



RUHR-UNIVERSITÄT BOCHUM



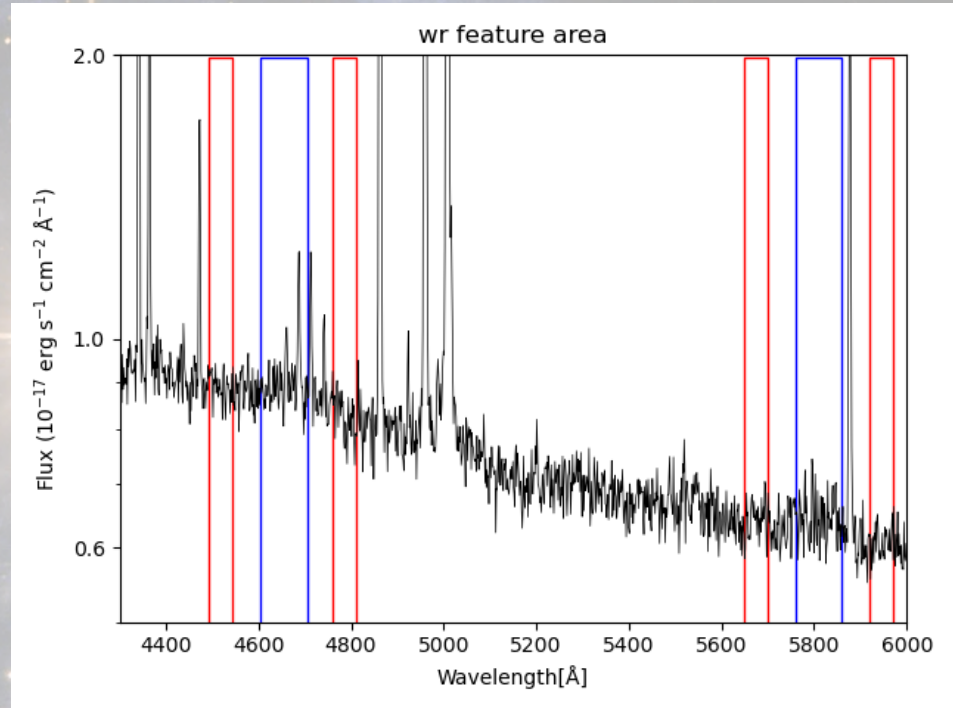
WOLF-RAYET GALAXIES AS LYC LEAKERS

Identifying candidates among star-forming dwarf galaxies

08.04.25, Elena Marci-Boehncke

Wolf-Rayet Galaxies

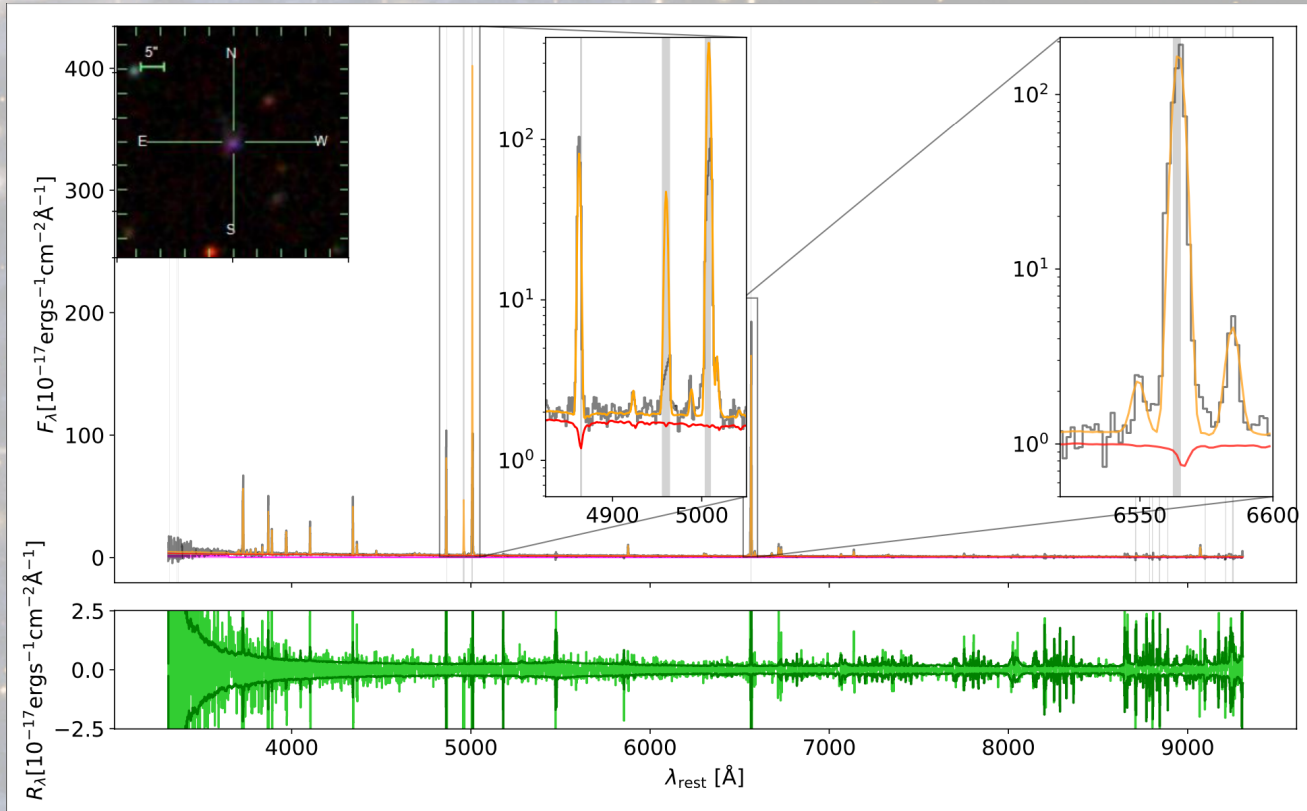
- Star-forming galaxies with SF events $\sim 10^{6.5} - 10^{7.2}$ years ago
- WR features: blue bump (left) and sometimes red bump (right)
