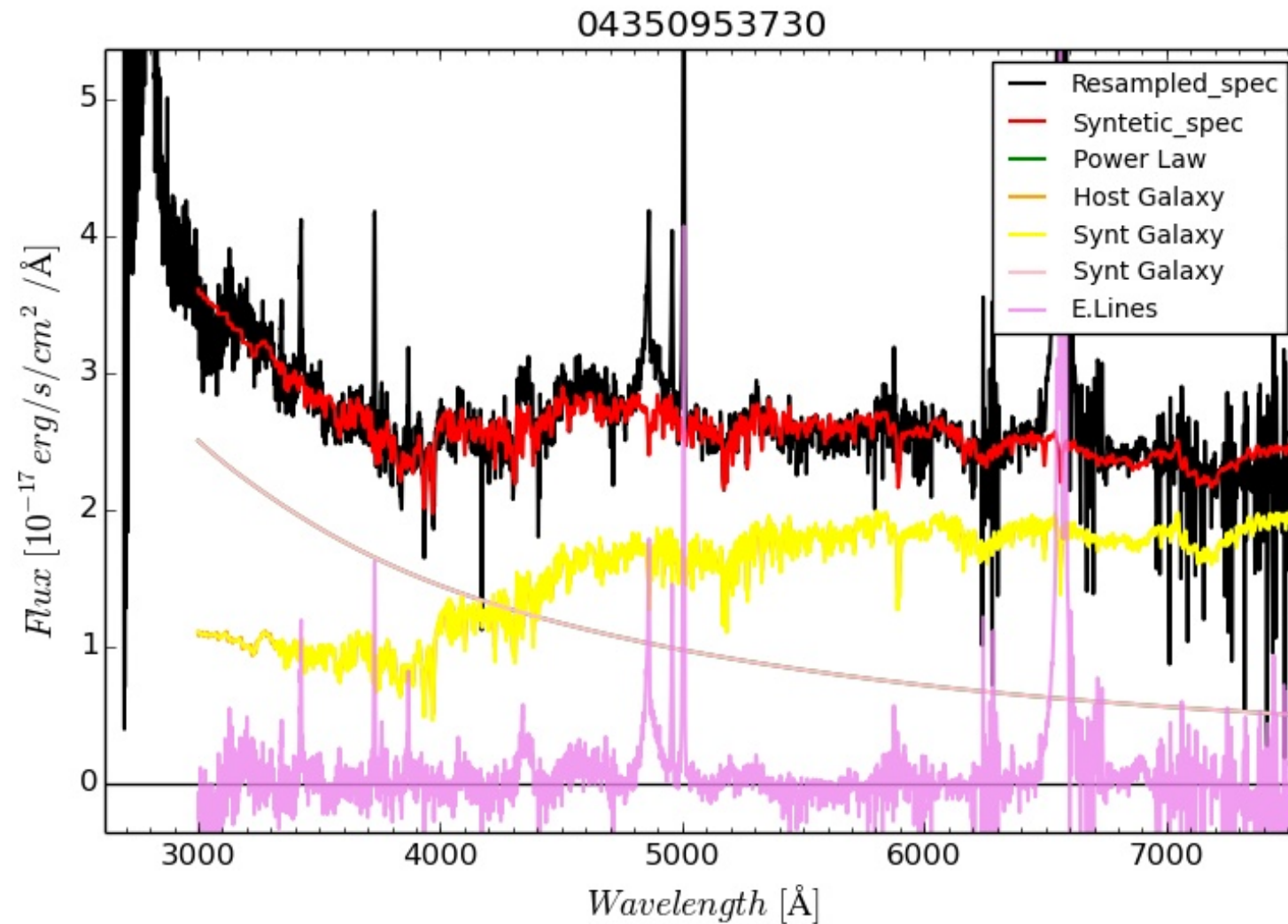


A first study of the host galaxy stellar populations with the SDSS-V

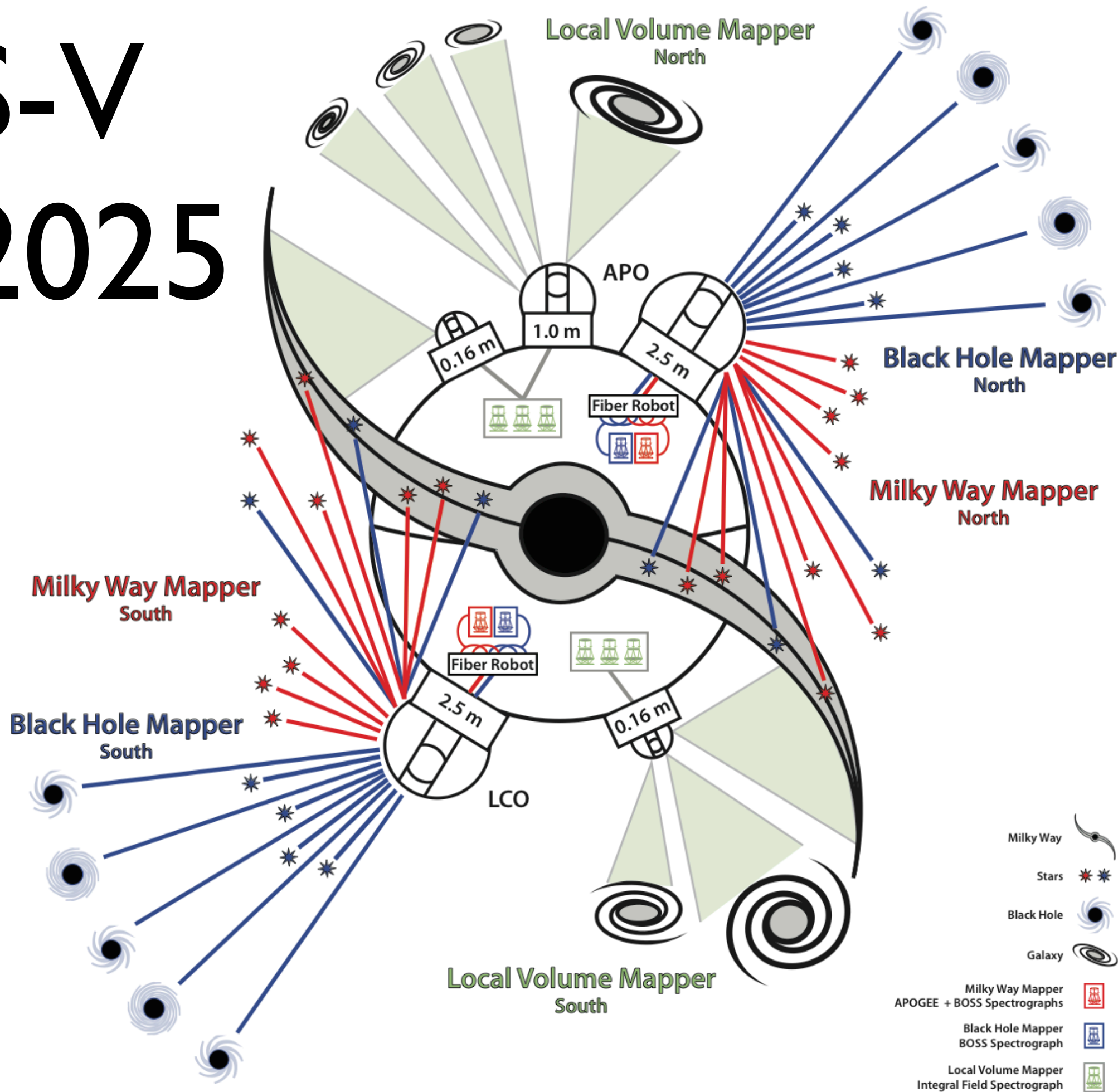


Héctor J. Ibarra-Medel

1.-University of Illinois at Urbana-Champaign,
Mexico City, Mexico
March, 16th 2021



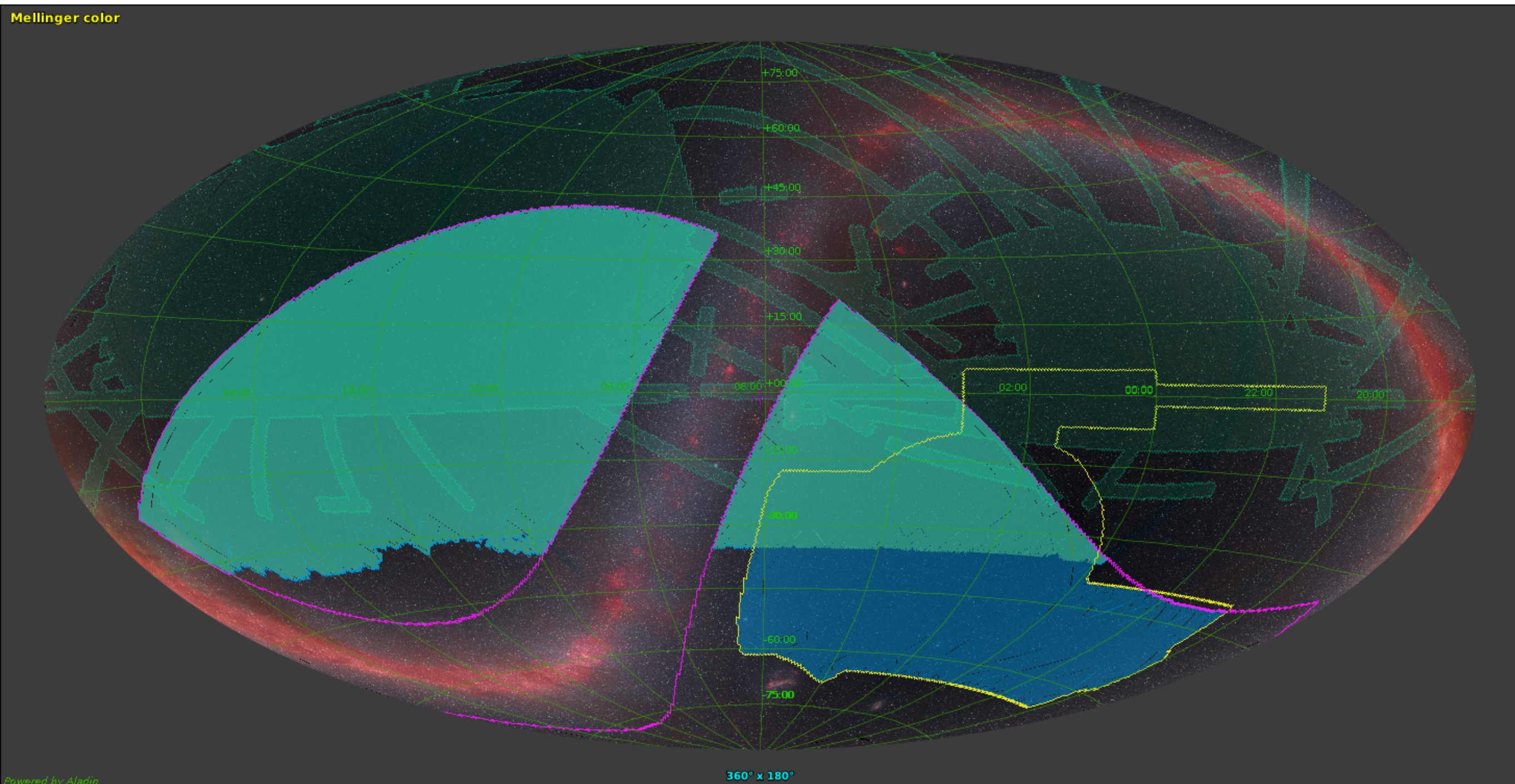
SDSS-V 2020-2025

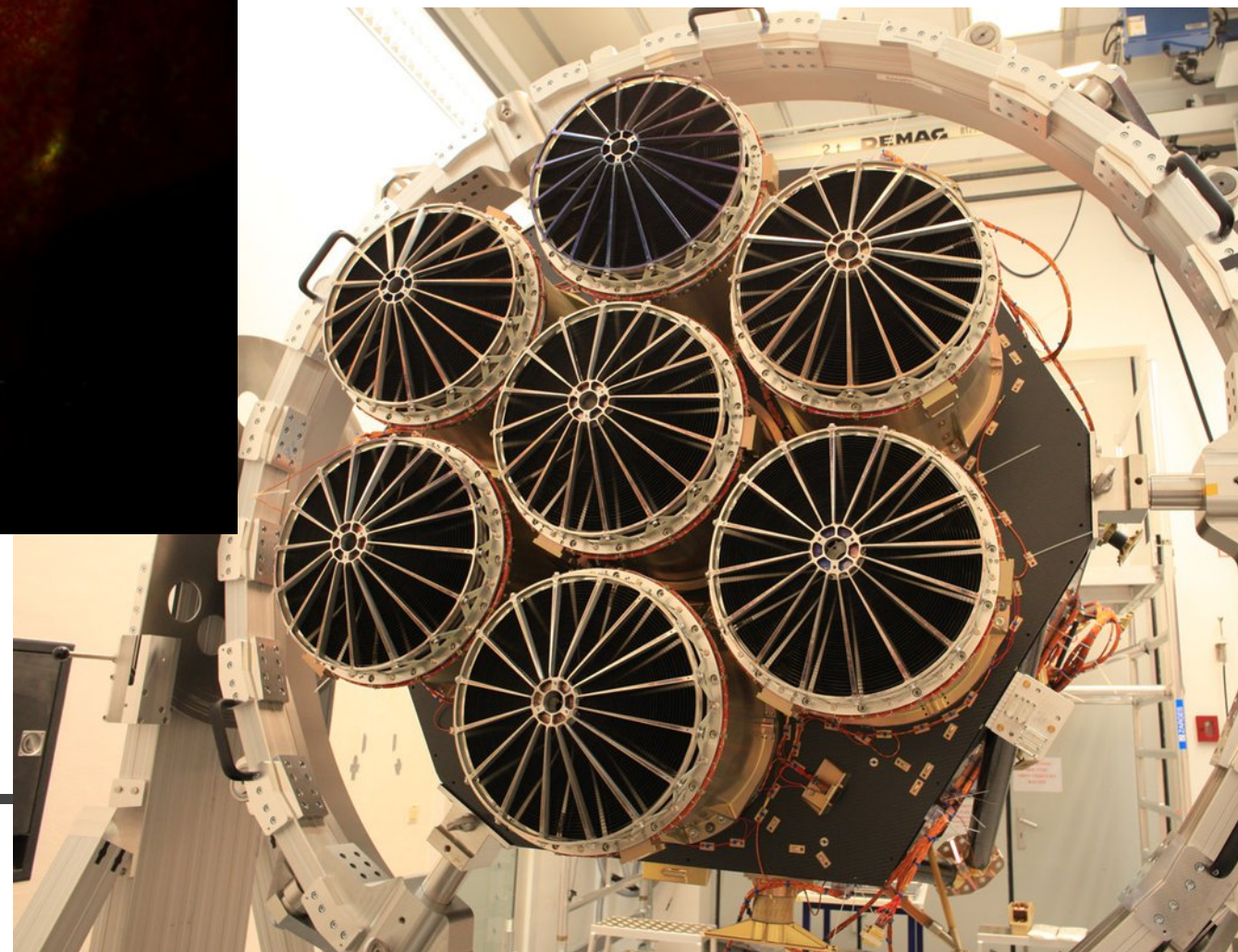
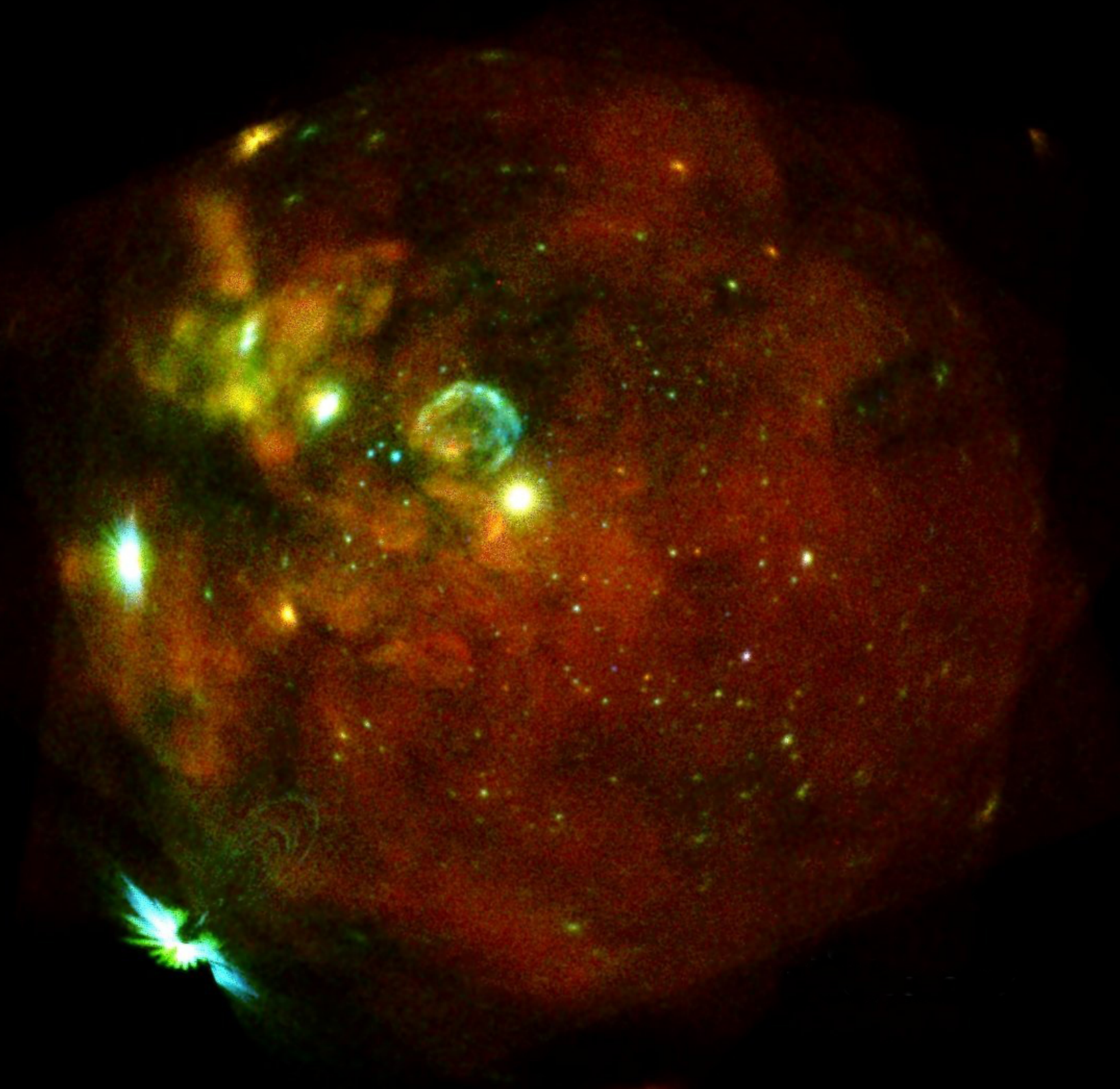


