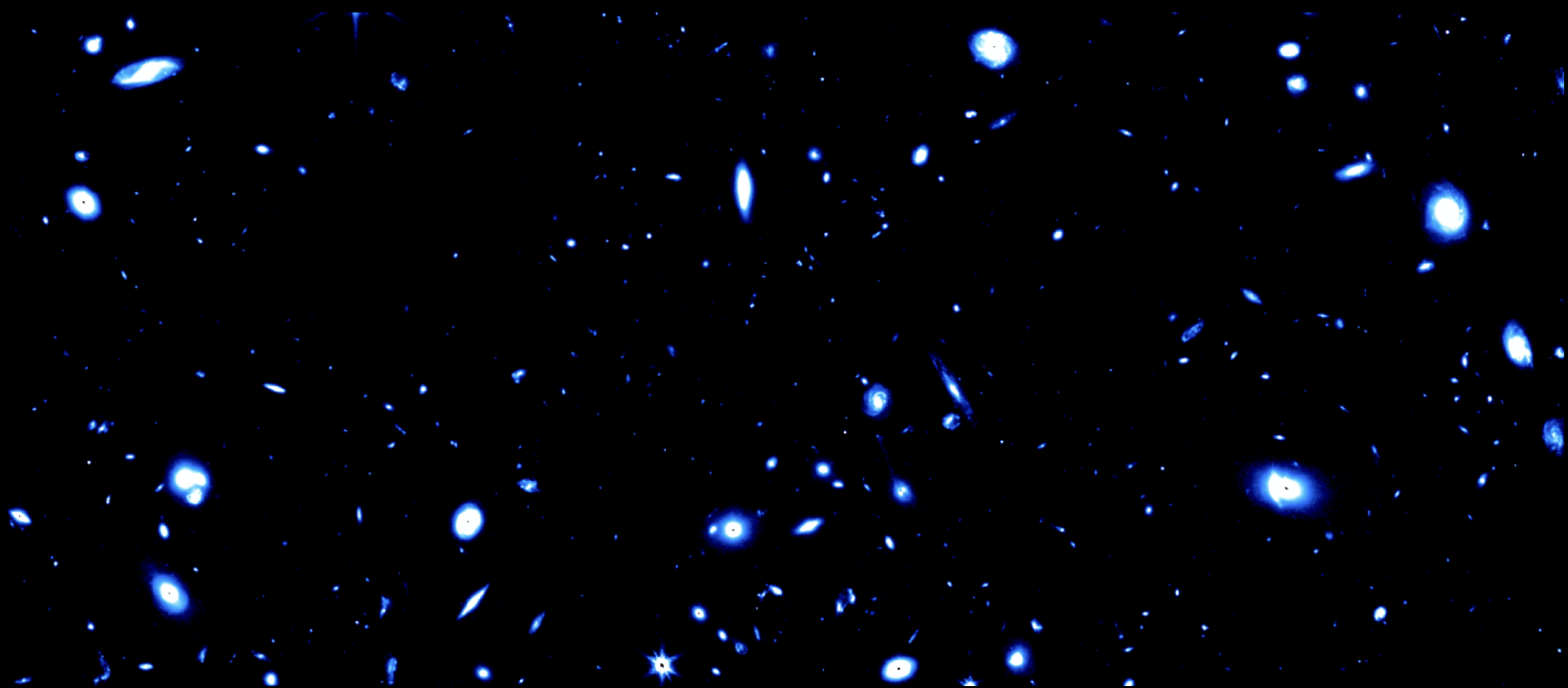


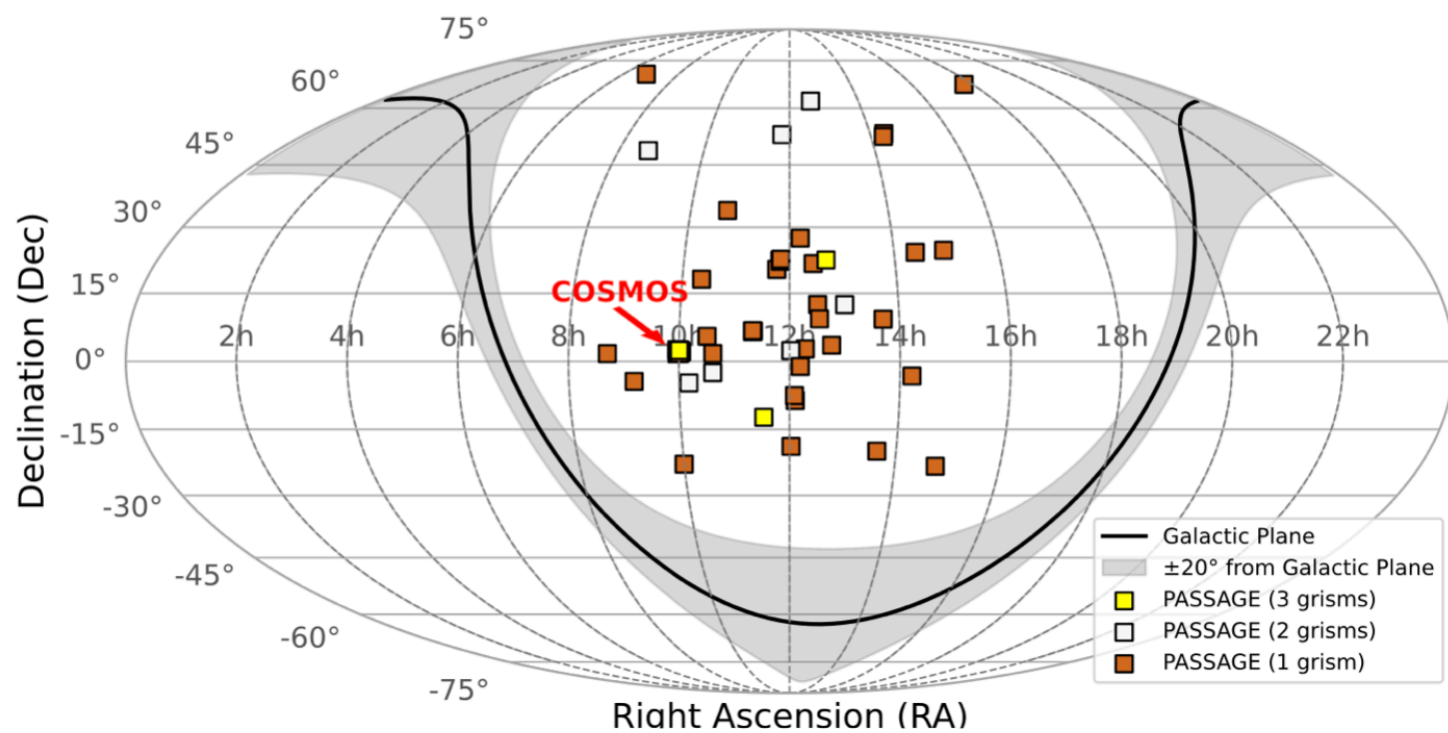
From JWST to Roman: A Unified View of Chemical Enrichment in Galaxies From Slitless Spectroscopy



