

MUSE-ALMA Halos Distribution of Gas and Metals in the CGM

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MMC 2022

ESO Garching, 6th – 9th December

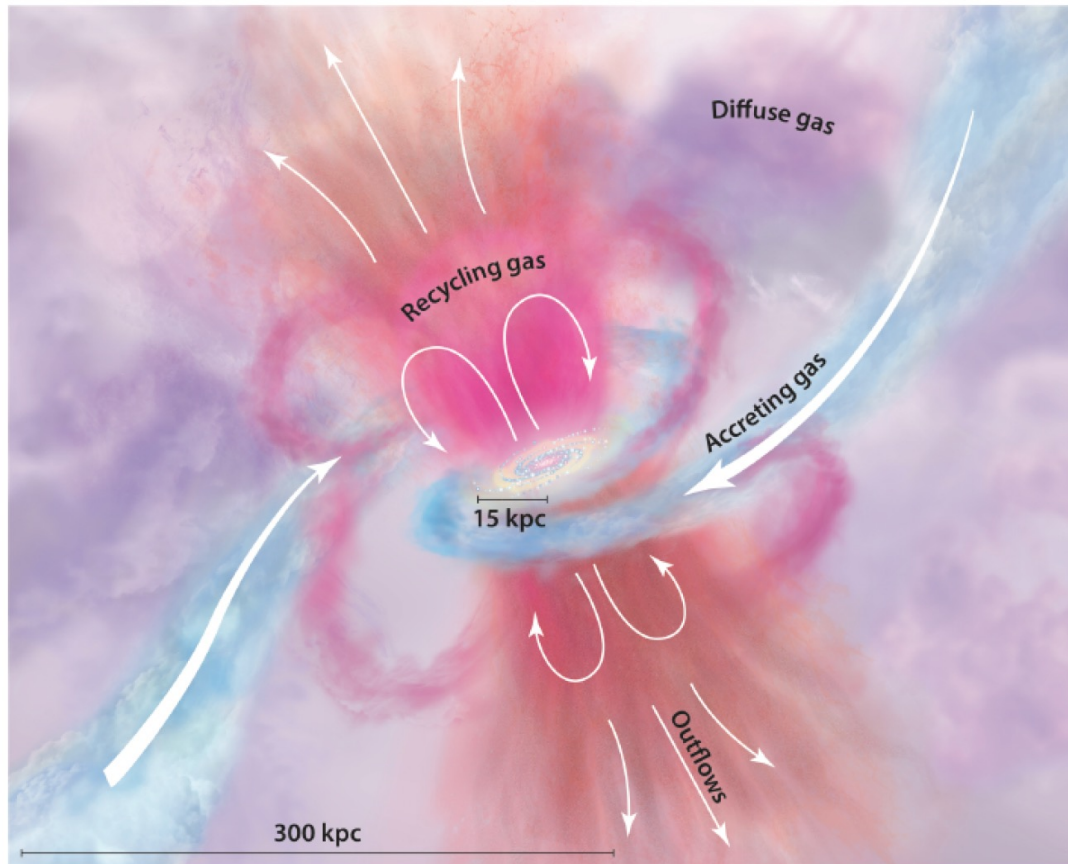


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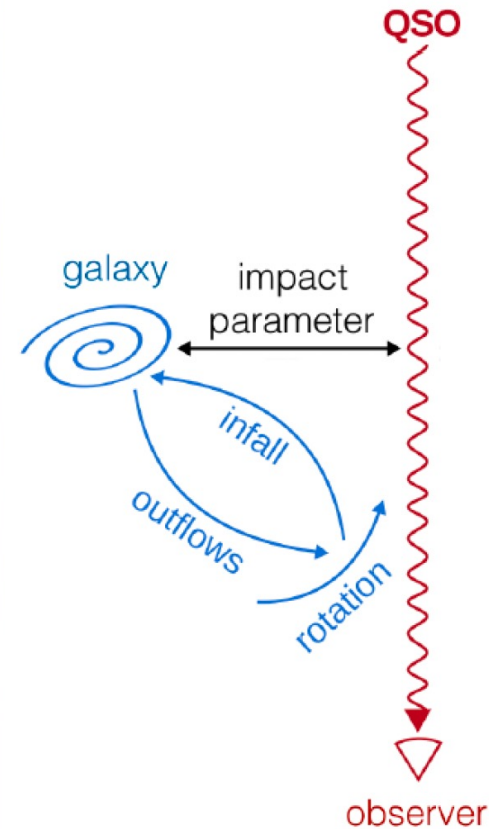
ASTRO 3D