The Black Hole Mapper

Program Name	N targets	N epochs
Reverberation Mapping	2 K QSOs	174
AQMES Medium	3 K QSOs	12
AQMES Wide	29 K QSOs	2
Spiders AGNs	350 K	1
Spiders Clusters	70 K	1
Chandra Source Catalogue	110 K	1

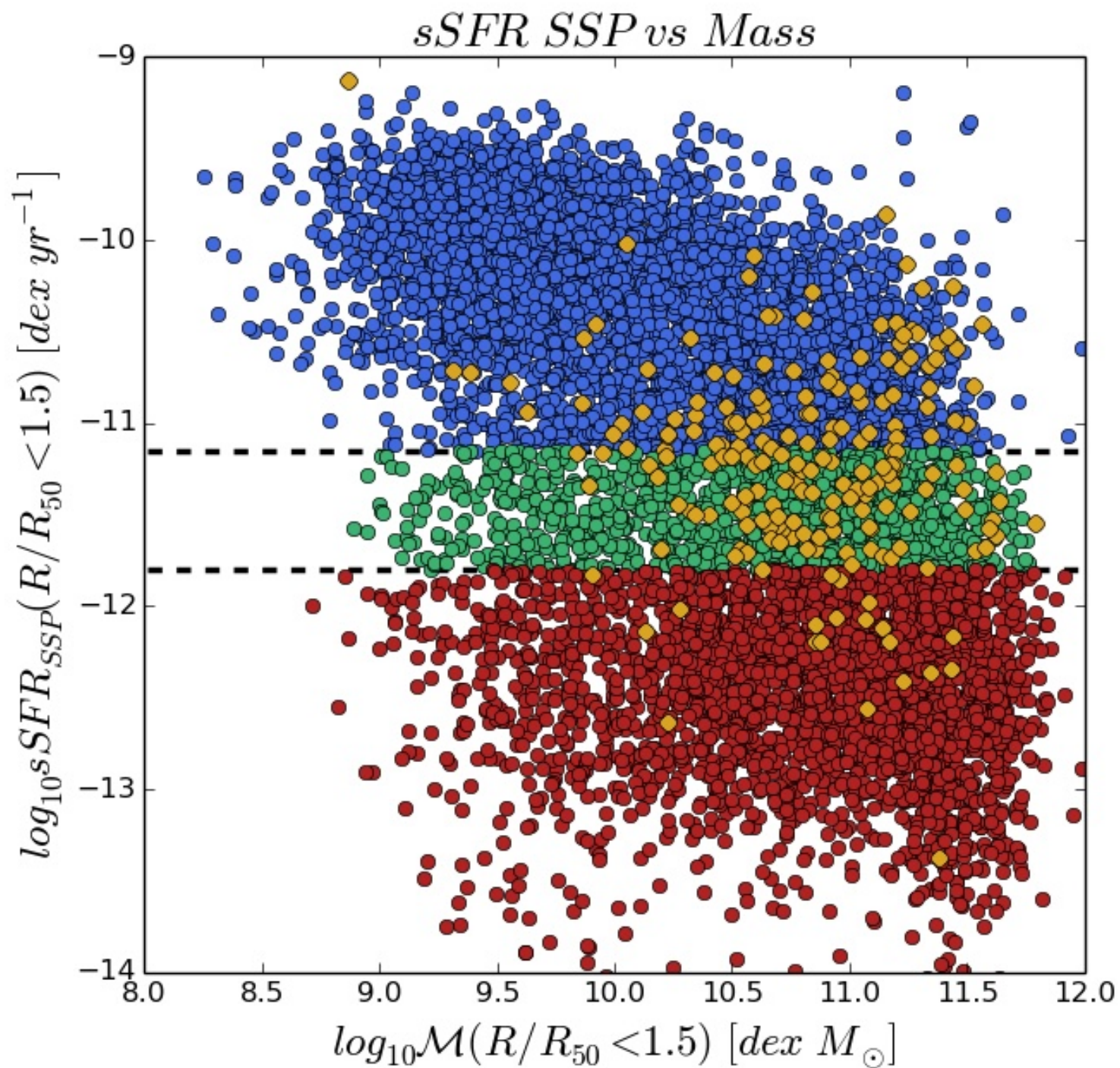
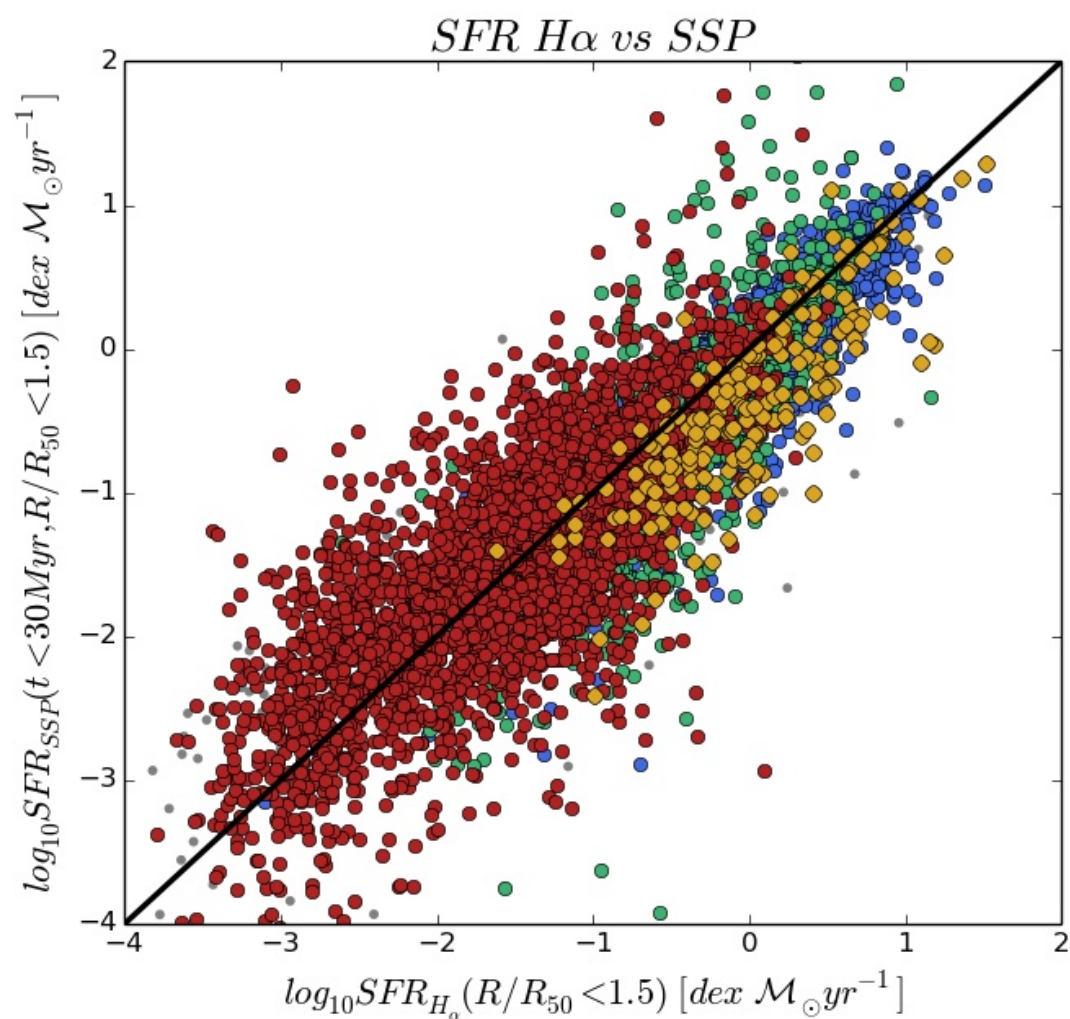
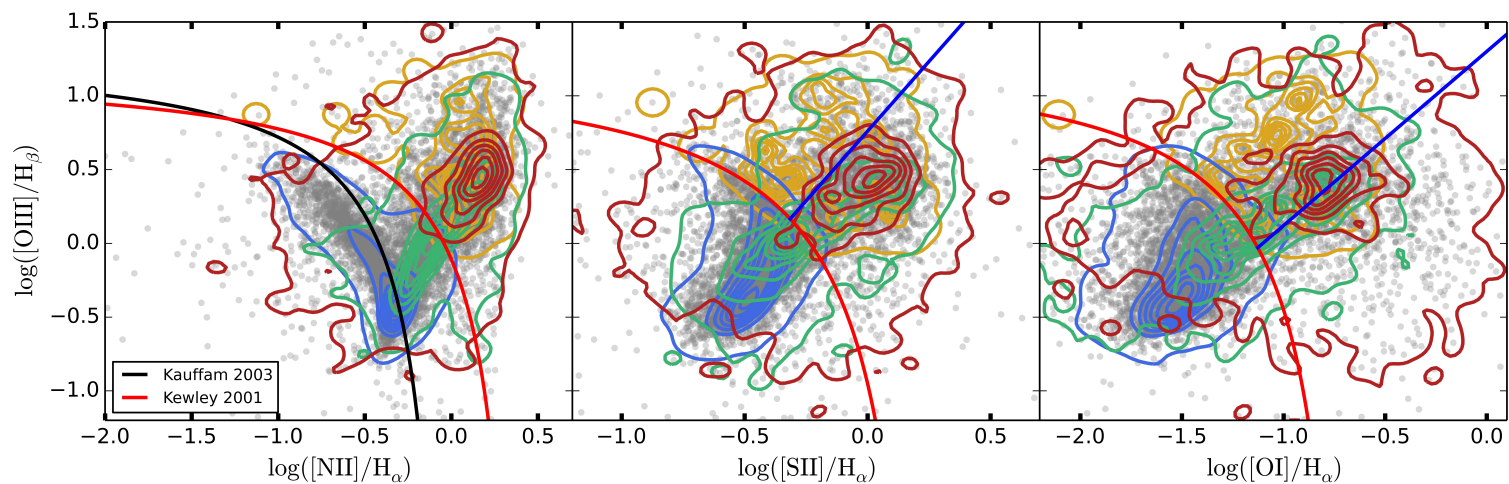
The Black Hole Mapper: SPIDERS AGN/Clusters





