



2344 - Mapping emission and absorption line metallicities onto the same universal scale

Cycle: 1, Proposal Category: GO

INVESTIGATORS

<i>Name</i>	<i>Institution</i>
Dr. Patricia Schady (PI) (ESA Member)	University of Bath
Prof. Nial Rahil Tanvir (CoI) (ESA Member) (CoPI) (Contact)	University of Leicester
Dr. Valerio D'Elia (CoI) (ESA Member)	INAF, Osservatorio Astronomico di Roma
Dr. Kasper Elm Heintz (CoI) (ESA Member)	University of Copenhagen, Niels Bohr Institute
Dr. Andrew S. Fruchter (CoI) (US Admin CoI)	Space Telescope Science Institute
Prof. Johan P. U. Fynbo (CoI) (ESA Member)	University of Copenhagen, Niels Bohr Institute
Dr. Benjamin Paul Gompertz (CoI) (ESA Member)	University of Birmingham
Dr. John F. Graham (CoI)	Peking University
Dr. Jochen Greiner (CoI) (ESA Member)	Max-Planck-Institut für extraterrestrische Physik
Prof. Dieter Hartmann (CoI)	Clemson University
Dr. Pall Jakobsson (CoI)	University of Iceland
Jure Japelj (CoI) (ESA Member)	Universiteit van Amsterdam
Dr. Tanmoy Laskar (CoI)	University of Utah
Prof. Andrew James Levan (CoI) (ESA Member)	Radboud Universiteit Nijmegen
Dr. Carole G. Mundell (CoI) (ESA Member)	Liverpool John Moores University
Dr. Daniel Perley (CoI) (ESA Member)	Liverpool John Moores University
Dr. Silvia Piranomonte (CoI) (ESA Member)	INAF, Osservatorio Astronomico di Roma
Dr. Giovanna Pugliese (CoI) (ESA Member)	Universiteit van Amsterdam
Dr. Ruben Salvaterra (CoI) (ESA Member)	INAF, Istituto di Astrofisica Spaziale e Fisica, Milano
Prof. Sandra Savaglio (CoI) (ESA Member)	University of Calabria
Dr. Boris Sbarufatti (CoI) (ESA Member)	INAF - Osservatorio Astronomico di Brera

JWST Proposal 2344 (Created: Monday, December 18, 2023 at 6:00:36 PM Eastern Standard Time) - Overview

<i>Name</i>	<i>Institution</i>
Dr. Rhaana L.C. Starling (CoI) (ESA Member)	University of Leicester
Dr. Gianpiero Tagliaferri (CoI) (ESA Member)	INAF - Osservatorio Astronomico di Brera
Dr. Christina C. Thoene (CoI) (ESA Member)	Czech Academy of Sciences
Dr. Susanna Vergani (CoI) (ESA Member)	Observatoire de Paris - Section de Meudon
Dr. Darach Watson (CoI) (ESA Member)	University of Copenhagen, Niels Bohr Institute
Dr. Philip Wiseman (CoI) (ESA Member)	University of Southampton
Prof. Annalisa De Cia (CoI) (ESA Member)	European Southern Observatory (ESO)
Tanita Ramburuth-Hurt (CoI) (ESA Member)	University of Geneva, Department of Astronomy
Christina Konstantopoulou (CoI) (ESA Member)	University of Geneva, Department of Astronomy
Dr. Bo Milvang-Jensen (CoI) (ESA Member)	University of Copenhagen, Niels Bohr Institute
Dr. Andrea Rossi (CoI) (ESA Member)	INAF-Osservatorio di Astrofisica e Scienza dello Spazio
Mr. William Bowdery (CoI) (ESA Member)	University of Bath
Dr. Robert Yates (CoI) (ESA Member)	University of Hertfordshire
Prof. Hsiao-Wen Chen (CoI)	University of Chicago
Dr. Klaas Wiersema (CoI) (ESA Member)	University of Hertfordshire
Dr. Daniele Bjorn Malesani (CoI) (ESA Member)	University of Copenhagen, Niels Bohr Institute
Dr. Maryam Arabsalmani (CoI)	University of Western Australia
Dr. Eliana Palazzi (CoI) (ESA Member)	INAF-Osservatorio di Astrofisica e Scienza dello Spazio
Dr. Lise Christensen (CoI) (ESA Member)	University of Copenhagen, Niels Bohr Institute
Dr. Antonio de Ugarte Postigo (CoI) (ESA Member)	Observatoire de la Cote d'Azur
Dr. Ruben Garcia-Benito (CoI) (ESA Member)	Instituto de Astrofisica de Andalucia (IAA)
Dr. Massimiliano De Pasquale (CoI) (ESA Member)	University of Messina
Dr. C. Kouveliotou (CoI)	George Washington University
Dr. Elizabeth R. Stanway (CoI) (ESA Member)	The University of Warwick
Bethan Easeman (CoI) (ESA Member)	University of Bath
Dr. Kornpob Bhirombhakdi (CoI)	Space Telescope Science Institute

OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
NIRspec fixed slit spectroscopy				
	1	GRB150403A	NIRSpec IFU Spectroscopy	(1) GRB150403A
	2	GRB080804	NIRSpec Fixed Slit Spectroscopy	(3) GRB-080804

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
	3	GRB120815A	NIRSpec Fixed Slit Spectroscopy	(5) GRB-120815A
	4	GRB050820A	NIRSpec IFU Spectroscopy	(7) GRB-050820A
	11	GRB050820A	NIRSpec IFU Spectroscopy	(7) GRB-050820A
	5	GRB120327A	NIRSpec Fixed Slit Spectroscopy	(9) GRB-120327A
	6	GRB141109A	NIRSpec Fixed Slit Spectroscopy	(11) GRB-141109A
	7	GRB030323	NIRSpec Fixed Slit Spectroscopy	(13) GRB-030323
	8	GRB090323	NIRSpec Fixed Slit Spectroscopy	(15) GRB-090323
	9	GRB050505	NIRSpec Fixed Slit Spectroscopy	(17) GRB-050505
	13	GRB050505	NIRSpec Fixed Slit Spectroscopy	(17) GRB-050505
	10	GRB100219A	NIRSpec Fixed Slit Spectroscopy	(19) GRB-100219A
	12	GRB100219A	NIRSpec Fixed Slit Spectroscopy	(19) GRB-100219A

ABSTRACT

The metallicity of galaxies across cosmic epoch is a pillar of galaxy evolution models. JWST aims to revolutionise metallicity determinations of distant and fainter populations of galaxies that have been out of reach with current technology, to trace the history of cosmic chemical enrichment and its relation to star formation. However, metallicity estimates based on emission line spectroscopy generally rely on line indices that are calibrated at lower redshifts, and often have significant scatter or are multi-valued. Another route to abundance determinations at $z > 2$ is via absorption spectroscopy of gamma-ray burst afterglows. Thanks to their brightness, in some cases this has allowed highly detailed studies of the cold gas phase of the GRB hosts along the line of sight to the burst. Although some of this gas must lie close to the burst, absorption tends to be dominated by gas at tens or hundreds of pc from the burst location. These systems therefore provide an excellent characterisation of the host abundances.

We propose a JWST/NIRSpec spectroscopic study of a sample of 10 GRB host galaxies at $2.0 < z < 4.7$ where such absorption-based, detailed abundance analyses have already been conducted, thus enabling the first cross-calibration of absorption and emission line metallicities within the same star-forming galaxies. GRBs occur preferentially in low to moderate metallicity hosts and likely represent prototypical high-redshift star-forming galaxies. Our proposed program will thus provide a foundational mapping between accurate absorption abundance results and common emission line diagnostics that will be of wide value across the JWST program portfolio.

