Discussion on extragalactic science L. Pentericci & L. Vallini 14/06/2023

# What is the best strategy to follow-up with ALMA the tens of confirmed sources from JWST large programs (e.g. JADES etc)? On which lines should we focus on?

### Yoon+23, Bakx+23 ([OIII]88)

Deep ALMA search for z=12 GLASS offset [OIII]88µm? and GHZ1/GLz11 reporting marginal continuum (also offset)



### Kaasinen+23 ([CII] and [OIII]88)

non-detection the candidate z=13.2 galaxy HD1



Fujimoto+23 ([CII] and [OIII]88)

both detected, in a z=8.4 galaxy



# What is the best strategy to follow-up with ALMA the tens of confirmed sources from JWST large programs (e.g. JADES etc)? On which lines should we focus on?

## Simulations show a large variability in the expected luminosity modulated by e.g. bursts of star formation Kohandel+23 (SERRA), z=11.5



Nakazato+23 (FIRST Light)



#### Yang+23 (FIRE), z=6



Given the complex morphology of sources + complex dynamics is the spatial resolution so far achieved with ALMA adequate to constrain the models?

#### Kohandel+23 (SERRA), z=11.5









## JWST-ALMA synergies for dust characterization at high-z Do we understand the selection biases?



#### JWST z>10 galaxy candidates: opening a Pandora's box?

### taken from Sommovigo's Talk



### Kashino+23, Nature

[C II]-emitting galaxies at  $z \approx 5.7$  associated with high-ionization C IV absorption systems in the spectrum of background QSO at z= 6.308.

HIgh-z QSO close environment (Decarli+)

# What are the most promising synergies of current and future facilities in mm and sub-mm bands with those in other bands?

#### MOONS - Multi Object Optical and Near-infrared Spectrograph for the VLT

#### Content

- Milestones
- Instrument description
- Baseline Specification
- Scientific Objectives
- References and external links



MOONS will be a multi-objects spectrograph mounted at a Nasmyth focus at the VLT. It will have ~1000 fibers deployable over a field of view of ~500 square arcmin. The total wavelength coverage is from 0.6 micron to 1.8 micron, and it will have a low resolution and a medium resolution mode. In the medium resolution mode (R~4,000-6,000) the entire wavelength range 0.65-1.8 micron is observed simultaneously, while the high resolution mode covers simultaneously two selected spectral regions: one around the Call triplet (at R~9,000) to measure radial velocities, a second at R~20,000 in the H-band, for detailed measurements of chemical abundances.



Welcome to the webpage of the Atacama Large Aperture Submillimeter Telescope project. AtLAST is a concept for a next generation 50-meter class single-dish astronomical observatory operating at sub-millimeter and millimeter wavelengths, run as a facility telescope by an international partnership and powered by renewable energy.