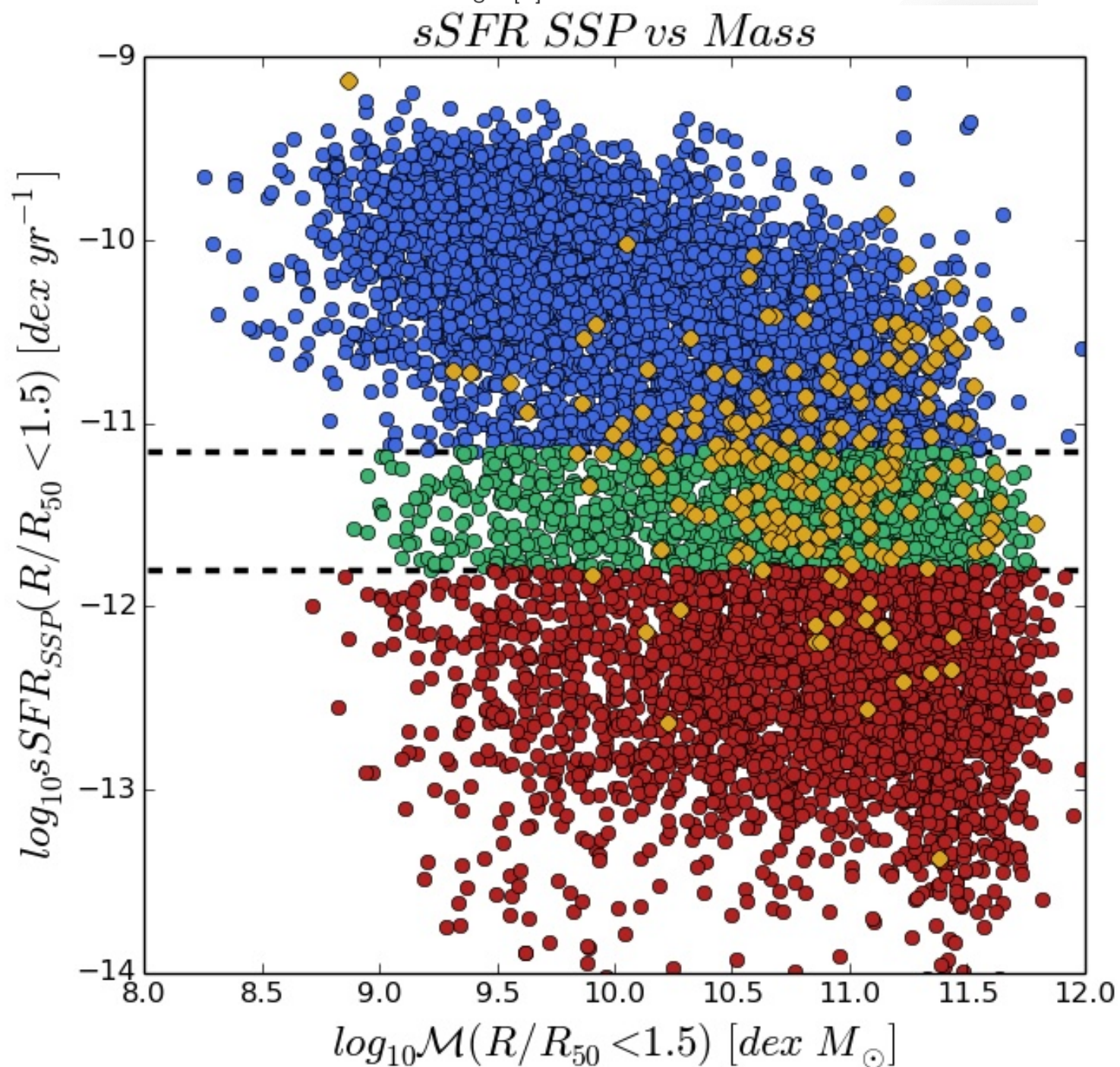
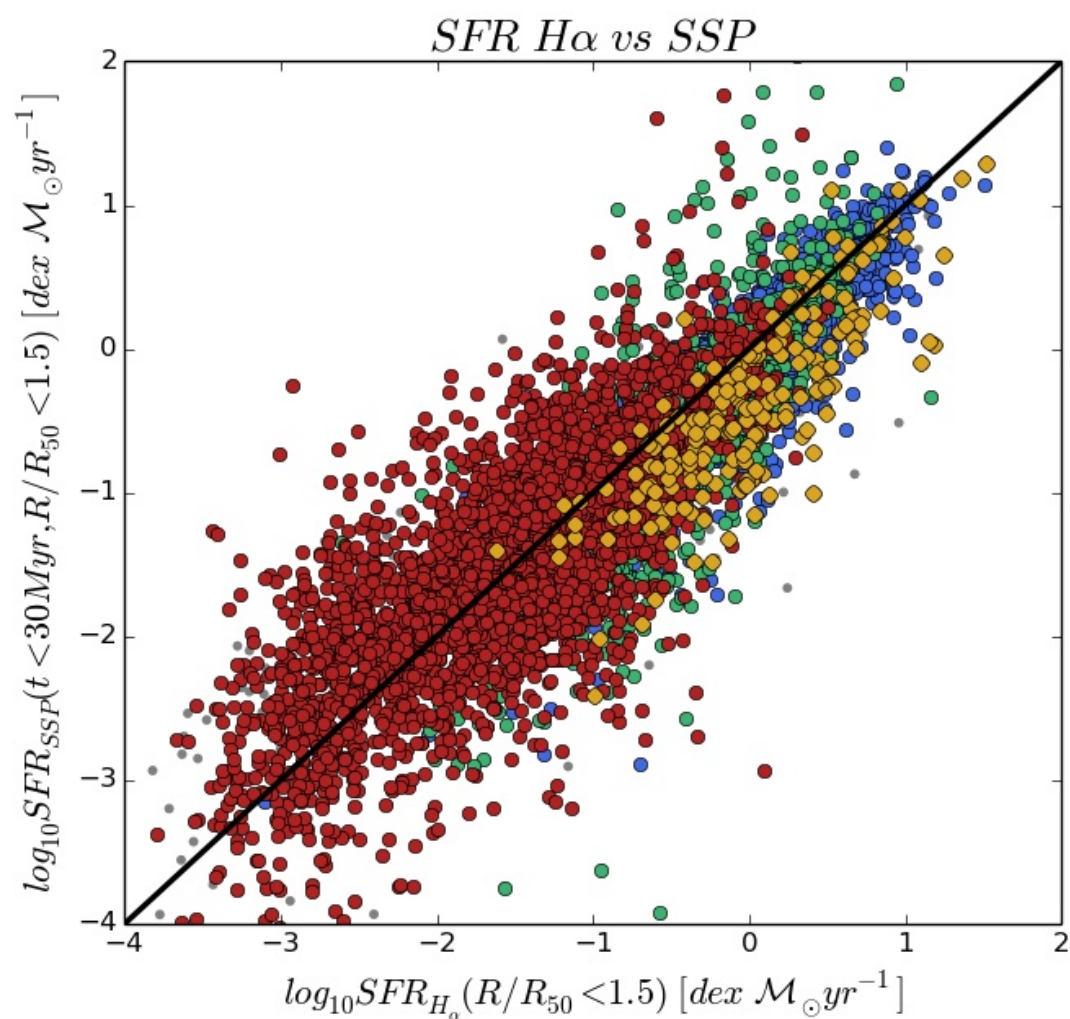
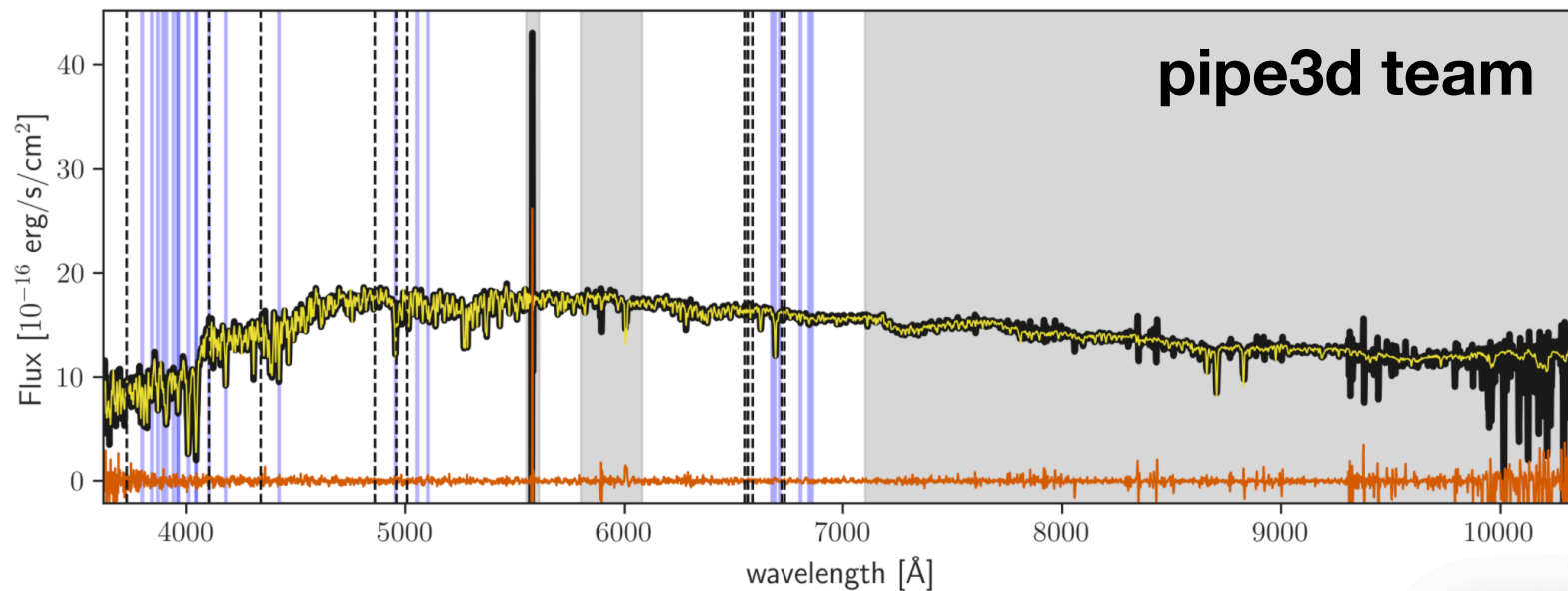
Motivation

Are the Host Galaxies with AGNs special?



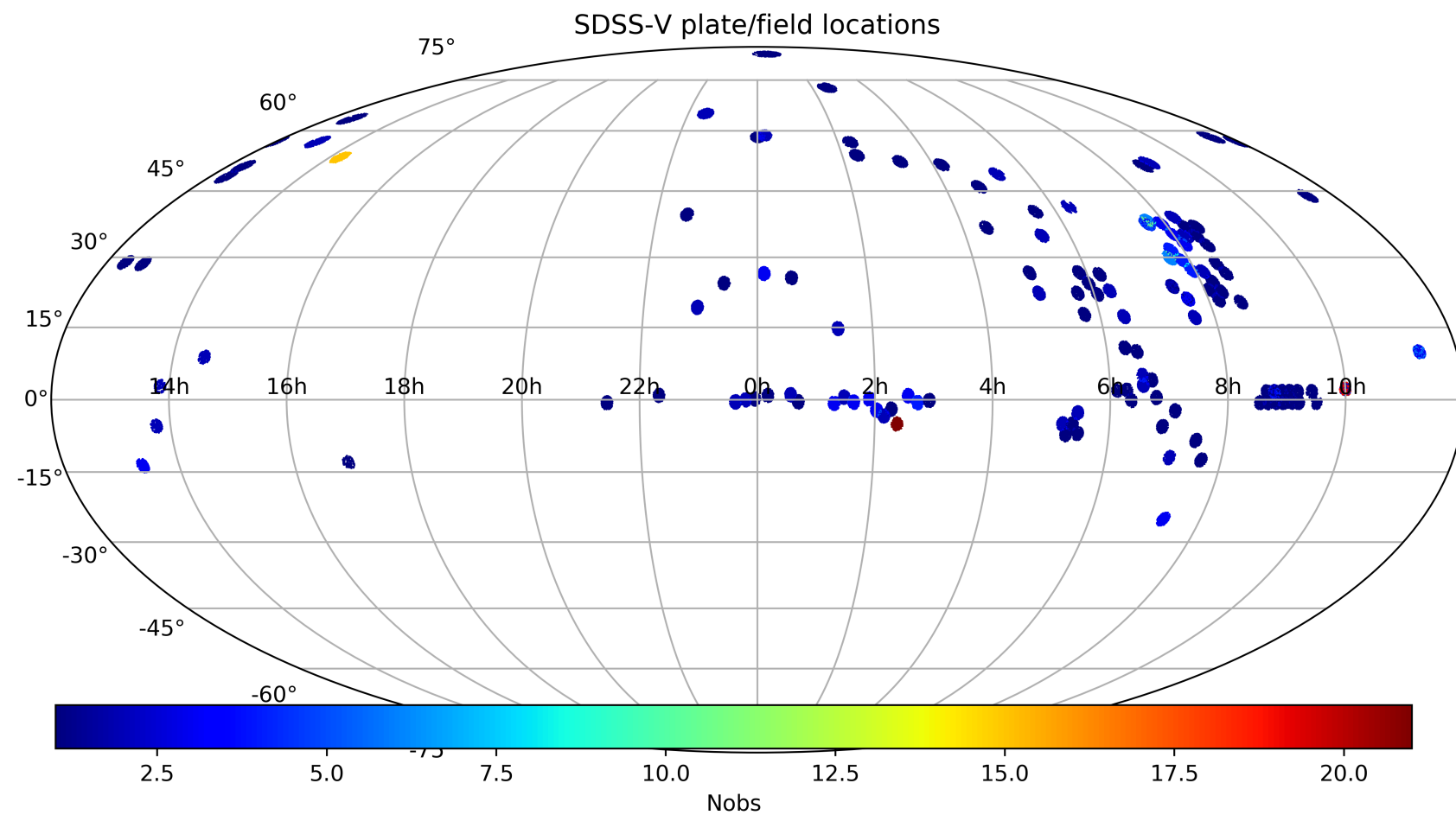
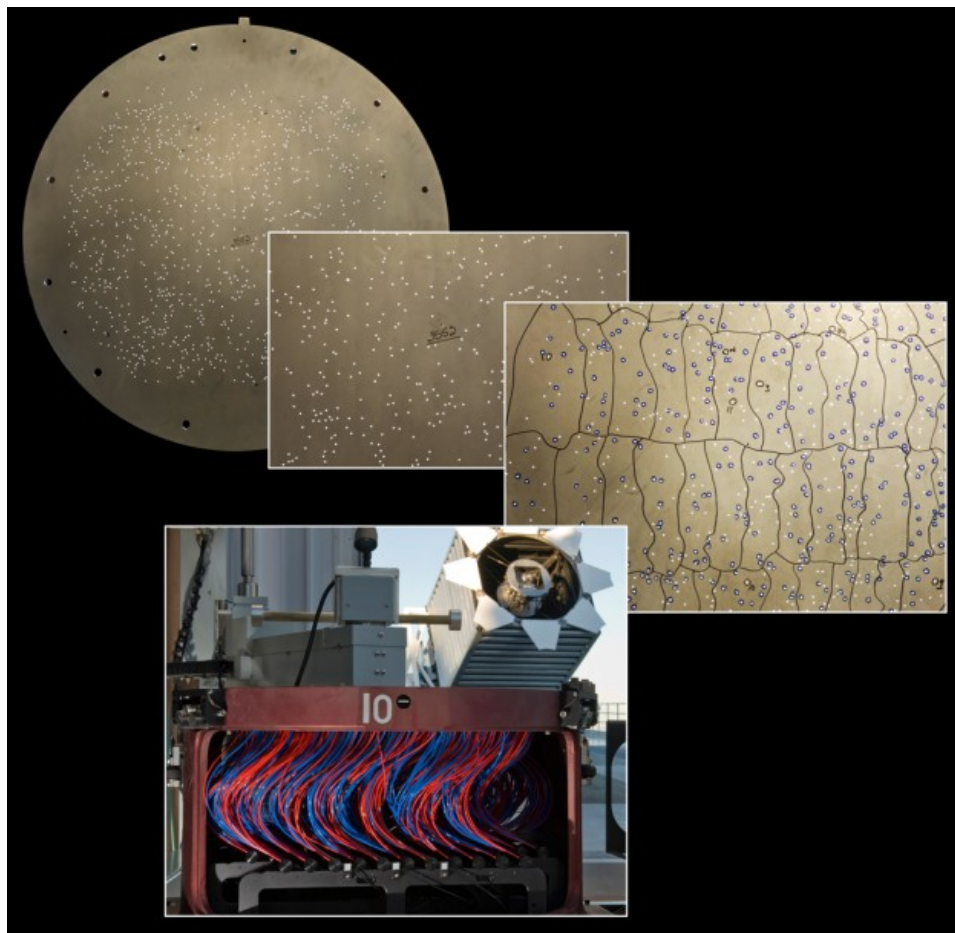
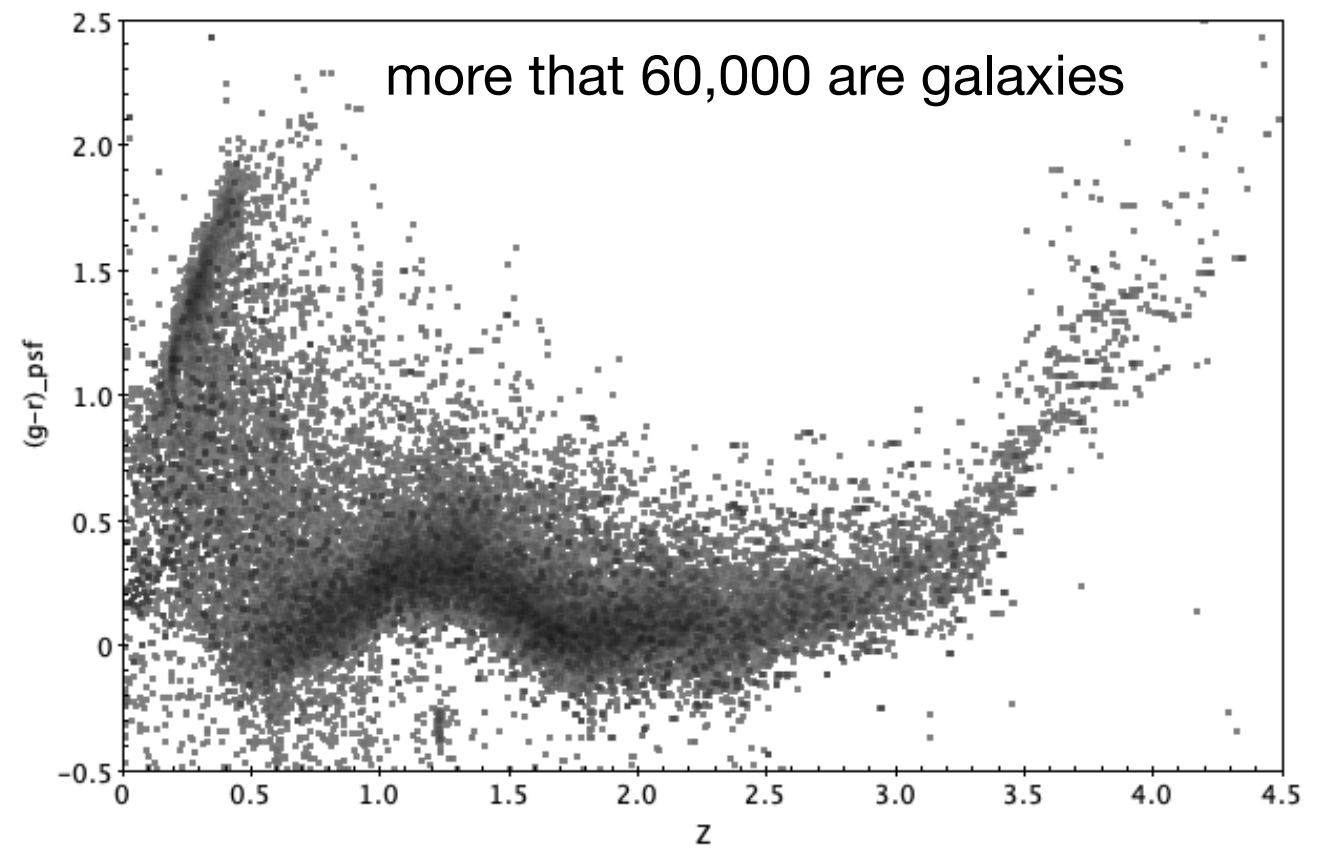
Motivation

Are the Host Galaxies
of AGNs special?



