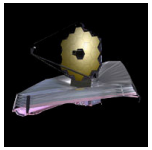

2016 - Revealing Low Luminosity Active Galactic Nuclei (ReveaLLAGN)

Cycle: 1, Proposal Category: GO

INVESTIGATORS

Name	*Institution*
Prof. Anil C. Seth (PI)	**University of Utah**
Dr. Nadine Neumayer (CoI) (ESA Member)	Max Planck Institute for Astronomy
Prof. Jenny Emma Greene (CoI)	Princeton University
Dr. Allison Kirkpatrick (CoI)	University of Kansas Center for Research, Inc.
Prof. Shobita Satyapal (CoI)	George Mason University
Dr. Richard M. Plotkin (CoI)	University of Nevada - Reno
Dr. Sebastian Kamann (CoI) (ESA Member)	Liverpool John Moores University
Dr. Karina Voggel (CoI) (ESA Member)	Observatoire Astronomique de Strasbourg
Dr. Torsten Boeker (CoI) (ESA Member)	Space Telescope Science Institute - ESA - JWST
Prof. Sera Markoff (CoI) (ESA Member)	Universiteit van Amsterdam
Dr. Almudena Prieto (CoI) (ESA Member)	Instituto de Astrofisica de Canarias
Dr. Juan Antonio Fernandez Ontiveros (CoI) (ESA Member)	Centro de Estudios de Fisica del Cosmos de Aragon (CEFCA)
Prof. Kayhan Gultekin (CoI)	University of Michigan
Prof. Jonathan R Trump (CoI)	University of Connecticut
Nora Luetzgendorf (CoI) (ESA Member)	Space Telescope Science Institute - ESA - JWST
Dr. Luis C. Ho (CoI)	Peking University
Dr. Elena Gallo (CoI)	University of Michigan
Prof. Feng Yuan (CoI)	Chinese Academy of Sciences
Prof. Sebastian F Hoenig (CoI) (ESA Member)	University of Southampton
Prof. Jay Strader (CoI)	Michigan State University
Prof. Glenn van de Ven (CoI) (ESA Member)	University of Vienna
Dr. Eric William Pellegrini (CoI)	
Dr. Jonelle L. Walsh (CoI)	Texas A & M University

Name	***Institution***
Dr. Leonard Burtscher (CoI) (ESA Member)	Universiteit Leiden
Mr. Antoine Andre Dumont (CoI)	University of Utah
Dr. Amy E. Reines (CoI)	Montana State University - Bozeman
Prof. Jessie Caye Runnoe (CoI)	Vanderbilt University
Dr. Anja Feldmeier-Krause (CoI) (ESA Member)	Max Planck Institute for Astronomy
Dr. Timothy Andrew Davis (CoI) (ESA Member)	Cardiff University

OBSERVATIONS

Folder	***Observation***	***Label***	***Observing Template***	***Science Target***
NGC4395				
	1		NIRSpec IFU Spectroscopy	(1) NGC-4395-NIRSPEC
	28		NIRSpec IFU Spectroscopy	(1) NGC-4395-NIRSPEC
	2		MIRI Medium Resolution Spectroscopy	(2) NGC-4395-MIRI
	3		MIRI Medium Resolution Spectroscopy	(3) NGC-4395-MIRI-BG
NGC4258				
	7		NIRSpec IFU Spectroscopy	(7) NGC-4258-NIRSPEC
	8		MIRI Medium Resolution Spectroscopy	(8) NGC-4258-MIRI
	9		MIRI Medium Resolution Spectroscopy	(9) NGC-4258-MIRI-BG
NGC1052				
	10		NIRSpec IFU Spectroscopy	(10) NGC-1052-NIRSPEC
	11		MIRI Medium Resolution Spectroscopy	(11) NGC-1052-MIRI
	12		MIRI Medium Resolution Spectroscopy	(12) NGC-1052-MIRI-BG
M-94				
	13		NIRSpec IFU Spectroscopy	(13) M-94-NIRSPEC
	14		MIRI Medium Resolution Spectroscopy	(14) M-94-MIRI
	15		MIRI Medium Resolution Spectroscopy	(15) M-94-MIRI-BG
M-81				
	16		NIRSpec IFU Spectroscopy	(16) M-81-NIRSPEC
	17		MIRI Medium Resolution Spectroscopy	(17) M-81-MIRI
	18		MIRI Medium Resolution Spectroscopy	(18) M-81-MIRI-BG
Sombrero				
	22		NIRSpec IFU Spectroscopy	(22) SOMBRERO-NIRSPEC