- Bump: rise of continuum due to many emission lines near to each other in specific small region



Methods

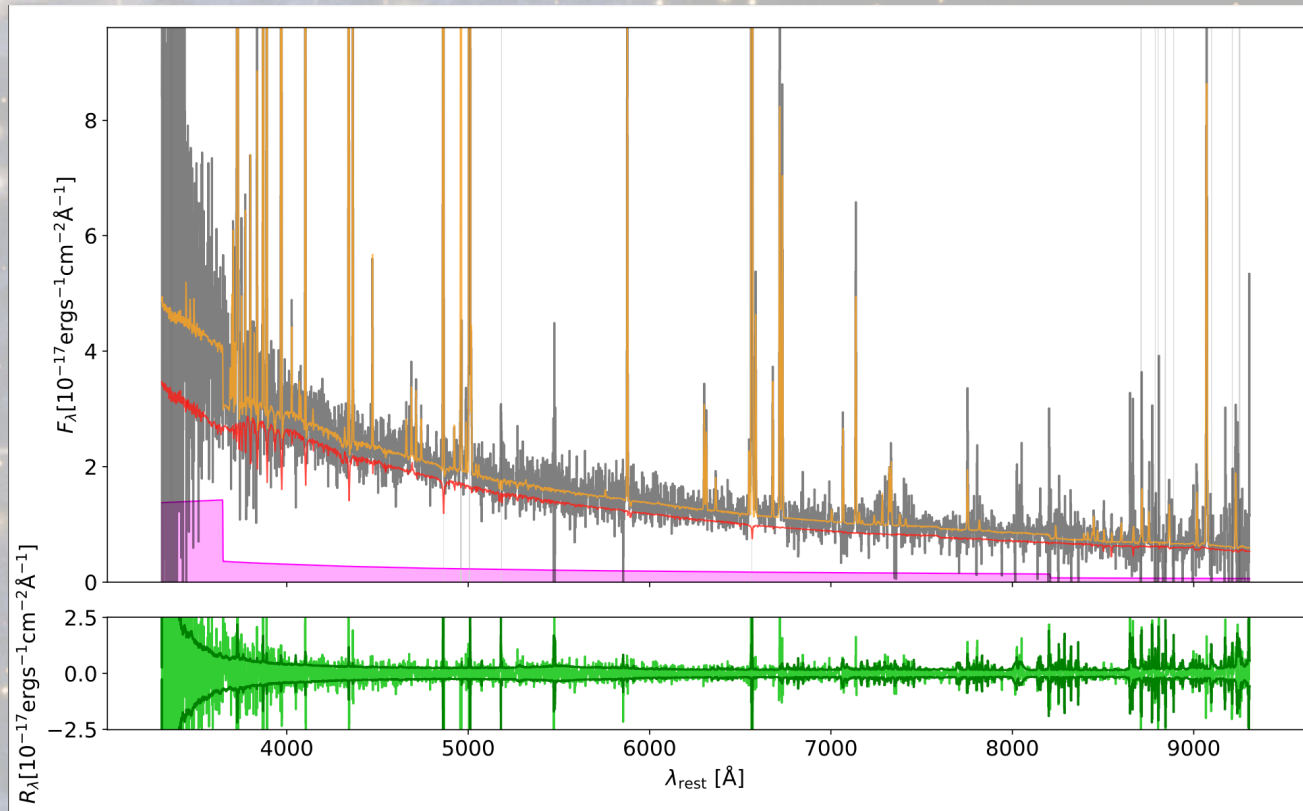
- SDSS spectra from DR18
- First selection: emission lines of $\text{H}\text{II}\lambda 4686$, $[\text{OIII}]\lambda 5007$, $\text{H}\alpha$, $\text{H}\beta$, large equivalent width of $[\text{OIII}]\lambda 5007$ to select EELGs
 - Led to 4035 galaxies
- Second selection: presence of WR bump
 - Led to 234 galaxies

