



1198 - IFU spectroscopy of the host galaxies of strongly lensed quasars

Cycle: 1, Proposal Category: GTO

INVESTIGATORS

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OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
WFI 2033				
	4		NIRCam Imaging	(4) LQAC-308-047-001
	5		NIRSpec IFU Spectroscopy	(4) LQAC-308-047-001
HE 0435				
	7		NIRCam Imaging	(5) HE-0435-1223
	8		NIRSpec IFU Spectroscopy	(5) HE-0435-1223
	12		NIRSpec IFU Spectroscopy	(5) HE-0435-1223
PG 1115				
	10		NIRCam Imaging	(6) HB89-1115+080
	11		NIRSpec IFU Spectroscopy	(6) HB89-1115+080

ABSTRACT

We will study the interaction of the host spheroid and central black hole by obtaining NIRCam images and NIRSpec IFU datacubes on 3 multiply imaged QSOs and on their lens galaxies. The main purpose of these observations is to take advantage of the gravitational stretching of the host galaxy to effectively obtain spatially resolved spectroscopic data at higher rest frame angular resolution than otherwise possible. We will also obtain spatially resolved data on the lens galaxy. The spectroscopic data will allow us to determine abundances, abundance ratios, and kinematical information.

This version of the APT uses no target acquisition and 2 by 2 dithering with the IFU. We are not using WATA because of the increased GAIA accuracy. We checked that the target coordinates are in the GAIA frame.

GTO submission IDs : STIAVELLI_0011 through 0022.

OBSERVING DESCRIPTION

We will obtain IFU data at $R \sim 1000$ for 43 multiply imaged QSOs chosen to be at similar redshift (around $z \sim 1.7$). A fourth target, J1206-4332, a double with a quadruply lensed host galaxy was dropped because of its large apparent size. Our goals are:

- 1- measure kinematics and emission line strengths of the QSO host as close to the QSO as possible. Lines within the wavelength range include [OII], [OIII], Hbeta and Halpha;
- 2- if host absorption lines in the Fe-Mgb region are detectable, measure their line strengths and derive stellar kinematical information on the host;
- 3- measure the spatially resolved stellar kinematics (velocity and velocity dispersion) of the lens galaxy using the Ca triplet lines.

For the velocity dispersion we will use synthetic templates.

Proposal 1198 - Targets - IFU spectroscopy of the host galaxies of strongly lensed quasars

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	LQAC-308-047-001	RA: 20 33 42.1620 (308.4256750d) Dec: -47 23 44.16 (-47.39560d) Equinox: J2000		
<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i> <i>Category=Galaxy</i> <i>Description=[Elliptical galaxies, Quasars]</i></p>				
(5)	HE-0435-1223	RA: 04 38 14.8720 (69.5619667d) Dec: -12 17 14.70 (-12.28742d) Equinox: J2000		
<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i> <i>Category=Galaxy</i> <i>Description=[Elliptical galaxies, Quasars]</i></p>				
(6)	HB89-1115+080	RA: 11 18 16.9005 (169.5704187d) Dec: +07 45 58.88 (7.76636d) Equinox: J2000		
<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i> <i>Category=Galaxy</i> <i>Description=[Elliptical galaxies, Quasars]</i></p>				

Fixed Targets

Proposal 1198 - Observation 4 - IFU spectroscopy of the host galaxies of strongly lensed quasars

Fri Dec 02 18:00:30 GMT 2022

Observation	<p>Proposal 1198, Observation 4 Diagnostic Status: Warning Observing Template: NIRCcam Imaging</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		
	(4)	LQAC-308-047-001	RA: 20 33 42.1620 (308.4256750d) Dec: -47 23 44.16 (-47.39560d) Equinox: J2000							
	<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i> Category=Galaxy Description=[Elliptical galaxies, Quasars]</p>									
Template	Module				Subarray					
	ALL				FULL					
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	STANDARD			1		
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
	1	F115W	F356W	SHALLOW2	9	1	4	4	1803.777	
	2	F150W	F277W	SHALLOW2	9	1	4	4	1803.777	
Special Requirements	Offset 55.0 arcsec, 35.0 arcsec									

Proposal 1198 - Observation 5 - IFU spectroscopy of the host galaxies of strongly lensed quasars

Fri Dec 02 18:00:30 GMT 2022

Observation	<p>Proposal 1198, Observation 5</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec IFU Spectroscopy</p> <p><i>Comments: PA restriction needed to ensure that the target fits in the IFU FOV</i></p>											
Diagnostics	(Visit 5:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(4)	LQAC-308-047-001	RA: 20 33 42.1620 (308.4256750d) Dec: -47 23 44.16 (-47.39560d) Equinox: J2000									
	<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i></p> <p><i>Category=Galaxy</i></p> <p><i>Description=[Elliptical galaxies, Quasars]</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	NRSIRS2	24	2	false	true	NONE	4	8	14122.046	
Special Requirements	Aperture PA Range 157 to 257 Degrees (V3 18.02746582 to 118.02746582)											