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
	23		MIRI Medium Resolution Spectroscopy	(23) SOMBRERO-MIRI
	24		MIRI Medium Resolution Spectroscopy	(24) SOMBRERO-MIRI-BG
M-87				
	25		NIRSpec IFU Spectroscopy	(25) M-87-NIRSPEC
	26		MIRI Medium Resolution Spectroscopy	(26) M-87-MIRI
	27		MIRI Medium Resolution Spectroscopy	(27) M-87-MIRI-BG

ABSTRACT

JWST will be the most sensitive tool ever built for studying the accretion onto supermassive black holes (SMBHs) at the centers of galaxies. While quasars and bright active galactic nuclei (AGN) provide spectacular examples of this accretion, a vast majority of galaxies have black holes accreting at much lower rates. Although these low luminosity AGN (LLAGN) are not as well studied or understood as their brighter counterparts, it is clear their inner structures differ significantly from the accretion disks in luminous AGN. JWST spectroscopy provides a unique opportunity to significantly advance our understanding of LLAGN. Our proposal focuses on getting IFU spectra from 1.7 to 28 microns for seven of the nearest LLAGN spanning four orders of magnitude in both black hole mass and accretion rate (these will also be complemented by two GTO targets). JWST's spatial resolution will enable easy separation of the AGN from the host galaxy light providing us with spectral templates of low luminosity AGN spectra in the infrared for the first time. Detailed physical modeling of both the line emission and spectral energy distributions of these LLAGN spectra will reveal the physical structure of low luminosity AGN, and how it varies with the mass and accretion rate of the SMBH. We will also use these spectral templates to empirically determine the most sensitive lines and SED features for spectroscopically and photometrically identifying LLAGN in more distant galaxies where the AGN won't be spatially resolved. ReveaLLAGN will both significantly enhance our understanding of AGN and open a new window for future AGN studies with JWST.

OBSERVING DESCRIPTION

The primary goal of our proposal is to characterize the infrared SEDs and line emission of seven low luminosity AGN and to use JWST’s superior sensitivity and spatial resolution to cleanly disentangle their nuclear spectra from the surrounding galaxy emission. We request NIRSpec IFU observations in two gratings (G235H and G395H) and MIRI MRS observations in all three dichroic settings. Taken together, these data will provide high-quality “pure” AGN spectra over a wavelength range that is mostly inaccessible from the ground (from 1.7-28 microns)

We request ~900s exposures with both NIRSpec and MIRI to obtain S/N>30 spectra of the AGN over the full wavelength range of the data based on measured broad band fluxes in K band and at 12 microns. We will use a standard four point dither in all observations. In NIRSpec we will obtain