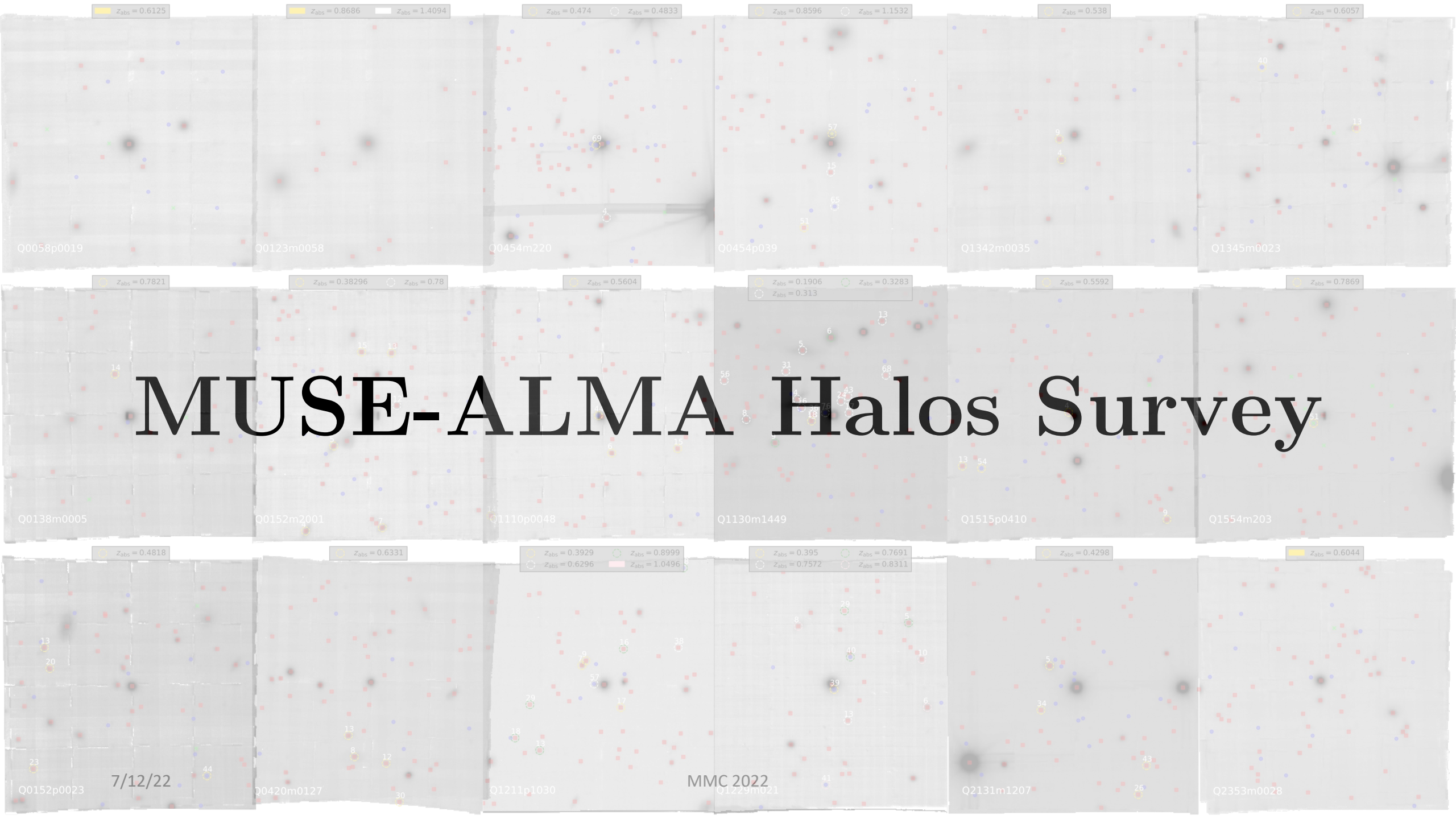


Probing Diffuse CGM with Absorption

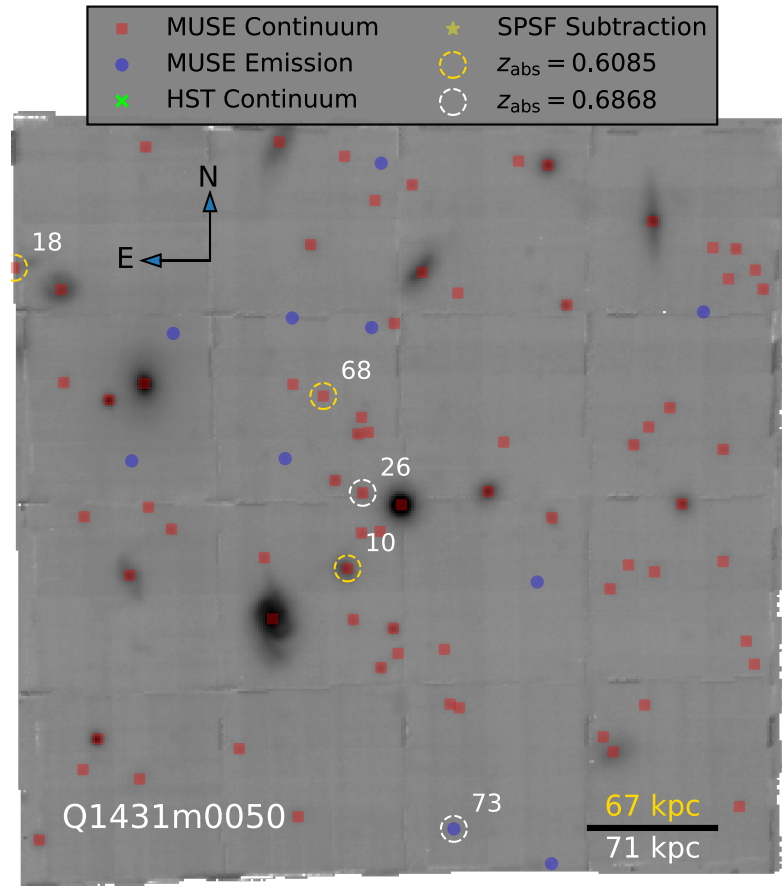


Tumlinson et al. (2017)