OBSERVING DESCRIPTION

In this proposal we wish to obtain JWST/NIRSpec fixed slit spectroscopy of 10 long GRB host galaxies at $z = 2-5$ in order to measure H α , H β , and the nebular [OII] and [OIII] emission line doublets at $S/N > 5$ from which we can derive an emission line metallicity using the R23 and O32

JWST Proposal 2344 (Created: Monday, December 18, 2023 at 6:00:36 PM Eastern Standard Time) - Overview

diagnostics. All targets in our sample have precise, dust-depletion corrected absorption metallicities measured from neutral hydrogen and metal lines imprinted on the GRB afterglow by intervening material, which when combined with emission-line metallicities, will allow us to (i) provide the first cross-calibration of emission and absorption line metallicities for co-spatial regions of the same, star-forming galaxies, and (ii) to directly determine of the full cosmic metal budget of star-forming galaxies at cosmic noon. The results from this proposal will greatly improve our understanding of how absorption and emission line studies of cosmic chemical evolution compare, with the promise of providing emission line metallicity diagnostics directly calibrated to the conditions in high- z galaxies.

Proposal 2344 - Targets - Mapping emission and absorption line metallicities onto the same universal scale

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	GRB150403A	RA: 20 46 1.3014 (311.5054225d) Dec: -62 42 41.71 (-62.71159d) Equinox: J2000	Epoch of Position: 2015.5	
<p><i>Comments: Target identified in GROND image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>				
(2)	GRB150403-TA	RA: 20 46 2.5622 (311.5106758d) Dec: -62 42 40.03 (-62.71112d) Equinox: J2000		
<p><i>Comments: Target acquisition identified in same GROND image as target position, astrometry corrected to GAIA sources</i> Category=Galaxy Description=[Emission line galaxies] Extended=NO</p>				
(3)	GRB-080804	RA: 21 54 40.1880 (328.6674500d) Dec: -53 11 4.85 (-53.18468d) Equinox: J2000	Epoch of Position: 2015.5	
<p><i>Comments: Target identified in FORS image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>				
(4)	GRB080804-TA	RA: 21 54 39.0384 (328.6626600d) Dec: -53 10 58.98 (-53.18305d) Equinox: J2000	Proper Motion RA: -0.595 mas/yr Proper Motion Dec: -6.222 mas/yr Parallax: 0.0002258" Epoch of Position: 2016.8	
<p><i>Comments: Target acquisition identified in same FORS image as target position, astrometry corrected to GAIA sources</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>				
(5)	GRB-120815A	RA: 18 15 49.7282 (273.9572008d) Dec: -52 07 51.15 (-52.13088d) Equinox: J2000	Epoch of Position: 2015.5	
<p><i>Comments: Target identified in HAWK-I image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>				
(6)	GRB120815A-TA	RA: 18 15 49.0752 (273.9544800d) Dec: -52 07 39.13 (-52.12754d) Equinox: J2000	Proper Motion RA: -3.607 mas/yr Proper Motion Dec: -5.706 mas/yr Parallax: 0.0000410" Epoch of Position: 2013.6	
<p><i>Comments: Target acquisition identified in same HAWK-I image as target position, astrometry corrected to GAIA sources</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>				
(7)	GRB-050820A	RA: 22 29 38.1040 (337.4087667d) Dec: +19 33 36.48 (19.56013d) Equinox: J2000	Epoch of Position: 2015.5	
<p><i>Comments: Target identified in HST image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>				

Fixed Targets

Proposal 2344 - Targets - Mapping emission and absorption line metallicities onto the same universal scale

