (CoI)	National Tsing Hua University
Dr. Helen Jane Fraser (CoI) (ESA Member)	Open University
Dr. Martin A. Cordiner (CoI)	Catholic University of America
Dr. Valentine Wakelam (CoI) (ESA Member)	Universite de Bordeaux
Dr. Jacqueline Keane (CoI)	University of Hawaii
Dr. Ewine F. Van Dishoeck (CoI) (ESA Member)	Universiteit Leiden
Dr. Edwin Anthony Bergin (CoI)	University of Michigan
Dr. Merel van 't Hoff (CoI)	University of Michigan
Dr. Yvonne Jean Pendleton (CoI) (US Admin CoI)	University of Central Florida Board of Trustees
Dra. Belen Mate (CoI) (ESA Member)	Instituto de Estructura de la Materia
Dr. Abraham C. Boogert (CoI)	University of Hawaii
Prof. Serena Viti (CoI) (ESA Member)	Universiteit Leiden
Paola Caselli (CoI) (ESA Member)	Max-Planck-Institut fur extraterrestrische Physik
Dr. Maria Elisabetta Palumbo (CoI) (ESA Member)	INAF, Osservatorio Astrofisico di Catania

JWST Proposal 1854 (Created: Tuesday, September 5, 2023 at 1:01:12 PM Eastern Standard Time) - Overview

Name	Institution
Dr. Brett A McGuire (CoI)	Massachusetts Institute of Technology
Dr. Thanja Lamberts (CoI) (ESA Member)	Universiteit Leiden
Dr. Will Rocha (CoI) (ESA Member)	Universiteit Leiden
Prof. Herma Cuppen (CoI) (ESA Member)	Radboud Universiteit Nijmegen
Dr. Jeroen Terwisscha van Scheltinga (CoI) (ESA Member)	Leiden Observatory
Dr. Laurie E Chu (CoI)	NASA Ames Research Center

OBSERVATIONS

Folder Observation Label		Label	Observing Template	Science Target			
MIRI							
	1	HOPS68	MIRI Medium Resolution Spectroscopy	(1) HOPS68-THERM			
	14	HOPS68-SKY	MIRI Medium Resolution Spectroscopy	(8) HOPS68-THERM-SKY			
	2	HH26IRS	MIRI Medium Resolution Spectroscopy	(2) HH26IRS-THERM			
	15	HH26IRS-SKY	MIRI Medium Resolution Spectroscopy	(9) HH26IRS-THERM-SKY			
	10	2MASSJ17112317-psta r-COMS	MIRI Medium Resolution Spectroscopy	(6) 2MASSJ17112317-COMS			
	16	2MASSJ17112317-psta r-COMS-SKY	MIRI Medium Resolution Spectroscopy	(10) 2MASSJ17112317-COMS-SKY			
	11	IRAS15398-pstar-COM	MIRI Medium Resolution Spectroscopy	(7) IRAS-15398-3359-COMS			
	17	IRAS15398-pstar-COM S-SKY	MIRI Medium Resolution Spectroscopy	(11) IRAS-15398-3359-COMS-SKY			
	18	CK2-BG	MIRI Medium Resolution Spectroscopy	(3) CK-2-BG			
	19	CK2-BG-SKY	MIRI Medium Resolution Spectroscopy	(13) CK-2-BG-SKY			
	20 2MASS-J18285266-B G		MIRI Medium Resolution Spectroscopy	(12) 2MASS-J18285266-BG			
	21	2MASS-J18285266-B G-SKY	MIRI Medium Resolution Spectroscopy	(14) 2MASS-J18285266-BG-SKY			
NIRSpe	ec		,				
	3	HH26IRS	NIRSpec IFU Spectroscopy	(16) HH26IRS-THERM-NS			
	4	HOPS68	NIRSpec IFU Spectroscopy	(15) HOPS68-THERM-NS			
	12	2MASSJ17112317-psta r-COMS	NIRSpec IFU Spectroscopy	(18) 2MASSJ17112317-COMS-NS			

JWST Proposal 1854 (Created: Tuesday, September 5, 2023 at 1:01:12 PM Eastern Standard Time) - Overview

Folder	Observation	Label	Observing Template	Science Target
	13	IRAS15398-pstar-COM	NIRSpec IFU Spectroscopy	(19) IRAS-15398-3359-COMS-NS
	22	2MASS-J18285266-B G	NIRSpec IFU Spectroscopy	(20) 2MASS-J18285266-BG-NS

ABSTRACT

Complex organic molecules (COMs), the chemical building blocks from which pre-biotic molecules can arise, must form on icy dust grains within cold molecular clouds, where their gas-phase sublimation products have been extensively studied with millimeter telescopes."Non-energetically" processed cloud COMs may be thermally and energetically reprocessed within protostellar envelopes, either further increasing their complexity or potentially destroying them before they enter the comet-forming regions of protoplanetary disks. However, to date no COMs more complex than methanol have been conclusively detected in the solid state.

We propose to test whether energetic reprocessing COMs during the protostellar stage of star formation substantially enhances the ice chemical complexity over that of cold molecular cores by obtaining R~2700-3200 spectra from 3-15um along six lines of sight to ice-rich regions characterized by non-energetic, thermal, and energetic ice processing. These spectra will reveal and disentangle overlapping signatures of >4 specific COM species (acetaldehyde, ethanol, dimethyl ether, and methyl formate), which are suggested by previous 5-sigma absorption features at 3-7% of the continuum near 7.2um with Spitzer, guaranteeing a robust detection of the separate features. If the complexity of COMs is already high enough within our non-energetic targets, then it means that every star system formed from those clouds could come pre-seeded with the partially assembled ingredients for life. If we still detect COMs in the highly energetically processed targets, then we can gauge how much and what variety of species survive the journey from cloud to comet-forming disk.

OBSERVING DESCRIPTION

In order to detect and disentangle the signatures of COMs at 1-3% of the local continuum in these sources, we need the spectral resolution of the NIRSpec IFU (G395H, R~2700) and MIRI MRS (R~2700-3300) modes at high S/N. In order to obtain the correct baseline over the 3.4\$\mu\$m COMs region, we need to cover the blue wing of the 3\$\mu\$m water ice feature using NIRSpec IFU G235H. Since these are point sources and we are using the IFUs, JWST's blind pointing accuracy is sufficient, and we do not need target acquisition for either mode. The groups/integrations of both modes are chosen to obtain a S/N of 300 per spaxel in order to detect COMs down to 1% of the local continuum at 3sigma.

JWST Proposal 1854 (Created: Tuesday, September 5, 2023 at 1:01:12 PM Eastern Standard Time) - Overview

NIRSpec IFU

We dither with a 4-position cycling pattern, in case there is any extended emission from an outflow to keep as bonus science. There will be sufficient blank sky around the targets for sky subtraction, and we can also use the background simultaneously observed through the fixed slits during the IFU observation. In Aladdin, the regions surrounding the two protostars in Orion have bright stars in the field that could leak through the MSA failed open shutters, so we obtain a leakcal at each dither for those NIRSpec observations.

MIRI

We use a 4-position dither pattern and use a FAST readout to minimize overheads. We will also obtain a dedicated sky background for each MIRI observation. We take off-source simultaneous imaging in three filters to confirm the pointing of these observations and maximize bonus-science from any serendipitously observed sources.

Proposal 1854 - Targets - It's COMplicated: Disentangling the formation pathways of complex organic molecules from molecular cloud...