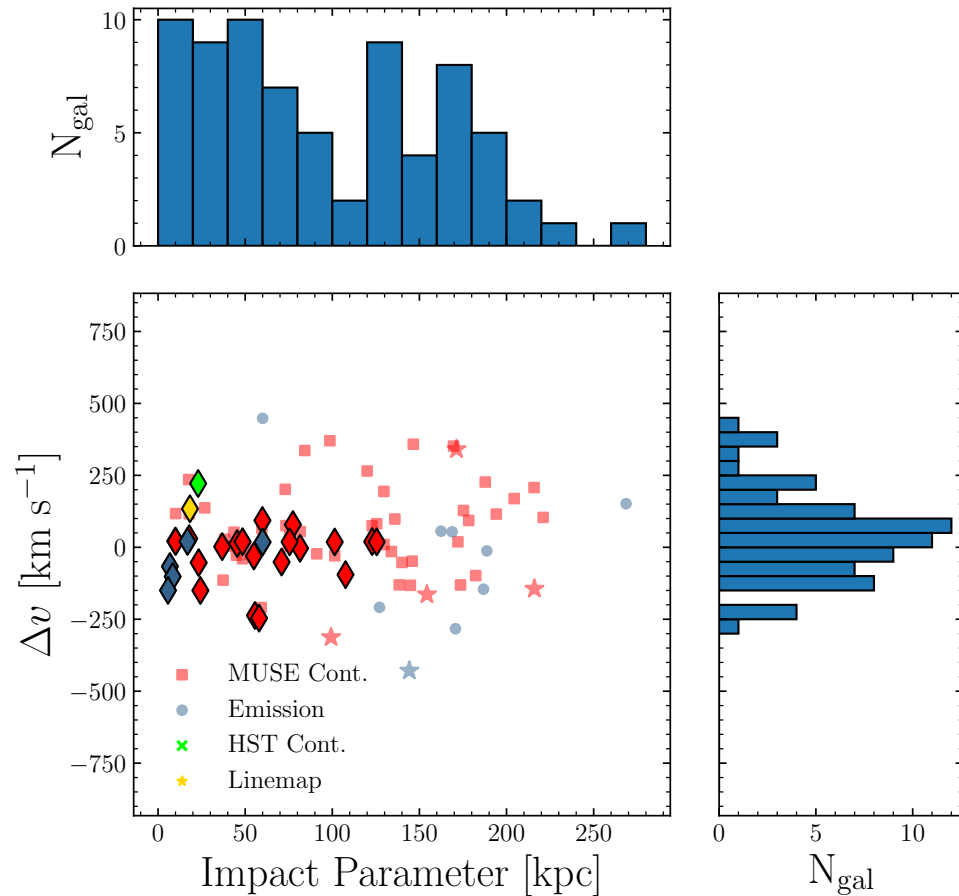


MUSE-ALMA Halos Survey Overview



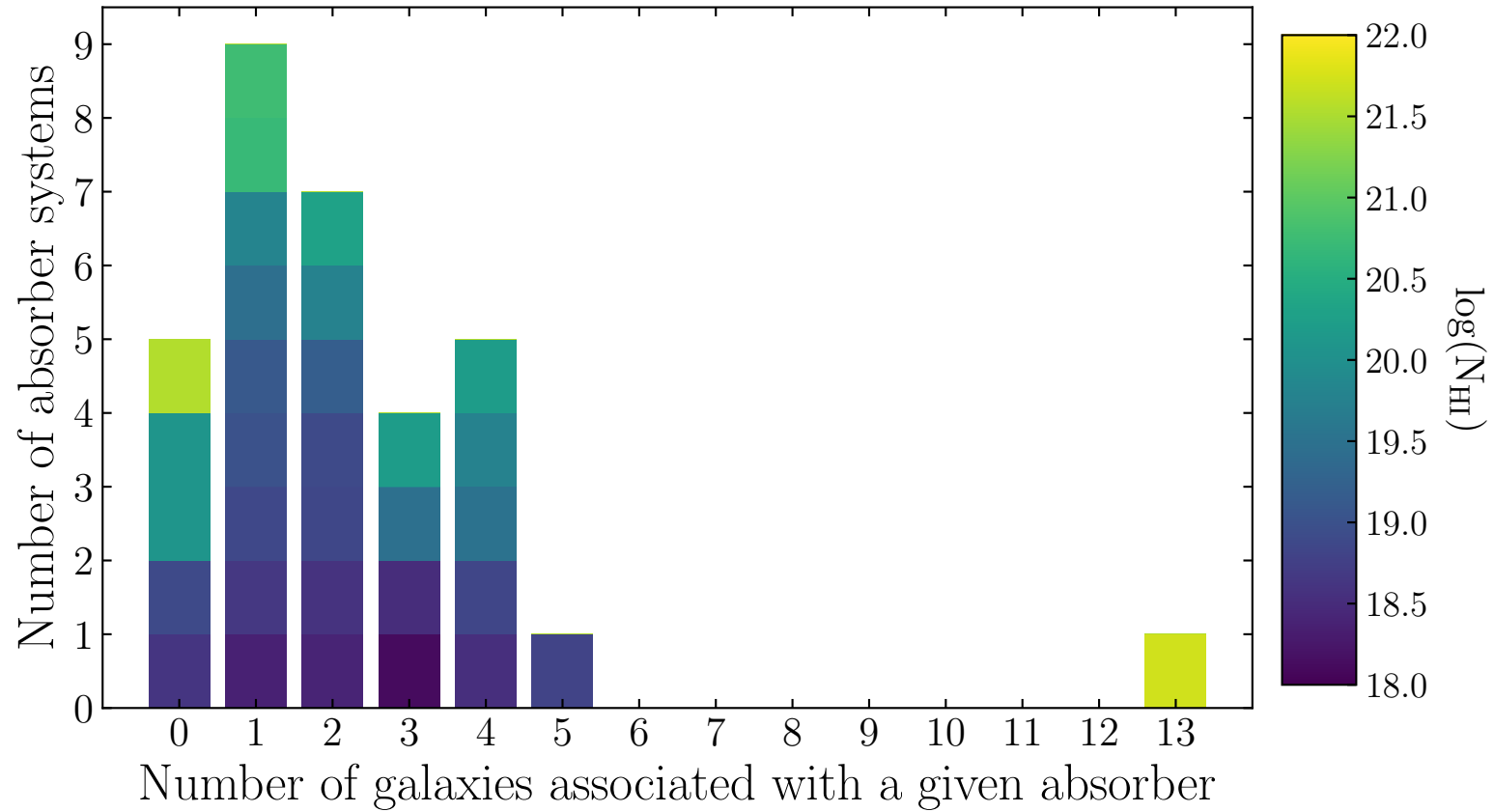
- 19 MUSE fields + HST, ALMA and high-resolution spectroscopy.
- 32 Ly- α absorbers in redshift range $0.2 < z < 1.4$.
- ~ 3500 objects and ~ 700 with z_{spec} .