(8)	GRB050820A-TA	RA: 22 29 38.0549 (337.4085621d) Dec: +19 33 33.02 (19.55917d) Equinox: J2000	Epoch of Position: 2015.5
<p><i>Comments: Target acquisition identified in same HST image as target position, astrometry corrected to GAIA sources</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(9)	GRB-120327A	RA: 16 27 27.4536 (246.8643900d) Dec: -29 24 54.11 (-29.41503d) Equinox: J2000	Epoch of Position: 2015.5
<p><i>Comments: Target identified in HAWK-I image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(10)	GRB120327A-TA	RA: 16 27 26.4360 (246.8601500d) Dec: -29 24 40.86 (-29.41135d) Equinox: J2000	Proper Motion RA: -4.004 mas/yr Proper Motion Dec: -2.934 mas/yr Parallax: 0.0003143" Epoch of Position: 2013.6
<p><i>Comments: Target acquisition identified in same HAWK-I image as target position, astrometry corrected to GAIA sources</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(11)	GRB-141109A	RA: 09 38 7.4664 (144.5311100d) Dec: -00 36 30.42 (-.60845d) Equinox: J2000	Epoch of Position: 2015.5
<p><i>Comments: Target identified in GROND image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(12)	GRB141109A-TA	RA: 09 38 6.3672 (144.5265300d) Dec: -00 36 29.17 (-.60810d) Equinox: J2000	Proper Motion RA: +0.086 mas/yr Proper Motion Dec: -0.068 mas/yr Parallax: 0.0000319" Epoch of Position: 2015.1
<p><i>Comments: Target acquisition identified in same GROND image as target position, astrometry corrected to GAIA sources</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(13)	GRB-030323	RA: 11 06 9.3886 (166.5391192d) Dec: -21 46 13.03 (-21.77029d) Equinox: J2000	Epoch of Position: 2015.5
<p><i>Comments: Target identified in HST image, astrometry corrected to GAIA reference stars (ICRS, ep2000).</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(14)	GRB030323-TA	RA: 11 06 8.3426 (166.5347608d) Dec: -21 45 42.10 (-21.76169d) Equinox: J2000	Proper Motion RA: -13.335 mas/yr Proper Motion Dec: 3.211 mas/yr Parallax: 0.0005895" Epoch of Position: 2004
<p><i>Comments: Target Acquisition target identified in same HST image with the target detected</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			

Proposal 2344 - Targets - Mapping emission and absorption line metallicities onto the same universal scale

(15)	GRB-090323	RA: 12 42 50.2754 (190.7094808d) Dec: +17 03 12.06 (17.05335d) Equinox: J2000	Epoch of Position: 2015.5
<p><i>Comments: Host identified in HAWK-I image. Comparison to GAIA references stars suggests good astrometry, so no further corrections applied.</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(16)	GRB090323-TA	RA: 12 42 48.9404 (190.7039183d) Dec: +17 03 16.08 (17.05447d) Equinox: J2000	Proper Motion RA: -9.096 mas/yr Proper Motion Dec: -4.257 mas/yr Parallax: 0.0004748" Epoch of Position: 2014.2
<p><i>Comments: Target Acquisition target identified in same HAWK-I image showing target</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(17)	GRB-050505	RA: 09 27 3.2940 (141.7637250d) Dec: +30 16 23.96 (30.27332d) Equinox: J2000	Epoch of Position: 2015.5
<p><i>Comments: Host identified in HST image. Comparison to GAIA references stars suggests good astrometry, so no further corrections applied.</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(18)	GRB050505-TA	RA: 09 27 4.4700 (141.7686250d) Dec: +30 16 52.90 (30.28136d) Equinox: J2000	Proper Motion RA: -4.051 mas/yr Proper Motion Dec: +1.414 mas/yr Parallax: 0.0004525" Epoch of Position: 2019.3
<p><i>Comments: Target Acquisition target identified in same HST image showing target</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(19)	GRB-100219A	RA: 10 16 48.4915 (154.2020479d) Dec: -12 34 0.29 (-12.56675d) Equinox: J2000	Epoch of Position: 2015.5
<p><i>Comments: Target identified in GROND image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			
(20)	GRB100219A-TA	RA: 10 16 47.1298 (154.1963742d) Dec: -12 34 31.84 (-12.57551d) Equinox: J2000	Epoch of Position: 2015.5
<p><i>Comments: Target acquisition identified in same GROND image as target position, astrometry corrected to GAIA sources</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</p>			

Proposal 2344 - Observation 1 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	<p>Proposal 2344, Observation 1: GRB150403A</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSspec IFU Spectroscopy</p>											
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)	GRB150403A	RA: 20 46 1.3014 (311.5054225d) Dec: -62 42 41.71 (-62.71159d) Equinox: J2000			Epoch of Position: 2015.5						
	<p><i>Comments: Target identified in GROND image, astrometry corrected to GAIA reference stars</i></p> <p><i>Category=Galaxy</i></p> <p><i>Description=[Emission line galaxies, High-redshift galaxies]</i></p> <p><i>Extended=NO</i></p>											
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	G140M/F100LP	NRSIRS2RAPI D	15	1	false	true	NONE	4	4	933.689	87822.7
	2	G235M/F170LP	NRSIRS2RAPI D	10	1	false	true	NONE	4	4	641.911	87822.7