LeakCals using single exposures in galaxies with fainter backgrounds, and using a full dither in the brightest three galaxies. For our MIRI observations, the variable background requires that we take offset sky exposures. These are taken in blank fields typically 5’ from the center of the galaxy selected based on WISE 12 micron imaging.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	NGC-4395-NIRSPEC	RA: 12 25 48.8599 (186.4535829d) Dec: +33 32 48.71 (33.54686d) Equinox: J2000		
Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Consistent with ~0.2" of SDSS nuclear position. *Category=Galaxy* *Description=[Active galactic nuclei, Dwarf galaxies, Spiral galaxies]*				
(2)	NGC-4395-MIRI	RA: 12 25 48.8599 (186.4535829d) Dec: +33 32 48.71 (33.54686d) Equinox: J2000		
Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Consistent with ~0.2" of SDSS nuclear position. *Category=Galaxy* *Description=[Active galactic nuclei, Dwarf galaxies, Spiral galaxies]*				
(3)	NGC-4395-MIRI-BG	RA: 12 25 49.3700 (186.4557083d) Dec: +33 35 48.70 (33.59686d) Equinox: J2000		
Comments: Background for NGC 4395, precise position unimportant. *Category=Galaxy* *Description=[Active galactic nuclei, Dwarf galaxies, Spiral galaxies]*				
(7)	NGC-4258-NIRSPEC	RA: 12 18 57.5048 (184.7396033d) Dec: +47 18 14.32 (47.30398d) Equinox: J2000		
Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with Nagar et al. 2005 VLA A-configuration position (within 50 mas uncertainty). *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*				
(8)	NGC-4258-MIRI	RA: 12 18 57.5048 (184.7396033d) Dec: +47 18 14.32 (47.30398d) Equinox: J2000		
Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with Nagar et al. 2005 VLA A-configuration position (within 50 mas uncertainty). *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*				
(9)	NGC-4258-MIRI-BG	RA: 12 19 17.6400 (184.8235000d) Dec: +47 19 59.30 (47.33314d) Equinox: J2000		
Comments: Background for NGC 4258, precise position unimportant. *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*				
(10)	NGC-1052-NIRSPEC	RA: 02 41 4.7985 (40.2699938d) Dec: -08 15 20.75 (-8.25576d) Equinox: J2000		
Comments: Position from VLBI measurements of radio source from Lambert & Gontier 2009, very close to Gaia EDR3 position as well. *Category=Galaxy* *Description=[Active galactic nuclei, Elliptical galaxies]*				
(11)	NGC-1052-MIRI	RA: 02 41 4.7985 (40.2699938d) Dec: -08 15 20.75 (-8.25576d) Equinox: J2000		
Comments: Position from VLBI measurements of radio source from Lambert & Gontier 2009, very close to Gaia EDR3 position as well. *Category=Galaxy* *Description=[Active galactic nuclei, Elliptical galaxies]*				

(12)	NGC-1052-MIRI-BG	RA: 02 41 5.1200 (40.2713333d) Dec: -08 12 37.70 (-8.21047d) Equinox: J2000
Comments: Background for NGC1052, precise position unimportant. *Category=Galaxy* *Description=[Active galactic nuclei, Elliptical galaxies]*		
(13)	M-94-NIRSPEC	RA: 12 50 53.0700 (192.7211250d) Dec: +41 07 12.95 (41.12026d) Equinox: J2000
Comments: Based on VLA A config position of radio source from Nagar et al. 2005. Within 0.5" of the brightest region in 2MASS LGA image (Jarrett et al. 2003) and Gaia EDR3 source. Formal errors are 50mas, but I've inflated those to account for difference in central coordinates between these sources. *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		
(14)	M-94-MIRI	RA: 12 50 53.0700 (192.7211250d) Dec: +41 07 12.95 (41.12026d) Equinox: J2000
Comments: Based on VLA A config position of radio source from Nagar et al. 2005. Within 0.5" of the brightest region in 2MASS LGA image (Jarrett et al. 2003) and Gaia EDR3 source. Formal errors are 50mas, but I've inflated those to account for difference in central coordinates between these sources. *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		
(15)	M-94-MIRI-BG	RA: 12 50 43.5500 (192.6814583d) Dec: +41 02 42.80 (41.04522d) Equinox: J2000
Comments: Background for M94, precise position unimportant. *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		
(16)	M-81-NIRSPEC	RA: 09 55 33.1735 (148.8882229d) Dec: +69 03 55.06 (69.06529d) Equinox: J2000
Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with VLA A-array position of radio source from Nagar et al. 2015 (09 55 33.1750 +69 03 55.06). *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		
(17)	M-81-MIRI	RA: 09 55 33.1735 (148.8882229d) Dec: +69 03 55.06 (69.06529d) Equinox: J2000
Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with VLA A-array position of radio source from Nagar et al. 2015 (09 55 33.1750 +69 03 55.06). *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		
(18)	M-81-MIRI-BG	RA: 09 54 38.1300 (148.6588750d) Dec: +69 02 20.40 (69.03900d) Equinox: J2000
Comments: Background for M81, precise position not important. *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		