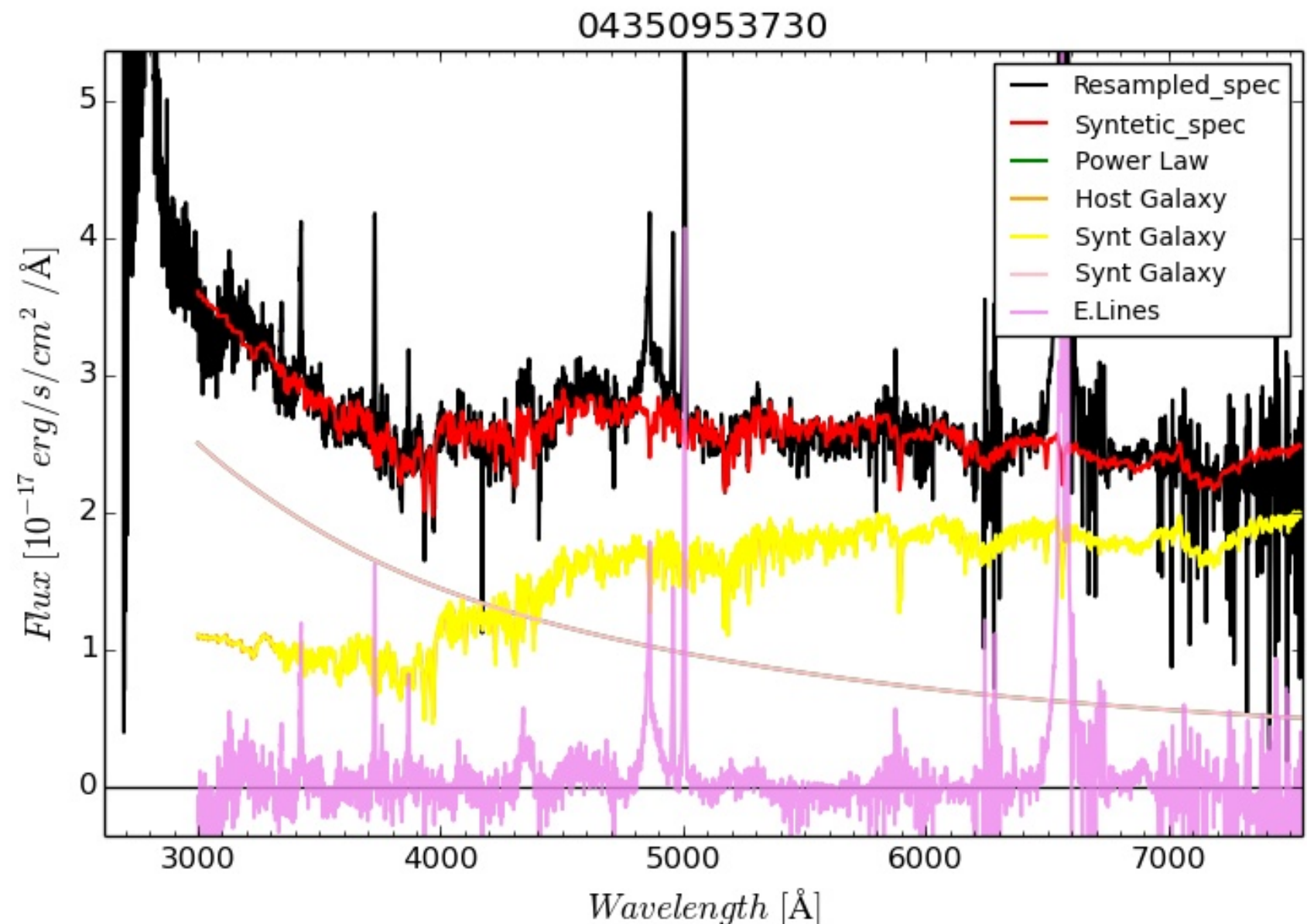
The SDSS-V

The SDSS-V have been observed more than 125, 000 spectra (March 2021)



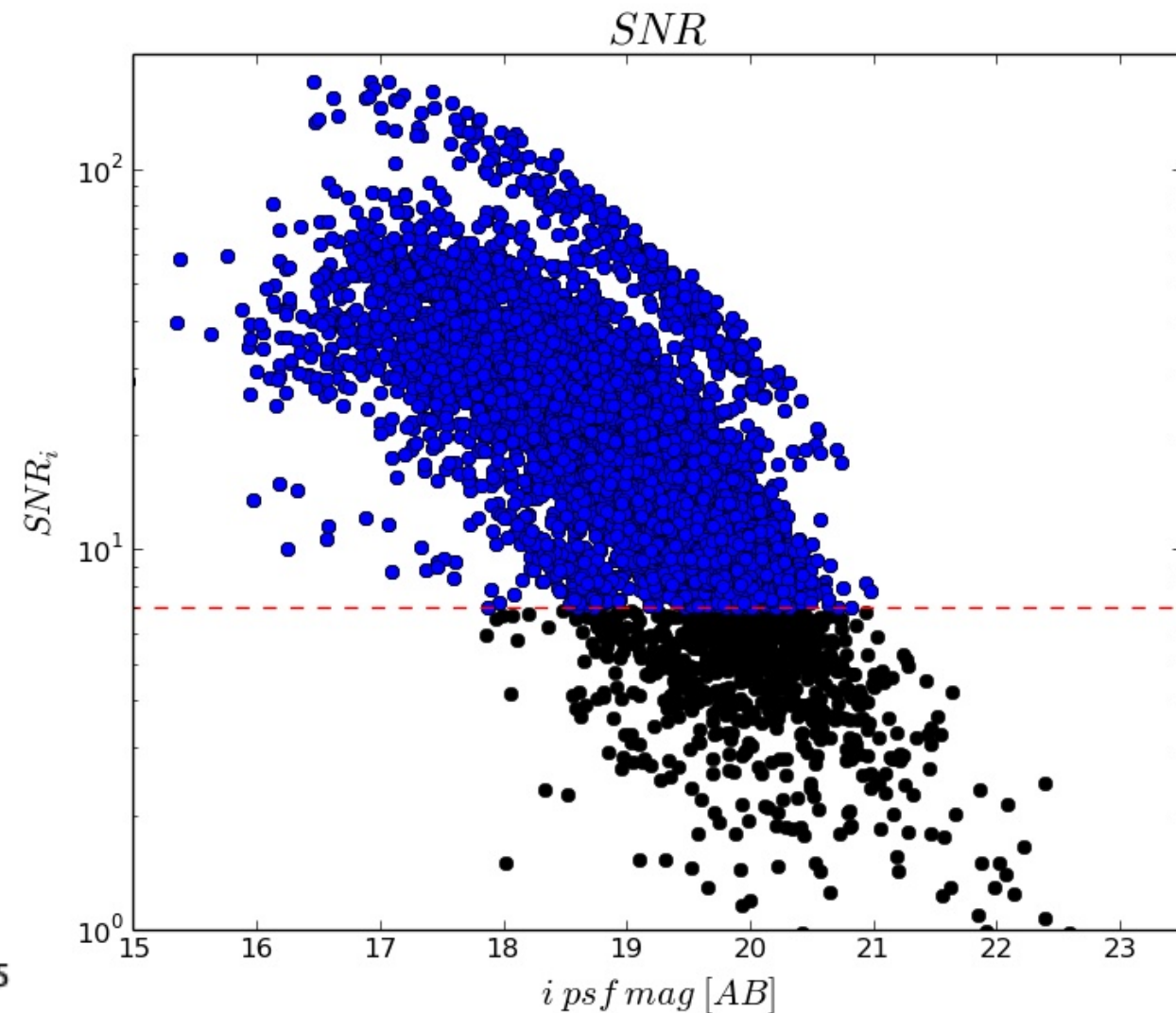
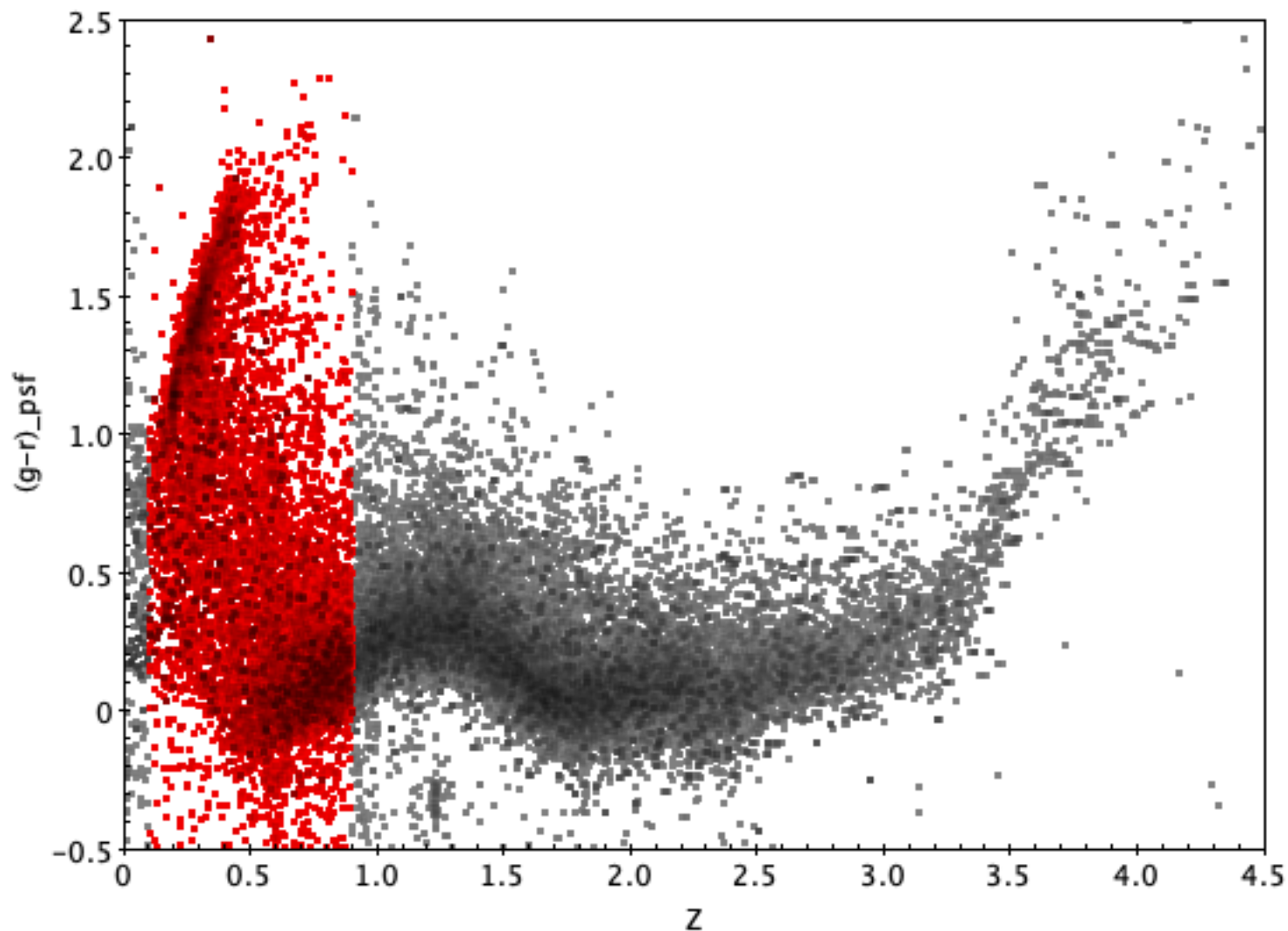
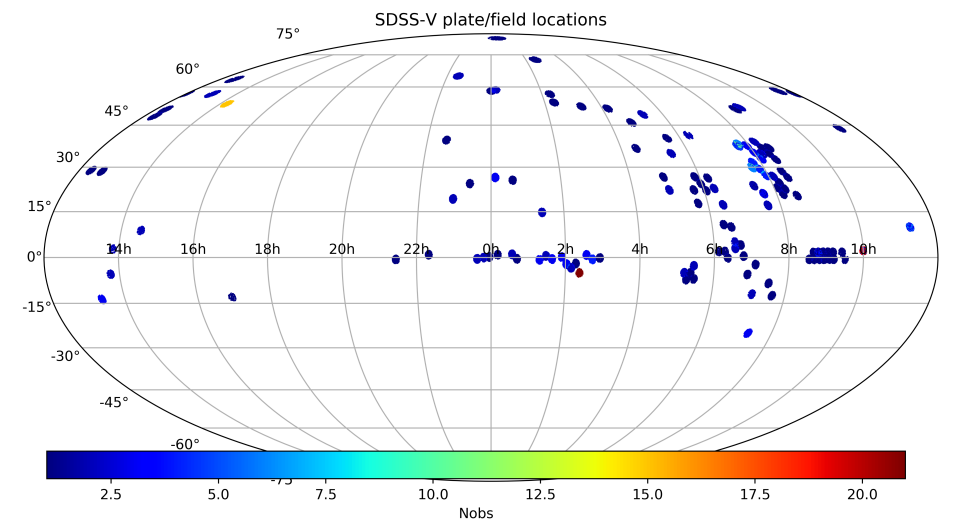
Objetives

- Explore the feasibility to apply the fossil record method in galaxies dominated by a non-thermal component.
- Dissect the host galaxies by its stellar population ages, stellar mass, star formation rates, synthetic colors.
- Explore if the host galaxies dominated by a non thermal emission differs from galaxies without a non thermal emission.



Target Selection

- Select all the spectra within 0.1 and 0.9 (17,000 spectra, 6,945 targets)
- Co-add all the spectra for the same target.
- Select all the spectra with a SNR > 7 (6,022)



Target Selection

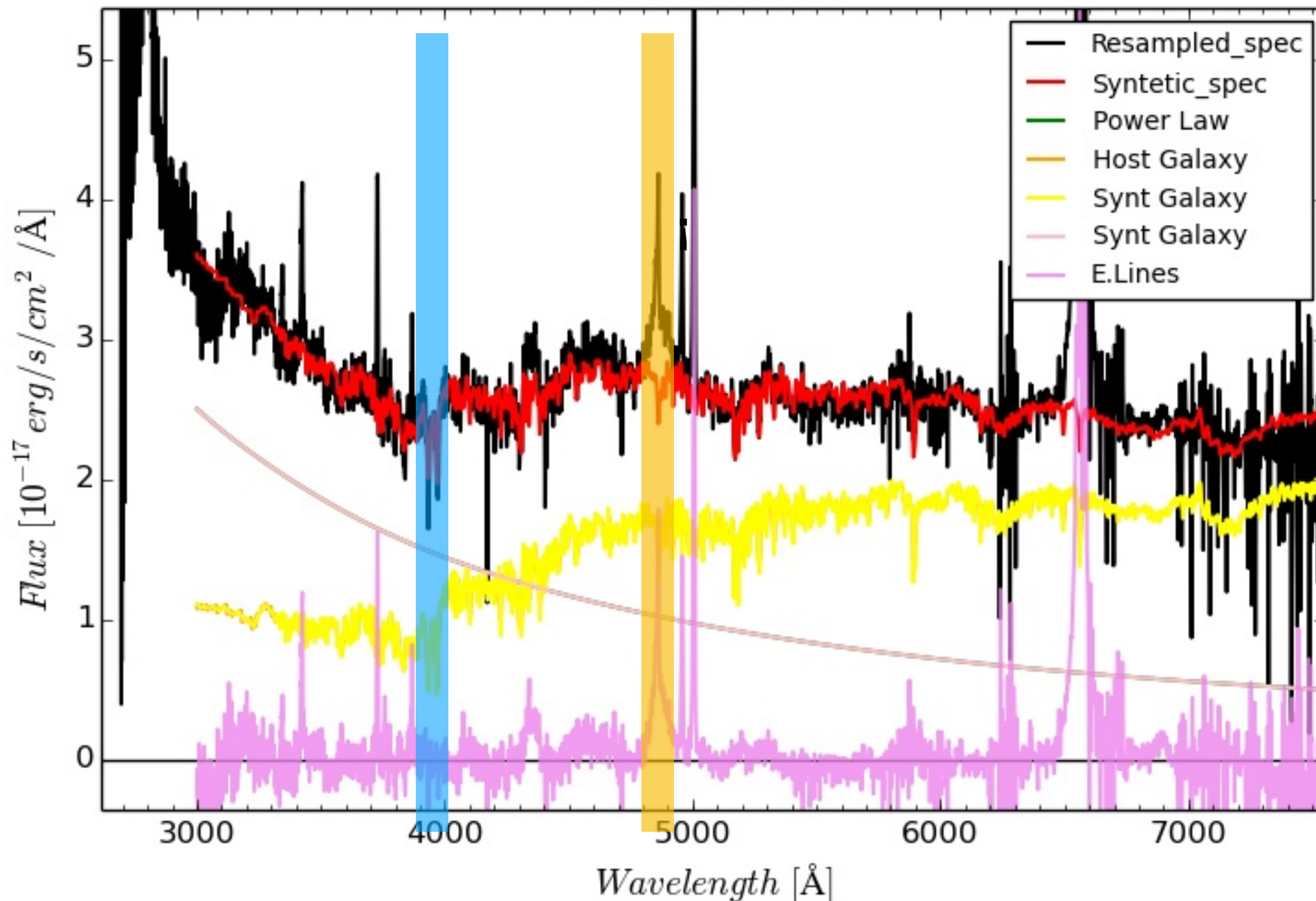
- Identify the targets with a non-thermal component from the ones that have a pure stellar spectra