Proposal 2344 - Observation 2 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 2: GRB080804 Diagnostic Status: Warning Observing Template: NIRSPEC Fixed Slit Spectroscopy											
	(Visit 2:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(3)	GRB-080804	RA: 21 54 40.1880 (328.6674500d) Dec: -53 11 4.85 (-53.18468d) Equinox: J2000			Epoch of Position: 2015.5						
<i>Comments: Target identified in FORS image, astrometry corrected to GAIA reference stars</i> <i>Category=Galaxy</i> <i>Description=[Emission line galaxies, High-redshift galaxies]</i> <i>Extended=NO</i>												
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	4 GRB080804-TA	WATA	SUB2048	F140X	NRSRAPID	3	1	1	3.628	51381.6	
Template	Slit					Subarray						
	S400A1					FULL						
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Exp #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G140M/F100LP	S400A1	NRSIRS2RAPID	15	1	1	NONE	4	4	933.689	51381.1
	2	G235M/F170LP	S400A1	NRSIRS2RAPID	8	1	2	NONE	4	4	525.2	51381.3

Proposal 2344 - Observation 3 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	<p>Proposal 2344, Observation 3: GRB120815A</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpect Fixed Slit Spectroscopy</p>											
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			
	(5)	GRB-120815A	RA: 18 15 49.7282 (273.9572008d) Dec: -52 07 51.15 (-52.13088d) Equinox: J2000			Epoch of Position: 2015.5						
	<p><i>Comments: Target identified in HAWK-I image, astrometry corrected to GAIA reference stars</i></p> <p><i>Category=Galaxy</i></p> <p><i>Description=[Emission line galaxies, High-redshift galaxies]</i></p> <p><i>Extended=NO</i></p>											
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	6 GRB120815A-TA	WATA	SUB2048	F110W	NRSRAPID	3	1	1	3.628	125186.6	
Template	Slit					Subarray						
	S400A1					FULL						
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Ex #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G140M/F100LP	S400A1	NRSIRS2RAPID	50	2	1	NONE	4	8	5952.267	51381.1
	2	G235M/F170LP	S400A1	NRSIRS2RAPID	25	1	2	NONE	4	4	1517.245	51381.3

Proposal 2344 - Observation 4 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	<p>Proposal 2344, Observation 4: GRB050820A</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec IFU Spectroscopy</p>											
Diagnostics	(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(7)	GRB-050820A	RA: 22 29 38.1040 (337.4087667d) Dec: +19 33 36.48 (19.56013d) Equinox: J2000			Epoch of Position: 2015.5						
	<p><i>Comments: Target identified in HST image, astrometry corrected to GAIA reference stars</i></p> <p><i>Category=Galaxy</i></p> <p><i>Description=[Emission line galaxies, High-redshift galaxies]</i></p> <p><i>Extended=NO</i></p>											
Template	TA Method											
	NONE											
Dithers	#	Dither Type		Size	Starting Point			Number of Points	Points			
	1	2-POINT-NOD										
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	G140M/F100LP	NRSIRS2RAPI D	90	2	false	true	NONE	2	4	5310.356	87822.7
	2	G235M/F170LP	NRSIRS2RAPI D	30	1	false	true	NONE	2	2	904.511	87822.7

Proposal 2344 - Observation 11 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	<p>Proposal 2344, Observation 11: GRB050820A</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSspec IFU Spectroscopy</p>											
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			
	(7)	GRB-050820A	RA: 22 29 38.1040 (337.4087667d) Dec: +19 33 36.48 (19.56013d) Equinox: J2000			Epoch of Position: 2015.5						
	<p><i>Comments: Target identified in HST image, astrometry corrected to GAIA reference stars</i></p> <p><i>Category=Galaxy</i></p> <p><i>Description=[Emission line galaxies, High-redshift galaxies]</i></p> <p><i>Extended=NO</i></p>											
Template	TA Method											
	NONE											
Dithers	#	Dither Type		Size	Starting Point			Number of Points	Points			
	1	2-POINT-NOD										
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	G140M/F100LP	NRSIRS2RAPID	90	2	false	true	NONE	2	4	5310.356	87822.7
	2	G235M/F170LP	NRSIRS2RAPID	30	1	false	true	NONE	2	2	904.511	87822.7