(22)	SOMBRERO-NIRSPEC	RA: 12 39 59.4303 (189.9976263d) Dec: -11 37 22.99 (-11.62305d) Equinox: J2000
Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with VLBA position from Petrov et al. 2006. *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		
(23)	SOMBRERO-MIRI	RA: 12 39 59.4303 (189.9976263d) Dec: -11 37 22.99 (-11.62305d) Equinox: J2000
Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with VLBA position from Petrov et al. 2006. *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		
(24)	SOMBRERO-MIRI-BG	RA: 12 39 55.9810 (189.9832542d) Dec: -11 32 11.44 (-11.53651d) Equinox: J2000
Comments: Background field for Sombrero, precise position not important. *Category=Galaxy* *Description=[Active galactic nuclei, Spiral galaxies]*		
(25)	M-87-NIRSPEC	RA: 12 30 49.4234 (187.7059308d) Dec: +12 23 28.04 (12.39112d) Equinox: J2000
Comments: Coordinates from Lambert & Gontier 2009 VLBI measurements for M87. Consistent with many other estimates. *Category=Galaxy* *Description=[Active galactic nuclei, Elliptical galaxies]*		
(26)	M-87-MIRI	RA: 12 30 49.4234 (187.7059308d) Dec: +12 23 28.04 (12.39112d) Equinox: J2000
Comments: Coordinates from Lambert & Gontier 2009 VLBI measurements for M87. Consistent with many other estimates. *Category=Galaxy* *Description=[Active galactic nuclei, Elliptical galaxies]*		
(27)	M-87-MIRI-BG	RA: 12 30 50.2960 (187.7095667d) Dec: +12 19 8.00 (12.31889d) Equinox: J2000
Comments: Background field for M87, precise coordinates not important. *Category=Galaxy* *Description=[Active galactic nuclei, Elliptical galaxies]*		

Observation

Proposal 2016, Observation 1

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

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

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	NGC-4395-NIRSPEC	RA: 12 25 48.8599 (186.4535829d) Dec: +33 32 48.71 (33.54686d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Consistent with ~0.2" of SDSS nuclear position.
Category=Galaxy
Description=[Active galactic nuclei, Dwarf galaxies, Spiral galaxies]

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

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	G235H/F170LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
2	G235H/F170LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	
3	G395H/F290LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
4	G395H/F290LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	

Observation

Proposal 2016, Observation 28 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Comments: WOPR copy of obs. 1

Diagnostics

(Visit 28:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	NGC-4395-NIRSPEC	RA: 12 25 48.8599 (186.4535829d) Dec: +33 32 48.71 (33.54686d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Consistent with ~0.2" of SDSS nuclear position.
Category=Galaxy
Description=[Active galactic nuclei, Dwarf galaxies, Spiral galaxies]

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

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	G235H/F170LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
2	G235H/F170LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	
3	G395H/F290LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
4	G395H/F290LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	

Observation

Proposal 2016, Observation 2 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Observation 3]

Diagnostics

(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(2)	NGC-4395-MIRI	RA: 12 25 48.8599 (186.4535829d) Dec: +33 32 48.71 (33.54686d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Consistent with ~0.2" of SDSS nuclear position.
Category=Galaxy
Description=[Active galactic nuclei, Dwarf galaxies, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	EXTENDED SOURCE	NEGATIVE

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	F1130W	FASTR1	10	7	1	Dither 1	4	28	843.612	
1	LONG(C)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
1	LONG(C)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
2		IMAGER	F770W	FASTR1	10	7	1	Dither 1	4	28	843.612	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
3		IMAGER	F560W	FASTR1	10	7	1	Dither 1	4	28	843.612	
3	SHORT(A)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
3	SHORT(A)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	

