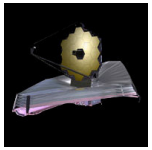

4513 - Internal Dynamics of Milky Way Dwarf Spheroidal Galaxies

Cycle: 3, Proposal Category: GTO

INVESTIGATORS

Name	*Institution*
Dr. Roeland P. van der Marel (PI)	**Space Telescope Science Institute**
Dr. Sangmo Tony Sohn (CoI) (Contact)	Space Telescope Science Institute
Dr. Jay Anderson (CoI)	Space Telescope Science Institute
Dr. Andrea Bellini (CoI)	Space Telescope Science Institute
Dr. Mattia Libralato (CoI) (ESA Member)	INAF - Istituto di Astrofisica Spaziale
Dr. Laura L. Watkins (CoI) (ESA Member)	Space Telescope Science Institute - ESA - JWST

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Observation Folder				
	1		NIRCam Imaging	(1) DRACO-F0
	2		NIRCam Imaging	(3) DRACO-F2
	3		NIRCam Imaging	(4) SCULPTOR-F0
	4		NIRCam Imaging	(5) SCULPTOR-F1P

ABSTRACT

We will observe four fields in the nearest classical Milky Way dwarf spheroidal galaxies Draco and Sculptor, to study the internal proper motion dynamics of their stars. This will determine whether their dark halos have central cores or cusps, which provides an important constraint on the properties of dark matter and cosmological models of galaxy formation. Proper motions will be determined both from comparison to existing HST data and from comparison to JWST observations obtained in GTO Cycle 1.

OBSERVING DESCRIPTION

We propose to measure the internal proper motion dynamics of the dwarf spheroidal galaxies Draco and Sulptor. To determine proper motion of stars in our target galaxies, we will observe four fields (two in the Draco, and two in the Sculptor dwarf spheroidals) with NIRCAM using F200W+F277W. We will also observe parallel fields with NIRISS using F200W.

Proposal 4513 - Targets - Internal Dynamics of Milky Way Dwarf Spheroidal Galaxies

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	DRACO-F0	RA: 17 20 12.3912 (260.0516300d) Dec: +57 54 55.30 (57.91536d) Equinox: J2000		
Comments: *Category=Galaxy* *Description=[Dwarf spheroidal galaxies]* *Extended=NO*				
(3)	DRACO-F2	RA: 17 21 40.1225 (260.4171771d) Dec: +57 57 28.46 (57.95791d) Equinox: J2000		
Comments: *Category=Galaxy* *Description=[Dwarf spheroidal galaxies]* *Extended=NO*				
(4)	SCULPTOR-F0	RA: 01 00 5.9868 (15.0249450d) Dec: -33 42 38.77 (-33.71077d) Equinox: J2000		
Comments: *Category=Galaxy* *Description=[Dwarf spheroidal galaxies]* *Extended=NO*				
(5)	SCULPTOR-F1P	RA: 01 00 23.1744 (15.0965600d) Dec: -33 43 13.84 (-33.72051d) Equinox: J2000		
Comments: *Category=Galaxy* *Description=[Dwarf spheroidal galaxies]* *Extended=NO*				

Observation

Proposal 4513, Observation 1 Fri Jun 21 13:00:10 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): NIRISS Imaging

Comments: We use an "offset" special requirement to put the target near the center of one of the two NIRCam modules. We also use the "PA range" special requirement to match the orientation our field to that of the Cycle 1 observation.

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)	DRACO-F0	RA: 17 20 12.3912 (260.0516300d) Dec: +57 54 55.30 (57.91536d) Equinox: J2000		

Comments:
Category=Galaxy
Description=[Dwarf spheroidal galaxies]
Extended=NO

Template

NIRCam Imaging

Module: ALL

Subarray: FULL

Target Placement: Module Gap

NIRISS Imaging

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	NONE			1	4-POINT-SMALL-WITH-NIRISS	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F277W	BRIGHT2	7	1	4	4	601.259	

Spectral Elements

NIRISS Imaging	Filter	Grism	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W		NISRAPID	6	2	4	8	601.259	

Special Requirements	
	Aperture PA Range 235.18 to 235.18 Degrees (V3 235.25457694 to 235.25457694) Offset 88.0 arcsec, 0.0 arcsec No Parallel Attachments

Observation

Proposal 4513, Observation 2 Fri Jun 21 13:00:10 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): NIRISS Imaging

Comments: We use an "offset" special requirement to put the target near the center of one of the two NIRCam modules. We also use the "PA range" special requirement to maxmize our field overlap with existing HST ACS/WFC or WFC3/UVIS fields.