Kalina Nedkova (Caltech/IPAC)

The PASSAGE Collaboration: Marc Rafelski, Farhan Hasan, Vihang Mehta, Zahra Sattari, Anahita Alavi, Hakim Atek, James Colbert, Matt Malkan, Harry Teplitz, and many more!

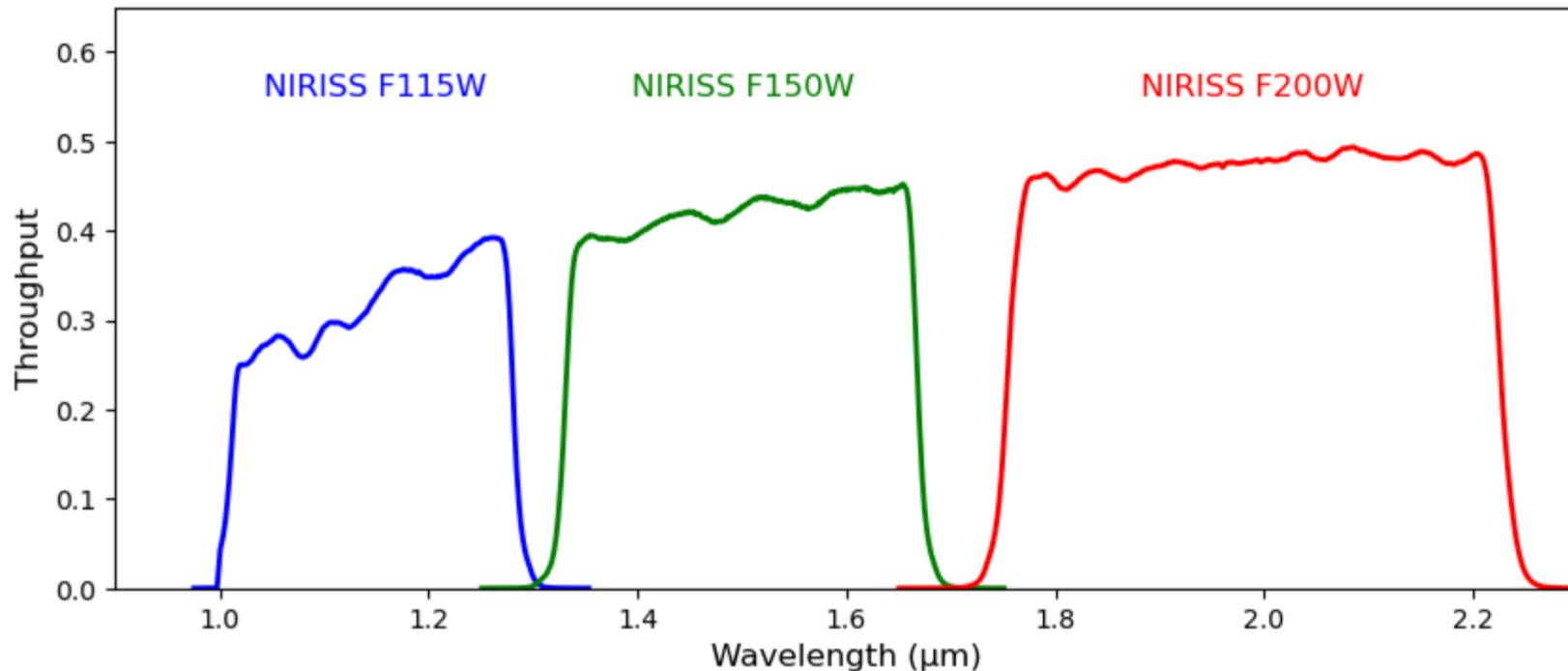
Parallel
Application of
Slitless
Spectroscopy to
Analyze
Galaxy
Evolution