Analysis



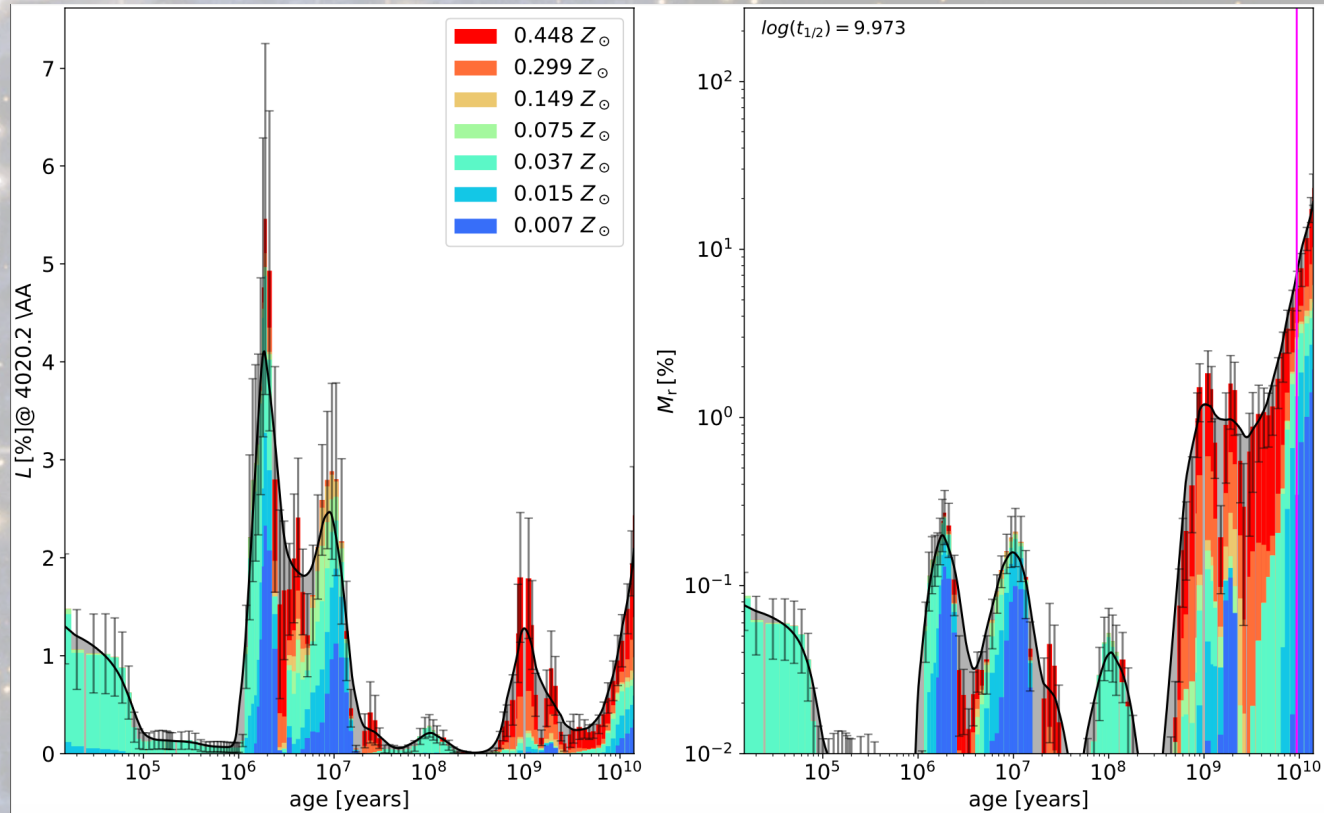
Kier et al. in prep. (2025)