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
(3)	DRACO-F2	RA: 17 21 40.1225 (260.4171771d) Dec: +57 57 28.46 (57.95791d) Equinox: J2000		

Comments:
Category=Galaxy
Description=[Dwarf spheroidal galaxies]
Extended=NO

Template

NIRCam Imaging	NIRISS Imaging
Module: ALL	
Subarray: FULL	
Target Placement: Module Gap	

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	NONE			1	4-POINT-SMALL-WITH-NIRISS	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F277W	BRIGHT2	7	1	4	4	601.259	

Spectral Elements

NIRISS Imaging	Filter	Grism	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W		NISRAPID	6	2	4	8	601.259	

Special Requirements	
	Aperture PA Range 212 to 212 Degrees (V3 212.07457694 to 212.07457694) Offset -88.0 arcsec, 0.0 arcsec No Parallel Attachments

Observation

Proposal 4513, Observation 3 Fri Jun 21 13:00:10 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): NIRISS Imaging

Comments: We use an "offset" special requirement to put the target near the center of one of the two NIRCam modules. We also use the "PA range" special requirement to match the orientation our field to that of the Cycle 1 observation.

Diagnostics

(Visit 3:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 3:1) Informational (Form): Visit schedulable, but most scheduling windows are when JWST is pointed in direction of greatest micrometeoroid impact risk. This is likely due to scheduling special requirements.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(4)	SCULPTOR-F0	RA: 01 00 5.9868 (15.0249450d) Dec: -33 42 38.77 (-33.71077d) Equinox: J2000		

Comments:
Category=Galaxy
Description=[Dwarf spheroidal galaxies]
Extended=NO

Template

NIRCam Imaging	NIRISS Imaging
Module: ALL	
Subarray: FULL	
Target Placement: Module Gap	

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	NONE			1	4-POINT-SMALL-WITH-NIRISS	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F277W	BRIGHT2	7	1	4	4	601.259	

Spectral Elements

NIRISS Imaging	Filter	Grism	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W		NISRAPID	6	2	4	8	601.259	

Special Requirements	
	Aperture PA Range 280.12 to 280.12 Degrees (V3 280.19457694 to 280.19457694) Offset -88.0 arcsec, 0.0 arcsec No Parallel Attachments

Observation

Proposal 4513, Observation 4 Fri Jun 21 13:00:10 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): NIRISS Imaging

Comments: We use an "offset" special requirement to put the target near the center of one of the two NIRCam modules. We also use the "PA range" special requirement to maxmize our field overlap with existing HST ACS/WFC or WFC3/UVIS fields.

Diagnostics

(Visit 4:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.

(Visit 4:1) Informational (Form): Visit schedulable, but most scheduling windows are when JWST is pointed in direction of greatest micrometeoroid impact risk. This is likely due to scheduling special requirements.

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(5)	SCULPTOR-F1P	RA: 01 00 23.1744 (15.0965600d) Dec: -33 43 13.84 (-33.72051d) Equinox: J2000		

Comments:
Category=Galaxy
Description=[Dwarf spheroidal galaxies]
Extended=NO

Template

NIRCam Imaging	NIRISS Imaging
Module: ALL	
Subarray: FULL	
Target Placement: Module Gap	

Dithers

#	Primary Dither Type	Primary Dithers	Dither Size	Subpixel Positions	Coordinated Parallel Subpixel Selector	Dither Direct Images Primes
1	NONE			1	4-POINT-SMALL-WITH-NIRISS	NO_DITHERING

Spectral Elements

NIRCam Imaging	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W	F277W	BRIGHT2	7	1	4	4	601.259	

Spectral Elements

NIRISS Imaging	Filter	Grism	Readout Pattern	Groups/Int	Integrations/Exp	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	F200W		NISRAPID	6	2	4	8	601.259	

Special Requirements	
	Aperture PA Range 290 to 290 Degrees (V3 290.07457694 to 290.07457694) Offset -88.0 arcsec, 0.0 arcsec No Parallel Attachments