H-index: 3950-3990

3991-4050

Hb-index: 4847.875-4876.625 4827.875-4847.875 4876.625-4891.625

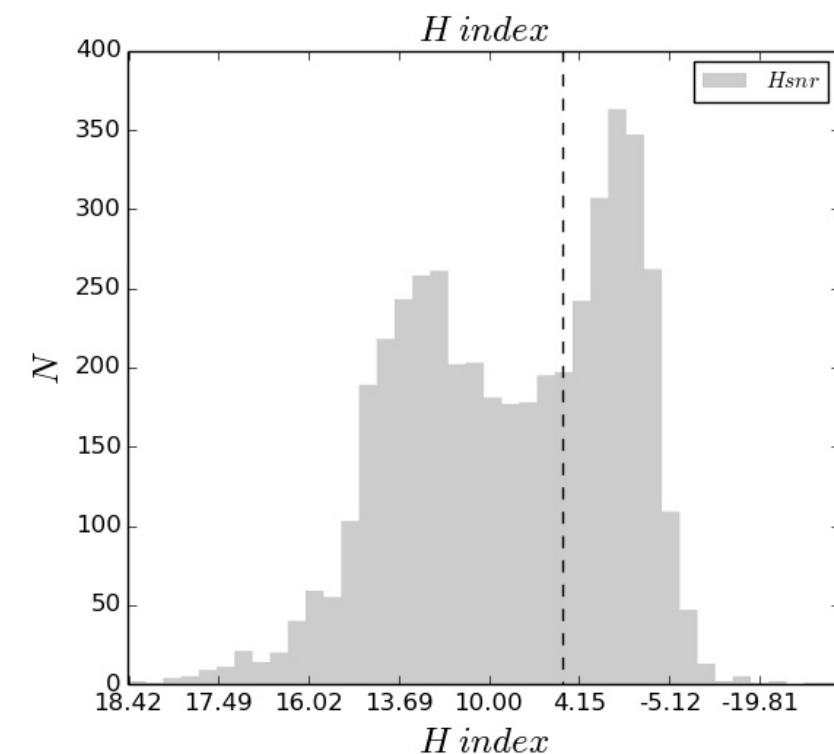
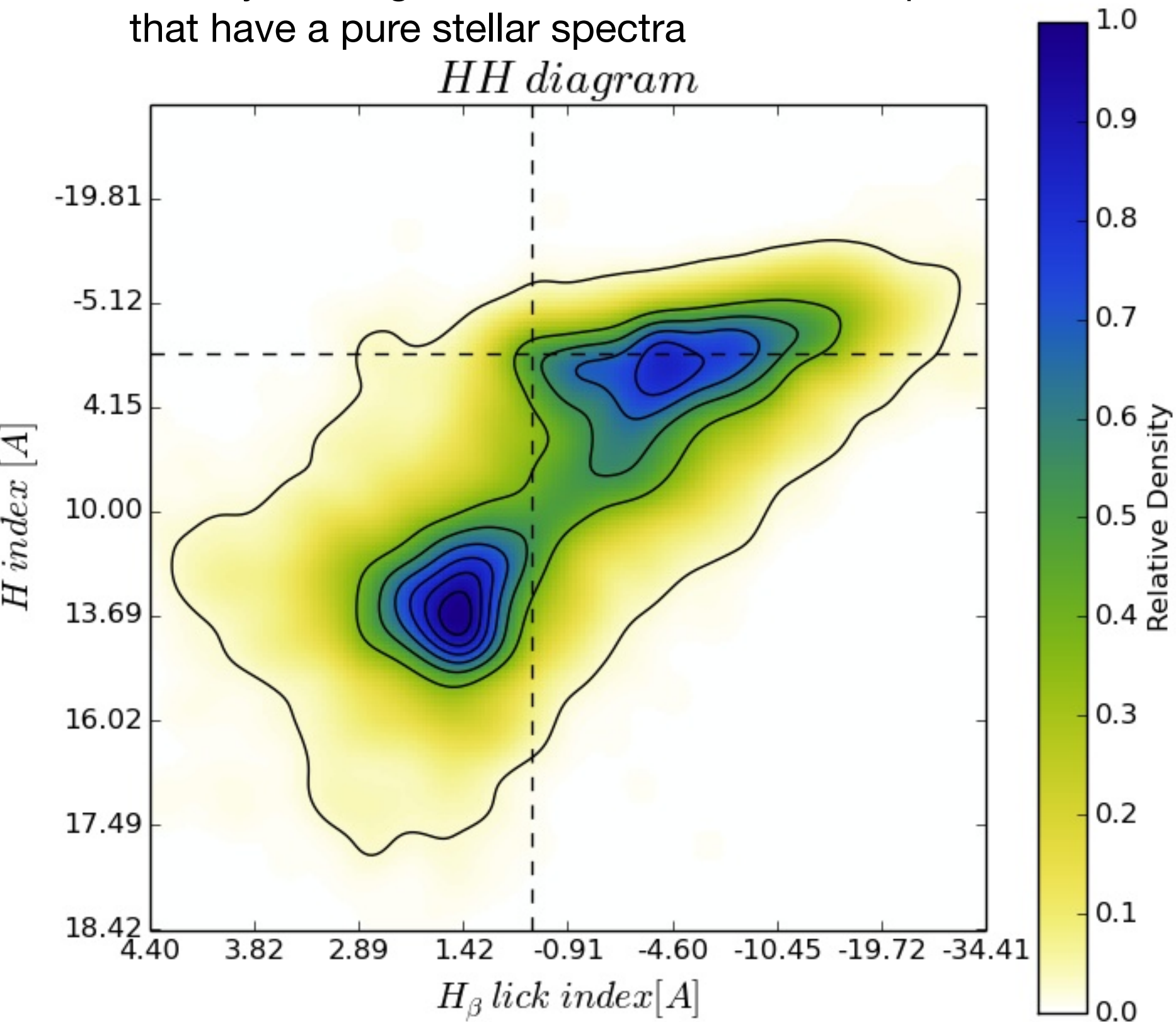
04350953730



Target Selection

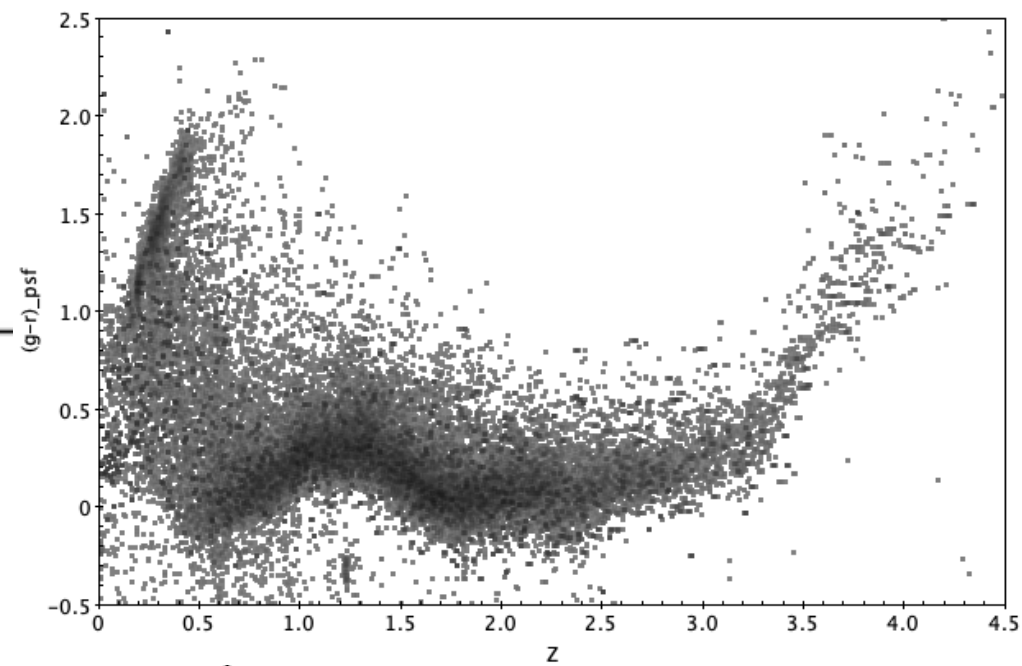
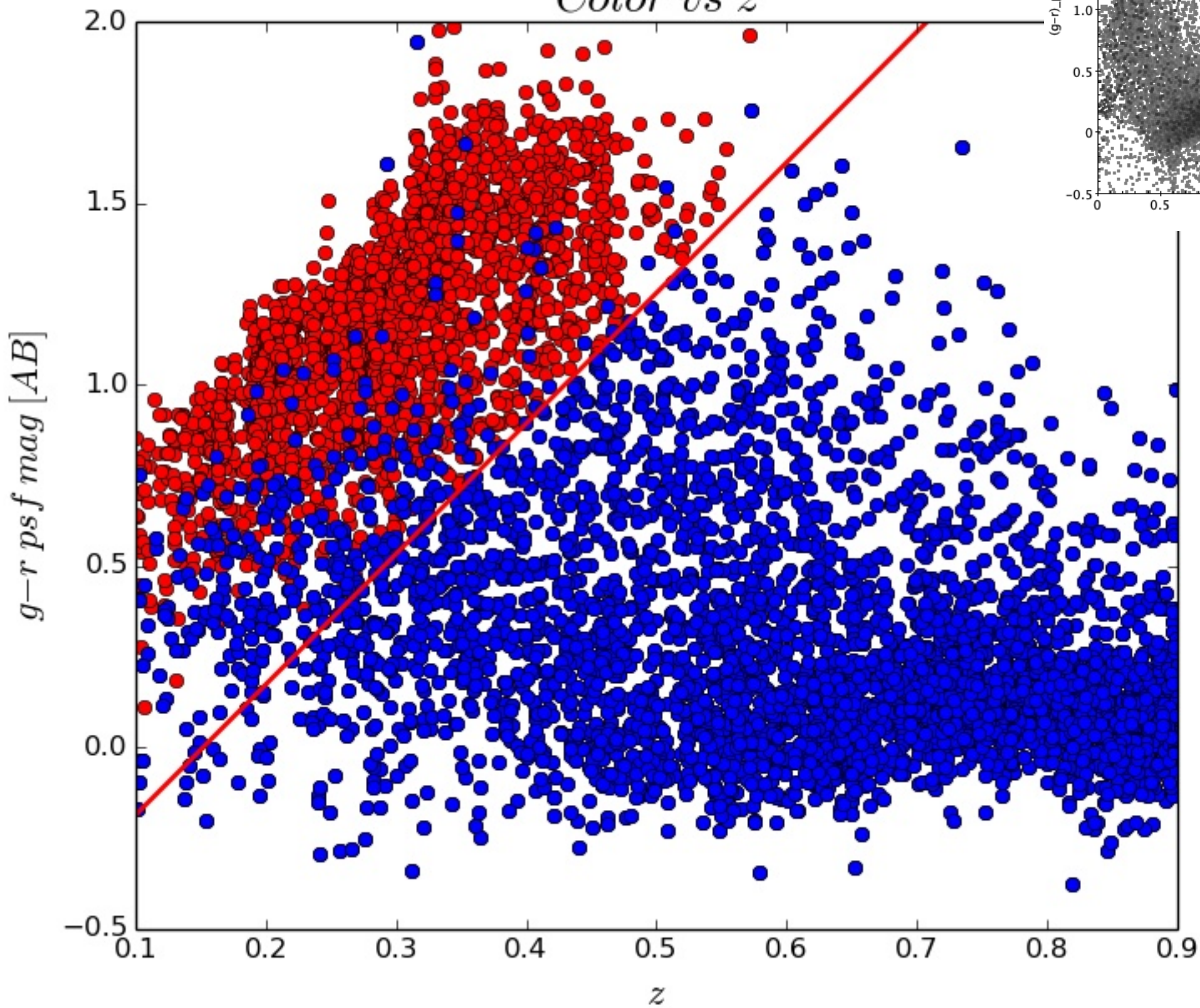
- Identify the targets with a non-thermal component from the ones that have a pure stellar spectra