Distribution of Associated Galaxies



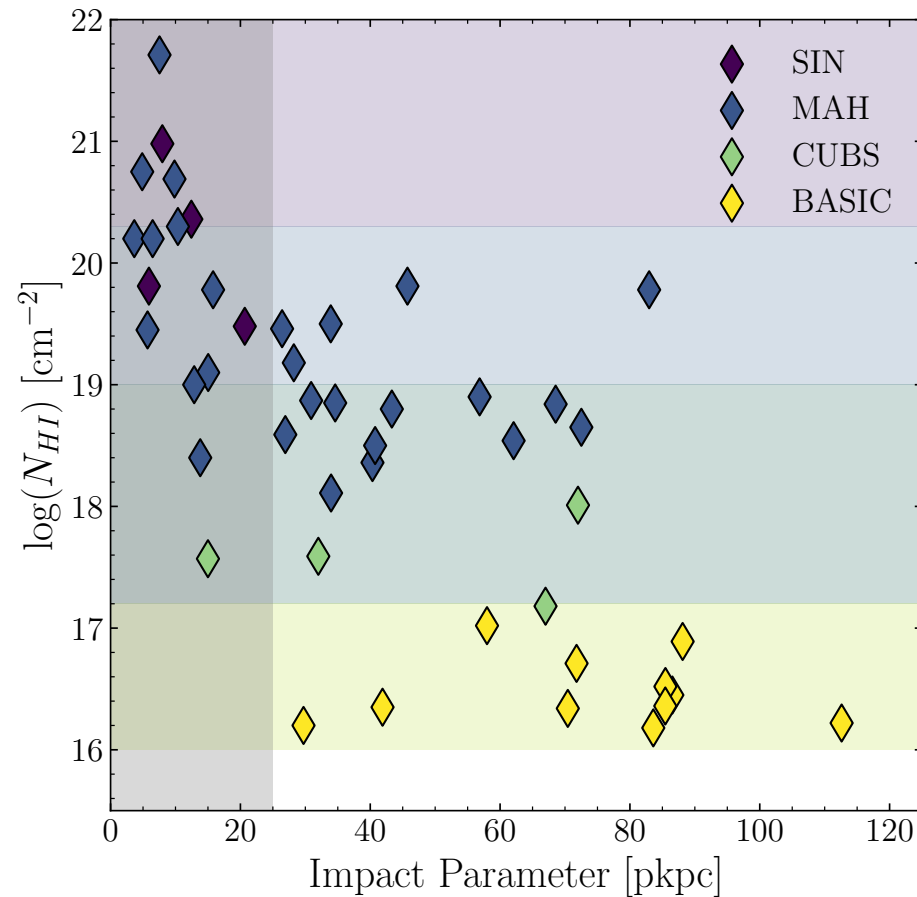
- 27/32 absorbers associated with 79 (73+6) galaxies.
- 17 absorbers have ≥ 2 associated galaxies.
- Péroux et al. (2022), Weng et al., in press.