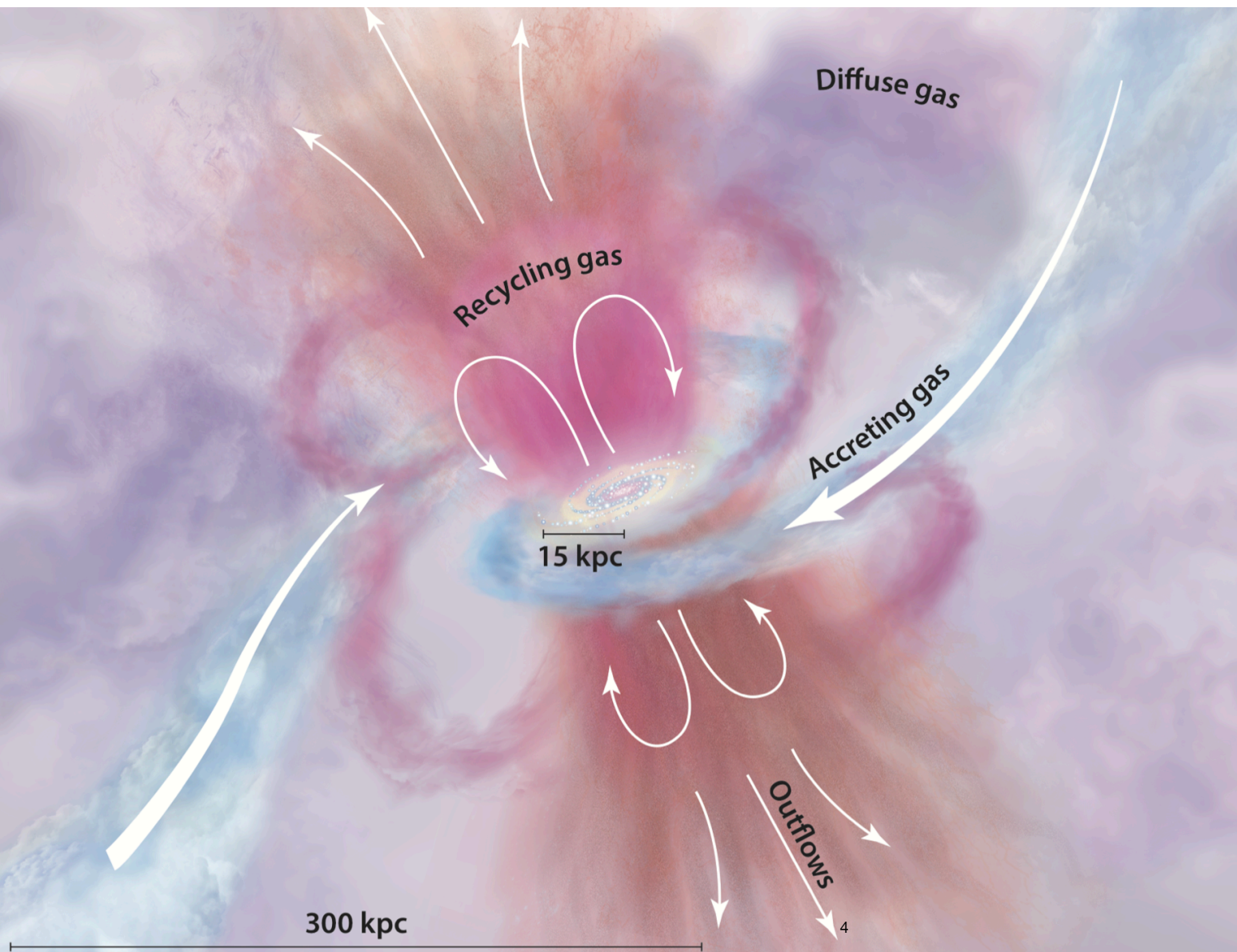


PASSAGE: a Pathfinder for Roman

This fitting code is now public!