HH diagram



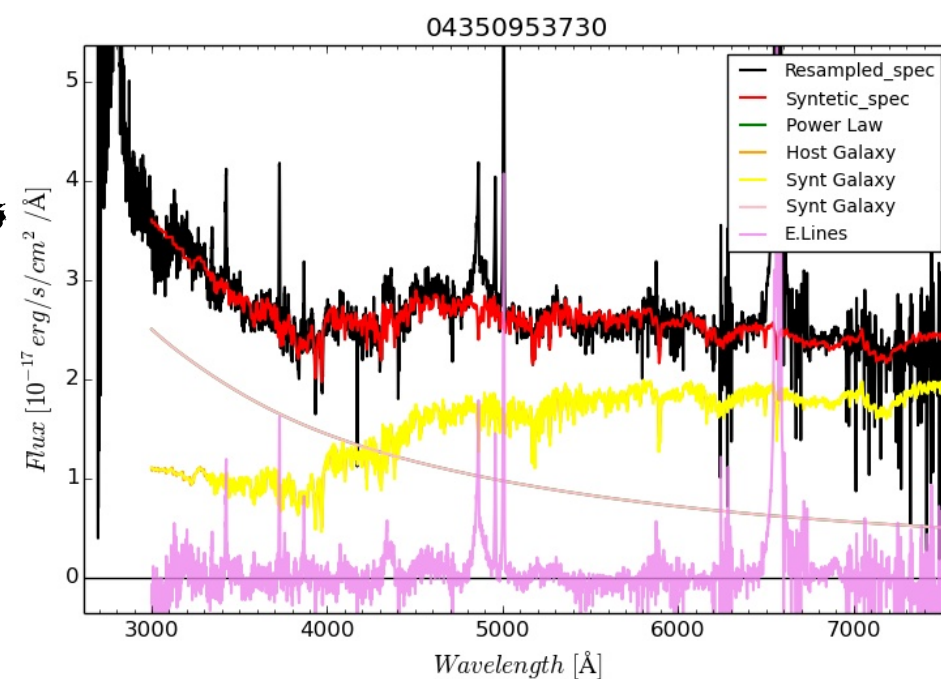
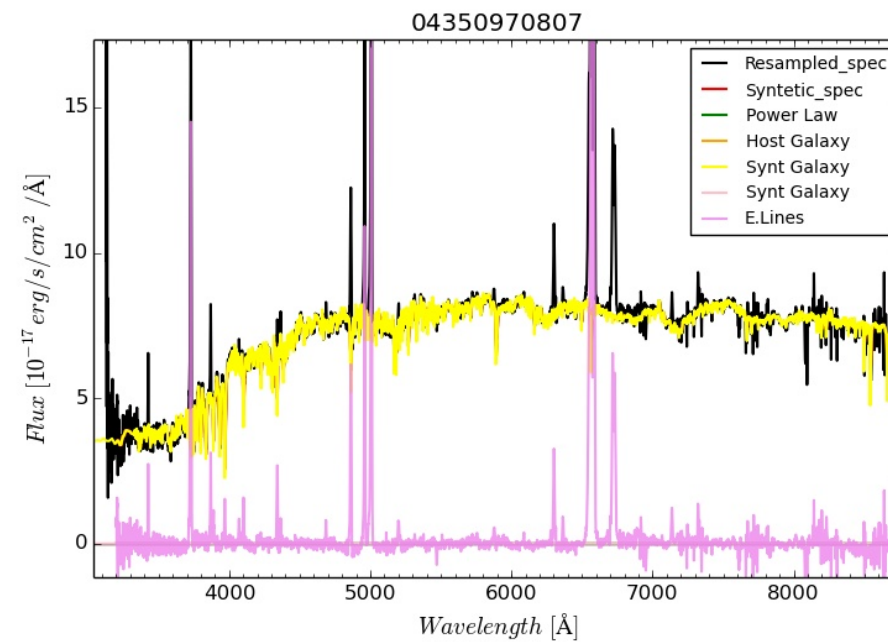
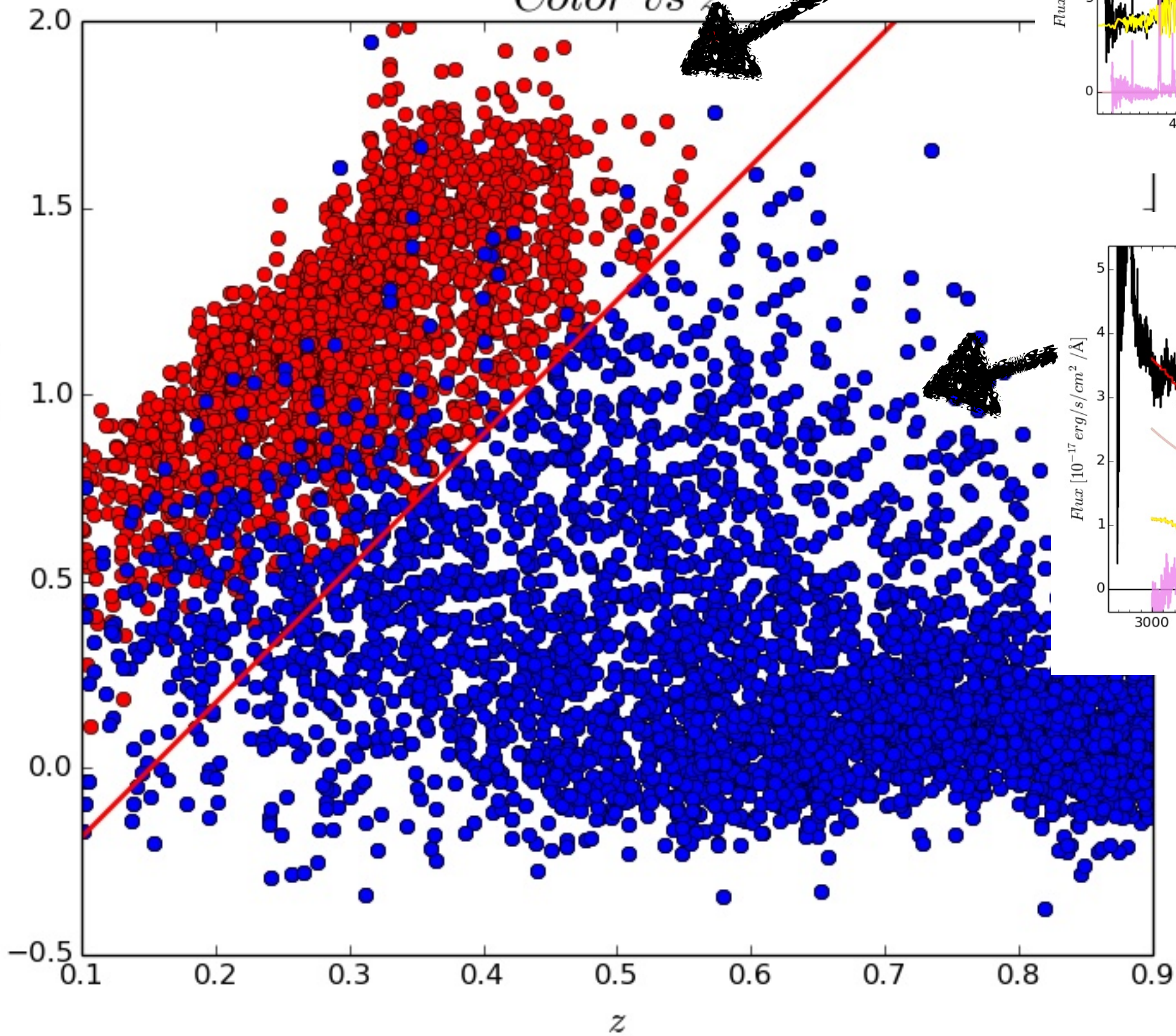
Target Selection

Color vs z



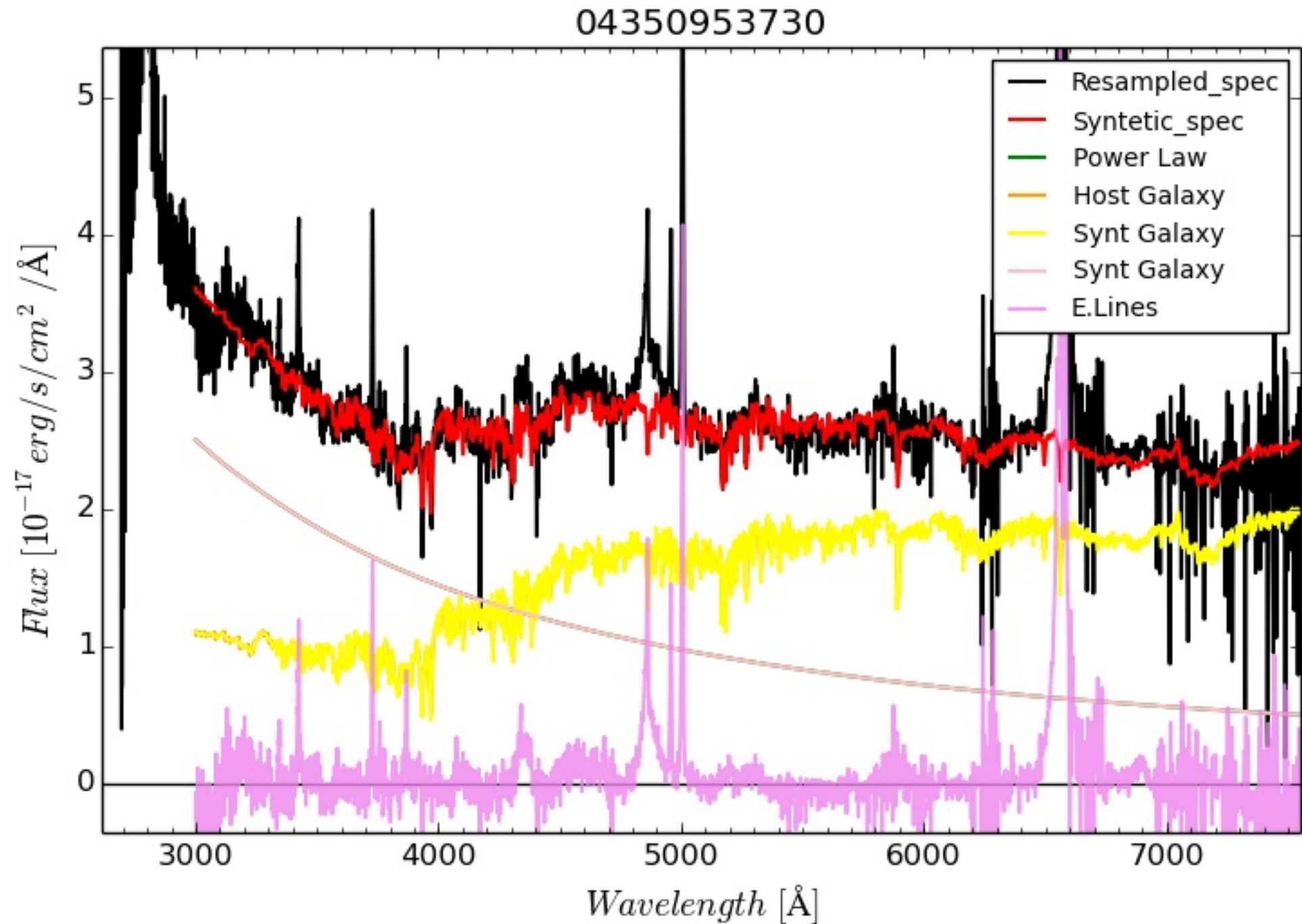
Target Selection

Color vs z



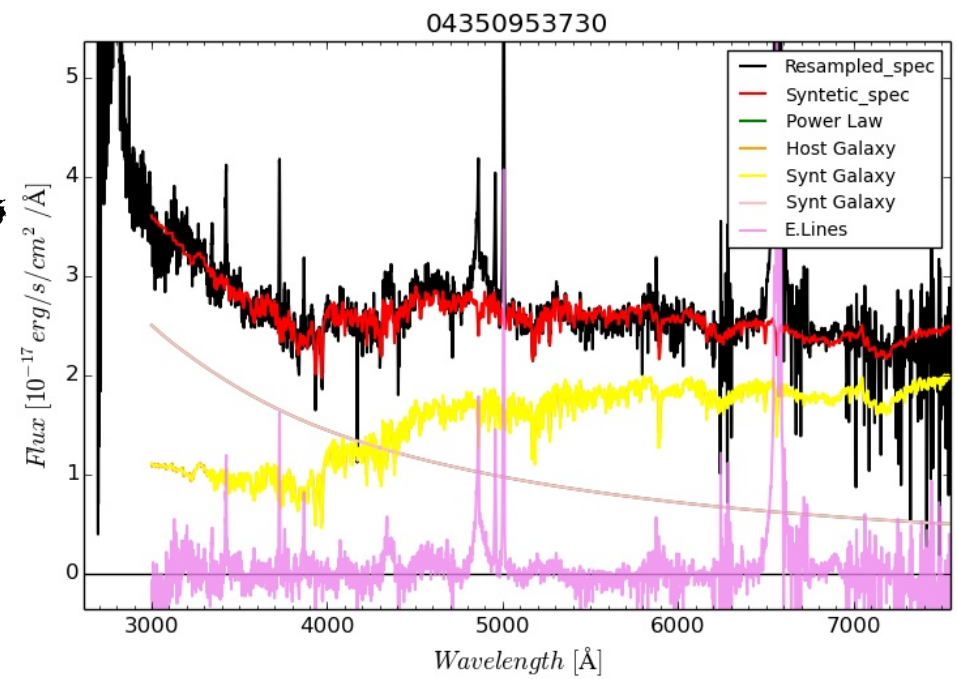
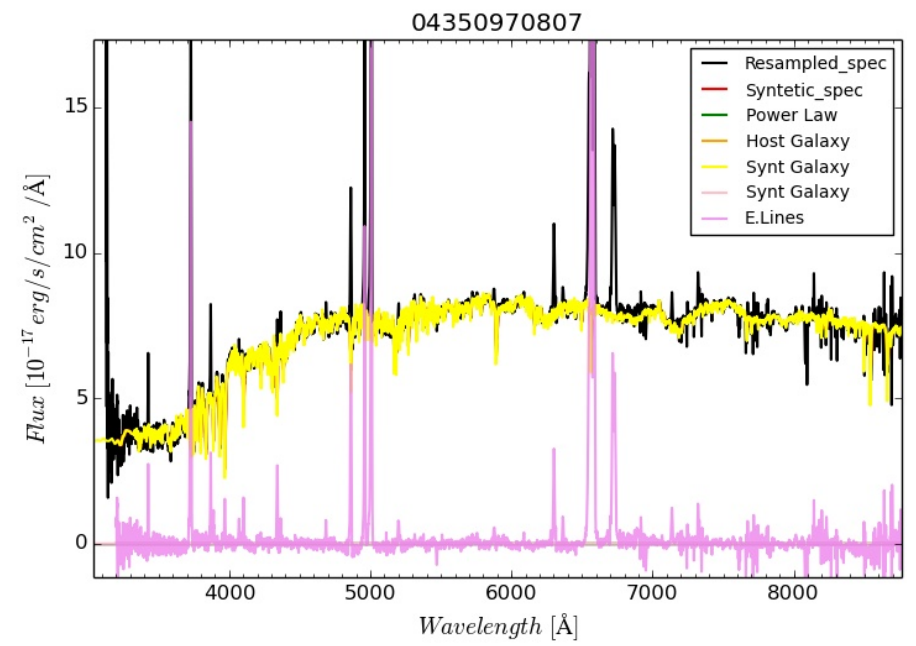
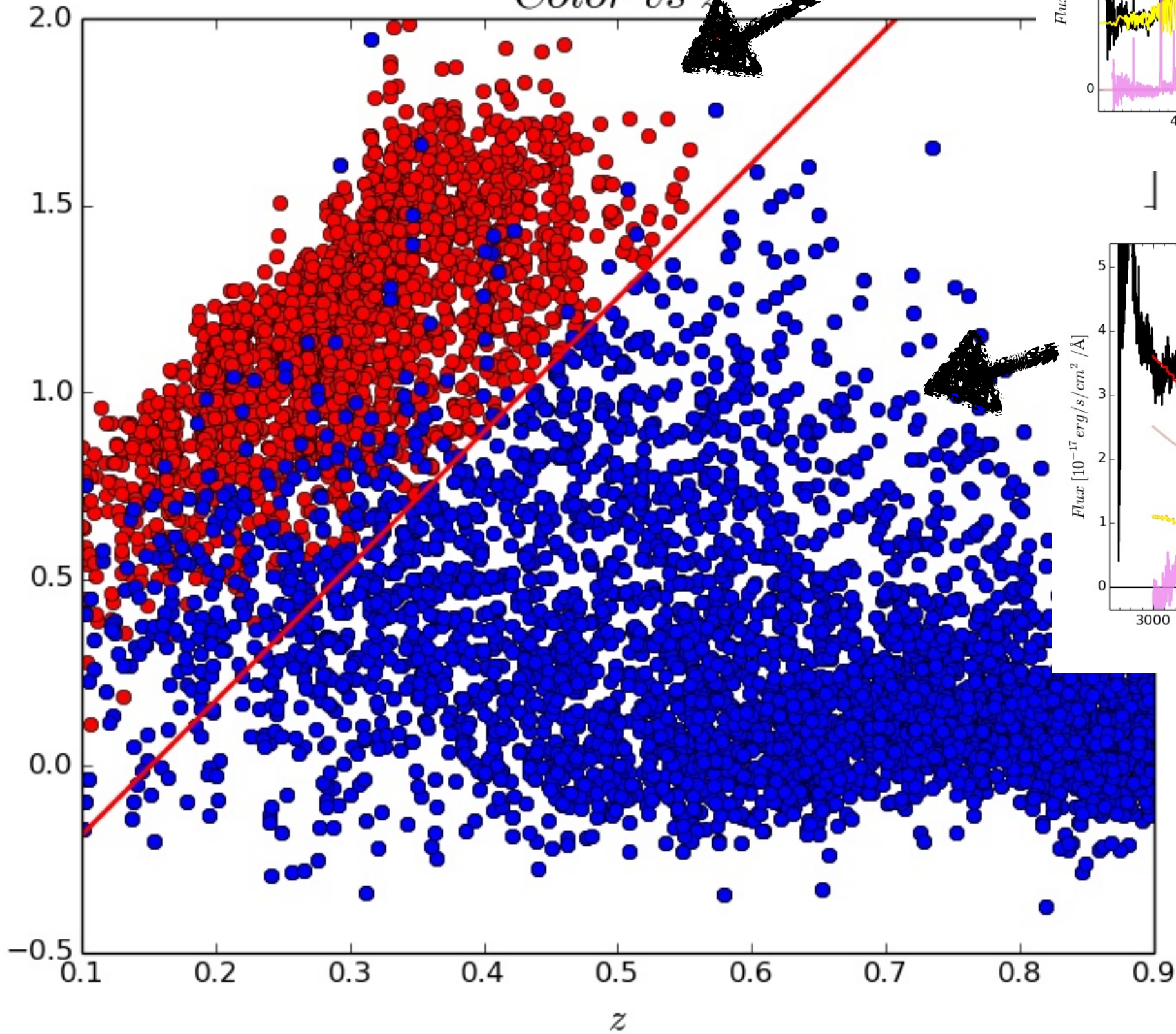
The stellar population synthesis

