



# 13413 - Star formation and Dissolution Across Dynamically Distinct Environments in NGC 1097

Cycle: 21, Proposal Category: GO

(UV Initiative)

(Availability Mode: SUPPORTED)

## INVESTIGATORS

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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) NGC-1097	WFC3/UVIS	2	11-Jul-2013 19:26:24.0	yes
02	(2) NGC1097SOUTH	WFC3/UVIS	2	11-Jul-2013 19:26:36.0	yes

4 Total Orbits Used

## **ABSTRACT**

Strongly barred spirals offer a unique laboratory of dynamically distinct environments such as the bar, bar ends, nuclear and inner rings, and spiral arms where the star formation rates and perhaps the cluster dissolution rates vary by orders of magnitude. This proposal aims to add to the shallow existing F658N and F814W HST data to acquire a complete suite of U,B,V, I and H $\alpha$  data that will allow us to identify and age-date stellar clusters and measure the cluster mass functions across the various environments. The data will allow us to understand where the stars are forming, how they are evolving and travelling on the different orbital families within the bar, and at what rate they are dissolving into the field population. What makes this study timely is that we have recently been granted high resolution and sensitive observations of the molecular gas and dust in NGC 1097 with ALMA. We also have N-body and purely hydrodynamic simulations of bars that have been used previously to constrain bar dynamics using coarse and low quality data. But now together with the HST and ALMA data plus the models we can confidently measure the triggering mechanisms for star formation, the star formation efficiency, the cluster mass function and dissolution rates in the various environments across this strongly barred system.

## **OBSERVING DESCRIPTION**

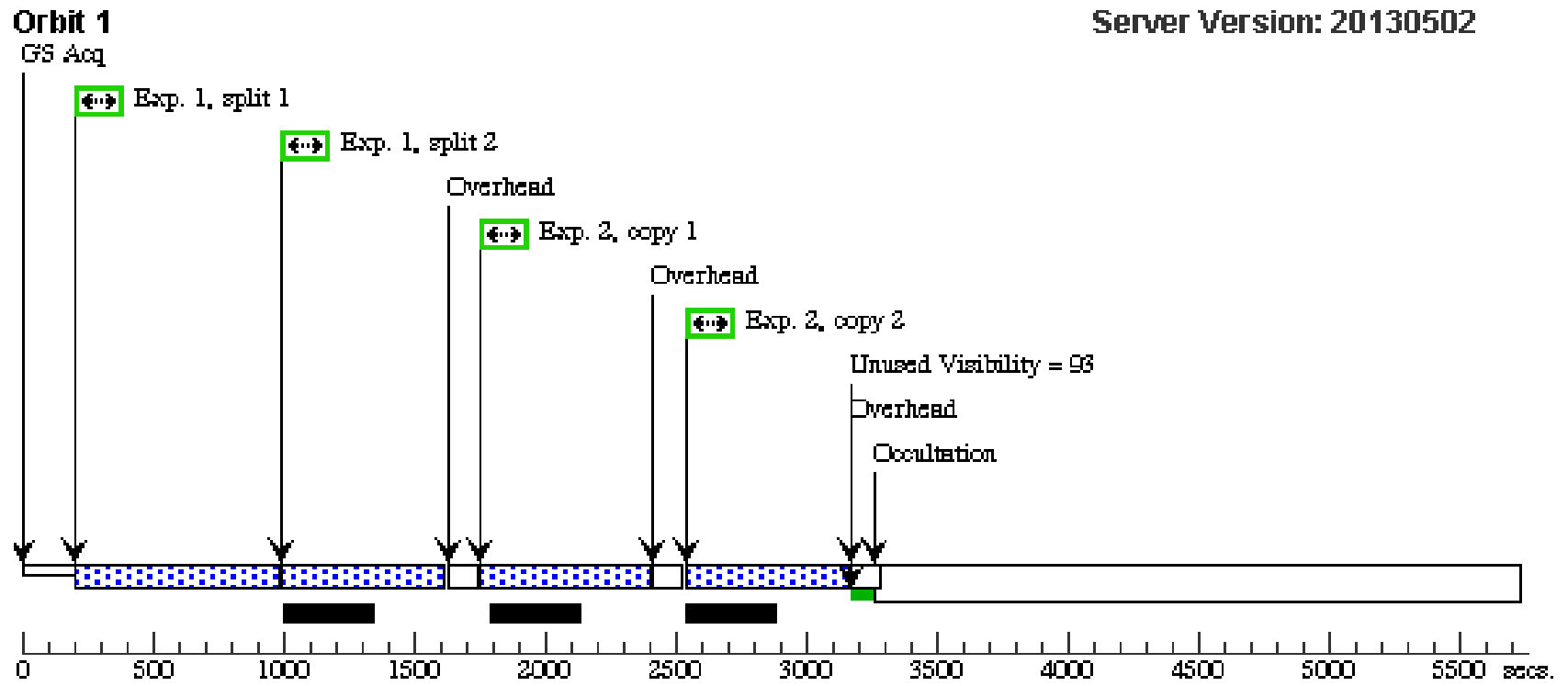
We seek to map NGC 1097 in multiple filters to achieve our science goals.