Analysis



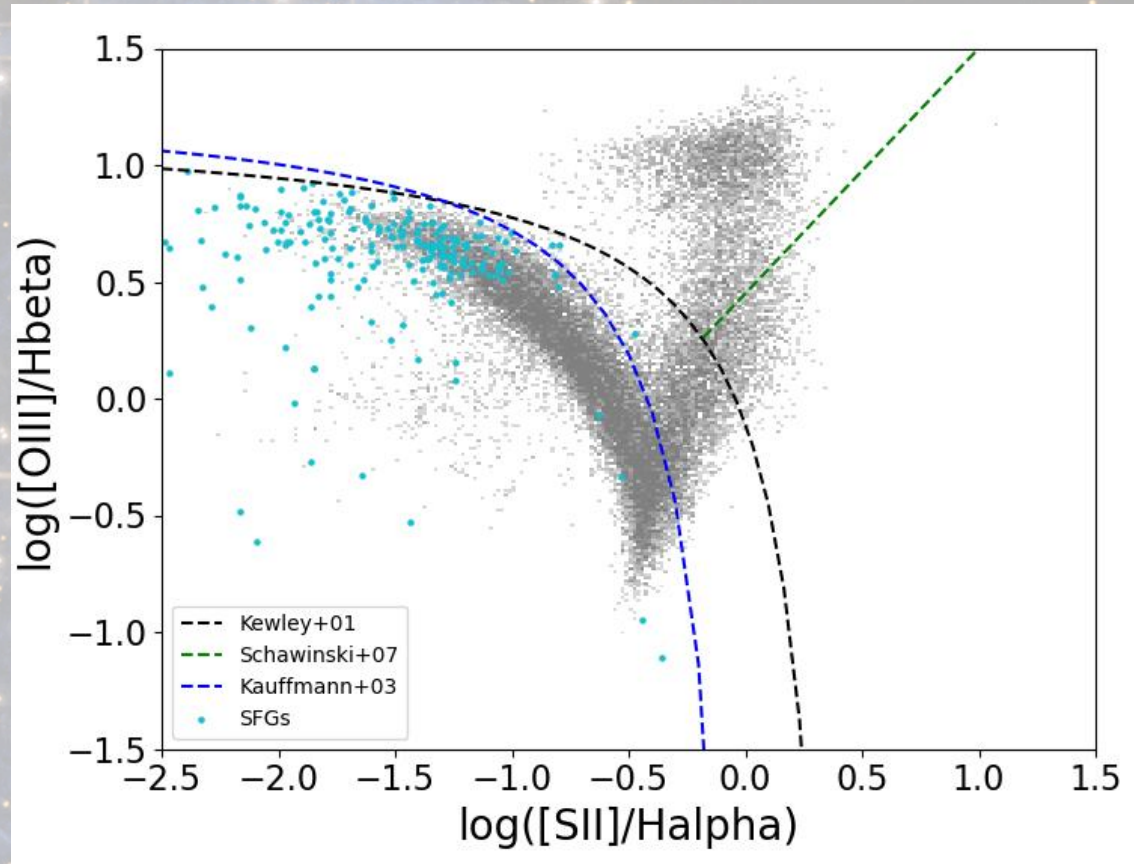
Kier et al. in prep. (2025)