K. V. Nedkova, A. Henry, M. Rafelski, M. Revalski, *Line Finding Software for NIRISS Slitless Spectroscopy*, Zenodo





Filamentary accretion of metal-poor gas

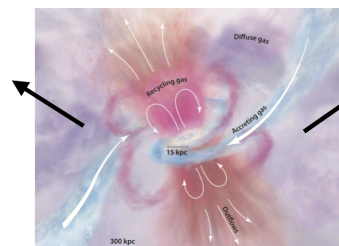
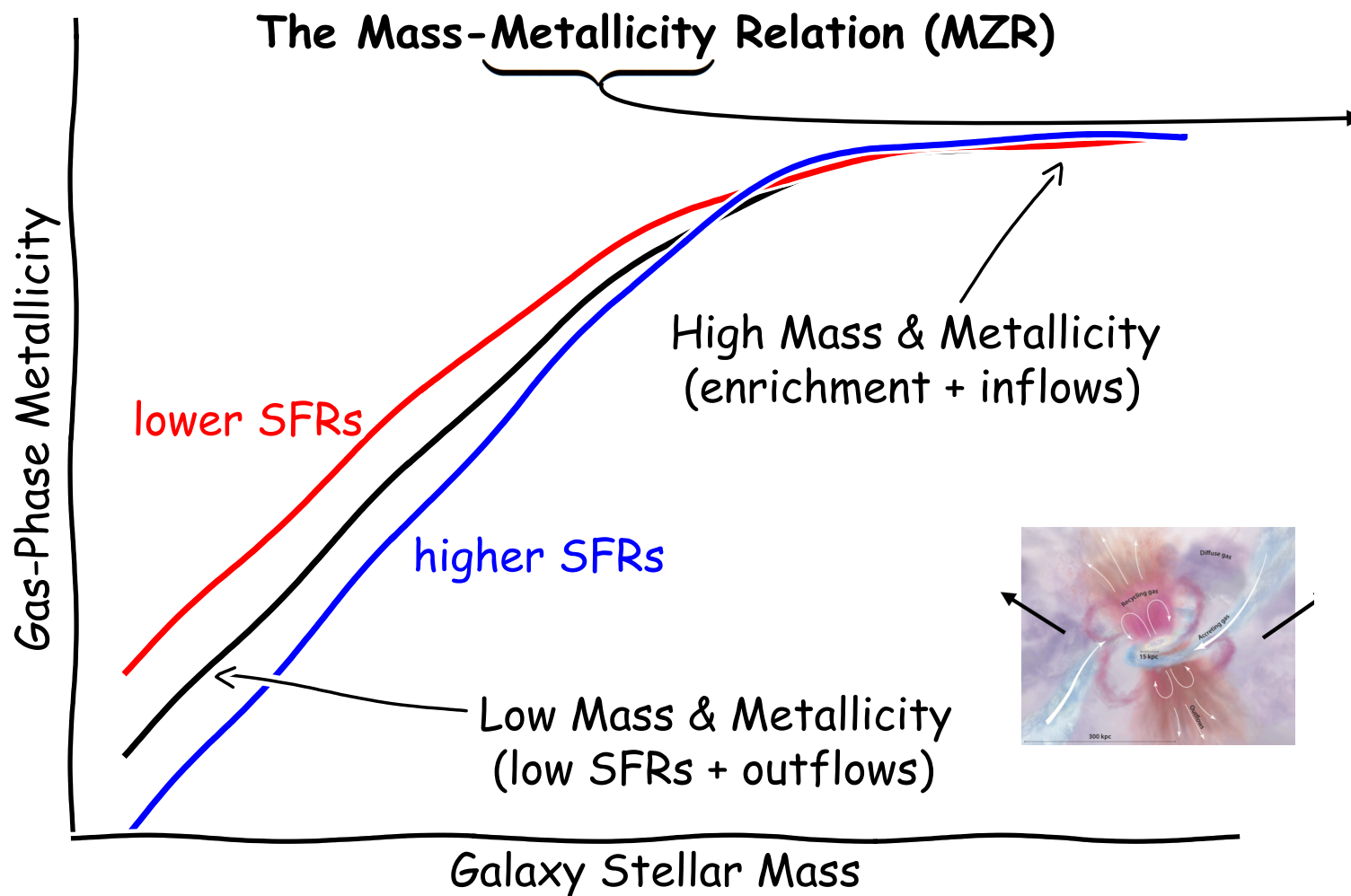
Triggering star formation within the galaxy

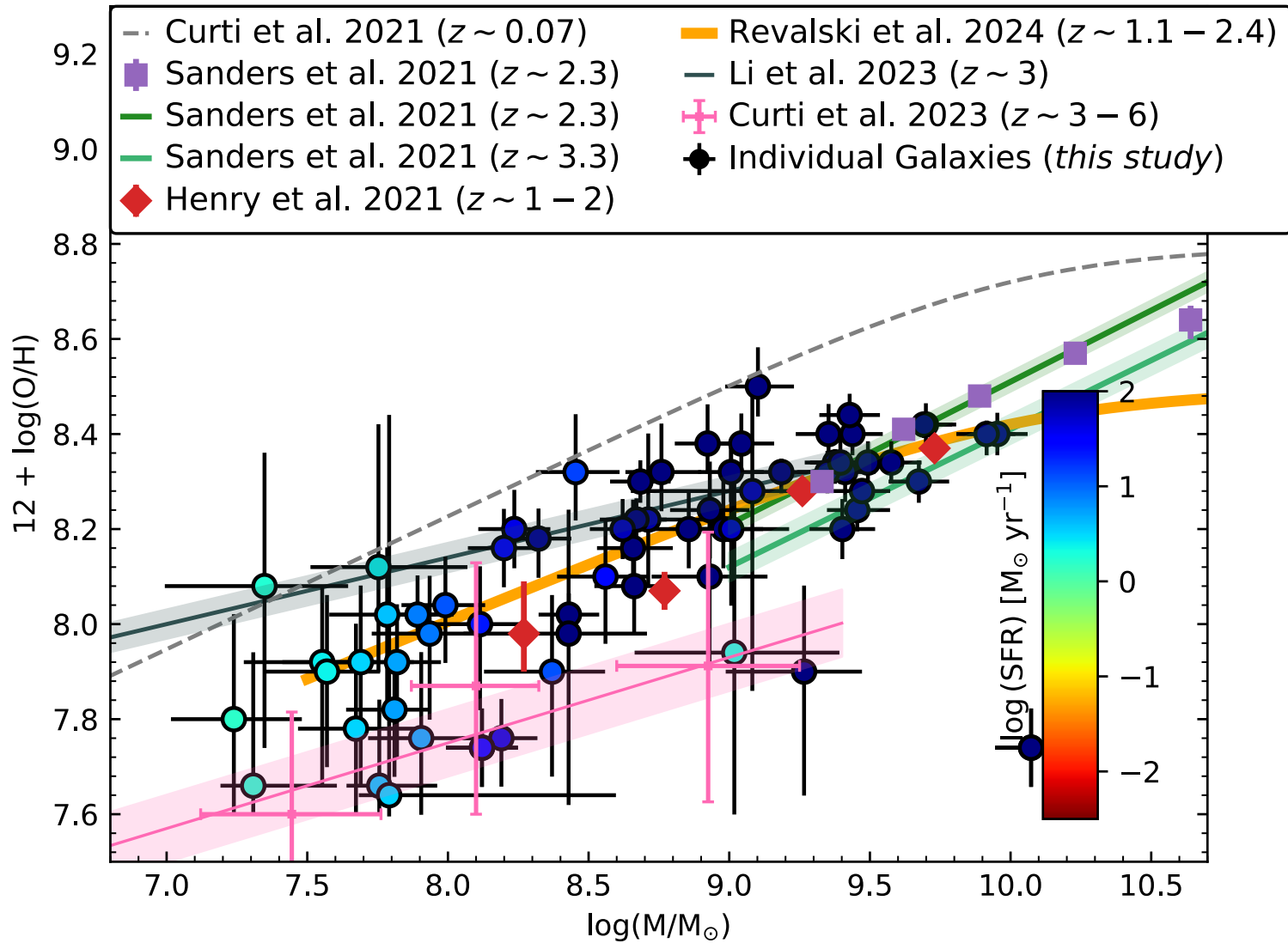
Stars produce heavy elements, enriching the interstellar medium