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous Miscellaneous
(1)	HOPS68-THERM	RA: 05 35 24.2999 (83.8512496d) Dec: -05 08 30.69 (-5.14186d) Equinox: J2000	Epoch of Position: 2015.5	
Category=	=ISM on=[Protostars]	e targetselector and retrieved from the SIMBAD database.		
(2)	HH26IRS-THERM	RA: 05 46 3.6300 (86.5151250d) Dec: -00 14 49.30 (24703d) Equinox: J2000	Epoch of Position: 2015.5	
Category=	=ISM on=[Protostars]	e targetselector and retrieved from the SIMBAD database.		
(3)	CK-2-BG	RA: 18 30 0.6180 (277.5025750d) Dec: +01 15 20.12 (1.25559d) Equinox: J2000	Epoch of Position: 2015.5	
Category=	=ISM on=[Dark interstellar clouds, Dens	e targetselector and retrieved from the SIMBAD database. se interstellar clouds]		
(6) Comments	2MASSJ17112317-COMS	RA: 17 11 23.1800 (257.8465833d) Dec: -27 24 31.50 (-27.40875d) Equinox: J2000	Epoch of Position: 2015.5	
Category=	=ISM on=[Protostars]	e targetselector and retrieved from the SIMBAD database.		
(7)	IRAS-15398-3359-COMS	RA: 15 43 2.2102 (235.7592092d) Dec: -34 09 7.71 (-34.15214d) Equinox: J2000	Epoch of Position: 2015.5	
Category=	s: This object was generated by the =ISM on=[Protostars] =NO	e targetselector and retrieved from the SIMBAD database.		
(8)	HOPS68-THERM-SKY	RA: 05 35 18.9835 (83.8290979d) Dec: -05 08 46.21 (-5.14617d) Equinox: J2000	Epoch of Position: 2015.5	
Category=	=ISM on=[Protostars]	e targetselector and retrieved from the SIMBAD database.		
(9)	HH26IRS-THERM-SKY	RA: 05 45 58.0065 (86.4916937d) Dec: -00 13 43.48 (22874d) Equinox: J2000	Epoch of Position: 2015.5	
Category=	=ISM on=[Protostars]	e targetselector and retrieved from the SIMBAD database.		

rs] 5398-3359-COMS- was generated by the rs] -J18285266-BG was generated by the restellar clouds, Dense	RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds]	Epoch of Position: 2015.5 Epoch of Position: 2015.5 Epoch of Position: 2015.5
rs] 5398-3359-COMS- was generated by the rs] -J18285266-BG was generated by the restellar clouds, Dense G-SKY was generated by the restellar clouds, Dense	RA: 15 42 56.5781 (235.7357421d) Dec: -34 07 44.64 (-34.12907d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. RA: 18 28 52.6670 (277.2194458d) Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds]	Epoch of Position: 2015.5
rs] 5398-3359-COMS- was generated by the rs] -J18285266-BG was generated by the restellar clouds, Dense G-SKY was generated by the restellar clouds, Dense	RA: 15 42 56.5781 (235.7357421d) Dec: -34 07 44.64 (-34.12907d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. RA: 18 28 52.6670 (277.2194458d) Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds]	Epoch of Position: 2015.5
was generated by the ars] -J18285266-BG was generated by the arstellar clouds, Dense G-SKY was generated by the arstellar clouds, Dense	Equinox: J2000 targetselector and retrieved from the SIMBAD database. RA: 18 28 52.6670 (277.2194458d) Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds]	Epoch of Position: 2015.5
was generated by the ars] -J18285266-BG was generated by the arstellar clouds, Dense G-SKY was generated by the arstellar clouds, Dense	Equinox: J2000 targetselector and retrieved from the SIMBAD database. RA: 18 28 52.6670 (277.2194458d) Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds]	Epoch of Position: 2015.5
rs] -J18285266-BG was generated by the eerstellar clouds, Dense G-SKY was generated by the eerstellar clouds, Dense	RA: 18 28 52.6670 (277.2194458d) Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds]	·
rs] -J18285266-BG was generated by the eerstellar clouds, Dense G-SKY was generated by the eerstellar clouds, Dense	RA: 18 28 52.6670 (277.2194458d) Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database.	·
rs] -J18285266-BG was generated by the eerstellar clouds, Dense G-SKY was generated by the eerstellar clouds, Dense	RA: 18 28 52.6670 (277.2194458d) Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. interstellar clouds]	·
was generated by the e erstellar clouds, Dense G-SKY was generated by the e erstellar clouds, Dense	Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. tinterstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. tinterstellar clouds]	·
erstellar clouds, Dense G-SKY was generated by the erstellar clouds, Dense	Dec: +00 28 24.21 (.47339d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. tinterstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. tinterstellar clouds]	·
erstellar clouds, Dense G-SKY was generated by the erstellar clouds, Dense	Equinox: J2000 targetselector and retrieved from the SIMBAD database. tinterstellar clouds] RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database. tinterstellar clouds]	Epoch of Position: 2015.5
erstellar clouds, Dense G-SKY was generated by the erstellar clouds, Dense	RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database.	Epoch of Position: 2015.5
erstellar clouds, Dense G-SKY was generated by the erstellar clouds, Dense	RA: 18 30 5.3821 (277.5224254d) Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database.	Epoch of Position: 2015.5
was generated by the e	Dec: +01 15 27.57 (1.25766d) Equinox: J2000 targetselector and retrieved from the SIMBAD database.	Epoch of Position: 2015.5
erstellar clouds, Dense	Equinox: J2000 targetselector and retrieved from the SIMBAD database.	
erstellar clouds, Dense	targetselector and retrieved from the SIMBAD database.	
erstellar clouds, Dense	interstellar clouds]	
-J18285266-BG-SKY	DA - 19 29 52 0605 (277 22066994)	
	KA. 16 26 32.9003 (277.22000680)	Epoch of Position: 2015.5
	Dec: +00 27 26.65 (.45740d)	
	Equinox: J2000	
was generated by the was generated by the was	targetselector and retrieved from the SIMBAD database.	
ersienar cionas, Dense	inersieuu ciouusj	
8-THERM-NS	RA: 05 35 24.2999 (83.8512496d)	Epoch of Position: 2015.5
	Dec: -05 08 30.69 (-5.14186d)	
	Equinox: J2000	
was generated by the a	targetselector and retrieved from the SIMBAD database.	
RS-THERM-NS	RA: 05 46 3.6300 (86.5151250d)	Epoch of Position: 2015.5
	,	
	* *	
was generated by the a	_	
r.	s] S-THERM-NS was generated by the	S-THERM-NS RA: 05 46 3.6300 (86.5151250d) Dec: -00 14 49.30 (24703d) Equinox: J2000 was generated by the targetselector and retrieved from the SIMBAD database.

Proposal 1854 - Targets - It's COMplicated: Disentangling the formation pathways of complex organic molecules from molecular cloud...

(18) Epoch of Position: 2015.5 2MASSJ17112317-COMS-NS RA: 17 11 23.1800 (257.8465833d) Dec: -27 24 31.50 (-27.40875d) Equinox: J2000 Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Description=[Protostars] Extended=NO (19) IRAS-15398-3359-COMS-NS RA: 15 43 2.2102 (235.7592092d) Epoch of Position: 2015.5 Dec: -34 09 7.71 (-34.15214d) Equinox: J2000 Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=ISM Description=[Protostars] Extended=NO (20)2MASS-J18285266-BG-NS RA: 18 28 52.6670 (277.2194458d) Epoch of Position: 2015.5 Dec: +00 28 24.21 (.47339d) Equinox: J2000 Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Description=[Dark interstellar clouds, Dense interstellar clouds] Extended=NO

