



15959 - Observations of the JWST/GTO Very Rich Cluster Lens

RMJ121218.5+273255.1

Cycle: 27, Proposal Category: GO

(JWST Initiative)

(Availability Mode: SUPPORTED)

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VISITS

<i>Visit</i>	<i>Targets used in Visit</i>	<i>Configurations used in Visit</i>	<i>Orbits Used</i>	<i>Last Orbit Planner Run</i>	<i>OP Current with Visit?</i>
01	(1) RMJ121218.5+273255.1	ACS/WFC WFC3/IR	3	05-Feb-2020 11:02:51.0	yes
02	(1) RMJ121218.5+273255.1	ACS/WFC WFC3/IR	2	05-Feb-2020 11:02:53.0	yes

5 Total Orbits Used

ABSTRACT

RMJ121218.5+273255.1 (redshift $z=0.35$) is amongst the top 1% richest clusters in the redMaPPer catalog. It is significantly detected in X-ray and through the Sunyaev-Zeldovich effect in ROSAT and Planck data, respectively, and its optical luminosity predicts a big lens (Einstein radius of $\sim 40''$) based on mass-to-light scaling relations. As such, it was chosen for the Webb Medium Deep Fields (WMDF) JWST/GTO program. Deep ground-based imaging we recently obtained reveals several multiply imaged candidates to large radii, suggesting that RMJ1212 is indeed a large lens. However, the cluster lacks any HST imaging, whose resolution is crucial for identifying morphological details and securing the identification of lensed features.

We request 5 orbits split over 7 HST filters in the optical and near-infrared to securely identify multiple images and measure their photometric redshifts, so that a lens model for this cluster could be published in time for JWST. The requested observations will also, importantly, constitute a baseline towards finding transient sources in the planned JWST observations, and, will allow us to readily identify bright, lensed high-redshift candidates for spectroscopic follow-up. In addition, we note that given the limited blue wavelength coverage by JWST/NIRCam, the requested optical observations are necessary for identifying high- z objects behind this cluster with the planned JWST observations.

OBSERVING DESCRIPTION

We adopt the filter choice of recent lensing surveys such as the Hubble Frontier Fields and RELICS, and an observing strategy similar to that of RELICS. We will use three orbits divided between

Proposal 15959 (STScI Edit Number: 3, Created: Wednesday, February 5, 2020 at 11:02:54 AM Eastern Standard Time) - Overview

the F435W, F606W, and F814W filters with the Advanced Camera for Surveys (ACS), and two additional orbits divided among the four WFC3/IR filters (F105W, F125W, F140W, and F160W). We use non-integer pixel, 4-point dithering between exposures to improve the PSF sampling.

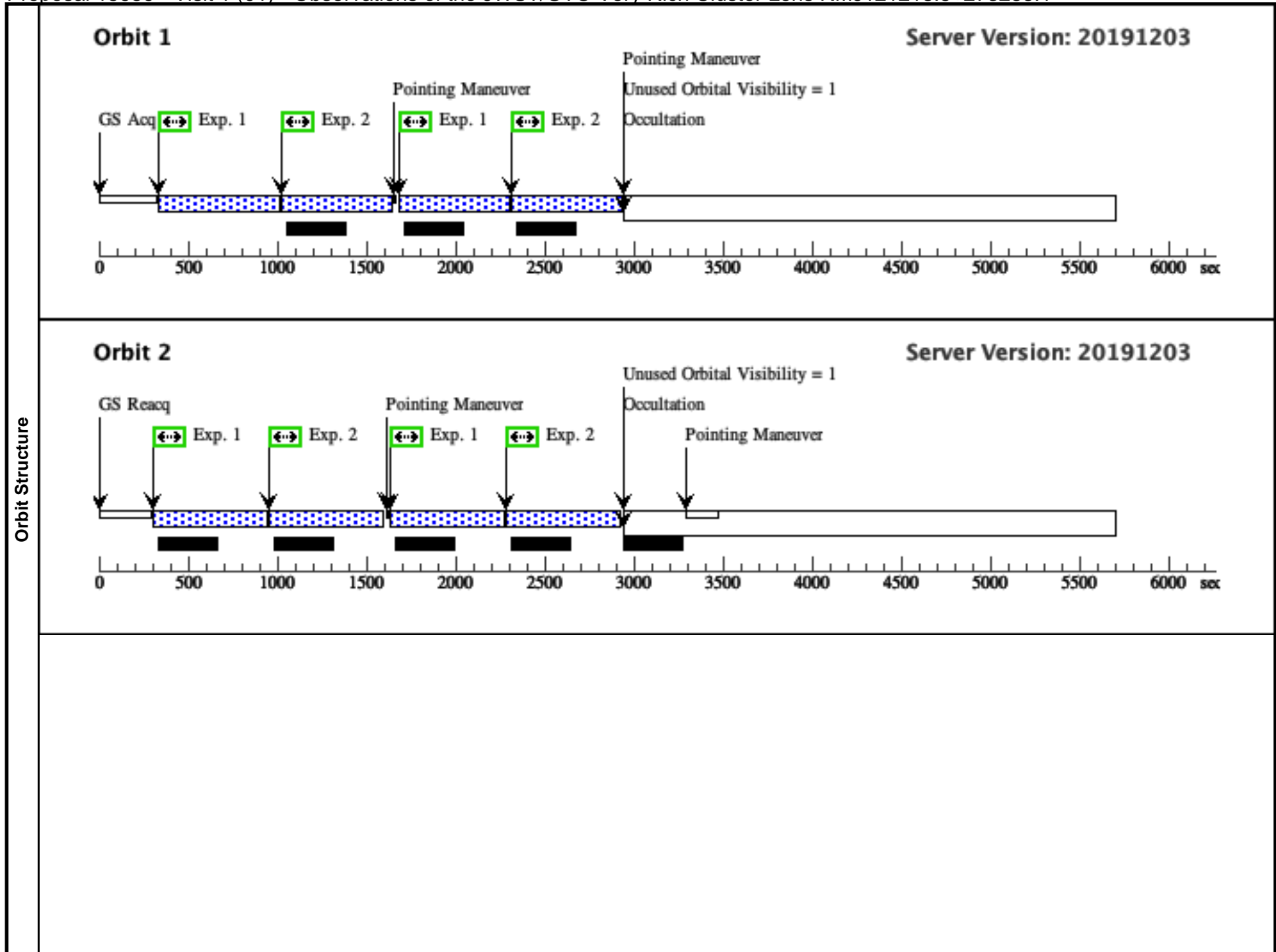
Proposal 15959 - Visit 1 (01) - Observations of the JWST/GTO Very Rich Cluster Lens RMJ121218.5+273255.1