- STARLIGHT code
- 150 single stellar populations (bc2003-STELIB-SSP)
- 25 ages (1Myr-15Gyr)
- 6 metallicities ($0.005 > Z_{\text{sun}} > 2.5$)
- 10 Power law templates ($-0.5 > \alpha > 2.0$)

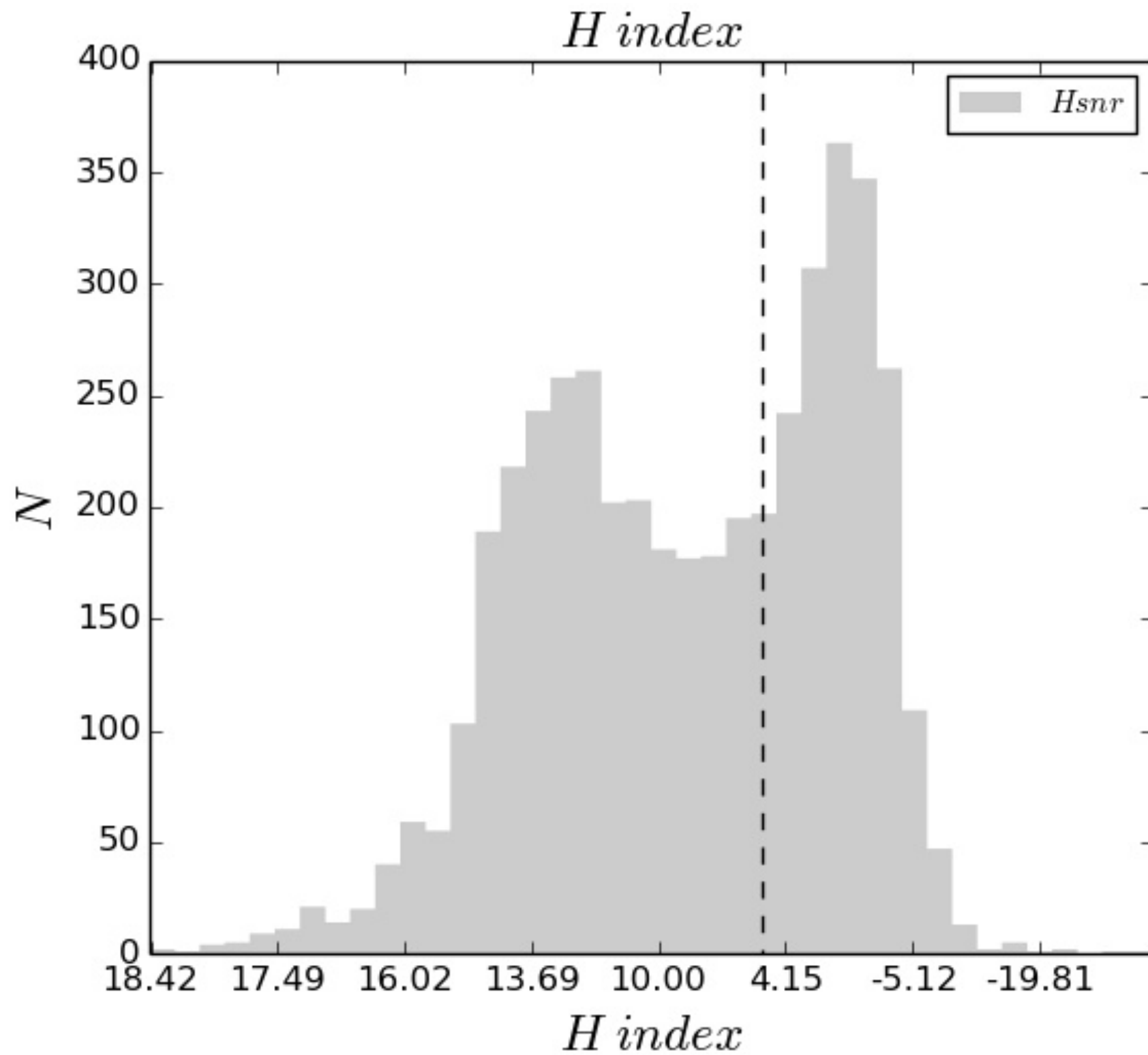


Target Selection

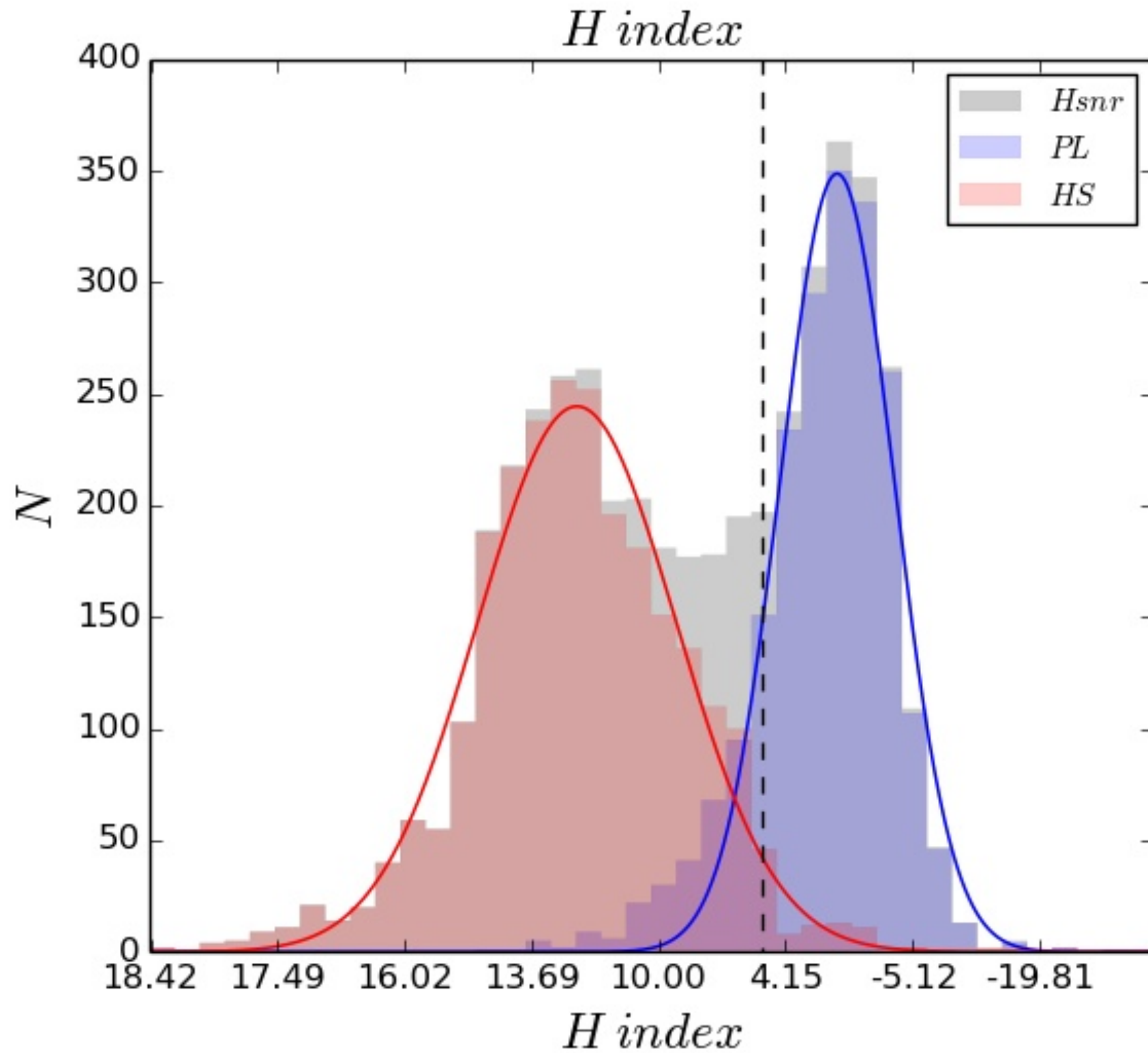
Color vs z



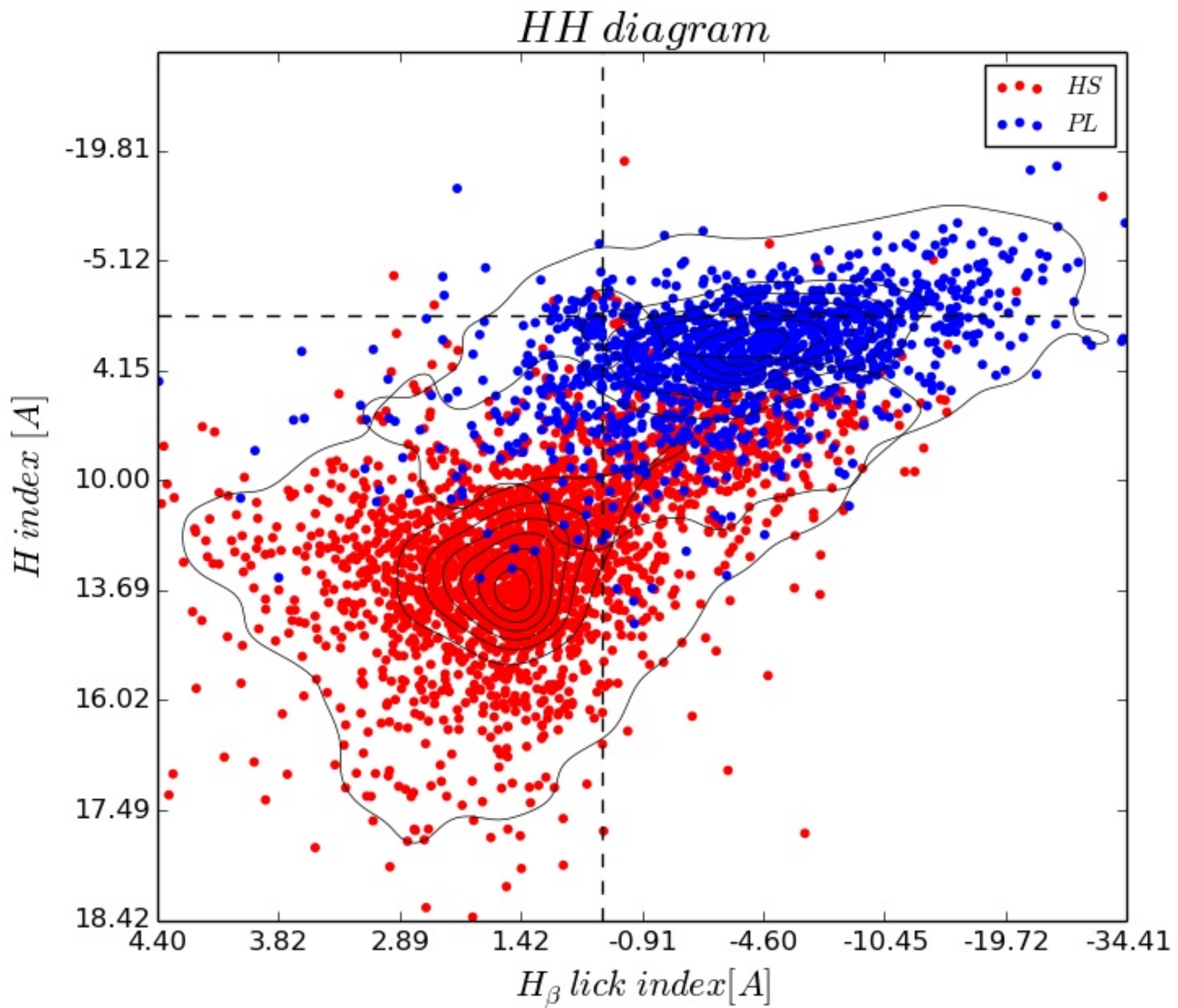
Target Selection



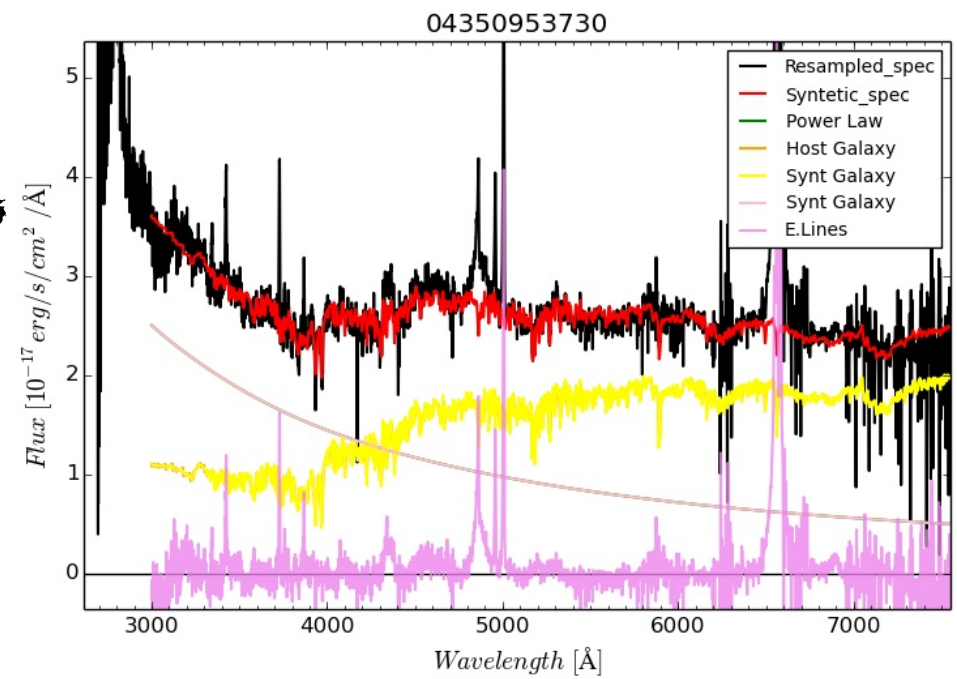