Pro	posal 18	<u> 54 - Obser</u>	vation 1 - I	It's COM	plicated: D	isentangli	ng the form	ation pathw	ays of	complex orga	nic molec	ules fron	m molecular
'n	Proposal 1854	4, Observation 1:	HOPS68									Tue Sep 05	18:01:12 GMT 2023
Iĕ	Diagnostic Sta	atus: Warning											
Ľĕ	Observing Ter	mplate: MIRI Med	dium Resolution	Spectroscopy									
Observation	Background O	bservations:[HOI	PS68-SKY (Obs	14)]									
Diagnostics	(Visit 1:1) Wa	urning (Form): Ov	erheads are prov	isional until th	e Visit Planner ha	s been run.							
	#	Name	7	Farget Coord	inates		Targ.	Coord. Correction	ıs	M	iscellaneous		
ets	(1)	HOPS68-THERN	M I	RA: 05 35 24.2	2999 (83.8512496	d)	Epoch	of Position: 2015.5	i				
ğ			I	Dec: -05 08 30	.69 (-5.14186d)		•						
la P				Equinox: J200									
Fixed Targets			erated by the tar	getselector an	d retrieved from t	he SIMBAD date	abase.						
Ě	Category=ISM	I Duntontonal	•		·								
l "	Description=[Extended=NO)											
١Ž	#	Target		Filter	Reado	ıt Pattern	Groups/Int	Integration	ıs/Exp	Total Integrations	Total Expos	sure Time E	TC Wkbk.Calc ID
ij	1	SAME		FND	FAST		4	1		1	11.1	-	7619
ate Acquisition	Primary Cha	nnel			aneous Imaging			ger Subarray			rating Wheel Di	irection	
Template	All MRS	All MRS YES					FUL	L	NI				
SI	#			Dither	Туре		Opti	mized For		Di	rection		
Dithers	1 4-Point					POINT SOURCE			NI	EGATIVE			
	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations, xp	Exposures/Dit	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc II
Ӗ	1	•	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	57619
μe	1	SHORT(A)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	57619
<u> </u>	1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	Dither 1	4	4	222.003	57619
=	2		IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	
ιD	2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	Dither 1	4	4	222.003	
Ę	1	MEDIUM/D)	MDCCHODT		FASTR1	20	1	1	Dither 1	4	4	222.003	
ectr	2	MEDIUM(B)	MRSSHORT										
Spectral Elements	3	MEDIUM(B)	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	
Spectr	2 3 3	LONG(C)		F560W			1 1	1 1	Dither 1 Dither 1	4 4	4 4	55.501 222.003	

<u>Prc</u>	oposal 1854 - Observation 1 - It's COMplicated: Disentangling the formation pathways of complex organic molecules from molecular
ents	Sequence Observations 1, 14, Non-interruptible
reme	
Require	
Special	

<u>Pro</u>	oposal 185	<u> 4 - Obser</u>	<u>vation 14 -</u>	· It's CON	<u>/Iplicated: [</u>	<u>Disentangli</u>	<u>ng the forr</u>	<u>nation path</u>	<u>iways of c</u>	complex orc	<u>anic mole</u>	<u>cules fror</u>	<u>n molecul</u>
'n	Proposal 1854	Observation 14	4: HOPS68-SKY	Y								Tue Sep 05 18	3:01:12 GMT 2023
ΙĔ	Diagnostic Sta	tus: Warning											
Įξ	Observing Tem	plate: MIRI Med	dium Resolution	Spectroscopy									
Se	Background Ob	servation For: [1	HOPS68 (Obs 1)]									
Observation													
Diagnostics	(Visit 14:1) Wa	urning (Form): O	verheads are pro	visional until t	he Visit Planner h	nas been run.							
س	#	Name	7	Farget Coordi	nates		Targ. (Coord. Correction	ns	M	iscellaneous		
Targets	(8)	HOPS68-THERI	M-SKY I	RA: 05 35 18.9	835 (83.8290979	d)	Epoch	of Position: 2015.5	5				
arç I			I	Dec: -05 08 46.	21 (-5.14617d)								
ΙË				Equinox: J2000									
Fixed		s object was gen	erated by the tar	getselector and	l retrieved from t	he SIMBAD datab	ase.						
ΙÊ	Category=ISM Description=[I Extended=NO	Protostars]											
Ŀ	Extended=NO												
<u></u>	#						Targ						
Acquisition	1						NON	E					
ΙĦ													
١٥													
_	AcqFilter		Prin	nary Channel		Simultane	ous Imaging	Ī	mager Subarra	nv	Grating	g Wheel Directi	on
<u>a</u>	FND		All N			YES			ULL	-J	NEUTR		VII
ΙĔ													
Template													
ည	#			Dither 7	Гуре		Optii	nized For		Di	rection		
Dithers	1			4-Point			POIN	T SOURCE		NI	EGATIVE		
置													
	#	Wavelength	Detector	Filter	Readout	Groups/Int		E Exposures/Dit	Dither	Total Dithers	Total	Total	ETC
۱.,		Range			Pattern		xp	h			Integrations	Exposure Time	Wkbk.Calc ID
Spectral Elements	1		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
ηe	1	SHORT(A)	MRSLONG		FASTR1	20	1	1	None	1	1	55.501	57619
<u>ē</u>	1	SHORT(A)	MRSSHORT		FASTR1	20	1	1	None	1	1	55.501	57619
1"	2		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
tra	2	MEDIUM(B)	MRSLONG		FASTR1	20	1	1	None	1	1	55.501	
l s	2	MEDIUM(B)	MRSSHORT		FASTR1	20	1	1	None	1	1	55.501	
S S	3		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
	3	LONG(C)	MRSLONG		FASTR1	20	1	1	None	1	1	55.501	
	3	LONG(C)	MRSSHORT		FASTR1	20	1	1	None	1	1	55.501	

<u>Pro</u>	<u> Proposal 1854 - Observation 14 - It's COMplicate</u>	d: Disentangling the formation pathways of complex organic molecules from molecul
nents	Sequence Observations 1, 14, Non-interruptible	
Requiren	duiren	
Special	Specia	

Pro	posal 18	<u> 54 - Obser</u>	vation 2 -	It's COM	olicated: Di	sentangli	ng the forma	ation pathw	ays of	complex orga	<u>nic molec</u>	ules from	molecular
5	Proposal 185	4, Observation 2:	HH26IRS									Tue Sep 05	8:01:12 GMT 2023
۱≝	Diagnostic St	atus: Warning											
ĬŽ	Observing Ter	mplate: MIRI Med	dium Resolution	Spectroscopy									
Observation	Background C	Observations:[HH2	26IRS-SKY (Obs	s 15)]									
Diagnostics	(Visit 2:1) Wa	urning (Form): Ov	erheads are prov	isional until th	e Visit Planner ha	s been run.							
-	#	Name	ŗ	Target Coordi	nates		Targ. C	Coord. Correction	ıs	M	iscellaneous		
ets	(2)	HH26IRS-THER	kM I	RA: 05 46 3.63	00 (86.5151250d))	Epoch o	of Position: 2015.5					
ğ]	Dec: -00 14 49	.30 (24703d)		•						
Targets				Equinox: J2000									
Fixed	Comments: Th	his object was gen		•		ne SIMBAD date	abase.						
ļ.ž	Category=ISM	1	,		v								
"	Description=[Extended=NC	Protostars]											
u	#	Target		Filter	Readou	ıt Pattern	Groups/Int	Integration	ıs/Exp	Total Integrations	Total Expos	ure Time ET	C Wkbk.Calc ID
ţį	1	SAME		FND	FAST		4	1	•	1	11.1	576	
Acquisition													
ate	Primary Cha	nnel			neous Imaging			er Subarray			ating Wheel Di	rection	
Template	All MRS	II MRS YES					FULI			NI			
rs	#			Dither '	Гуре		Optin	nized For		Di	rection		
Dithers	1 4-Point					POINT SOURCE			NEGATIVE				
	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/	E Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc II
Spectral Elements	1		IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	57619
πe	1	SHORT(A)	MRSLONG		FASTR1	11	1	1	Dither 1	4	4	122.102	57619
<u> </u>	1	SHORT(A)	MRSSHORT		FASTR1	11	1	1	Dither 1	4	4	122.102	57619
=	2		IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	
tra	2	MEDIUM(B)	MRSLONG		FASTR1	11	1	1	Dither 1	4	4	122.102	
) ec	2	MEDIUM(B)	MRSSHORT		FASTR1	11	1	1	Dither 1	4	4	122.102	
Sp	3		IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	
	3	LONG(C)	MRSLONG		FASTR1	11	1	1	Dither 1	4	4	122.102	
		LONG(C)	MRSSHORT		FASTR1	11	1	1	Dither 1	4	4	122.102	