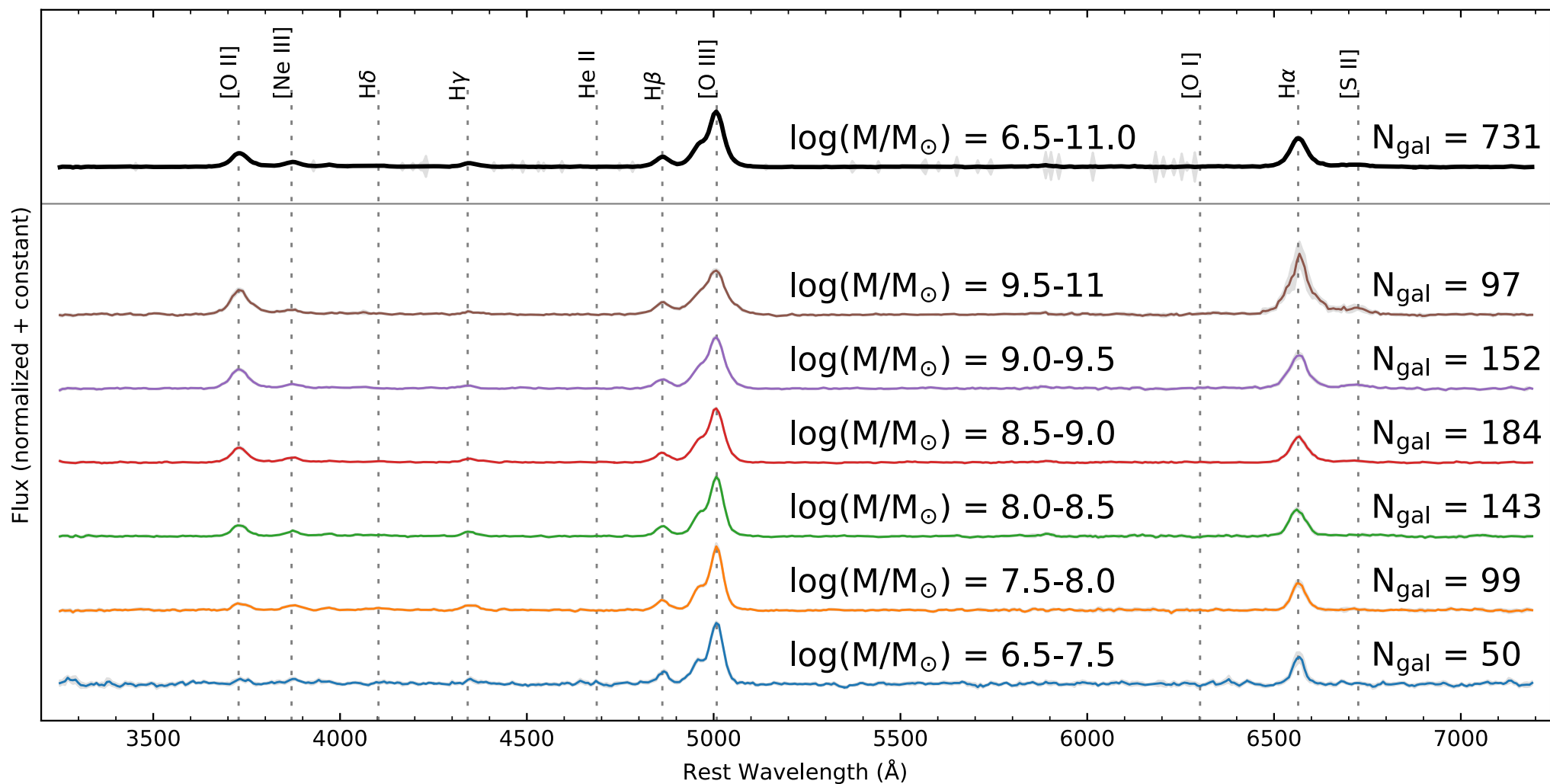
Outflows expel the enriched gas

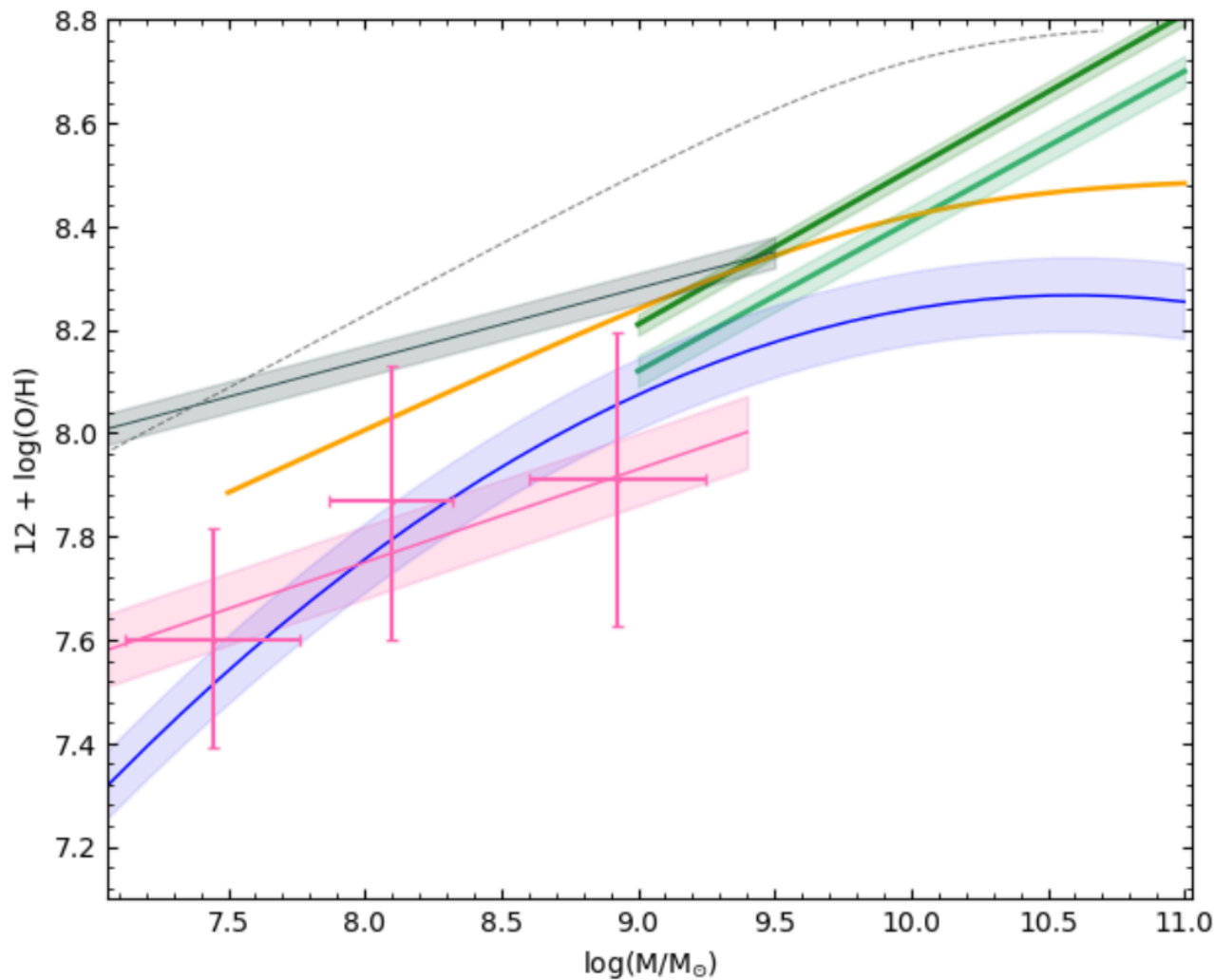
These processes depend on the mass of the galaxy