Analysis

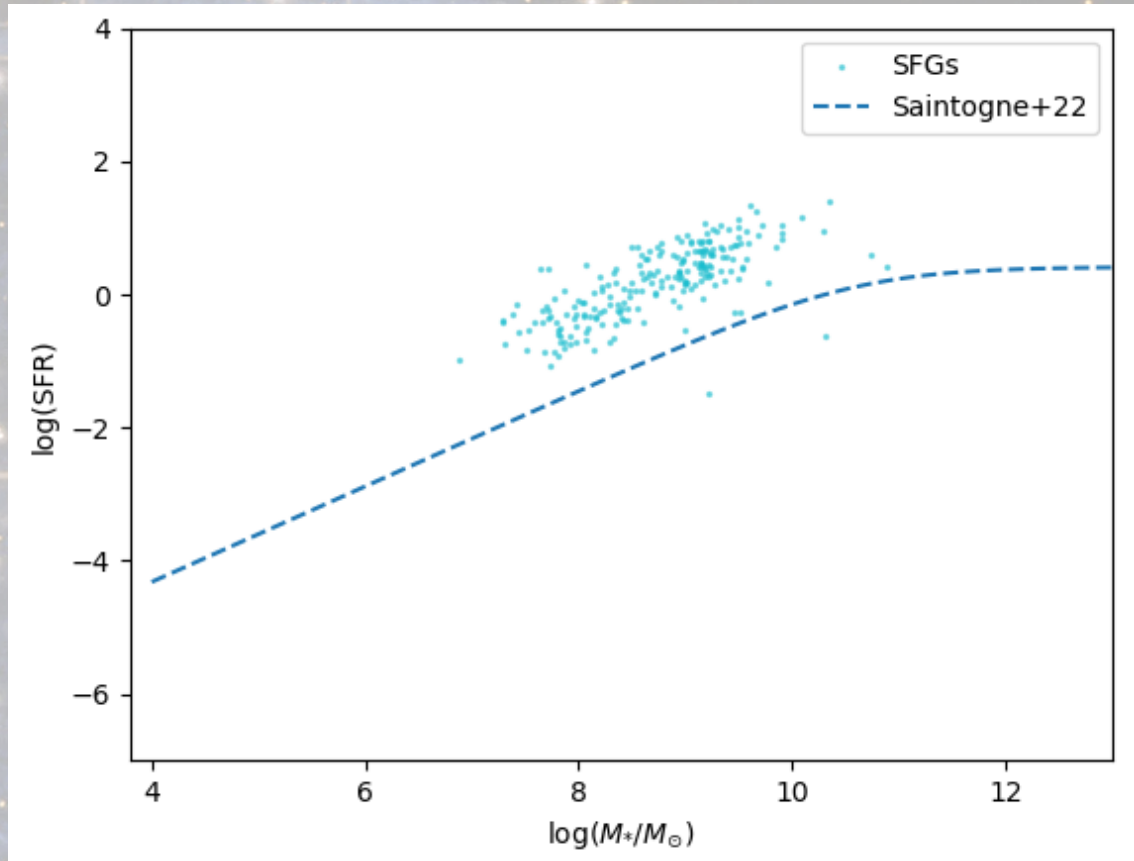


Kier et al. in prep. (2025)

