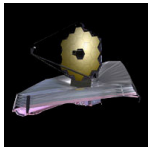

3777 - The LAHst of Us: a Sub-kiloparsec View Into The Origins Of a Strongly-Lensed Lyman Alpha Halo at z=3

Cycle: 2, Proposal Category: GO

INVESTIGATORS

Name	*Institution*
Manuel Solimano (PI)	**Diego Portales University**
Dr. Jorge Ignacio Gonzalez Lopez (CoI) (US Admin CoI)	Carnegie Institution of Washington
Prof. Manuel Aravena (CoI)	Diego Portales University
Prof. Keren Sharon (CoI)	University of Michigan
Mr. Kedar A Phadke (CoI)	University of Illinois at Urbana - Champaign
Prof. Michael D. Gladders (CoI)	University of Chicago
Dr. Jane R. Rigby (CoI)	NASA Goddard Space Flight Center
Prof. Joaquin Vieira (CoI)	University of Illinois at Urbana - Champaign
Dr. Matthew Bayliss (CoI)	University of Cincinnati Main Campus
Dr. James Rhoads (CoI)	NASA Goddard Space Flight Center
Dr. Taylor Alexandra Hutchison (CoI)	NASA Goddard Space Flight Center
Prof. John Chisholm (CoI)	University of Texas at Austin
Dr. Keunho J. Kim (CoI)	California Institute of Technology
Dr. Sebastian Lopez (CoI)	Universidad de Chile
Dr. Nicolas Tejos (CoI)	Pontificia Universidad Catolica de Valparaiso
Dr. Leopoldo Infante (CoI)	Carnegie Institution of Washington
Dr. Tanio Diaz-Santos (CoI) (ESA Member)	FORTH - Institute of Astrophysics

OBSERVATIONS

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
Observation Folder				

Folder	*Observation*	*Label*	*Observing Template*	*Science Target*
	1	mosaic	NIRSpec IFU Spectroscopy	(1) SGAS-J122651.3+215220

ABSTRACT

We propose a 4-tile NIRSpec IFU mosaic of the SGASJ1226 system at z=2.92, a pair of interacting star-forming galaxies that is highly magnified thanks to gravitational lensing. Deep and high-resolution VLT/MUSE data revealed a Lyman Alpha halo associated with the clumpy and blue merging galaxies, suggesting the presence of large-scale winds and H I gas reservoirs in their close environment. We will map all the strong rest-frame optical lines on 100-500 pc scales and constrain the conditions that give rise to the extended Lyman-a emission. Using the detailed, resolved nebular emission lines ratios and constraints on the stellar populations, we will: (i) Connect the physical conditions of the star-forming ISM to the extended Lyman-a emission; (ii) Constrain Ly emission mechanisms; (iii) Search for the drivers of the large scale outflow. Combining the proposed JWST data with a wealth of ancillary datasets, including ALMA, MUSE, HST and early-release JWST, offers the unique opportunity to peer with unprecedented detail into the origins of Lyman-a halos.

OBSERVING DESCRIPTION

We propose a 4x1 tile NIRSpec IFU mosaic covering SGASJ1226+21 at z=2.92, one of the best-studied and highly-lensed examples of a pair of merging LBGs bound to a Lyman Alpha Halo. Our observations are designed to measure and spatially resolve strong nebular emission lines from Hbeta to [N II] 6583 in the arc B. The proposed mosaic complements existing single pointing NIRspec IFU data that covers the other galaxy in the system.

The instrument is configured with the G235/F170LP grating/filter combination, yielding R~2700, enought to resolve the lines and reveal potential broad components with FWHM > 400 km/s.

Proposal 3777 - Targets - The LAHst of Us: a Sub-kiloparsec View Into The Origins Of a Strongly-Lensed Lyman Alpha Halo at z=3

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Miscellaneous
(1)	SGAS-J122651.3+215220	RA: 12 26 51.5085 (186.7146187d) Dec: +21 52 15.10 (21.87086d) Equinox: J2000	Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Galaxy
Description=[High-redshift galaxies, Lyman-alpha galaxies, Lyman-break galaxies]
Extended=YES

Observation

Proposal 3777, Observation 1: mosaic Thu Mar 14 00:00:32 GMT 2024

Diagnostic Status: Warning

Observing Template: NIRSpec IFU Spectroscopy

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)	SGAS-J122651.3+215220	RA: 12 26 51.5085 (186.7146187d) Dec: +21 52 15.10 (21.87086d) Equinox: J2000	Epoch of Position: 2015.5	

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=Galaxy
Description=[High-redshift galaxies, Lyman-alpha galaxies, Lyman-break galaxies]
Extended=YES

Template

TA Method
NONE

Mosaic

Rows	Columns	Row Overlap %	Column Overlap %	Row shift (deg)	Column shift (deg)	Tile Order
4	1	5.0	8.0	0.0	20.0	DEFAULT

Dithers

#	Dither Type	Size	Starting Point	Number of Points	Points
1	CYCLING	SMALL	1	4	

Spectral Elements

#	Grating/Filter	Readout Pattern	Groups/Int	Integrations/Exp	Leakcal	Dither	Autocal	Total Dithers	Total Integrations	Total Exposure Time	ETC Wkbk.Calc ID
1	G235H/F170LP	NRSIRS2	14	1	false	true	NONE	4	4	4143.245	

Special Requirements	Aperture PA Range 79.97164917 to 95.97164917 Degrees (V3 301.0 to 317.0) Aperture PA Range 259.99911499 to 274.99911499 Degrees (V3 121.02746582 to 136.02746582)