Multiple Galaxies at Absorber Redshift



Distribution of Gas in the CGM

Decreasing $N(\text{HI})$ at larger radius

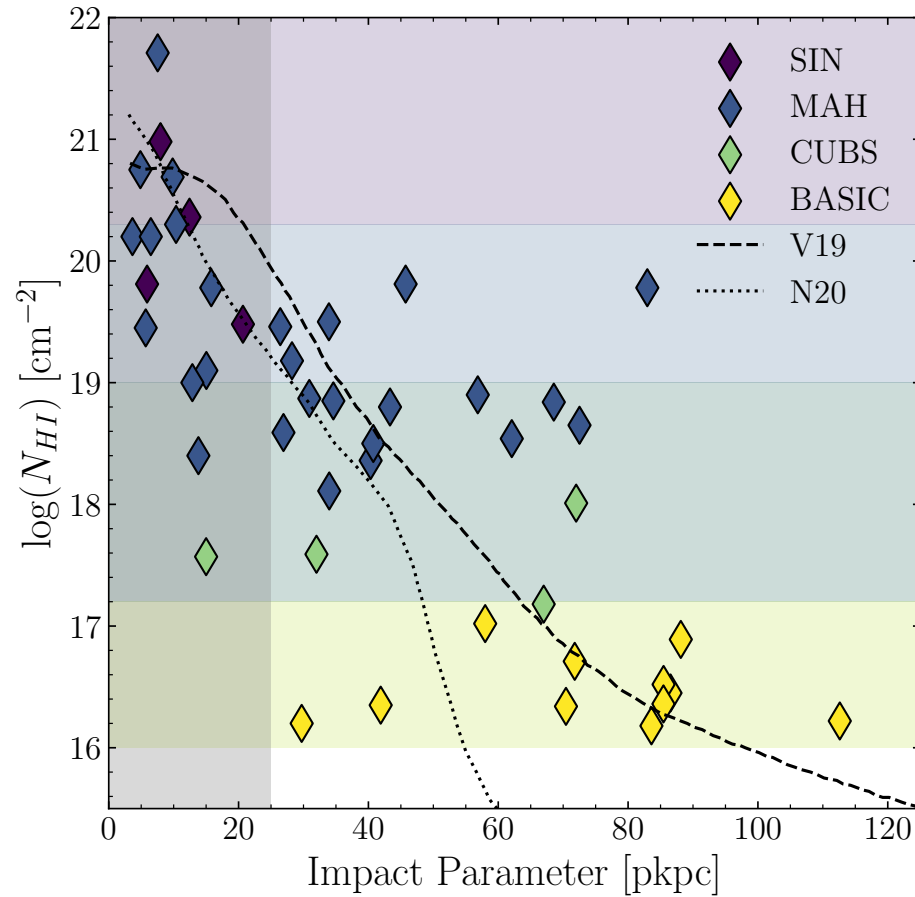


SINFONI: Augustin et al. (2018)

BASIC: Berg et al. (2022)

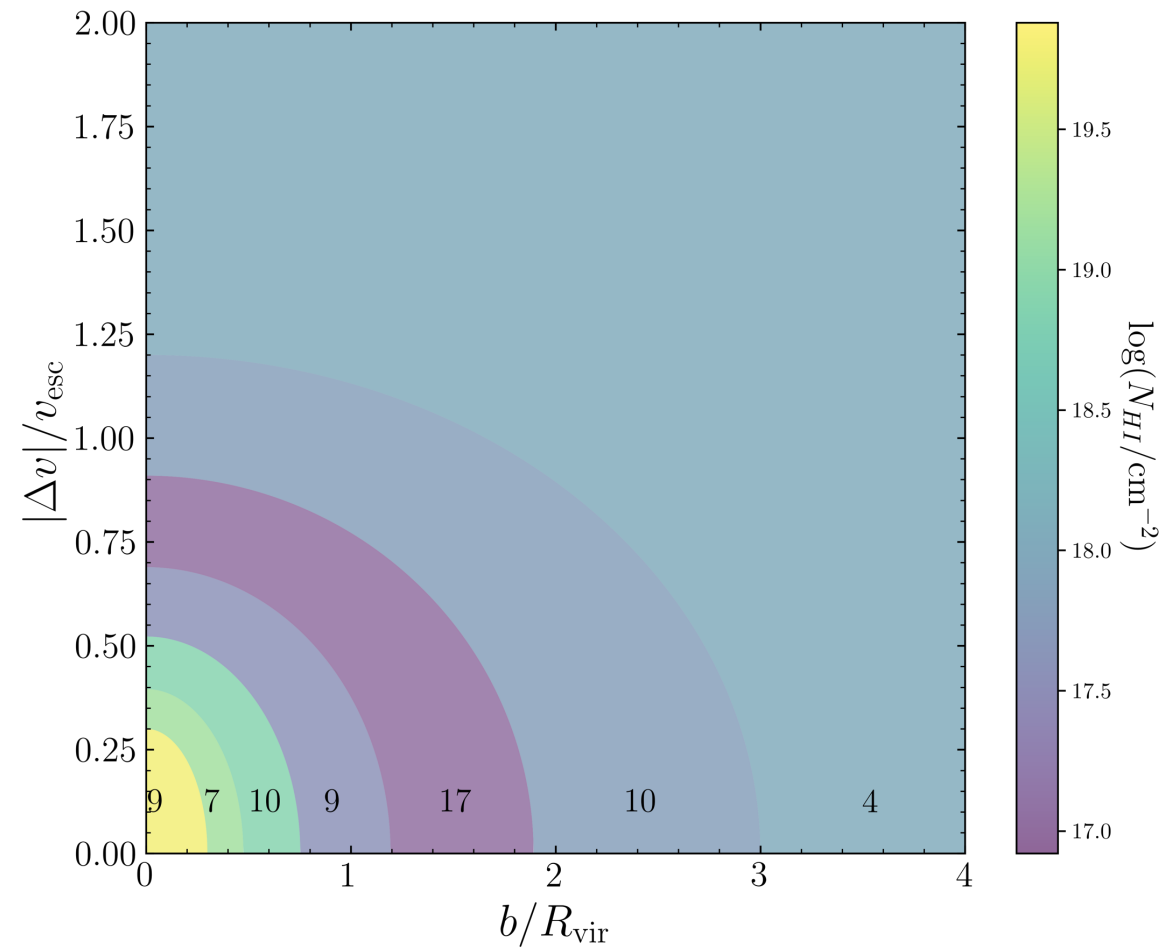
CUBS: Chen et al. (2020)