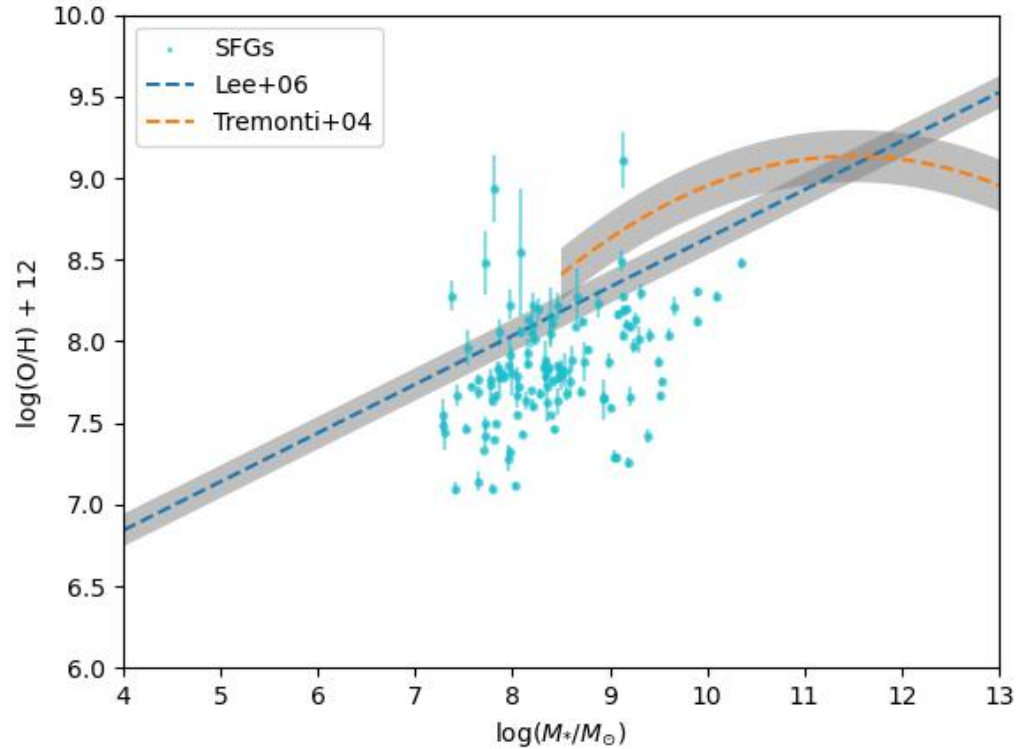
Results



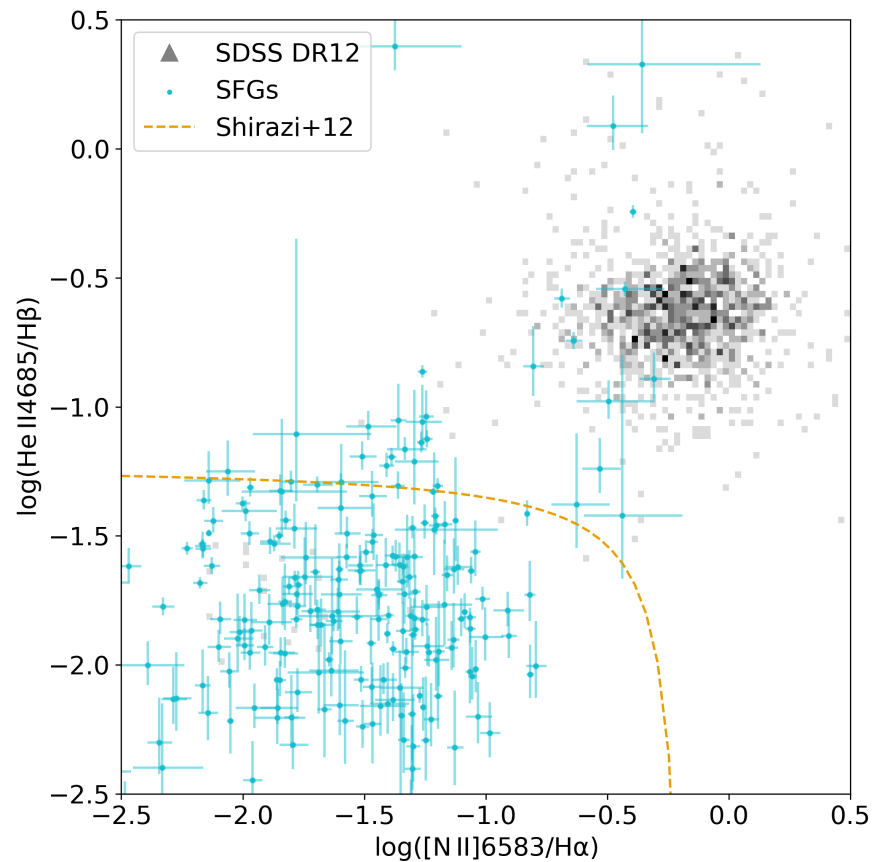
Results



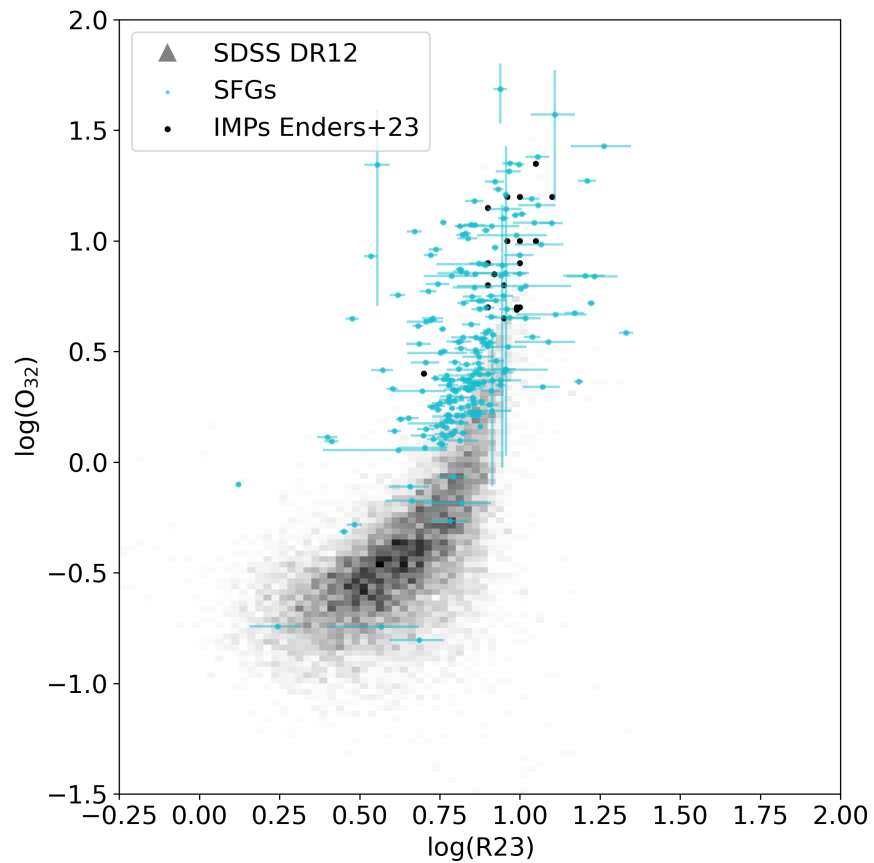
Results



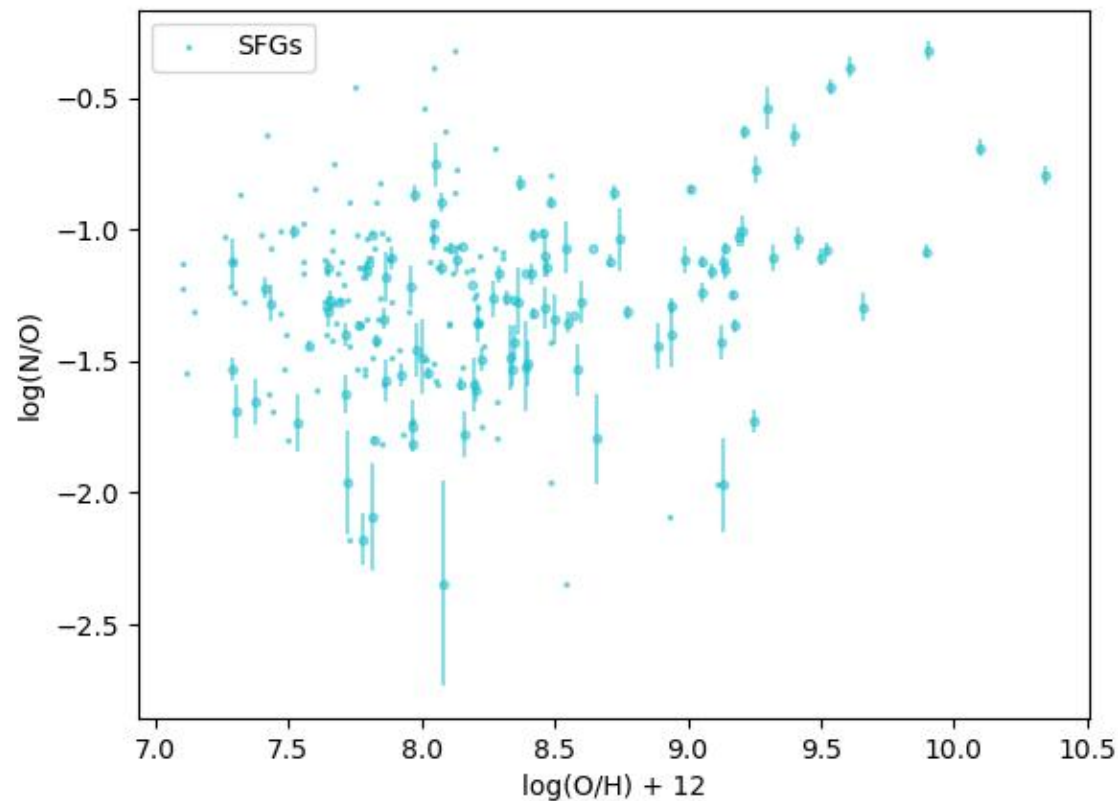
Results



Results

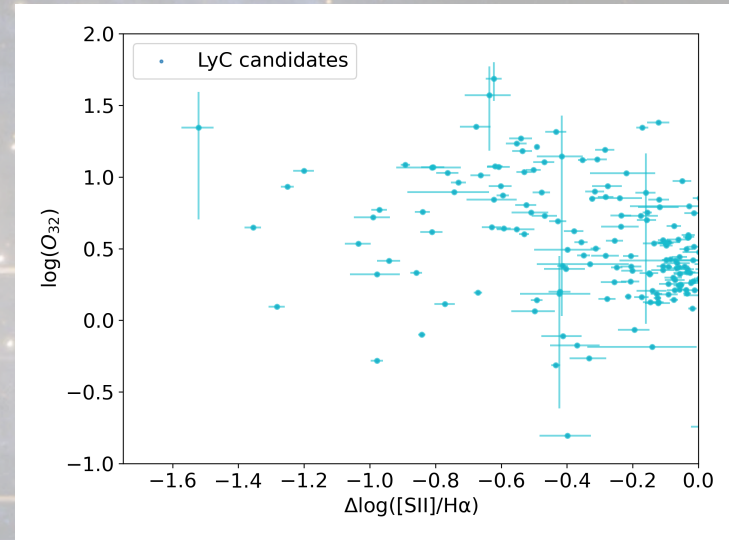
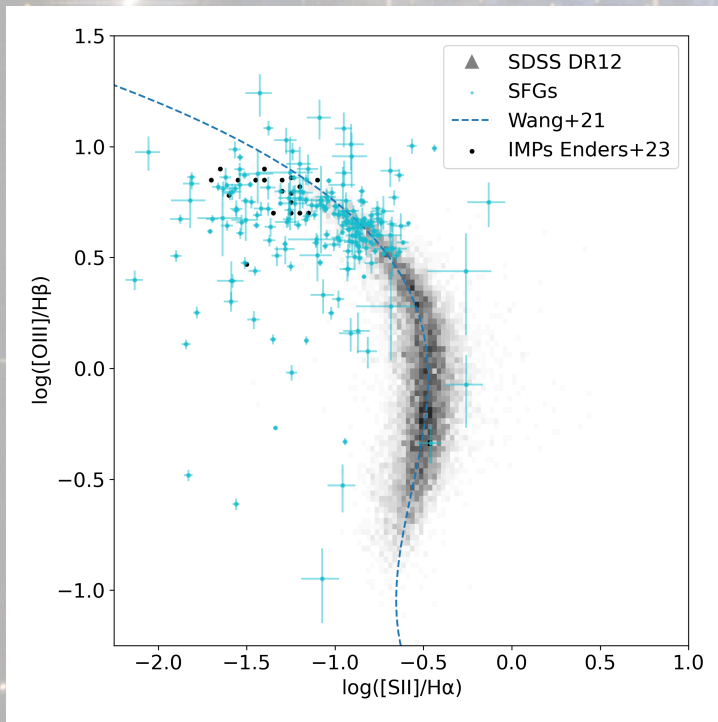


Results



Results

WORK IN
PROGRESS



Summary and Outlook

- 234 galaxies with WR features found in SDSS DR18
- All extreme emission line galaxies, mainly dwarfs
- Wang plot leads to 157 galaxies below the line → density bounded ISM?
 - further analysis and classification with e.g. radio data crossmatches
- Metallicities between $7.11 < \log (\text{O}/\text{H})+12 < 9.1$, majority below 8
- Redshift between $0 < z < 0.57$
- SFR in all galaxies above the SFMS like e.g. in Saintogne et al. (2022)
- Link between SFH and N/O, leaking fraction
- Further analysis of outliers in MZR → why some objects with high metallicities?