Proposal 2344 - Observation 5 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 5: GRB120327A Diagnostic Status: Warning Observing Template: NIRSpec Fixed Slit Spectroscopy											
	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(9)	GRB-120327A	RA: 16 27 27.4536 (246.8643900d) Dec: -29 24 54.11 (-29.41503d) Equinox: J2000			Epoch of Position: 2015.5						
<i>Comments: Target identified in HAWK-I image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO												
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	10 GRB120327A- TA	WATA	SUB2048	F110W	NRSRAPID	3	1	1	3.628	125186.6	
Template	Slit				Subarray							
	S400A1				FULL							
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Ex #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G140M/F100LP	S400A1	NRSIRS2RAPID	15	1	1	NONE	4	4	933.689	51381.1
	2	G235M/F170LP	S400A1	NRSIRS2RAPID	8	1	2	NONE	4	4	525.2	51381.3

Proposal 2344 - Observation 6 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 6: GRB141109A Diagnostic Status: Warning Observing Template: NIRSpec Fixed Slit Spectroscopy											
	(Visit 6:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(11)	GRB-141109A	RA: 09 38 7.4664 (144.5311100d) Dec: -00 36 30.42 (-.60845d) Equinox: J2000			Epoch of Position: 2015.5						
<i>Comments: Target identified in GROND image, astrometry corrected to GAIA reference stars</i> <i>Category=Galaxy</i> <i>Description=[Emission line galaxies, High-redshift galaxies]</i> <i>Extended=NO</i>												
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	12 GRB141109A- TA	WATA	SUB2048	F140X	NRSRAPID	3	1	1	3.628	51381.6	
Template	Slit					Subarray						
	S400A1					FULL						
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Ex #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G140M/F100LP	S400A1	NRSIRS2RAPID	15	1	1	NONE	4	4	933.689	51381.1
	2	G235M/F170LP	S400A1	NRSIRS2RAPID	8	1	2	NONE	4	4	525.2	51381.3

Proposal 2344 - Observation 7 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 7: GRB030323 Diagnostic Status: Warning Observing Template: NIRSpec Fixed Slit Spectroscopy											
	(Visit 7:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(13)	GRB-030323	RA: 11 06 9.3886 (166.5391192d) Dec: -21 46 13.03 (-21.77029d) Equinox: J2000			Epoch of Position: 2015.5						
<i>Comments: Target identified in HST image, astrometry corrected to GAIA reference stars (ICRS, ep2000). Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO</i>												
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	14 GRB030323-TA	WATA	SUB2048	F110W	NRSRAPID	3	1	1	3.628	125186.6	
Template	Slit					Subarray						
	S400A1					FULL						
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Ex #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G140M/F100LP	S400A1	NRSIRS2RAPID	35	2	1	NONE	4	8	4201.6	51381.1
	2	G235M/F170LP	S400A1	NRSIRS2RAPID	20	1	2	NONE	4	4	1225.467	51381.3

Proposal 2344 - Observation 8 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 8: GRB090323 Diagnostic Status: Warning Observing Template: NIRSpec Fixed Slit Spectroscopy										
	(Visit 8:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.										
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous		
	(15)	GRB-090323	RA: 12 42 50.2754 (190.7094808d) Dec: +17 03 12.06 (17.05335d) Equinox: J2000			Epoch of Position: 2015.5					
<i>Comments: Host identified in HAWK-I image. Comparison to GAIA references stars suggests good astrometry, so no further corrections applied.</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO											
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	16 GRB090323-TA	WATA	SUB2048	F140X	NRSRAPID	3	1	1	3.628	51381.6
Template	Slit					Subarray					
	S400A1					FULL					
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern				
	1	2					SPATIAL				
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Ex #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
	1	G235M/F170LP	S400A1	NRSIRS2RAPID	15	1	1	NONE	4	4	933.689