Proposal 13413 - Visit 01 - Star formation and Dissolution Across Dynamically Distinct Environments in NGC 1097

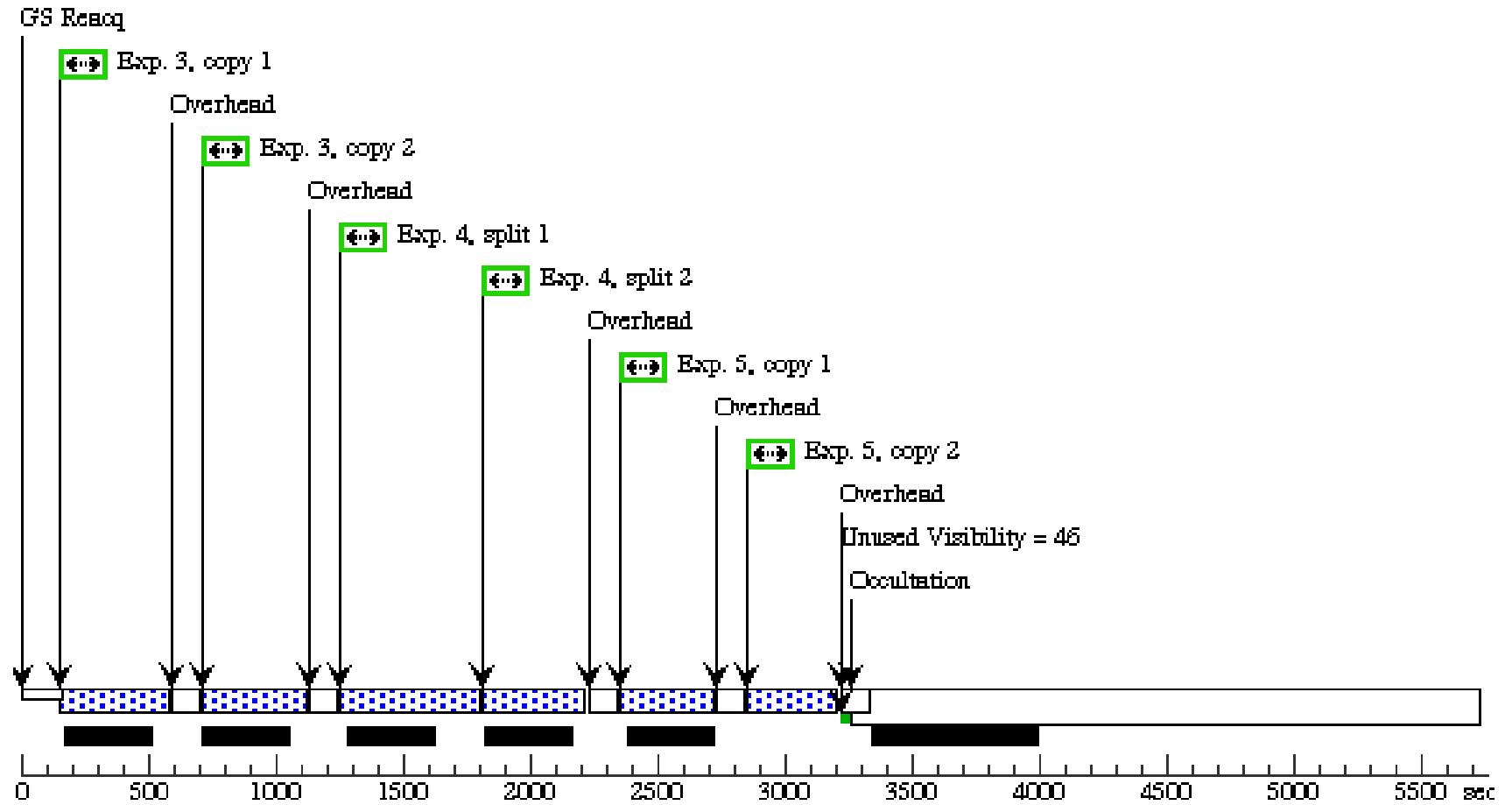
Thu Jul 11 23:26:44 GMT 2013

Fixed Targets	Visit									
	#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous				
	Proposal 13413, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: ORIENT 269D TO 279 D; ORIENT 89D TO 91 D									
	(1)	NGC-1097	RA: 02 46 15.7194 (41.5654975d) Dec: -30 15 56.08 (-30.26558d) Equinox: J2000		V=9.48	Reference Frame: SIMBAD				
	<i>Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.</i>									
Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F657N	(1) NGC-1097	WFC3/UVIS, ACCUM, UVIS	F657N	FLASH=8; CR-SPLIT=2	GS ACQ SCENARI O SINGLE		1250 Secs (1250 Secs)	
									[==>(Split 1)]	[1]
									[==>(Split 2)]	
	2	F336W	(1) NGC-1097	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=10			622 Secs X 2 (1244 Secs)	
									[==>(Copy 1)]	[1]
								[==>(Copy 2)]		
3	F547M	(1) NGC-1097	WFC3/UVIS, ACCUM, UVIS	F547M	FLASH=6			408 Secs X 2 (816 Secs)		
								[==>(Copy 1)]	[2]	
								[==>(Copy 2)]		
4	F438W	(1) NGC-1097	WFC3/UVIS, ACCUM, UVIS	F438W	FLASH=6; CR-SPLIT=2			809 Secs (809 Secs)		
								[==>(Split 1)]	[2]	
								[==>(Split 2)]		
5	F814W	(1) NGC-1097	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=6			350 Secs X 2 (700 Secs)		
								[==>(Copy 1)]	[2]	
								[==>(Copy 2)]		

Orbit Structure



Orbit 2



Proposal 13413 - Visit 02 - Star formation and Dissolution Across Dynamically Distinct Environments in NGC 1097