Special Requirements	Sequence Observations 2, 3, Non-interruptible

Observation

Proposal 2016, Observation 3

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [Observation 2]

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
(3)	NGC-4395-MIRI-BG	RA: 12 25 49.3700 (186.4557083d) Dec: +33 35 48.70 (33.59686d) Equinox: J2000		

Comments: Background for NGC 4395, precise position unimportant.
Category=Galaxy
Description=[Active galactic nuclei, Dwarf galaxies, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

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	F1130W	FASTR1	16	4	1	None	1	4	185.928	
1	LONG(C)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
1	LONG(C)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
2		IMAGER	F770W	FASTR1	16	4	1	None	1	4	185.928	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
3		IMAGER	F560W	FASTR1	16	4	1	None	1	4	185.928	
3	SHORT(A)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
3	SHORT(A)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	

Special Requirements	Sequence Observations 2, 3, Non-interruptible

Observation

Proposal 2016, Observation 7

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(7)	NGC-4258-NIRSPEC	RA: 12 18 57.5048 (184.7396033d) Dec: +47 18 14.32 (47.30398d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with Nagar et al. 2005 VLA A-configuration position (within 50 mas uncertainty).
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

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	G235H/F170LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
2	G235H/F170LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	
3	G395H/F290LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
4	G395H/F290LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	

Observation

Proposal 2016, Observation 8

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Observation 9]

Diagnostics

(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(8)	NGC-4258-MIRI	RA: 12 18 57.5048 (184.7396033d) Dec: +47 18 14.32 (47.30398d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with Nagar et al. 2005 VLA A-configuration position (within 50 mas uncertainty).
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	EXTENDED SOURCE	NEGATIVE

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	F1130W	FASTR1	10	7	1	Dither 1	4	28	843.612	
1	LONG(C)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
1	LONG(C)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
2		IMAGER	F770W	FASTR1	10	7	1	Dither 1	4	28	843.612	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
3		IMAGER	F560W	FASTR1	10	7	1	Dither 1	4	28	843.612	
3	SHORT(A)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
3	SHORT(A)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	

Special Requirements	Sequence Observations 8, 9, Non-interruptible

Observation

Proposal 2016, Observation 9

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [Observation 8]

Diagnostics

(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(9)	NGC-4258-MIRI-BG	RA: 12 19 17.6400 (184.8235000d) Dec: +47 19 59.30 (47.33314d) Equinox: J2000		

Comments: Background for NGC 4258, precise position unimportant.
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

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	F1130W	FASTR1	16	4	1	None	1	4	185.928	
1	LONG(C)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
1	LONG(C)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
2		IMAGER	F770W	FASTR1	16	4	1	None	1	4	185.928	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
3		IMAGER	F560W	FASTR1	16	4	1	None	1	4	185.928	
3	SHORT(A)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
3	SHORT(A)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	

Special Requirements	Sequence Observations 8, 9, Non-interruptible

Observation

Proposal 2016, Observation 10

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(10)	NGC-1052-NIRSPEC	RA: 02 41 4.7985 (40.2699938d) Dec: -08 15 20.75 (-8.25576d) Equinox: J2000		

Comments: Position from VLBI measurements of radio source from Lambert & Gontier 2009, very close to Gaia EDR3 position as well.
Category=Galaxy
Description=[Active galactic nuclei, Elliptical galaxies]

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

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	G235H/F170LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
2	G235H/F170LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	
3	G395H/F290LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
4	G395H/F290LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	

Observation

Proposal 2016, Observation 11 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Observation 12]

Diagnostics

(Visit 11:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(11)	NGC-1052-MIRI	RA: 02 41 4.7985 (40.2699938d) Dec: -08 15 20.75 (-8.25576d) Equinox: J2000		

Comments: Position from VLBI measurements of radio source from Lambert & Gontier 2009, very close to Gaia EDR3 position as well.
Category=Galaxy
Description=[Active galactic nuclei, Elliptical galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	EXTENDED SOURCE	NEGATIVE