<u>Pro</u>	posal 1854 - Observation 2 - It's COMplicated: Disentangling the formation pathways of complex organic molecules from molecular
Requirements	Sequence Observations 2, 15, Non-interruptible
Special	

<u>Pro</u>	posal 185	<u> 4 - Obser</u>	<u>vation 15 -</u>	 It's CON 	<u>/Iplicated: [</u>	<u>Disentanglir</u>	ng the form	<u>ation path</u>	ways of	complex org	<u>anic mole</u>		
٦	Proposal 1854,	Observation 15	5: HH26IRS-SK	Y								Tue Sep 05 18	8:01:12 GMT 2023
Ι≝	Diagnostic Sta	tus: Warning											
<u>``</u>	Observing Tem	plate: MIRI Med	dium Resolution	Spectroscopy									
Observation	Background Ob	servation For: [I	HH26IRS (Obs 2	2)]									
8													
Diagnostics	(Visit 15:1) Wa	rning (Form): O	verheads are pro	visional until tl	he Visit Planner h	as been run.							
"	# 1	Name	7	Farget Coordi	nates		Targ. Co	ord. Correction	ns	M	iscellaneous		
Targets	(9)	HH26IRS-THER	RM-SKY F	RA: 05 45 58.0	065 (86.4916937	d)	Epoch of	Position: 2015.5	5				
a g			Ι	Dec: -00 13 43.	48 (22874d)								
ΙË			E	Equinox: J2000)								
Fixed	Comments: This Category=ISM	s object was gen	erated by the tar	getselector and	l retrieved from th	he SIMBAD datab	ase.						
iÊ	Description=[F Extended=NO	Protostars]											
⊢	Extended=NO						TD 4						
<u>ë</u> .	We have a second of the second												
isi													
급													
ĕ													
ţ.	AcqFilter		Prin	nary Channel		Simultane	ous Imaging	Iı	mager Subarr	ay	Grating	Wheel Directi	ion
Template	FND		All N	MRS		YES		F	ULL	NEUTRAL			
١Ĕ													
_													
SIS.	#			Dither 7	Гуре			zed For			rection		
Dithers	1			4-Point			POINT	SOURCE		NI	EGATIVE		
尸	#	Wavelength	Detector	Filter	Readout	Groups/Int	Integrations/E	Fynosures/Dit	Dithor	Total Dithers	Total	Total	ETC
۱,,	The state of the s	Range	Detector	ritter	Pattern	Groups/Int	xp	h	Dittier	Total Ditlicis	Integrations	Exposure Time	Wkbk.Calc ID
Spectral Elements	1		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
E E	1	SHORT(A)	MRSLONG		FASTR1	11	1	1	None	1	1	30.525	57619
iie iii	1	SHORT(A)	MRSSHORT		FASTR1	11	1	1	None	1	1	30.525	57619
٦	2		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
#	2	MEDIUM(B)	MRSLONG		FASTR1	11	1	1	None	1	1	30.525	
ĕ	2	MEDIUM(B)	MRSSHORT		FASTR1	11	1	1	None	1	1	30.525	
S	3		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
1	3	LONG(C)	MRSLONG		FASTR1	11	1	1	None	1	1	30.525	
	3	LONG(C)	MRSSHORT		FASTR1	11	1	1	None	1	1	30.525	

<u>Pr</u>	oposa	<u>al 1854 -</u>	<u>· Observ</u>	<u>⁄ation 15</u>	<u>- It's C</u>	<u>OMplicated:</u>	<u>Disentanglin</u>	<u>ig the formation</u>	on pathways	s of complex	organic mo	<u>lecules from</u>	<u>n molecul</u>
Requirements		nce Observati	ions 2, 15, No	on-interruptible	e								
Special													

<u>Pro</u>	<u>posal 1854 - </u>	<u>Observ</u>	<u>⁄ation 10 -</u>	· It's COM	<u>plicated: </u> [<u> Disentang</u>	<u>ling the form</u>	nation path	ways c	of complex org	<u>ıanic mole</u>	cules fror	<u>n molecul</u>	
<u>ا</u>	Proposal 1854, Obse	ervation 10	: 2MASSJ1711	2317-pstar-CO	MS							Tue Sep 05 1	8:01:12 GMT 2023	
Observation	Diagnostic Status: V	_												
Ž	Observing Template:	MIRI Med	ium Resolution	Spectroscopy										
Se	Background Observa	tions:[2MA	SSJ17112317-p	star-COMS-SK	Y (Obs 16)]									
lö														
Diagnostics	(Visit 10:1) Warning	(Form): Ov	erheads are pro	visional until the	Visit Planner h	as been run.								
"	# Name		7	Farget Coordin	ates		Targ. Co	oord. Correction	ıs	M	iscellaneous			
Targets	(6) 2MAS	SJ1711231	7-COMS F	RA: 17 11 23.18	00 (257.8465833	(d)	Epoch of	f Position: 2015.5						
l ŝ			Ι	Dec: -27 24 31.5	0 (-27.40875d)									
ΙË			E	Equinox: J2000										
l ë	Comments: This obje	ct was gene	rated by the tar	getselector and	retrieved from th	e SIMBAD date	abase.							
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=ISM Description=[Protostars] Extended=NO														
┕	Extended=NO													
Acquisition	#	Target SAME	-	Filter		t Pattern	Groups/Int	Integration	ıs/Exp	Total Integrations			C Wkbk.Calc ID	
Siti	1	FND	FAST		4	1		1	11.1	576	19			
Ϊ́Ξ														
١٥														
_	Deimon Channal			C!14	T '		T	Ch		C-				
<u>#</u>	Primary Channel All MRS			YES	eous Imaging		FULL	r Subarray		Grating Wheel Direction NEUTRAL				
립	All MKS			IES			FULL			NEUTRAL				
Template														
	#			Dither Ty	me		Ontim	nized For		Direction				
ĕ	1			4-Point	рс			SOURCE			EGATIVE			
Dithers														
	# Wav Ran	velength ge	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E	Exposures/Dit	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
Spectral Elements	1		IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501		
je l	1 1.00	IG(C)	MRSLONG		FASTR1	12	1	1	Dither 1	4	4	133.202		
<u>e</u>		VG(C)	MRSSHORT		FASTR1	12	1	1	Dither 1	4	4	133.202		
Ш	2 IMAGER F560W FASTR1 5						1	1	Dither 1	4	4	55.501		
t a	2 MEI	OIUM(B)	MRSLONG		FASTR1	12	1	1	Dither 1	4	4	133.202		
မ်င်		DIUM(B)	MRSSHORT		FASTR1	12	1	1	Dither 1	4	4	133.202		
၂	IMAGER F560W FASTR1 5						1	1	Dither 1	4	4	55.501	57619	
	3 SHORT(A) MRSLONG FASTR1 12						1	1	Dither 1	4	4	133.202	57619	
I		ORT(A)	MRSSHORT		FASTR1	12	1	1	Dither 1	4	4	133.202	57619	

<u>Pro</u>	<u>osal 1854 - Observation 10 - It's COMplicated: Disentangling the formation pathways of complex organic molecules from molec</u>	<u> </u>
nts	equence Observations 10, 16, Non-interruptible	
eme		
quir		
Red		
cial		
Spe		