Proposal 2344 - Observation 9 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 9: GRB050505 Diagnostic Status: Warning Observing Template: NIRSpec Fixed Slit Spectroscopy											
	(Visit 9:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(17)	GRB-050505	RA: 09 27 3.2940 (141.7637250d) Dec: +30 16 23.96 (30.27332d) Equinox: J2000			Epoch of Position: 2015.5						
<i>Comments: Host identified in HST image. Comparison to GAIA references stars suggests good astrometry, so no further corrections applied.</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO												
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	18 GRB050505-TA	WATA	SUB2048	F140X	NRSRAPID	3	1	1	3.628	125186.6	
Template	Slit					Subarray						
	S400A1					FULL						
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Exp #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G235M/F170LP	S400A1	NRSIRS2RAPID	35	1	1	NONE	4	4	2100.8	51381.3
	2	G395M/F290LP	S400A1	NRSIRS2RAPID	10	1	2	NONE	4	4	641.911	51381.4

Proposal 2344 - Observation 13 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 13: GRB050505 Diagnostic Status: Warning Observing Template: NIRSpec Fixed Slit Spectroscopy											
	(Visit 13:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(17)	GRB-050505	RA: 09 27 3.2940 (141.7637250d) Dec: +30 16 23.96 (30.27332d) Equinox: J2000			Epoch of Position: 2015.5						
<i>Comments: Host identified in HST image. Comparison to GAIA references stars suggests good astrometry, so no further corrections applied.</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO												
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	18 GRB050505-TA	WATA	SUB2048	F140X	NRSRAPID	3	1	1	3.628	125186.6	
Template	Slit					Subarray						
	S400A1					FULL						
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Ex #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G235M/F170LP	S400A1	NRSIRS2RAPID	35	1	1	NONE	4	4	2100.8	51381.3
	2	G395M/F290LP	S400A1	NRSIRS2RAPID	10	1	2	NONE	4	4	641.911	51381.4

Proposal 2344 - Observation 10 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 10: GRB100219A Diagnostic Status: Warning Observing Template: NIRSpec Fixed Slit Spectroscopy											
	(Visit 10:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(19)	GRB-100219A	RA: 10 16 48.4915 (154.2020479d) Dec: -12 34 0.29 (-12.56675d) Equinox: J2000			Epoch of Position: 2015.5						
<i>Comments: Target identified in GROND image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO												
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	20 GRB100219A- TA	WATA	SUB2048	CLEAR	NRSRAPIDD6	3	1	1	14.452	51381.6	
Template	Slit					Subarray						
	S400A1					FULL						
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Ex #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G235M/F170LP	S400A1	NRSIRS2RAPID	50	2	1	NONE	4	8	5952.267	51381.3
	2	G395M/F290LP	S400A1	NRSIRS2RAPID	15	1	2	NONE	4	4	933.689	51381.4

Proposal 2344 - Observation 12 - Mapping emission and absorption line metallicities onto the same universal scale

Mon Dec 18 23:00:36 GMT 2023

Observation	Proposal 2344, Observation 12: GRB100219A Diagnostic Status: Warning Observing Template: NIRSpec Fixed Slit Spectroscopy											
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			
	(19)	GRB-100219A	RA: 10 16 48.4915 (154.2020479d) Dec: -12 34 0.29 (-12.56675d) Equinox: J2000			Epoch of Position: 2015.5						
	<i>Comments: Target identified in GROND image, astrometry corrected to GAIA reference stars</i> Category=Galaxy Description=[Emission line galaxies, High-redshift galaxies] Extended=NO											
Acquisition	#	Target	TA Method	Subarray	Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	20 GRB100219A- TA	WATA	SUB2048	CLEAR	NRSRAPIDD6	3	1	1	14.452	51381.6	
Template	Slit					Subarray						
	S400A1					FULL						
Dithers	#	Primary Dither Positions					Sub-Pixel Pattern					
	1	2					SPATIAL					
Spectral Elements	#	Grating/Filter	Slit	Readout Pattern	Groups/Int	Integrations/Ex #	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID	
	1	G235M/F170LP	S400A1	NRSIRS2RAPID	50	2	1	NONE	4	8	5952.267	51381.3
	2	G395M/F290LP	S400A1	NRSIRS2RAPID	15	1	2	NONE	4	4	933.689	51381.4