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	FASTR1	10	7	1	Dither 1	4	28	843.612	
1	SHORT(A)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
1	SHORT(A)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
2		IMAGER	F770W	FASTR1	10	7	1	Dither 1	4	28	843.612	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
3		IMAGER	F1130W	FASTR1	10	7	1	Dither 1	4	28	843.612	
3	LONG(C)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
3	LONG(C)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	

Special Requirements	Sequence Observations 11, 12, Non-interruptible

Observation

Proposal 2016, Observation 12 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [Observation 11]

Diagnostics

(Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(12)	NGC-1052-MIRI-BG	RA: 02 41 5.1200 (40.2713333d) Dec: -08 12 37.70 (-8.21047d) Equinox: J2000		

Comments: Background for NGC1052, precise position unimportant.
Category=Galaxy
Description=[Active galactic nuclei, Elliptical galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

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	FASTR1	16	4	1	None	1	4	185.928	
1	SHORT(A)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
1	SHORT(A)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
2		IMAGER	F770W	FASTR1	16	4	1	None	1	4	185.928	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
3		IMAGER	F1130W	FASTR1	16	4	1	None	1	4	185.928	
3	LONG(C)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
3	LONG(C)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	

Special Requirements	Sequence Observations 11, 12, Non-interruptible

Observation

Proposal 2016, Observation 13

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

(Visit 13:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(13)	M-94-NIRSPEC	RA: 12 50 53.0700 (192.7211250d) Dec: +41 07 12.95 (41.12026d) Equinox: J2000		

Comments: Based on VLA A config position of radio source from Nagar et al. 2005. Within 0.5" of the brightest region in 2MASS LGA image (Jarrett et al. 2003) and Gaia EDR3 source. Formal errors are 50mas, but I've inflated those to account for difference in central coordinates between these sources.
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

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	G235H/F170LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
2	G235H/F170LP	NRSIRS2RAPID	14	1	true	true	NONE	4	4	875.333	
3	G395H/F290LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
4	G395H/F290LP	NRSIRS2RAPID	14	1	true	true	NONE	4	4	875.333	

Observation

Proposal 2016, Observation 14 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Observation 15]

Diagnostics

(Visit 14:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(14)	M-94-MIRI	RA: 12 50 53.0700 (192.7211250d) Dec: +41 07 12.95 (41.12026d) Equinox: J2000		

Comments: Based on VLA A config position of radio source from Nagar et al. 2005. Within 0.5" of the brightest region in 2MASS LGA image (Jarrett et al. 2003) and Gaia EDR3 source. Formal errors are 50mas, but I've inflated those to account for difference in central coordinates between these sources.
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	EXTENDED SOURCE	NEGATIVE

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	F1130W	FASTR1	10	7	1	Dither 1	4	28	843.612	
1	LONG(C)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
1	LONG(C)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
2		IMAGER	F770W	FASTR1	10	7	1	Dither 1	4	28	843.612	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
3		IMAGER	F560W	FASTR1	10	7	1	Dither 1	4	28	843.612	
3	SHORT(A)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
3	SHORT(A)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	

Special Requirements	Sequence Observations 14, 15, Non-interruptible

Observation

Proposal 2016, Observation 15 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [Observation 14]

Diagnostics

(Visit 15:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(15)	M-94-MIRI-BG	RA: 12 50 43.5500 (192.6814583d) Dec: +41 02 42.80 (41.04522d) Equinox: J2000		

Comments: Background for M94, precise position unimportant.
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

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	F1130W	FASTR1	16	4	1	None	1	4	185.928	
1	LONG(C)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
1	LONG(C)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
2		IMAGER	F770W	FASTR1	16	4	1	None	1	4	185.928	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
3		IMAGER	F560W	FASTR1	16	4	1	None	1	4	185.928	
3	SHORT(A)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
3	SHORT(A)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	