J. Tumlinson, M. Peebles, J. Werk, ARAA, 2017



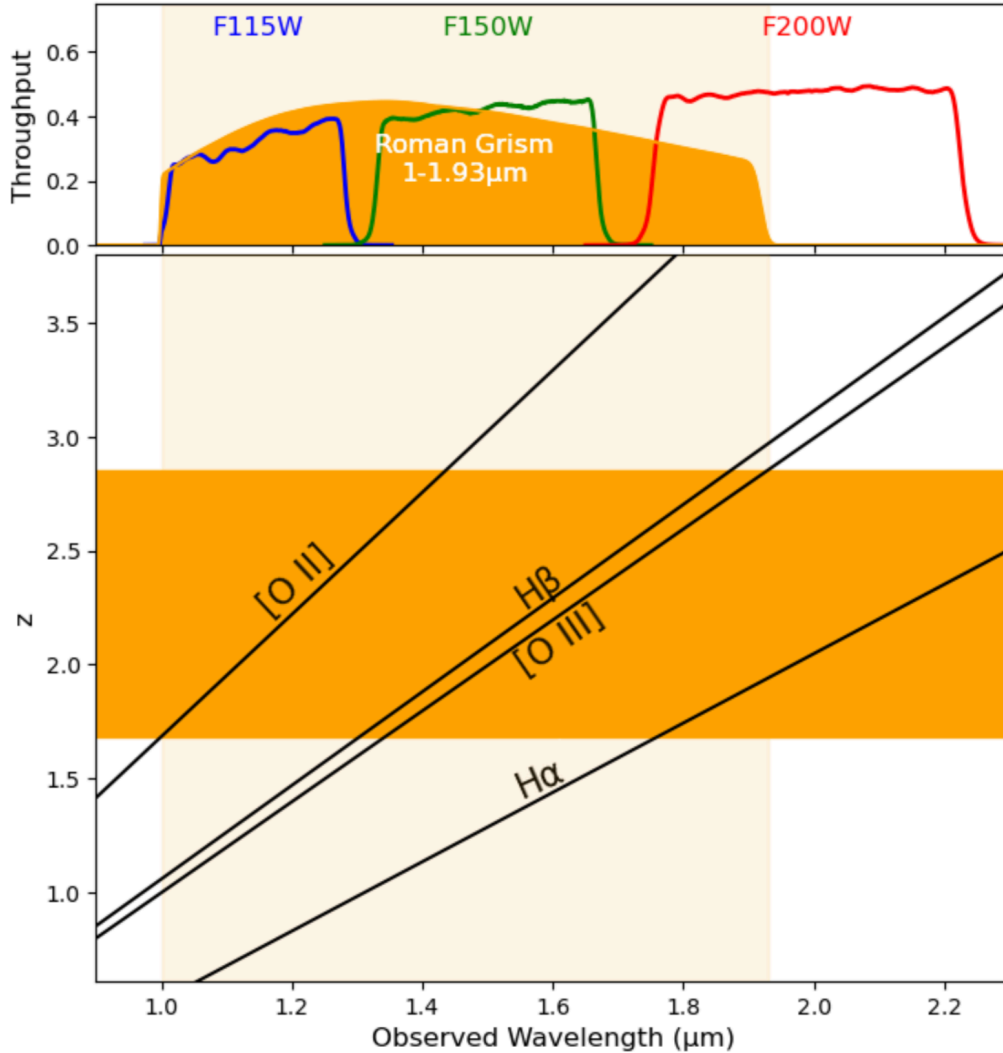






We see **no** evidence of a flattening in the slope of the MZR at lowest stellar masses.

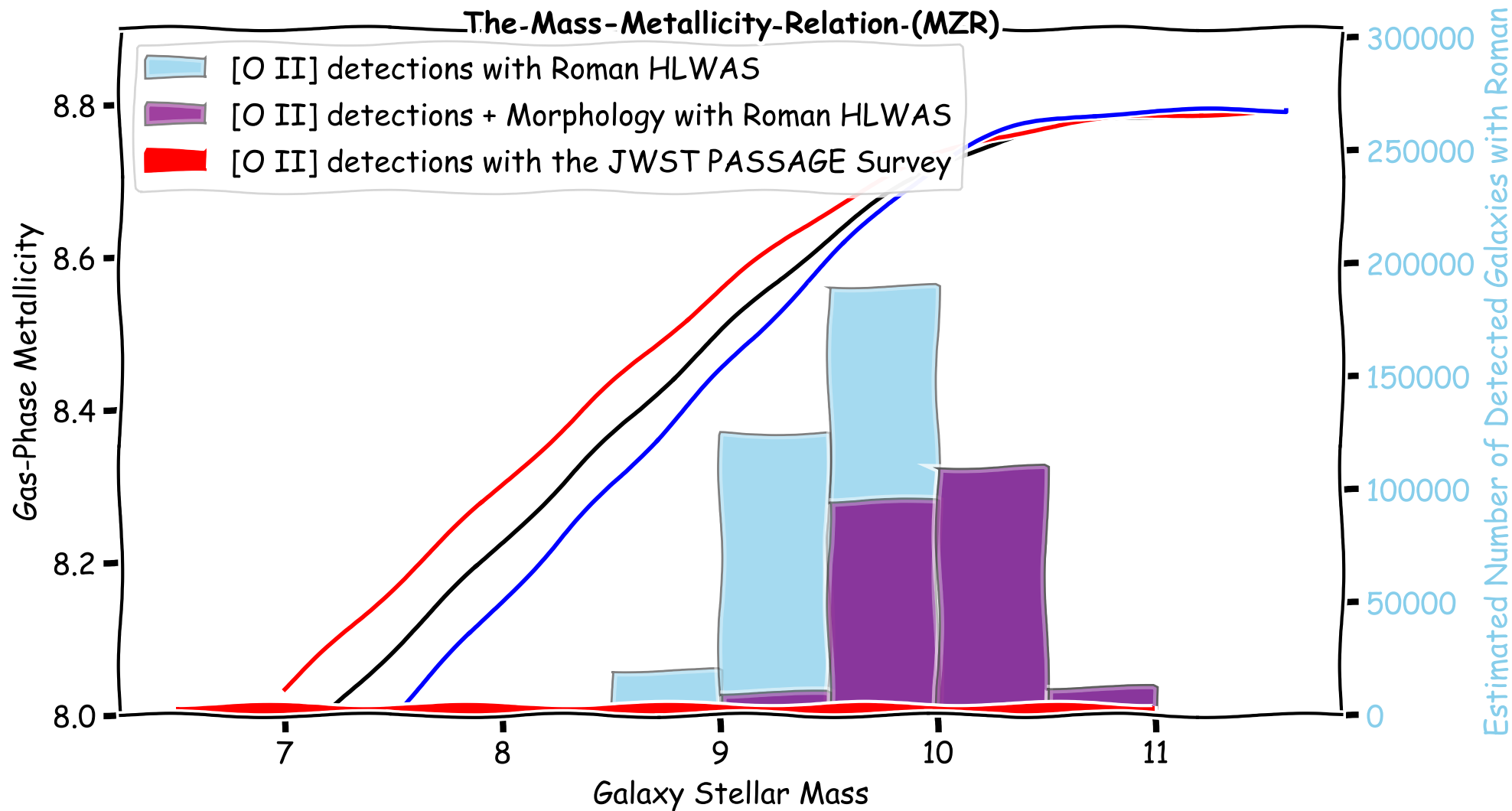
- Revalski et al. 2024 ($z \sim 1.1 - 2.4$)
- Sanders et al. 2021 ($z \sim 2.3$)
- Sanders et al. 2021 ($z \sim 3.3$)
- Curti et al. 2021 ($z \sim 0.07$)
- Li et al. 2023 ($z \sim 3$)
- Chemerynska et al. 2024 ($z \sim 6 - 8$)
- Curti et al. 2023 ($z \sim 3 - 6$)



