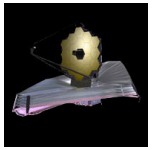

9225 - Enabling cross instrument proper motions with Draco dSph and NGC 2419

Cycle: 3, Proposal Category: GO

INVESTIGATORS

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Dr. Christopher Garling (CoI)	The University of Virginia

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Observation Folder				
	1		NIRCam Imaging	(1) DRACO-F1
	2		NIRCam Imaging	(2) NGC-2419

ABSTRACT

An unexpected way that ACS/WFC has transformed our knowledge of the Universe is through kinematics, especially via the measurement of proper motions (PMs) for galaxies and star clusters across the Local Group (LG) and beyond. This work requires extremely high precision astrometry and relies on long time baselines. Together, these requirements have made ACS the best, and in many cases, the only instrument for this type of work. Through observations of the Draco and NGC 2419, this proposal aims to cross-calibrate ACS/WFC with WFC3/UVIS and JWST/NIRCam to enable this important science to continue after ACS/WFC is decommissioned. We will also improve the determination of the type of dark matter halo in the Milky Way satellite galaxy Draco dwarf spheriodal, core or cusp, to a limit of 10 sigma. This will be the best data to date for resolving the tension of the core-cusp problem in Lambda CMD. We will also investigate the kinematic properties of the known multiple populations in the distant massive Milky Way Globular cluster NGC 2419 , which will help constraints its formation and evolution.

OBSERVING DESCRIPTION

We propose to observe Draco dSph and the Milky Way globular cluster NGC 2419 with NIRCam in order to cross match the astrometric results with near simultaneous HST/ACS and HST/WFC3 observations of these taregts. This will allow us to astrometrically calibrate these instruments to enable future proper motion measurements using cross observatory and cross instrument calibrations we derive. This will enable to use of ACS images as first epochs even after ACS is decommissioned, something that is not currently possible without a second epoch of ACS measurements.

Proposal 9225 - Targets - Enabling cross instrument proper motions with Draco dSph and NGC 2419

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	DRACO-F1	RA: 17 20 47.2851 (260.1970212d) Dec: +57 54 40.97 (57.91138d) Equinox: J2000		
Comments: *Category=Galaxy* *Description=[Dwarf galaxies]*				
(2)	NGC-2419	RA: 07 37 49.4160 (114.4559000d) Dec: +38 51 2.86 (38.85079d) Equinox: J2000		
Comments: *Category=Stellar Cluster* *Description=[Globular star clusters]*				

Observation

Proposal 9225, Observation 1

Tue Feb 25 21:00:27 GMT 2025

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Coordinated Parallel Template(s): NIRISS Imaging

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-F1	RA: 17 20 47.2851 (260.1970212d) Dec: +57 54 40.97 (57.91138d) Equinox: J2000		

Comments:
Category=Galaxy
Description=[Dwarf galaxies]

Template

NIRCam Imaging	NIRISS Imaging
Module: ALL	
Subarray: FULL	
Target Placement: Module A (A3 corner)	

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	F150W		NISRAPID	6	2	4	8	601.259	

Special Requirements	
	Between Dates 12-JUL-2025:00:00:00 and 12-JAN-2026:00:00:00 Aperture PA Range 123.4 to 123.6 Degrees (V3 123.53434768 to 123.73434768) No Parallel Attachments Fiducial Point Override NRCAS_FULL

Observation

Proposal 9225, Observation 2

Tue Feb 25 21:00:27 GMT 2025

Diagnostic Status: Warning

Observing Template: NIRCam Imaging

Diagnostics

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

(Visit 2:1) 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
(2)	NGC-2419	RA: 07 37 49.4160 (114.4559000d) Dec: +38 51 2.86 (38.85079d) Equinox: J2000		

Comments:
Category=Stellar Cluster
Description=[Globular star clusters]

Template

Module	Subarray	Target Placement
ALL	FULL	Module A (A3 corner)

Dithers

#	Primary Dither Type	Primary Dithers	Subpixel Dither Type	Dither Size	Subpixel Positions
1	NONE		SMALL-GRID-DITHER		4

Spectral Elements

#	Short Filter	Long Filter	Readout Pattern	Groups/Int	Integrations/Exp	Total Integrations	Total Dithers	Total Exposure Time	ETC Wkbk.Calc ID
1	F090W	F277W	BRIGHT2	7	1	4	4	601.259	

Special Requirements

Between Dates 01-JUL-2025:00:00:00 and 01-FEB-2026:00:00:00
Fiducial Point Override NRCAS_FULL