Decreasing $N(\text{HI})$ at larger radius



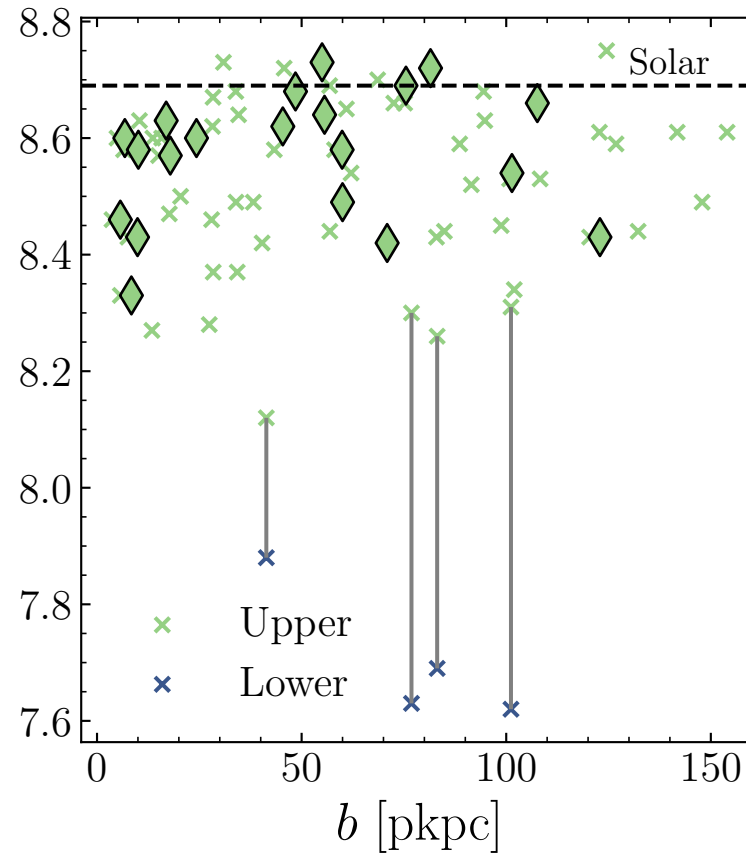
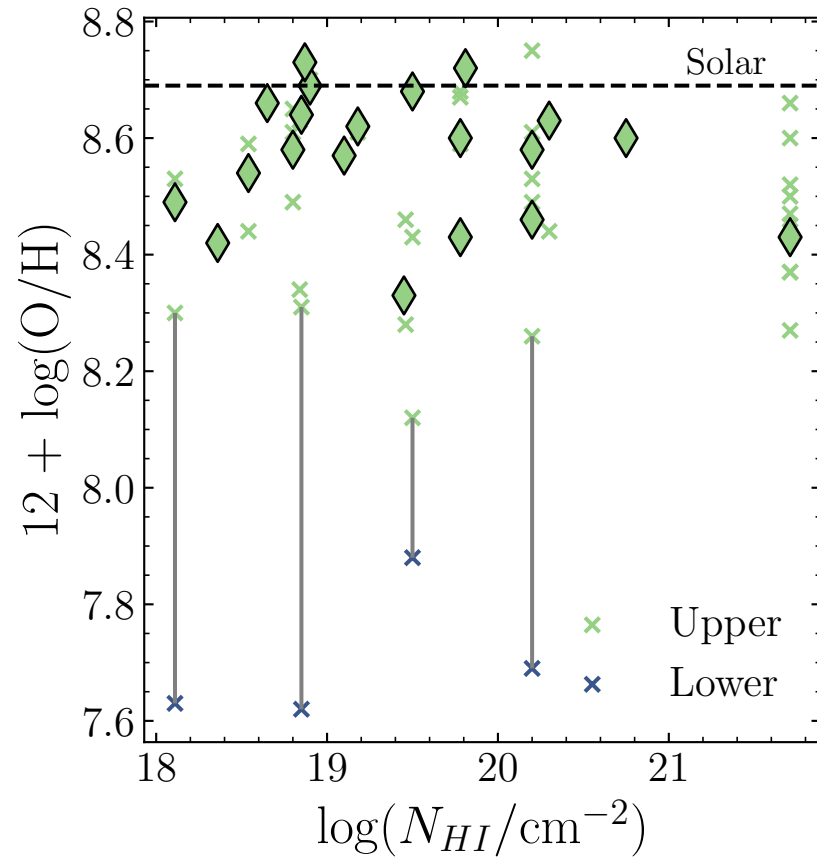
SINFONI: Augustin et al. (2018)
BASIC: Berg et al. (2022)
CUBS: Chen et al. (2020)
Auriga: van de Voort et al. (2019)
TNG50: Nelson et al. (2020)