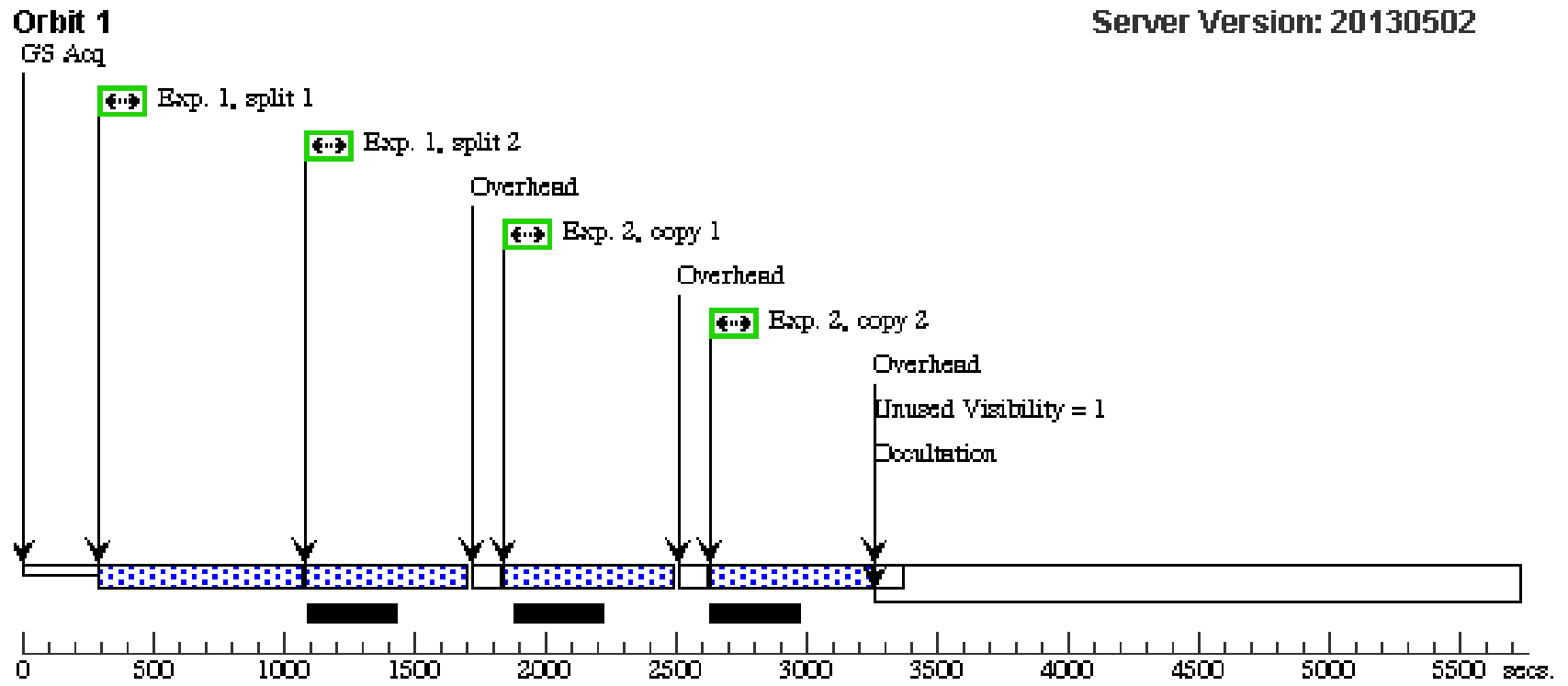
Thu Jul 11 23:26:47 GMT 2013

Fixed Targets	Visit				
	Proposal 13413, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: WFC3/UVIS Special Requirements: SAME ORIENT AS 01				
#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(2)	NGC1097SOUTH	RA: 02 46 22.4643 (41.5936012d) Dec: -30 17 34.56 (-30.29293d) Equinox: J2000		V=9.48	Reference Frame: SIMBAD

Exposures	#	Label	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
	1	F657N	(2) NGC1097SOUTH H	WFC3/UVIS, ACCUM, UVIS	F657N	FLASH=8; CR-SPLIT=2			1250 Secs (1250 Secs) [==>(Split 1)] [==>(Split 2)]	[1]
	2	F336W	(2) NGC1097SOUTH H	WFC3/UVIS, ACCUM, UVIS	F336W	FLASH=10			622 Secs X 2 (1244 Secs) [==>(Copy 1)] [==>(Copy 2)]	[1]
	3	F547M	(2) NGC1097SOUTH H	WFC3/UVIS, ACCUM, UVIS	F547M	FLASH=6			408 Secs X 2 (816 Secs) [==>(Copy 1)] [==>(Copy 2)]	[2]
	4	F438W	(2) NGC1097SOUTH H	WFC3/UVIS, ACCUM, UVIS	F438W	FLASH=6; CR-SPLIT=2			809 Secs (809 Secs) [==>(Split 1)] [==>(Split 2)]	[2]
	5	F814W	(2) NGC1097SOUTH H	WFC3/UVIS, ACCUM, UVIS	F814W	FLASH=6			350 Secs X 2 (700 Secs) [==>(Copy 1)] [==>(Copy 2)]	[2]

Orbit Structure



**Orbit 2**