Metallicity with Roman

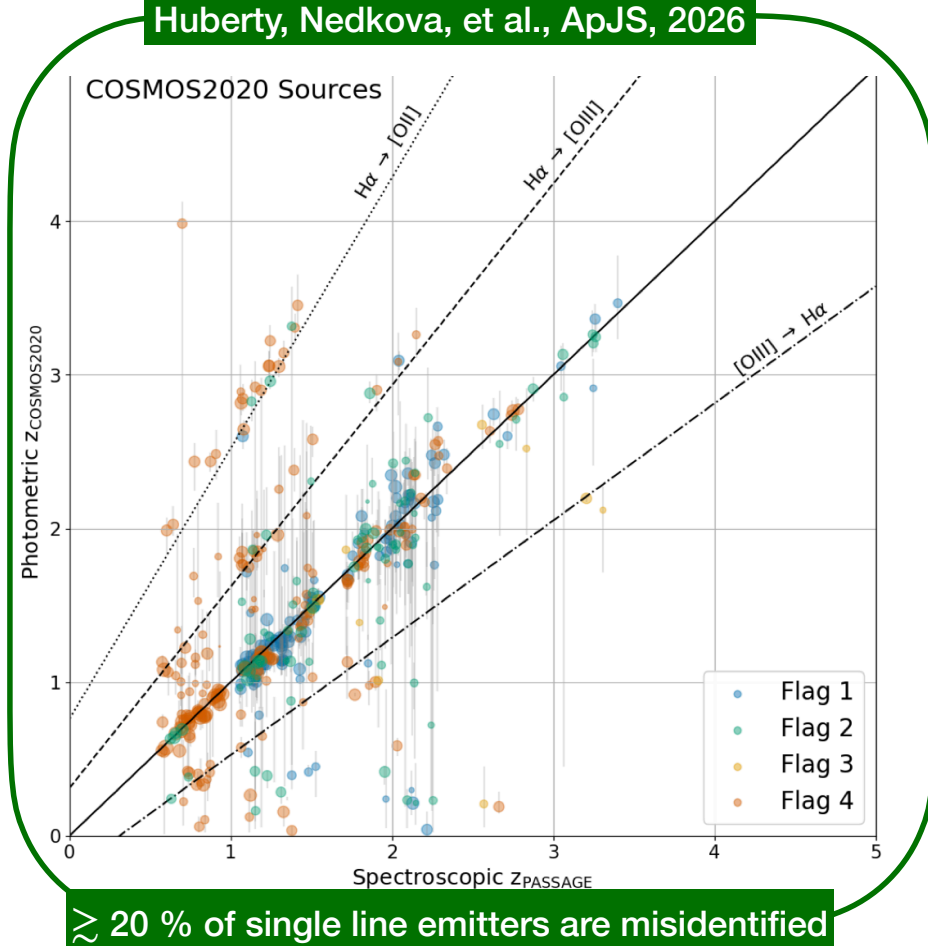
The Deep Tier of the High-Latitude Wide-Area Survey (HLWAS) will:

- cover $\sim 19.5 \text{ deg}^2$.
- measure key emission lines at $z \approx 1.7 - 2.8$

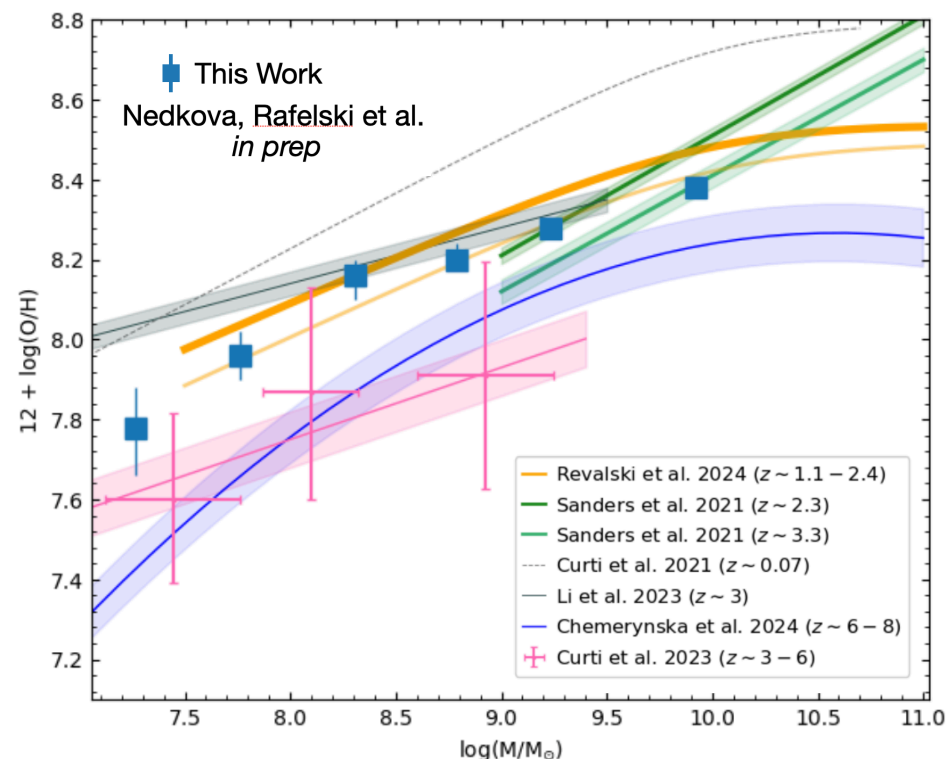


Emission Line Misidentification

Huberty, Nedkova, et al., ApJS, 2026



PASSAGE is revealing the details of the baryon cycle at low masses and low metallicity!



Thank you for listening!