CGM Gas Distribution



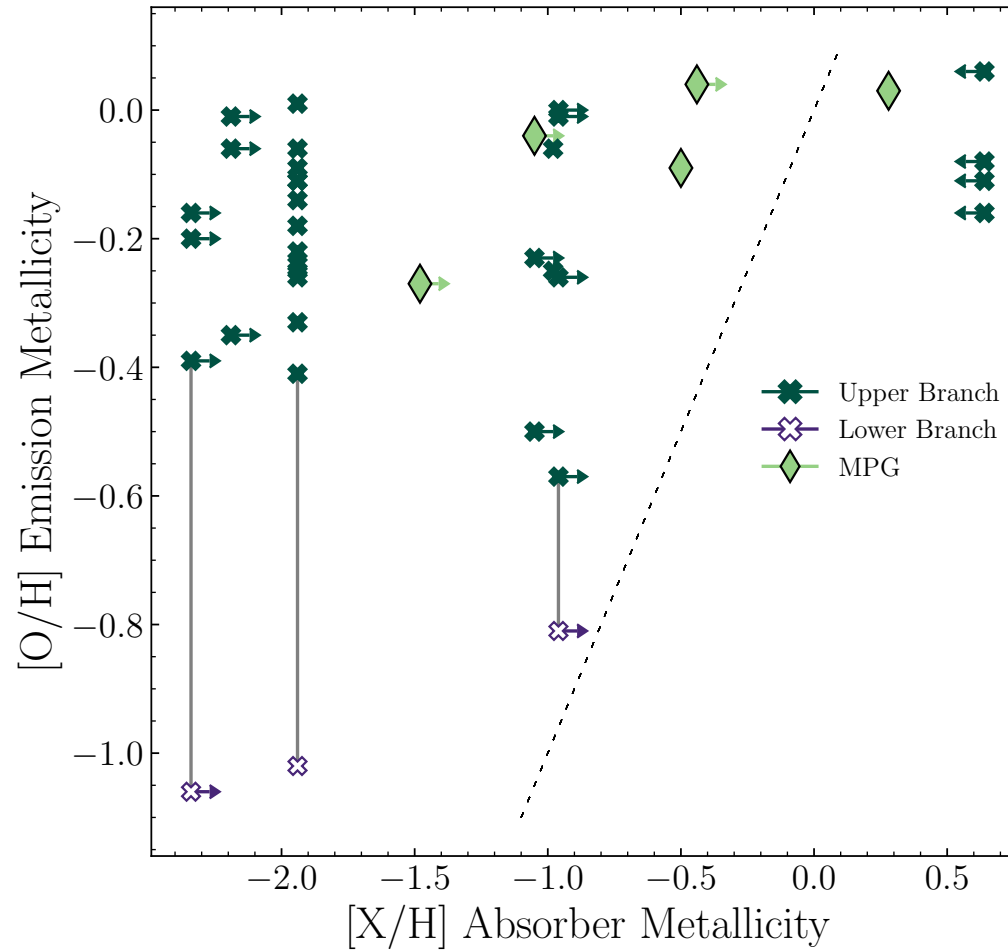
Distribution of Metals in the CGM

Ionized ISM Metallicity Measurements

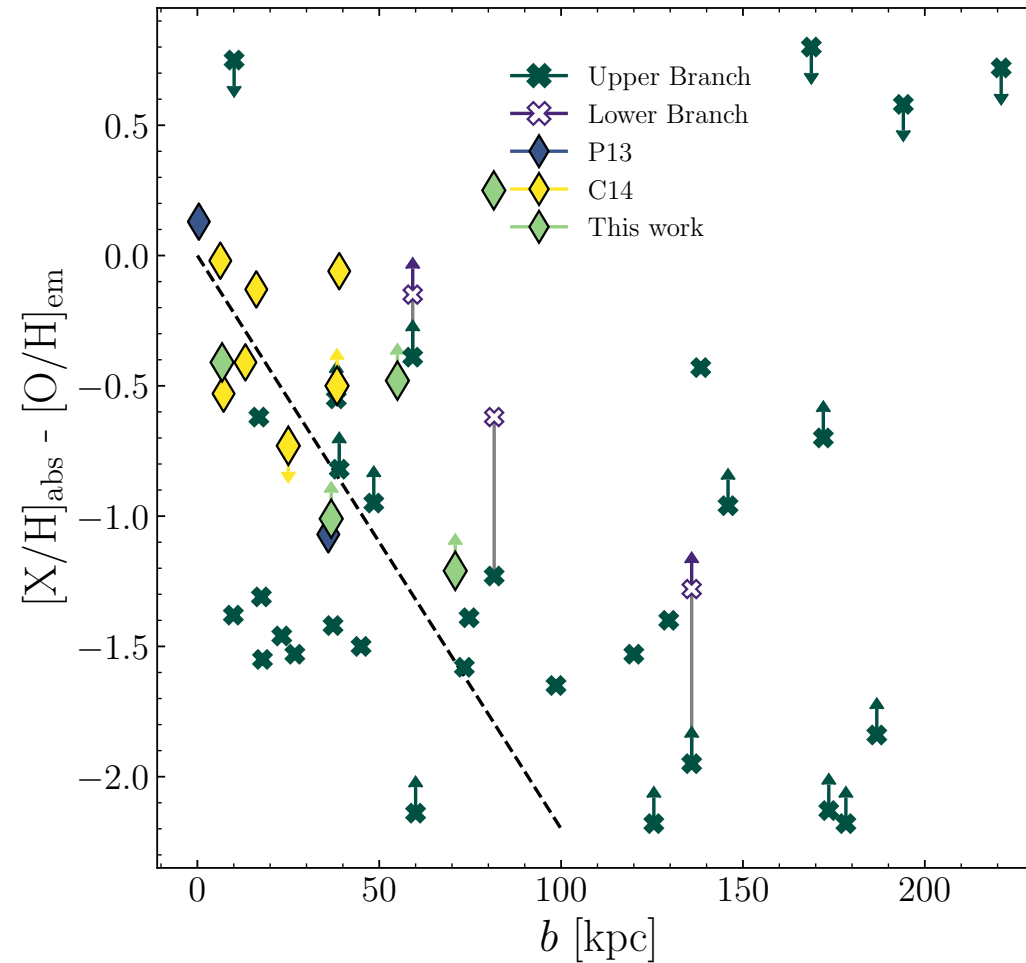


R3 and O3N2
calibrations
from Curti et
al. (2017)