<u>Prc</u>	posal 185	<u> 4 - Obser</u>	<u>/ation 16 -</u>	 It's CON 	<u> 1plicated: [</u>	<u>Disentanglir</u>	ng the form	<u>ation path</u>	ways of	complex ord	<u>anic mole</u>		
<u>ا</u> و	Proposal 1854.	Observation 16	6: 2MASSJ1711	12317-pstar-C0	OMS-SKY							Tue Sep 05 18	3:01:12 GMT 2023
Ħ	Diagnostic Sta												
<u>§</u>	Observing Tem	plate: MIRI Med	lium Resolution	Spectroscopy									
Observation	Background Ob	servation For: [2	2MASSJ171123	17-pstar-COMS	S (Obs 10)]								
Ιŏ													
Diagnostics	(Visit 16:1) Wa	rning (Form): O	verheads are pro	visional until th	ne Visit Planner h	as been run.							
ω	#	Name	F	Target Coordi	nates		Targ. Co	ord. Correction	ns	M	liscellaneous		
Targets		2MASSJ1711231	17-COMS-	RA: 17 11 24.8	265 (257.853443)	7d)	Epoch of	Position: 2015.5	5				
arç I	,	SKY			75 (-27.37326d)								
=				Equinox: J2000									
Fixed	Category=ISM		erated by the tar	getselector and	l retrieved from th	he SIMBAD datab	ase.						
匝	Description=[H Extended=NO	Protostars]											
_	#						Target						
흕	Target NONE												
Acquisition													
	AcqFilter		Prin	nary Channel		Simultane	ous Imaging	Iı	mager Subarr	av	Grating	g Wheel Directi	on
Template	FND			MRS		YES			ULL		NEUTR		
ן בַּ													
Ŧ													
SJ	#			Dither T	Гуре		Optimi	ized For		Di	rection		
Dithers	1			4-Point			POINT	SOURCE		NI	EGATIVE		
	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E xp	Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
Spectral Elements	1	•	IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	,
l e	1	LONG(C)	MRSLONG		FASTR1	12	1	1	None	1	1	33.3	
<u>=</u>	1	LONG(C)	MRSSHORT		FASTR1	12	1	1	None	1	1	33.3	
<u>س</u>	2		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
#	2	MEDIUM(B)	MRSLONG		FASTR1	12	1	1	None	1	1	33.3	
) Se	2	MEDIUM(B)	MRSSHORT		FASTR1	12	1	1	None	1	1	33.3	
١٥	3		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
	3	SHORT(A)	MRSLONG		FASTR1	12	1	1	None	1	1	33.3	57619
	3	SHORT(A)	MRSSHORT		FASTR1	12	1	1	None	1	1	33.3	57619

Sequence Observations 10, 16, Non-interruptible Sequence Observations 10, 16, Non-interruptible	<u>Pro</u>	oposal 1854 - Observation 16 - It's COMplicated: Disentangling the formation pathways of complex organic molecules from molecul
oecial de la company de la com	men	Sequence Observations 10, 16, Non-interruptible
oecial de la company de la com	equire	

Pro	posal 1854	- Obser	vation 11	 It's CON 	Iplicated: [Disentang	ling the for	<u>mation path</u>	ways c	of complex org	anic mole	cules fro	om molecul
٦	Proposal 1854, (Observation 1	: IRAS15398- _I	ostar-COMS								Tue Sep 05	18:01:12 GMT 2023
Ιĕ	Diagnostic Statu	s: Warning											
Įξ	Observing Templ	ate: MIRI Med	lium Resolution	Spectroscopy									
Se	Background Obse	ervations:[IRA	S15398-pstar-C	OMS-SKY (Ob	s 17)]								
Observation													
Diagnostics	(Visit 11:1) Warr	ning (Form): O	verheads are pro	ovisional until th	e Visit Planner h	as been run.							
l s	# Na	ame		Target Coordi	nates		Targ.	Coord. Correction	ıs	M	iscellaneous		
Targets	(7) IR	AS-15398-335			02 (235.75920920	d)	Epoch	of Position: 2015.5	5				
a I				Dec: -34 09 7.7	l (-34.15214d)								
=				Equinox: J2000									
Fixed	Comments: This Category=ISM	object was gen	erated by the ta	rgetselector and	retrieved from th	he SIMBAD dat	abase.						
iÊ	Description=[Pro Extended=NO	otostars]											
┢	Extended=NO			T-11.			G 57 :	.		m	m	m, -	marrill a 1 rn
<u>ë</u> .	#	Target		Filter		ıt Pattern	Groups/Int	Integration	ıs/Exp	Total Integrations		-	TC Wkbk.Calc ID
Sit	1	SAME		FND	FAST		4	1		1	11.1	5	7619
ΙĦ													
Acquisition													
_	Primary Channe	el		Simulta	neous Imaging		Imag	ger Subarray	Gı	ating Wheel Di	rection		
<u>a</u>	All MRS	-		YES	neous imaging		FUL				EUTRAL		
۱Ĕ	111111111111111111111111111111111111111			122			102	_		- 1-	.011412		
Template													
_	#			Dither T	`vpe		Opti	imized For		Di	rection		
je j	1			4-Point	J.F.			NT SOURCE		•	EGATIVE		
Dithers	1 4-FOIII												
		Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations xp	/E Exposures/Dit	Dither	Total Dithers	Total Integrations	Total Exposure	ETC Wkbk.Calc ID
ts	1		DAAGED	ESCON	EACED 1				D'd 1			Time	
e	[1]	ONG(C)	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	
١Ĕ		LONG(C)	MRSLONG		FASTR1	13	1	1	Dither 1	4	4	144.302	
Ĭ		LONG(C)	MRSSHORT	E5.0337	FASTR1	13	1	1	Dither 1	4	4	144.302	
Spectral Elements	$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	AEDIUM (P)	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	
달		MEDIUM(B)	MRSLONG		FASTR1	13	1	1	Dither 1	4	4	144.302	
l g		MEDIUM(B)	MRSSHORT	E5 CONV	FASTR1	13	1	1	Dither 1	4	4	144.302	57.616
lσ	3	OHODE(A)	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	57619
1		SHORT(A)	MRSLONG		FASTR1	13	1	1	Dither 1	4	4	144.302	57619
1	[3	SHORT(A)	MRSSHORT		FASTR1	13	1	1	Dither 1	4	4	144.302	57619

<u>Pro</u>	<u> oposal 1854 - Observation 11 - I</u>	<u>t's COMplicated:</u>	Disentangling the t	<u>formation pathways</u>	<u>s of complex organic</u>	<u>molecules from mole</u>	<u>::::cul</u>
uirements	Sequence Observations 11, 17, Non-interruptible						
Special Req							

Pro	posal 185	<u> 54 - Obser</u>	vation 17	- It's COM	<u> Iplicated: I</u>	<u>Disentangli</u>	ng the form	nation path	ways of	complex org	<u>anic mole</u>	ecules fror	<u>m molecul</u>	
no	_	, Observation 17	7: IRAS15398-	-pstar-COMS-S	KY							Tue Sep 05 1	8:01:12 GMT 2023	
ă	Diagnostic Sta													
Ž	-	nplate: MIRI Med												
Observation	Background O	bservation For: [I	RAS15398-pst	tar-COMS (Obs	11)]									
ō														
Diagnostics	(Visit 17:1) Wa	arning (Form): O	verheads are pi	rovisional until tl	ne Visit Planner l	nas been run.								
တ	#	Name		Target Coordi	nates		Targ. C	oord. Correction	ıs	M	liscellaneous			
ğ		IRAS-15398-335	59-COMS-	RA: 15 42 56.5	781 (235.735742	1d)	Epoch of	Position: 2015.5	5					
(11) IRAS-15398-3359-COMS- RA: 15 42 56.5781 (235.7357421d) Epoch of Position: 2015.5 SKY Dec: -34 07 44.64 (-34.12907d) Equinox: J2000														
١Ļ				Equinox: J2000										
Fixed	Category=ISM	· ·	erated by the to	argetselector and	l retrieved from t	he SIMBAD datab	ase.							
匠	Description=[I Extended=NO	Protostars]												
٦	#						Targe	t						
Yednising Hamiltonian Target NONE														
is														
향														
_														
Template	AcqFilter			imary Channel			ous Imaging		nager Subarr	ay		g Wheel Direct	ion	
ᅙ	FND		All	l MRS		YES FULL				NEUTRAL				
<u>ا</u> ق														
	#			Dither 7	Cyne		Ontim	ized For		Di	rection			
ĕ	1			4-Point	турс			SOURCE		•	EGATIVE			
Dithers														
	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E	Exposures/Dit	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
Spectral Elements	1		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	•	
Je l	$\left \frac{1}{1} \right $	LONG(C)	MRSLONG	100011	FASTR1	13	1	1	None	1	1	36.076		
le le	1	LONG(C)	MRSSHORT	[FASTR1	13	1	1	None	1	1	36.076		
╽≝	2		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875		
tra	2	MEDIUM(B)	MRSLONG		FASTR1	13	1	1	None	1	1	36.076		
۱ ĕ	2	MEDIUM(B)	MRSSHORT	[FASTR1	13	1	1	None	1	1	36.076		
ကြ	3		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875		
	3	SHORT(A)	MRSLONG		FASTR1	13	1	1	None	1	1	36.076	57619	
	3	SHORT(A)	MRSSHORT	Γ	FASTR1	13	1	1	None	1	1	36.076	57619	