Special Requirements	Sequence Observations 14, 15, Non-interruptible

Observation

Proposal 2016, Observation 16

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

(Visit 16:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(16)	M-81-NIRSPEC	RA: 09 55 33.1735 (148.8882229d) Dec: +69 03 55.06 (69.06529d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with VLA A-array position of radio source from Nagar et al. 2015 (09 55 33.1750 +69 03 55.06).
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

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	G235H/F170LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
2	G235H/F170LP	NRSIRS2RAPID	14	1	true	true	NONE	4	4	875.333	
3	G395H/F290LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
4	G395H/F290LP	NRSIRS2RAPID	14	1	true	true	NONE	4	4	875.333	

Observation

Proposal 2016, Observation 17

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Observation 18]

Diagnostics

(Visit 17:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(17)	M-81-MIRI	RA: 09 55 33.1735 (148.8882229d) Dec: +69 03 55.06 (69.06529d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with VLA A-array position of radio source from Nagar et al. 2015 (09 55 33.1750 +69 03 55.06).
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	EXTENDED SOURCE	NEGATIVE

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	F1130W	FASTR1	10	7	1	Dither 1	4	28	843.612	
1	LONG(C)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
1	LONG(C)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
2		IMAGER	F770W	FASTR1	10	7	1	Dither 1	4	28	843.612	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
3		IMAGER	F560W	FASTR1	10	7	1	Dither 1	4	28	843.612	
3	SHORT(A)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
3	SHORT(A)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	

Special Requirements	Sequence Observations 17, 18, Non-interruptible

Observation

Proposal 2016, Observation 18 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [Observation 17]

Diagnostics

(Visit 18:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(18)	M-81-MIRI-BG	RA: 09 54 38.1300 (148.6588750d) Dec: +69 02 20.40 (69.03900d) Equinox: J2000		

Comments: Background for M81, precise position not important.
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

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	F1130W	FASTR1	16	4	1	None	1	4	185.928	
1	LONG(C)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
1	LONG(C)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
2		IMAGER	F770W	FASTR1	16	4	1	None	1	4	185.928	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
3		IMAGER	F560W	FASTR1	16	4	1	None	1	4	185.928	
3	SHORT(A)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
3	SHORT(A)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	

Special Requirements	Sequence Observations 17, 18, Non-interruptible

Observation

Proposal 2016, Observation 22

Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

(Visit 22:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(22)	SOMBRERO-NIRSPEC	RA: 12 39 59.4303 (189.9976263d) Dec: -11 37 22.99 (-11.62305d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with VLBA position from Petrov et al. 2006.
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

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	G235H/F170LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
2	G235H/F170LP	NRSIRS2RAPID	14	1	true	true	NONE	4	4	875.333	
3	G395H/F290LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
4	G395H/F290LP	NRSIRS2RAPID	14	1	true	true	NONE	4	4	875.333	

Observation

Proposal 2016, Observation 23 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Observation 24]

Diagnostics

(Visit 23:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(23)	SOMBRERO-MIRI	RA: 12 39 59.4303 (189.9976263d) Dec: -11 37 22.99 (-11.62305d) Equinox: J2000		

Comments: Position is from Gaia EDR3. Uncertainty of 0.05 mas as given in Lindegren et al. 2021 for Gaia EDR3 G~17th magnitude source. Agrees well with VLBA position from Petrov et al. 2006.
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	EXTENDED SOURCE	NEGATIVE

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	FASTR1	10	7	1	Dither 1	4	28	843.612	
1	SHORT(A)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
1	SHORT(A)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
2		IMAGER	F770W	FASTR1	10	7	1	Dither 1	4	28	843.612	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
3		IMAGER	F1130W	FASTR1	10	7	1	Dither 1	4	28	843.612	
3	LONG(C)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
3	LONG(C)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	

Special Requirements	Sequence Observations 23, 24, Non-interruptible

Observation

Proposal 2016, Observation 24 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [Observation 23]

Diagnostics

(Visit 24:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(24)	SOMBRERO-MIRI-BG	RA: 12 39 55.9810 (189.9832542d) Dec: -11 32 11.44 (-11.53651d) Equinox: J2000		