Proposal 1198 - Observation 7 - IFU spectroscopy of the host galaxies of strongly lensed quasars

Fri Dec 02 18:00:30 GMT 2022

Observation	<p>Proposal 1198, Observation 7</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRCcam Imaging</p>									
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		
	(5)	HE-0435-1223	RA: 04 38 14.8720 (69.5619667d) Dec: -12 17 14.70 (-12.28742d) Equinox: J2000							
	<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i></p> <p>Category=Galaxy Description=[Elliptical galaxies, Quasars]</p>									
Template	Module				Subarray					
	ALL				FULL					
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	STANDARD			1		
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
	1	F115W	F356W	SHALLOW2	9	1	4	4	1803.777	
	2	F150W	F277W	SHALLOW2	9	1	4	4	1803.777	
Special Requirements	Offset 55.0 arcsec, 35.0 arcsec									

Proposal 1198 - Observation 8 - IFU spectroscopy of the host galaxies of strongly lensed quasars

Fri Dec 02 18:00:30 GMT 2022

Observation	<p>Proposal 1198, Observation 8</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec IFU Spectroscopy</p>											
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			
	(5)	HE-0435-1223	RA: 04 38 14.8720 (69.5619667d) Dec: -12 17 14.70 (-12.28742d) Equinox: J2000									
	<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i></p> <p><i>Category=Galaxy</i></p> <p><i>Description=[Elliptical galaxies, Quasars]</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	NRSIRS2	24	2	false	true	NONE	4	8	14122.046	

Proposal 1198 - Observation 12 - IFU spectroscopy of the host galaxies of strongly lensed quasars

Fri Dec 02 18:00:30 GMT 2022

Observation	Proposal 1198, Observation 12 Diagnostic Status: Warning Observing Template: NIRSpec IFU Spectroscopy <i>Comments: WOPR copy of visit 8, contaminated by an electrical short from the NIRSpec MSA</i>											
	(Visit 12:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.											
Diagnostics												
Fixed Targets	#	Name	Target Coordinates			Targ. Coord. Corrections			Miscellaneous			
	(5)	HE-0435-1223	RA: 04 38 14.8720 (69.5619667d) Dec: -12 17 14.70 (-12.28742d) Equinox: J2000									
<i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i> <i>Category=Galaxy</i> <i>Description=[Elliptical galaxies, Quasars]</i>												
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	NRSIRS2	24	2	false	true	NONE	4	8	14122.046	

Proposal 1198 - Observation 10 - IFU spectroscopy of the host galaxies of strongly lensed quasars

Fri Dec 02 18:00:30 GMT 2022

Observation	<p>Proposal 1198, Observation 10</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRCcam Imaging</p>									
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		
	(6)	HB89-1115+080	RA: 11 18 16.9005 (169.5704187d) Dec: +07 45 58.88 (7.76636d) Equinox: J2000							
	<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i></p> <p><i>Category=Galaxy</i></p> <p><i>Description=[Elliptical galaxies, Quasars]</i></p>									
Template	Module				Subarray					
	ALL				FULL					
Dithers	#	Primary Dither Type		Primary Dithers	Subpixel Dither Type		Dither Size	Subpixel Positions		
	1	INTRAMODULEX		4	STANDARD			1		
Spectral Elements	#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
	1	F115W	F356W	SHALLOW2	9	1	4	4	1803.777	
	2	F150W	F277W	SHALLOW2	9	1	4	4	1803.777	
Special Requirements	Offset 55.0 arcsec, 35.0 arcsec									

Proposal 1198 - Observation 11 - IFU spectroscopy of the host galaxies of strongly lensed quasars

Fri Dec 02 18:00:30 GMT 2022

Observation	<p>Proposal 1198, Observation 11</p> <p>Diagnostic Status: Warning</p> <p>Observing Template: NIRSpec IFU Spectroscopy</p> <p><i>Comments: PA requirement needed to ensure that the target fits in the IFU FOV.</i></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			
	(6)	HB89-1115+080	RA: 11 18 16.9005 (169.5704187d) Dec: +07 45 58.88 (7.76636d) Equinox: J2000									
	<p><i>Comments: This object was generated by the targetselector and retrieved from the NED database. The coordinates were rederived in the GAIA frame.</i></p> <p><i>Category=Galaxy</i></p> <p><i>Description=[Elliptical galaxies, Quasars]</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	NRSIRS2	24	2	false	true	NONE	4	8	14122.046	
Special Requirements	Aperture PA Range 190 to 310 Degrees (V3 51.02746582 to 171.02746582)											