<u>Pro</u>	posal 1854 - Observation 17 - It's COMplicated: Disentangling the formation pathways of complex organic molecules from molecul
nts	Sequence Observations 11, 17, Non-interruptible
me	
uire	
Require	
pecial	
S	

<u>Pro</u>	oposal 1854 - Obs	ervation 18 -	It's COMp	<u>licated: D</u>	<u>isentang</u>	<u>ling the forr</u>	<u>nation path</u>	ways c	of complex org	<u>anic mole</u>	cules fro	om molecul
٦	Proposal 1854, Observation	18: CK2-BG									Tue Sep 05	5 18:01:12 GMT 2023
Ιĕ	Diagnostic Status: Warnin	,										
Įĕ	Observing Template: MIRI	Iedium Resolution S	Spectroscopy									
se	Background Observations:[0	K2-BG-SKY (Obs 1	19)]									
Observation												
Diagnostics	(Visit 18:1) Warning (Form)	Overheads are prov	visional until the V	Visit Planner ha	s been run.							
l "	# Name	T	arget Coordinat	es		Targ. (Coord. Correction	ıs	M	iscellaneous		
Targets	(3) CK-2-BG	R	A: 18 30 0.6180	(277.5025750d))	Epoch	of Position: 2015.5					
arç I		D	Dec: +01 15 20.12	(1.25559d)								
ΙË			quinox: J2000									
Fixed	Comments: This object was	enerated by the targ	getselector and re	trieved from the	e SIMBAD date	abase.						
ΙÊ	Category=ISM Description=[Dark interstel Extended=NO	ar clouds, Dense int	erstellar clouds]									
<u> </u>												
Acquisition	# Tar		Filter	•	Pattern	Groups/Int	Integration	s/Exp	Total Integrations			TC Wkbk.Calc ID
Sil	1 SAN	IE 1	FND	FAST		4	1		1	11.1	5	7619
Ϊ́Ξ												
3												
_	D. Clara		G* - 14	T		T						
ate	Primary Channel			ous Imaging			er Subarray			ating Wheel Di	rection	
I둳	All MRS		YES			FULI	_		NE	EUTRAL		
Template												
_	 		Did T			0.4			ъ:			
ers	4		Dither Typ	e			mized For		•	rection		
Dithers			4-Point			POIN	IT SOURCE		NE	EGATIVE		
ഥ												
	# Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/	E Exposures/Dit h	Dither	Total Dithers	Total Integrations	Total Exposure	ETC Wkbk.Calc ID
ဖ		1	1			r				g	Time	
Ĭ	1	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	
ΙĔ	1 LONG(C)	MRSLONG		FASTR1	18	1	1	Dither 1	4	4	199.803	
I #	1 LONG(C)	MRSSHORT		FASTR1	18	1	1	Dither 1	4	4	199.803	
Spectral Elements	2	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	
1 🛱	2 MEDIUM()	B) MRSLONG		FASTR1	18	1	1	Dither 1	4	4	199.803	
Ιĕ	2 MEDIUM(I	B) MRSSHORT		FASTR1	18	1	1	Dither 1	4	4	199.803	
Ŋ	3	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	57619
1	3 SHORT(A)	MRSLONG		FASTR1	18	1	1	Dither 1	4	4	199.803	57619
1	3 SHORT(A)	MRSSHORT		FASTR1	18	1	1	Dither 1	4	4	199.803	57619

<u>Pro</u>	<u> 1854 roposal 1854 r</u>	<u>- Observation</u>	<u> 18 - It's COI</u>	<u> Mplicated: Diser</u>	<u>itangling the form</u>	<u>iation pathways of c</u>	<u>complex organic mole</u>	ecules from molecul
Requirements		ions 18, 19, Non-inter	ruptible					
Special F								

<u>Prc</u>	posal 1854	 Observ 	<u>/ation 19 -</u>	It's COM	<u> 1plicated: [</u>	<u>Disentanglir</u>	ng the form	ation path	ways of o	complex ord	<u>ganic mole</u>	<u>ecules fror</u>	n molecul
uo	Proposal 1854, O	bservation 19	: CK2-BG-SKY	7								Tue Sep 05 1	8:01:12 GMT 2023
ă l	Diagnostic Status	_											
<u> </u>	Observing Templa												
Observation	Background Obser	rvation For: [C	CK2-BG (Obs 18))]									
ō													
Diagnostics	(Visit 19:1) Warni					as been run.							
တ	# Na			arget Coordii				oord. Correction		M	liscellaneous		
Targets	(13) CK	-2-BG-SKY			21 (277.5224254	d)	Epoch of	Position: 2015.5	5				
a.					.57 (1.25766d)								
١Ę	G . TI.	1		quinox: J2000		I CHARAD I . I							
Fixed	Comments: This of Category=ISM					re SIMBAD datab	ase.						
ᄪ	Description=[Dar Extended=NO	k interstellar o	clouds, Dense int	erstellar cloud	ls]								
Ž	#						Target	t					
Acquisition	1						NONE						
uis													
9													
_													
ate	AcqFilter		-	ary Channel		•	ous Imaging	•	nager Subarr	ay		g Wheel Direct	ion
힡	FND		All M	IRS		YES		F	ULL		NEUTF	KAL	
Template													
	#			Dither T	`vne		Ontim	ized For		Di	rection		
þe	1			4-Point	.,,,,,			SOURCE		-	EGATIVE		
Dithers													
		Vavelength Lange	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E xp	Exposures/Dit	Dither	Total Dithers	Total Integrations	Total Exposure	ETC Wkbk.Calc ID
ts			D.C. CED		T. (CTT) 4						-	Time	
en	1	ONC(C)	IMAGER MRSL ONG	F560W	FASTR1	5	1	1	None	1	1	13.875	
e I		ONG(C) ONG(C)	MRSLONG MRSSHORT		FASTR1 FASTR1	18 18	1	1	None None	1	1	49.951 49.951	
面		ONG(C)	IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
Spectral Elements	$\begin{bmatrix} 2 \\ 2 \end{bmatrix}$	MEDIUM(B)	MRSLONG	1 300 11	FASTR1	18	1	1	None	1	1	49.951	
ec		MEDIUM(B)	MRSSHORT		FASTR1	18	1	1	None	1	1	49.951	
S	3	(-)	IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
]	3 S	HORT(A)	MRSLONG		FASTR1	18	1	1	None	1	1	49.951	57619
		HORT(A)	MRSSHORT		FASTR1	18	1	1	None	1	1	49.951	57619

<u>Pro</u>	<u>Proposal 1854 - Observation 19 - It's COMplicated: Disentangling the formation pathways of cor</u>	nplex organic molecules from molecul
nts	Sequence Observations 18, 19, Non-interruptible	
me		
uire		
Req	Bell Bell	
pecial		
S	$ \mathcal{S} $	