Comments: Background field for Sombrero, precise position not important.
Category=Galaxy
Description=[Active galactic nuclei, Spiral galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

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	FASTR1	16	4	1	None	1	4	185.928	
1	SHORT(A)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
1	SHORT(A)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
2		IMAGER	F770W	FASTR1	16	4	1	None	1	4	185.928	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
3		IMAGER	F1130W	FASTR1	16	4	1	None	1	4	185.928	
3	LONG(C)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
3	LONG(C)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	

Special Requirements	Sequence Observations 23, 24, Non-interruptible

Observation

Proposal 2016, Observation 25 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

Diagnostics

(Visit 25:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(25)	M-87-NIRSPEC	RA: 12 30 49.4234 (187.7059308d) Dec: +12 23 28.04 (12.39112d) Equinox: J2000		

Comments: Coordinates from Lambert & Gontier 2009 VLBI measurements for M87. Consistent with many other estimates.
Category=Galaxy
Description=[Active galactic nuclei, Elliptical galaxies]

Template

TA Method
NONE

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	4-POINT-DITHER				

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	G235H/F170LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
2	G235H/F170LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	
3	G395H/F290LP	NRSIRS2RAPID	14	1	false	true	NONE	4	4	875.333	
4	G395H/F290LP	NRSIRS2RAPID	14	1	true	false	NONE	1	1	218.833	

Observation

Proposal 2016, Observation 26 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observations:[Observation 27]

Diagnostics

(Visit 26:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(26)	M-87-MIRI	RA: 12 30 49.4234 (187.7059308d) Dec: +12 23 28.04 (12.39112d) Equinox: J2000		

Comments: Coordinates from Lambert & Gontier 2009 VLBI measurements for M87. Consistent with many other estimates.
Category=Galaxy
Description=[Active galactic nuclei, Elliptical galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

Dithers

#	Dither Type	Optimized For	Direction
1	4-Point	EXTENDED SOURCE	NEGATIVE

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	FASTR1	10	7	1	Dither 1	4	28	843.612	
1	SHORT(A)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
1	SHORT(A)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
2		IMAGER	F770W	FASTR1	10	7	1	Dither 1	4	28	843.612	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	
3		IMAGER	F1130W	FASTR1	10	7	1	Dither 1	4	28	843.612	
3	LONG(C)	MRSLONG		FASTR1	27	3	1	Dither 1	4	12	921.313	
3	LONG(C)	MRSSHORT		FASTR1	27	3	1	Dither 1	4	12	921.313	

Special Requirements	Sequence Observations 26, 27, Non-interruptible

Observation

Proposal 2016, Observation 27 Tue May 02 23:00:35 GMT 2023

Diagnostic Status: Warning

Observing Template: MIRI Medium Resolution Spectroscopy

Background Observation For: [Observation 26]

Diagnostics

(Visit 27:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(27)	M-87-MIRI-BG	RA: 12 30 50.2960 (187.7095667d) Dec: +12 19 8.00 (12.31889d) Equinox: J2000		

Comments: Background field for M87, precise coordinates not important.
Category=Galaxy
Description=[Active galactic nuclei, Elliptical galaxies]

Acquisition

#	Target
1	NONE

Template

AcqFilter	Primary Channel	Simultaneous Imaging	Imager Subarray
F560W	ALL	YES	FULL

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	FASTR1	16	4	1	None	1	4	185.928	
1	SHORT(A)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
1	SHORT(A)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
2		IMAGER	F770W	FASTR1	16	4	1	None	1	4	185.928	
2	MEDIUM(B)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
2	MEDIUM(B)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	
3		IMAGER	F1130W	FASTR1	16	4	1	None	1	4	185.928	
3	LONG(C)	MRSLONG		FASTR1	27	3	1	None	1	3	230.328	
3	LONG(C)	MRSSHORT		FASTR1	27	3	1	None	1	3	230.328	

Special Requirements	Sequence Observations 26, 27, Non-interruptible