



# 1306 - Galactic Center Astrometry

Cycle: 1, Proposal Category: GTO

## INVESTIGATORS

<i>Name</i>	<i>Institution</i>	<i>E-Mail</i>
<b>Dr. Roeland P. van der Marel (PI)</b>	<b>Space Telescope Science Institute</b>	<b>marel@stsci.edu</b>
Dr. Jay Anderson (CoI) (Contact)	Space Telescope Science Institute	jayander@stsci.edu
Dr. Matt Mountain (CoI)	Space Telescope Science Institute	mmountain@stsci.edu
Dr. Andrea Bellini (CoI)	Space Telescope Science Institute	bellini@stsci.edu

## OBSERVATIONS

<i>Folder</i>	<i>Observation</i>	<i>Label</i>	<i>Observing Template</i>	<i>Science Target</i>
GCe1				
	1	First visit	NIRCam Imaging	(1) NAME-GAL-CENTER

## ABSTRACT

We will observe the Galactic Center with NIRCam to study the orbits of stars around the supermassive black hole and the structure of the nuclear star cluster. We will focus on the fainter stars, which are harder to measure from the ground. We will observe through medium-band filters in order to go deep without saturating the bright stars too much. This set of observations will constitute a first epoch. The second epoch, which will be taken a few years later, will allow us to measure proper motions. This program will also constitute a demonstration of JWST's high-precision astrometric capabilities.

The Coordinated Parallels for this program will have no exclusive access period.

## OBSERVING DESCRIPTION

## JWST Proposal 1306 (Created: Friday, July 22, 2022 at 6:00:11 PM Eastern Standard Time) - Overview

We will observe the Galactic center through medium-band filters, which will provide a nice compromise between not missing too many of the bright stars and going deep enough to provide a good complement to ground-based observations. We were able to fit in 7 secondary dithers, which should allow an exquisite reconstruction of the JWST PSF, which is of course critical to high-accuracy astrometry. NIRISS will be observed in parallel so that we can get some additional information for a nearby field. We request that the observations be obtained in the first half of Cycle 1, i.e., prior to August 2022. This is important to maximize the time baseline, and hence proper motion accuracy, when compared to planned follow-up JWST observations in later cycles.

## Proposal 1306 - Targets - Galactic Center Astrometry

Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
	(1)	NAME-GAL-CENTER	RA: 17 45 40.0400 (266.4168333d) Dec: -29 00 28.00 (-29.00778d) Equinox: J2000		<i>Comments: We use an "offset" special requirement to put the Galactic Center at the center of NIRCam's short-wave SCA A3. The offset may need to be updated after JWST's focal plane has been calibrated more accurately during commissioning</i> Category=Stellar Cluster Description=[Stellar associations]

Proposal 1306 - Observation 1 - Galactic Center Astrometry

Fri Jul 22 23:00:11 GMT 2022

<b>Observation</b>	<p><b>Proposal 1306, Observation 1: First visit</b></p> <p><b>Diagnostic Status: Warning</b></p> <p>Observing Template: NIRCam Imaging</p> <p>Coordinated Parallel Template(s): NIRISS Imaging</p>									
<b>Diagnostics</b>	(Visit 1:1) Warning (Form): Overheads are provisional until the Visit Planner has been run.									
<b>Fixed Targets</b>	<b>#</b>	<b>Name</b>	<b>Target Coordinates</b>			<b>Targ. Coord. Corrections</b>		<b>Miscellaneous</b>		
	(1)	NAME-GAL-CENTER	RA: 17 45 40.0400 (266.4168333d) Dec: -29 00 28.00 (-29.00778d) Equinox: J2000							
	<p><i>Comments: We use an "offset" special requirement to put the Galactic Center at the center of NIRCam's short-wave SCA A3. The offset may need to be updated after JWST's focal plane has been calibrated more accurately during commissioning</i></p> <p><i>Category=Stellar Cluster</i></p> <p><i>Description=[Stellar associations]</i></p>									
<b>Template</b>	<b>NIRCam Imaging</b>					<b>NIRISS Imaging</b>				
	Module: ALL Subarray: FULL									
<b>Dithers</b>	<b>#</b>	<b>Primary Dither Type</b>		<b>Primary Dithers</b>	<b>Dither Size</b>	<b>Subpixel Positions</b>		<b>Coordinated Parallel Subpixel Selector</b>		<b>Dither Direct Images Primes</b>
	1	NONE				7		NIRCam Only		NO_DITHERING
<b>Spectral Elements</b>	<b>NIRCam Imaging</b>	<b>Short Filter</b>	<b>Long Filter</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Integrations</b>	<b>Total Dithers</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	F182M	F360M	SHALLOW2	4	1	7	7	1277.676	
<b>Spectral Elements</b>	<b>NIRISS Imaging</b>	<b>Filter</b>	<b>Grism</b>	<b>Readout Pattern</b>	<b>Groups/Int</b>	<b>Integrations/Exp</b>	<b>Total Dithers</b>	<b>Total Integrations</b>	<b>Total Exposure Time</b>	<b>ETC Wkbk.Calc ID</b>
	1	F158M		NISRAPID	16	1	7	7	1277.676	

## Proposal 1306 - Observation 1 - Galactic Center Astrometry

### Special Requirements

Before Date 31-OCT-2022:00:00:00  
Aperture PA Range 87 to 95 Degrees (V3 87.09730273 to 95.09730273)  
Offset 52.0 arcsec, 34.5 arcsec  
No Parallel