<u>Pro</u>	<u>posal 1854</u>	 Observ 	<u> ation 20 -</u>	It's COM	<u>olicated: D</u>	<u> Disentang</u>	<u>ling the form</u>	<u>ation path</u>	ways c	of complex ord	<u>anic mole</u>	cules fror	<u>n molecul</u>	
ا و	Proposal 1854, O	bservation 20	: 2MASS-J1828	85266-BG								Tue Sep 05 1	8:01:12 GMT 2023	
aţi.	Diagnostic Status													
<u>ڇَ</u>	Observing Templa	te: MIRI Med	ium Resolution S	Spectroscopy										
Observation	Background Obser	rvations:[2MA	SS-J18285266-I	3G-SKY (Obs 2	1)]									
١ö														
Diagnostics	(Visit 20:1) Warni	ng (Form): Ov	verheads are prov	visional until the	Visit Planner ha	as been run.								
60	# Naı	me	Т	arget Coordina	ates		Targ. Co	oord. Correction	ıs	M	iscellaneous			
Targets	(12) 2M	ASS-J1828520	56-BG R	A: 18 28 52.667	70 (277.2194458	d)	Epoch of	Position: 2015.5						
ar Sign			Ε	Dec: +00 28 24.2	1 (.47339d)									
<u> </u>				quinox: J2000										
Comments: This object was generated by the targetselector and retrieved from the SIMBAD database. Category=ISM Description=[Dark interstellar clouds, Dense interstellar clouds]														
l îÊ	 ∠ Category=ISM ∠ Description=[Dark interstellar clouds, Dense interstellar clouds] 													
⊢	Extended=NO													
Acquisition	#	Target	-	Filter		t Pattern	Groups/Int	Integration	s/Exp	Total Integrations		re Time ETC Wkbk.Calc ID		
Sit	1 SAME FND FAST						4	1		1	11.1	576	19	
ΙË														
١٥														
	D: CI I	1		G: 14	<u> </u>			G 1						
ate	Primary Channel	L			eous Imaging			r Subarray			rating Wheel Di	rection		
틸	All MRS			YES			FULL			NEUTRAL				
Template														
	4			Dith on Te			Ontim	ized For		D:	rection			
ē	1			Dither Ty 4-Point	pe			SOURCE			EGATIVE			
Dithers				4-1 OIIIt			TORVI	BOOKEL		141	JOATIVE			
_		Vavelength lange	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E	Exposures/Dit	Dither	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
Spectral Elements	1		IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501		
Je	1 1	ONG(C)	MRSLONG	20011	FASTR1	45	1	1	Dither 1	4	4	499.507		
le l		ONG(C)	MRSSHORT		FASTR1	45	1	1	Dither 1	4	4	499.507		
	2		IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501		
tra	2 N	MEDIUM(B)	MRSLONG	- **	FASTR1	45	1	1	Dither 1	4	4	499.507		
ec		MEDIUM(B)	MRSSHORT		FASTR1	45	1	1	Dither 1	4	4	499.507		
S	3	` /	IMAGER	F560W	FASTR1	5	1	1	Dither 1	4	4	55.501	57619	
1		HORT(A)	MRSLONG		FASTR1	45	1	1	Dither 1	4	4	499.507	57619	
1		HORT(A)	MRSSHORT		FASTR1	45	1	1	Dither 1	4	4	499.507	57619	
	5 5	1101(11)	1,1100110101		1/10/11/1	r.J	1	-	Dimer 1	7		177.501	5/01/	

<u>Pro</u>	<u>Proposal 1854 - Observation 20 - It's COMplicated: Disentangling the formation pathways of complex organic m</u>	<u>olecules from molecul</u>
Requirements		
Special Re	ecial	

Pro	posal 1854	4 - Observ	ation 21	- It's COM	Iplicated: I	Disentanglii	ng the form	ation path	ways of	complex or	anic mole	ecules fror	m molecul
o u	Proposal 1854,	Observation 21	: 2MASS-J182	285266-BG-SK	Y							Tue Sep 05 1	8:01:12 GMT 2023
ă; l	Diagnostic Stat	_											
Ž	Observing Temp												
Observation	Background Obs	servation For: [2	2MASS-J18285	266-BG (Obs 20	0)]								
ō													
Diagnostics	(Visit 21:1) War	rning (Form): O	verheads are pro	ovisional until th	ne Visit Planner l	as been run.							
ြ	# N	Name		Target Coordi	nates		Targ. C	oord. Correction	ıs	M	liscellaneous		
Targets	(14) 2	MASS-J182852	66-BG-SKY	RA: 18 28 52.9	605 (277.220668	8d)	Epoch of	Position: 2015.5	5				
ar.				Dec: +00 27 26	` ′								
۱۵				Equinox: J2000									
Fixed	Category=ISM					he SIMBAD datab	ase.						
匠	Description=[Description] Extended=NO	ark interstellar	clouds, Dense ii	nterstellar cloud	ls]								
چ	#						Targe	t					
≗	1						NONE						
Acquisition													
5													
ate	AcqFilter			mary Channel		•	ous Imaging		nager Subarr	ay		g Wheel Direct	ion
ᅙ	FND		All	MRS		YES		F	ULL	NEUTRAL			
Template													
	#			Dither T	vne		Ontin	ized For		Di	rection		
Je l	1			4-Point	урс			SOURCE			EGATIVE		
Dithers													
	#	Wavelength Range	Detector	Filter	Readout Pattern	Groups/Int	Integrations/E	Exposures/Dit	Dither	Total Dithers	Total Integrations	Total Exposure	ETC Wkbk.Calc ID
Its	1	1	IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
Je	\int_{1}^{1}	LONG(C)	MRSLONG	1 300 11	FASTR1	45	1	1	None	1	1	124.877	
Spectral Elements		LONG(C)	MRSSHORT		FASTR1	45	1	1	None	1	1	124.877	
┃≝	2		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
lta	2	MEDIUM(B)	MRSLONG		FASTR1	45	1	1	None	1	1	124.877	
۱ ۱	2	MEDIUM(B)	MRSSHORT		FASTR1	45	1	1	None	1	1	124.877	
Ŋ	3		IMAGER	F560W	FASTR1	5	1	1	None	1	1	13.875	
I	3	SHORT(A)	MRSLONG		FASTR1	45	1	1	None	1	1	124.877	57619
<u> </u>	3	SHORT(A)	MRSSHORT		FASTR1	45	1	1	None	1	1	124.877	57619

i iopodai iot	or obcorvation Er	it 3 Octophicated.	Discritariging the	, ioimation pa	alliways of complex	organic molecules	nom molecul
Sequence Obse	ervations 20, 21, Non-interruptible						
mer							
uire							
Redu							
pecial							
Spe							

Pro	oposal 1854 - Observat	tion 3 - It's	COMplica	ited: Disenta	ngling th	e formation	n pathways	of complex o	rganic mole	ecules from	molecular
			•					·			:01:12 GMT 2023
I∺	Diagnostic Status: Warning										
Observation	Observing Template: NIRSpec IFU	Spectroscopy									
Diagnostics	(Visit 3:1) Warning (Form): Overhe	ads are provisiona	al until the Visit	Planner has been rui	1.						
٦	# Name	Targe	et Coordinates			Targ. Coord.	Corrections		Miscellaneous		
Targets	(16) HH26IRS-THERM-1		5 46 3.6300 (86			Epoch of Posit	tion: 2015.5				
arç			00 14 49.30 (2	24703d)							
		•	ox: J2000								
Fixed	Comments: This object was generate Category=ISM Description=[Protostars] Extended=NO	ed by the targetse	lector and retrie	eved from the SIMBA	D database.						
Ē	TA Method										
Template	NONE										
S	#	Dither Type		Size		Starting Poi	int	Number of Poir	nts	Points	
Dithers	1	CYCLING		SMALL		6		4			
nts	# Grating/Filter	Readout Pattern	Groups/Int	Integrations/Ex p	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
Spectral Elements	1 G395H/F290LP	NRSIRS2RAPI D	3	1	false	true	NONE	4	4	233.422	83085
al El	2 G395H/F290LP	D		1	true	true	NONE	4	4	233.422	
ectr	3 G235H/F170LP	D		1	false	true	NONE	4	4	233.422	83085
S	4 G235H/F170LP	NRSIRS2RAPI D	3	1	true	true	NONE	4	4	233.422	