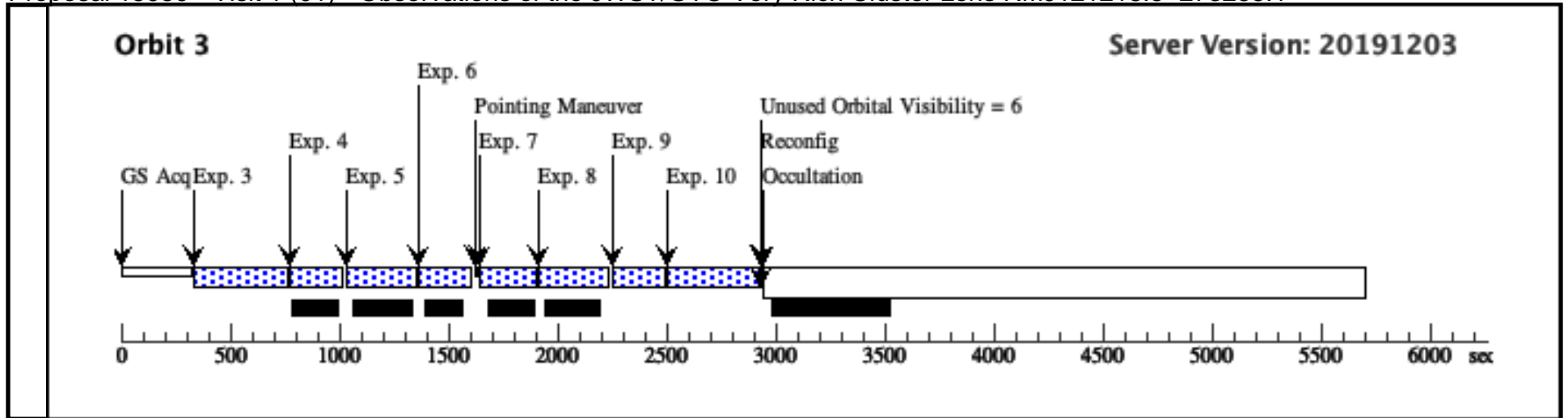
Wed Feb 05 16:02:54 GMT 2020

Visit	Proposal 15959, Visit 1 (01), scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 90%					
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures	
	(4)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=4 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false		(1-2)	
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
	(1)	RMJ121218.5+273255.1	RA: 12 12 19.2234 (183.0800975d) Dec: +27 33 8.65 (27.55240d) Equinox: J2000		V=15+/-2	Reference Frame: ICRS
<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[GRAVITATIONAL LENS, RICH CLUSTER]						