Neutral Gas Phase Metallicities



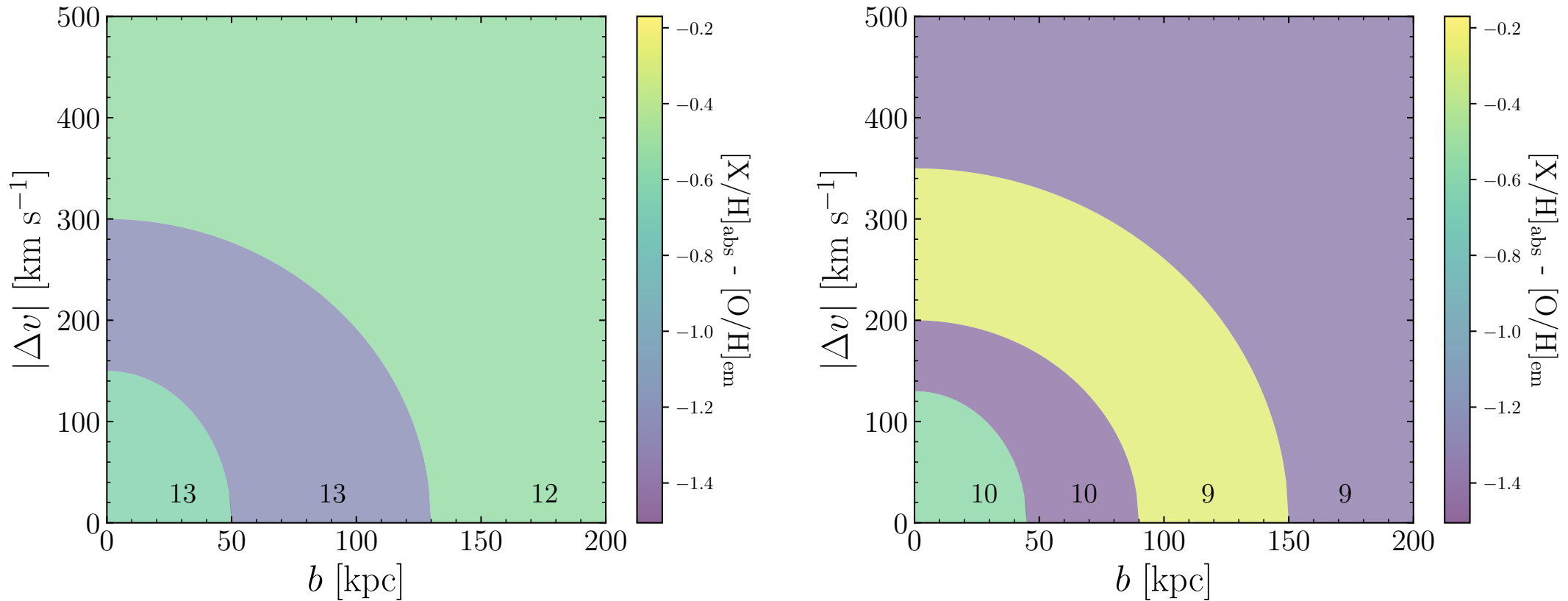
CGM Metallicity Gradients



P13: Peroux et al. (2013)

C14: Christensen et al. (2014)

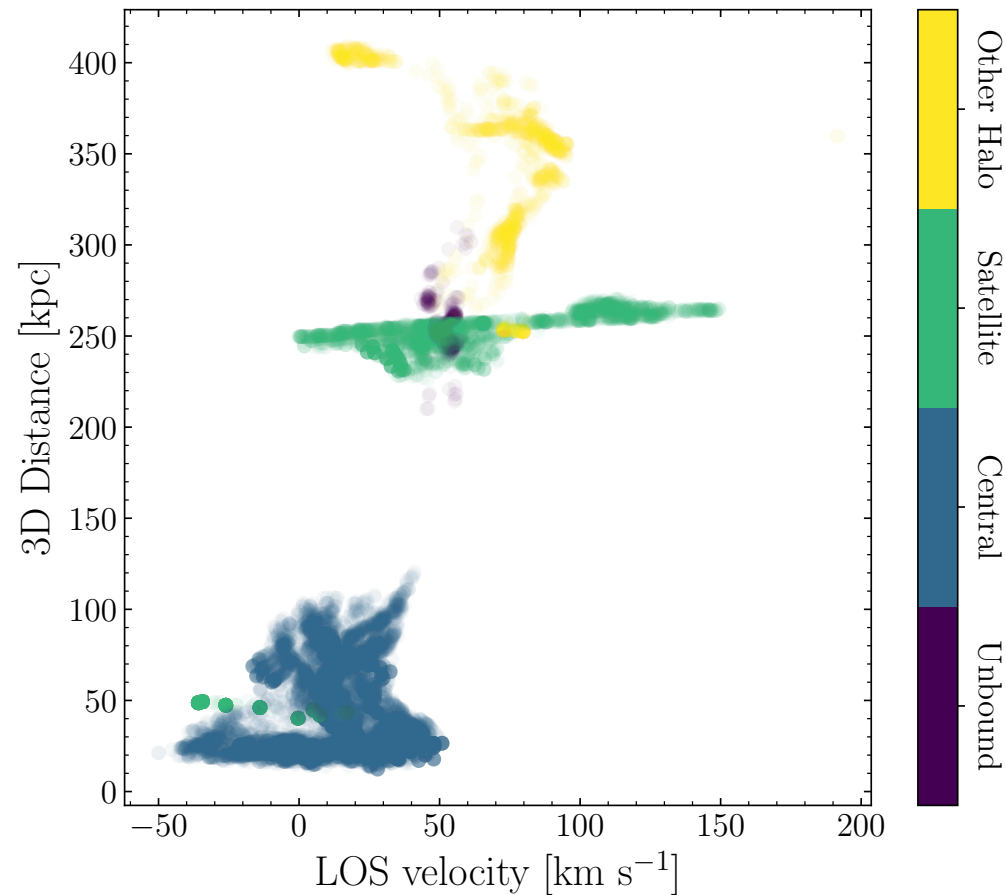
Decreasing Metallicity with Distance



Clear decrease in metallicity with distance from the galaxy centre.

Current and Future Work

Origin of Absorbers



- What is the origin of the gas we probe in absorption and where does it lie?
- Using TNG50, we calculate the largest contribution of gas mass from varying sources.