Pro	posal 1854 - Observa	ntion 4 - It's	COMplica	ted: Disenta	ngling th	e formation	n pathways	of complex o	rganic mole	ecules from	molecular
Ľ	Proposal 1854, Observation 4: H	OPS68								Tue Sep 05 18	:01:12 GMT 2023
Iĕ	Diagnostic Status: Warning										
I≌	Observing Template: NIRSpec IFU	J Spectroscopy									
Sel											
Observation											
-	(Visit 4:1) Warning (Form): Overh	ands are provision	al until the Visit	Dlannar has been ru	n						
Diagnostics	(visit 4.1) wanning (Folin). Over	eaus are provision	ai unui me visit	Framier has been ful							
[_	# Name	Targ	et Coordinates			Targ. Coord.	Corrections		Miscellaneous		
Targets	(15) HOPS68-THERM-	NS RA: ()5 35 24.2999 (8	3.8512496d)		Epoch of Posit	tion: 2015.5				
ΙĒ		Dec:	-05 08 30.69 (-5	.14186d)							
		Equir	nox: J2000								
Fixed	Comments: This object was genera	ited by the targetse	elector and retrie	eved from the SIMBA	D database.						
ĻĚ	Category=ISM										
	Description=[Protostars] Extended=NO										
ŧ	TA Method										
<u> </u>	NONE										
ΙĔ											
Template											
-	#	Dither Type		Size		Starting Poi	int	Number of Poir	nts	Points	
je j	1	CYCLING		SMALL		6		4			
Dithers											
\vdash	# Grating/Filter	Readout	Groups/Int	Integrations/Ex	Laakcal	Dither	Autocal	Total Dithers	Total	Total Exposure	FTC
¥	" Grating/Tite!	Pattern	Groups/Int	p	Dealear	Dither	ratocar	Total Dithers	Integrations	Time	Wkbk.Calc ID
Spectral Elements	1 G395H/F290LP		12	1	false	true	NONE	4	4	758.622	83085
ΙĒ	2 C20511/E2001 B	D NRSIRS2RAPI	10	1	tenso	tenso	NONE	4	4	758.622	
۱ä	2 G393H/F290LP	D NRSIRS2RAPI	12	1	true	true	NONE	4	4	138.022	
¥	3 G235H/F170LP	NRSIRS2RAPI	15	1	false	true	NONE	4	4	933.689	83085
Ιĕ		D									
Ιŏ	4 G235H/F170LP	NRSIRS2RAPI	15	1	true	true	NONE	4	4	933.689	

Pro	posal 1854	- Observa	tion 12 - It's	s COMplic	ated: Disent	angling t	he formatic	n pathways	of complex	organic mo	lecules from	n molecul
Observation			MASSJ17112317	-pstar-COMS							Tue Sep 05 18	:01:12 GMT 2023
ati	Diagnostic Statu	_										
≥	Observing Temp	ate: NIRSpec IFU	Spectroscopy									
l š												
ŏ												
S	(Visit 12:1) Warr	ning (Form): Over	heads are provision	nal until the Visi	t Planner has been ru	ın.						
Diagnostics			•									
۱ĕ												
Ιğ												
Iä⊓												
	# N:	ame	Targe	et Coordinates			Targ. Coord.	Corrections		Miscellaneous		
Targets			COMS-NS RA: 1		57.8465833d)		Epoch of Posit					
Įğ				27 24 31.50 (-27	,		_p					
] a				ox: J2000	,							
р	Comments: This	obiect was genera	•		ved from the SIMBA	D database						
Fixed	Category=ISM				,							
1"	Description=[Pr Extended=NO	otostars]										
fe	TA Method											
<u>a</u>	NONE											
ΙĔ												
Template												
-	#		Dither Type		Size		Starting Poi	int	Number of Poir	nts	Points	
þ	1		CYCLING		SMALL		6		4			
Dithers												
_	#	Grating/Filter	Readout	Groups/Int	Integrations/Ex	Leakcal	Dither	Autocal	Total Dithers	Total	Total Exposure	ETC
e L			Pattern	.	_ р					Integrations	Time	Wkbk.Calc ID
Spectral Elements	1	G395H/F290LP	NRSIRS2RAPI D	12	1	false	true	NONE	4	4	758.622	57619
1"	2	G235H/F170LP	NRSIRS2RAPI	15	1	false	true	NONE	4	4	933.689	
t a			D									
ec												
Sp												

<u>Pro</u>	posal 1854	- Observa	tion 13 - It's	s COMplic	ated: Disent	tangling t	the formation	on pathways	of complex	organic mo	lecules from	n molecul
o n	Proposal 1854, C	Observation 13: I	RAS15398-pstar-	COMS							Tue Sep 05 18	:01:12 GMT 2023
Iặ	Diagnostic Statu	s: Warning										
Į≚	Observing Templ	ate: NIRSpec IFU	Spectroscopy									
se												
Observation												
-	(Visit 13:1) Warn	ing (Form): Over	heads are provision	nal until the Visi	t Planner has been r	ıın						
Diagnostics	(Visit 13.1) Wall	ing (Form). Over	neads are provision	nar andr the visi	t i tumer mas occir i	aii.						
l õ												
Ιğ												
Iä⊓												
	# Na	ame	Targe	et Coordinates			Targ. Coord.	Corrections		Miscellaneous		
Targets	(19) IR	AS-15398-3359-0	COMS-NS RA: 1	5 43 2.2102 (23:	5.7592092d)		Epoch of Posit					
Į			Dec: -	-34 09 7.71 (-34.	15214d)		-					
			Equin	ox: J2000								
Fixed	Comments: This of	object was genera	ted by the targetse	lector and retrie	ved from the SIMBA	AD database.						
ĻĚ	Category=ISM Description=[Pro											
Ľ	Extended=NO	nosiarsj										
ţ	TA Method											
Template	NONE											
ΙĒ												
P												
rs.	#		Dither Type		Size		Starting Poi	int	Number of Poir	nts	Points	
þ	1		CYCLING		SMALL		6		4			
Dithers												
nts	#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Ex	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
Spectral Elements	1	G395H/F290LP	NRSIRS2RAPI D	25	1	false	true	NONE	4	4	1517.245	57619
lΨ	2	G235H/F170LP	NRSIRS2RAPI	25	1	false	true	NONE	4	4	1517.245	
tra			D									
ec												
S S												

Diagnostics Observation	Proposal 1854, Diagnostic State Observing Temp	Observation 22: 2 as: Warning late: NIRSpec IFU	MASS-J18285260 J Spectroscopy heads are provision	6-BG nal until the Visi	cated: Disent				of complex			n molecul :01:12 GMT 2023
ts	# N (20) 21	ame MASS-J18285266		et Coordinates 8 28 52.6670 (2	77 21944584)		Targ. Coord. Epoch of Posit			Miscellaneous		
Targets	(20)	virso-J10203200 [.]		+00 28 24.21 (.4			Epoch of Posit	1011. 2013.3				
] <u>=</u>				ox: J2000								
Fixed	Catagory-ISM		ted by the targetse uds, Dense intersto		eved from the SIMBA	AD database.						
Template	TA Method NONE											
ſS	#		Dither Type		Size		Starting Poi	int	Number of Poir	nts	Points	
Dithers	1		CYCLING		SMALL		6		4			
ents	#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Ex	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
leme	1	G395H/F290LP	NRSIRS2RAPI D	2	1	false	true	NONE	4	4	175.067	83085
Spectral Elements	2	G235H/F170LP	NRSIRS2RAPI D	3	1	false	true	NONE	4	4	233.422	83085