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Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F435W	(1) RMJ121218.5+273255.1	ACS/WFC, ACCUM, WFCENTER	F435W		POS TARG -6,-7.5; GS ACQ SCENARI O BASE1B3	Pattern 4, Exps 1-2 in Visit 1 (01) (4)	400 Secs (1934 Secs) [==>472.0 Secs (Pattern 1)] [==>472.0 Secs (Pattern 2)] [==>495.0 Secs (Pattern 3)] [==>495.0 Secs (Pattern 4)]	[1] [2]
	2	F814W	(1) RMJ121218.5+273255.1	ACS/WFC, ACCUM, WFCENTER	F814W		POS TARG -6,-7.5	Pattern 4, Exps 1-2 in Visit 1 (01) (4)	400 Secs (1934 Secs) [==>472.0 Secs (Pattern 1)] [==>472.0 Secs (Pattern 2)] [==>495.0 Secs (Pattern 3)] [==>495.0 Secs (Pattern 4)]	[1] [2]
	3	F160W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0,0; GS ACQ SCENARI O BASE1B3		402.935899 Secs (402.936 Secs) [==>]	[3]
	4	F125W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F125W	NSAMP=10; SAMP-SEQ=SPAR S25	SAME POS AS 3		227.936926 Secs (227.937 Secs) [==>]	[3]
	5	F105W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F105W	NSAMP=7; SAMP-SEQ=SPAR S50	SAME POS AS 3		302.934997 Secs (302.935 Secs) [==>]	[3]
	6	F140W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F140W	NSAMP=10; SAMP-SEQ=SPAR S25	SAME POS AS 3		227.936926 Secs (227.937 Secs) [==>]	[3]
	7	F140W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F140W	NSAMP=10; SAMP-SEQ=SPAR S25	SAME POS AS 10		227.936926 Secs (227.937 Secs) [==>]	[3]
	8	F105W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F105W	NSAMP=7; SAMP-SEQ=SPAR S50	SAME POS AS 10		302.934997 Secs (302.935 Secs) [==>]	[3]
	9	F125W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F125W	NSAMP=10; SAMP-SEQ=SPAR S25	SAME POS AS 10		227.936926 Secs (227.937 Secs) [==>]	[3]
10	F160W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 0.47425, 0.6055		402.935899 Secs (402.936 Secs) [==>]	[3]	





Proposal 15959 - Visit 2 (02) - Observations of the JWST/GTO Very Rich Cluster Lens RMJ121218.5+273255.1

Wed Feb 05 16:02:54 GMT 2020

Visit	Proposal 15959, Visit 2 (02), scheduling Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/IR, ACS/WFC Special Requirements: SCHED 90%; AFTER 01									
	Patterns	#	Primary Pattern	Secondary Pattern	Exposures					
	(4)	Pattern Type=ACS-WFC-DITHER-LINE Purpose=DITHER Number Of Points=4 Point Spacing=3.034 Line Spacing=	Coordinate Frame=POS-TARG Pattern Orientation=85.29 Angle Between Sides= Center Pattern=false		(1)					
Fixed Targets	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	(1)	RMJ121218.5+273255.1	RA: 12 12 19.2234 (183.0800975d) Dec: +27 33 8.65 (27.55240d) Equinox: J2000		V=15+/-2	Reference Frame: ICRS				
	<i>Comments:</i> Category=CLUSTER OF GALAXIES Description=[GRAVITATIONAL LENS, RICH CLUSTER]									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F606W	(1) RMJ121218.5+273255.1	ACS/WFC, ACCUM, WFCENTER	F606W		POS TARG -6,-7.5; GS ACQ SCENARI O BASE1B3	Pattern 4, Exps 1-1 i n Visit 2 (02) (4)	400 Secs (1904 Secs) [==>476.0 Secs (Pattern 1)] [==>476.0 Secs (Pattern 2)] [==>476.0 Secs (Pattern 3)] [==>476.0 Secs (Pattern 4)]	[1]
	2	F160W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 6.84275, 0.30275; GS ACQ SCENARI O BASE1B3		402.935899 Secs (402.936 Secs) [==>]	[2]
	3	F125W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F125W	NSAMP=10; SAMP-SEQ=SPAR S25	SAME POS AS 2		227.936926 Secs (227.937 Secs) [==>]	[2]
	4	F105W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F105W	NSAMP=7; SAMP-SEQ=SPAR S50	SAME POS AS 2		302.934997 Secs (302.935 Secs) [==>]	[2]
	5	F140W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F140W	NSAMP=10; SAMP-SEQ=SPAR S25	SAME POS AS 2		227.936926 Secs (227.937 Secs) [==>]	[2]
	6	F140W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F140W	NSAMP=10; SAMP-SEQ=SPAR S25	SAME POS AS 9		227.936926 Secs (227.937 Secs) [==>]	[2]
	7	F105W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F105W	NSAMP=7; SAMP-SEQ=SPAR S50	SAME POS AS 9		302.934997 Secs (302.935 Secs) [==>]	[2]
	8	F125W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F125W	NSAMP=10; SAMP-SEQ=SPAR S25	SAME POS AS 9		227.936926 Secs (227.937 Secs) [==>]	[2]
	9	F160W	(1) RMJ121218.5+273255.1	WFC3/IR, MULTIACCUM, IR-FIX	F160W	NSAMP=9; SAMP-SEQ=SPAR S50	POS TARG 7.317,0. 90825		402.935899 Secs (402.936 Secs) [==>]	[2]