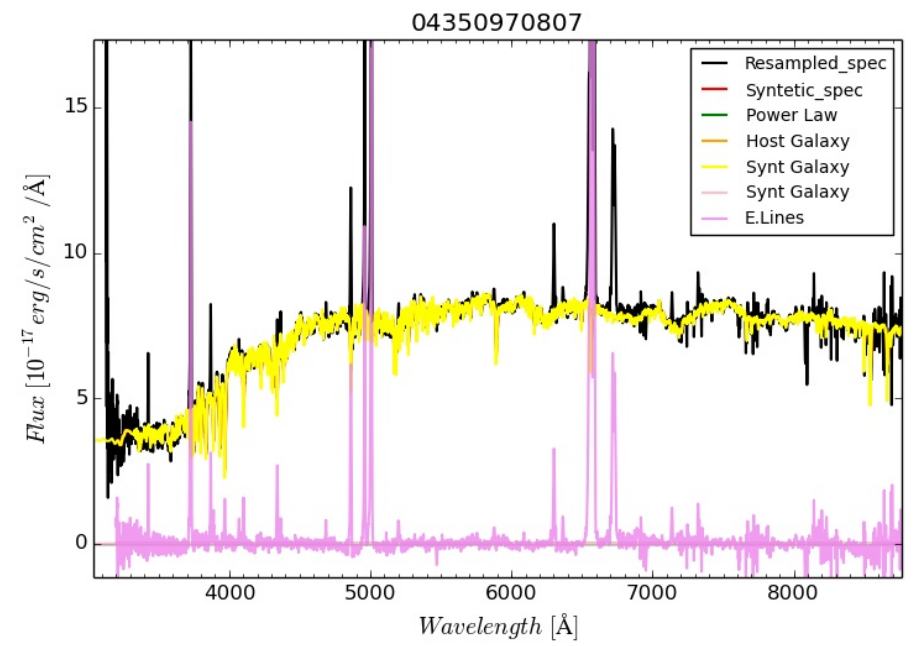
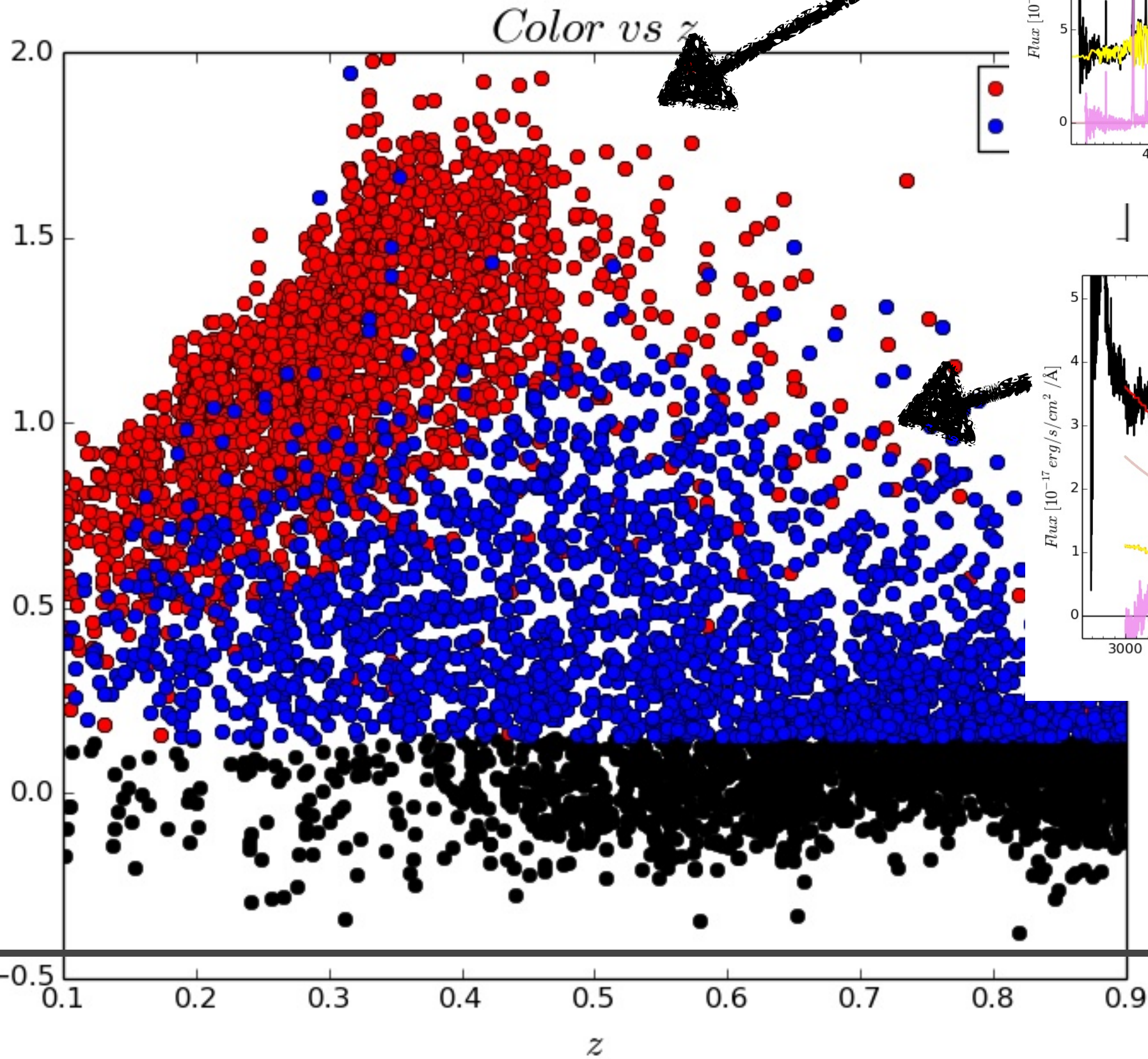
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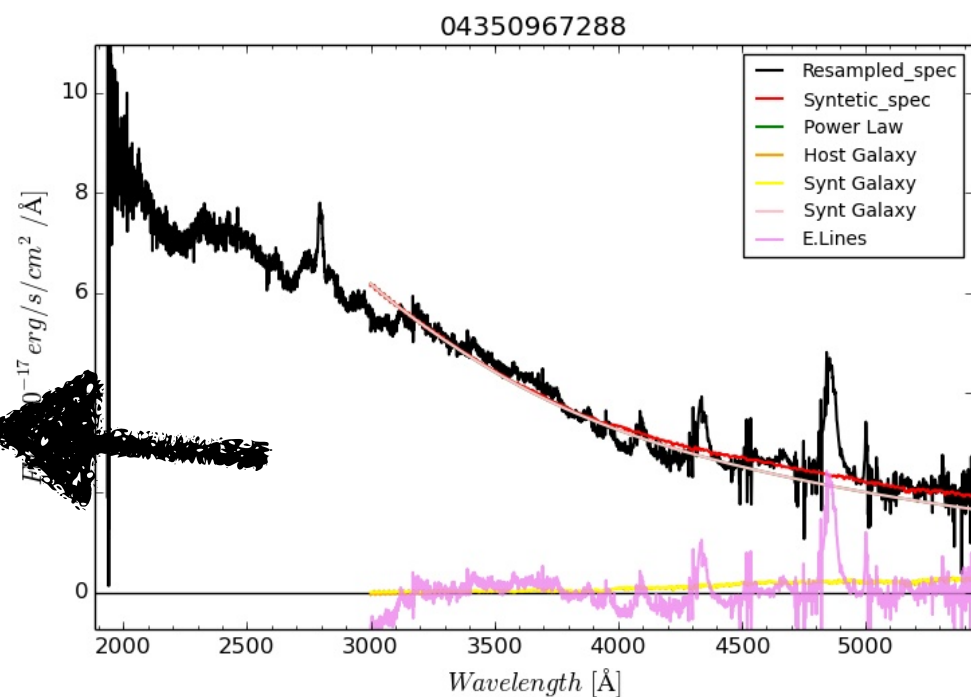
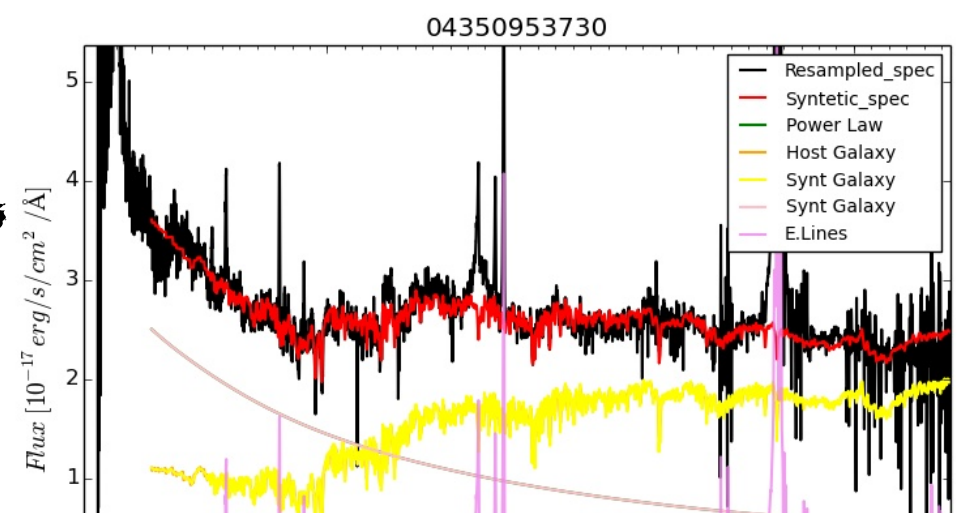
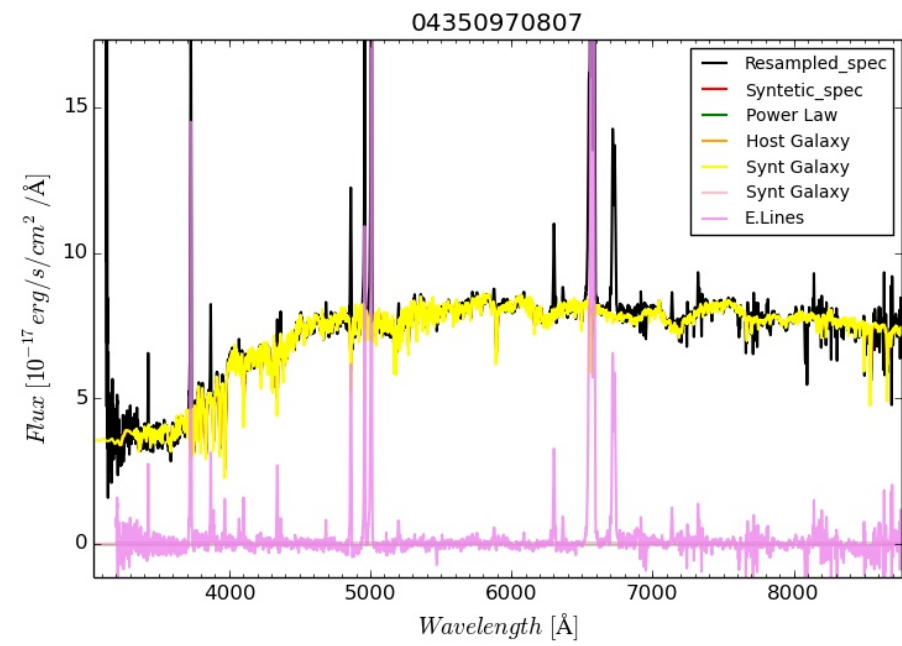
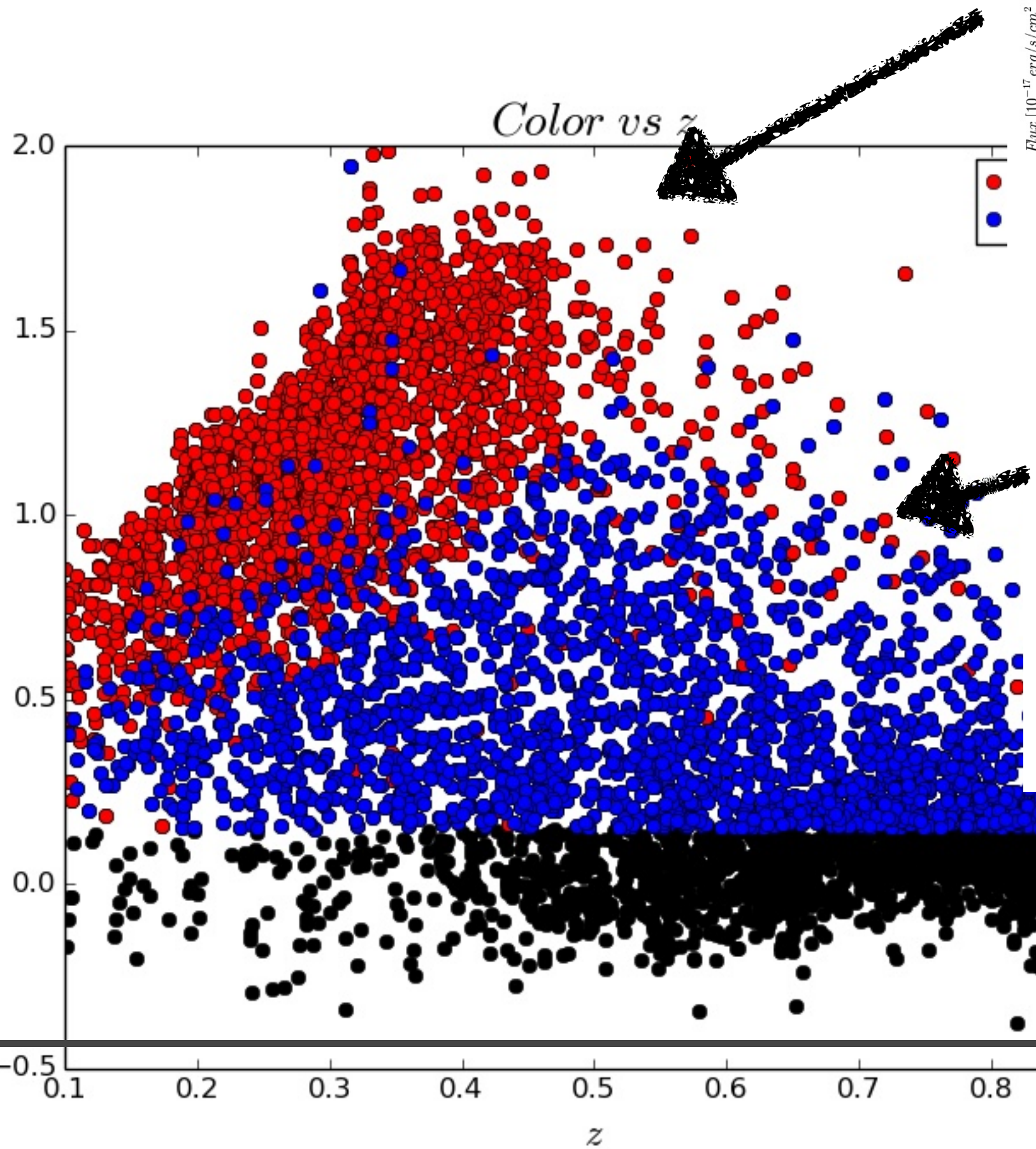
Target Selection



Target Selection



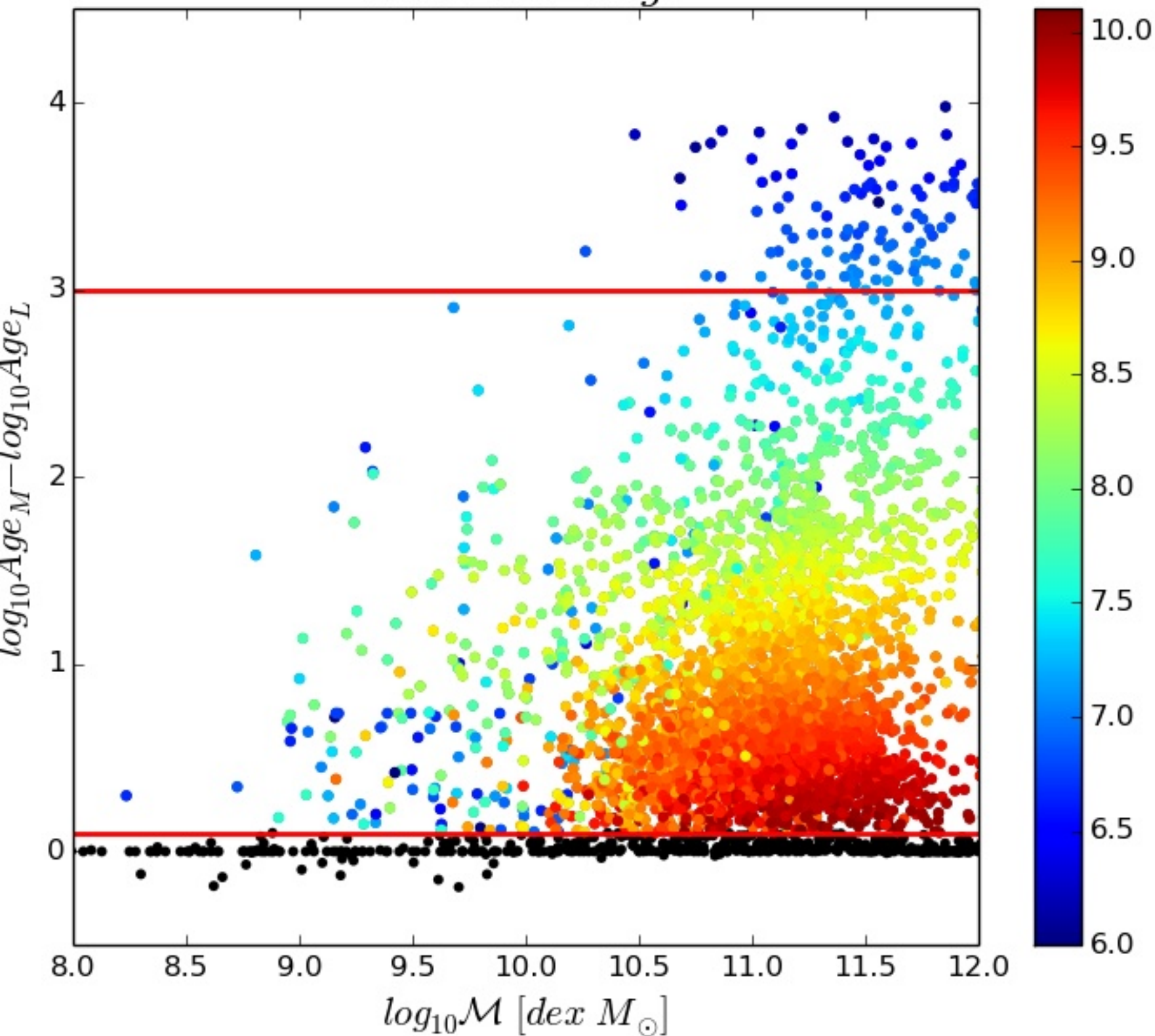
Target Selection



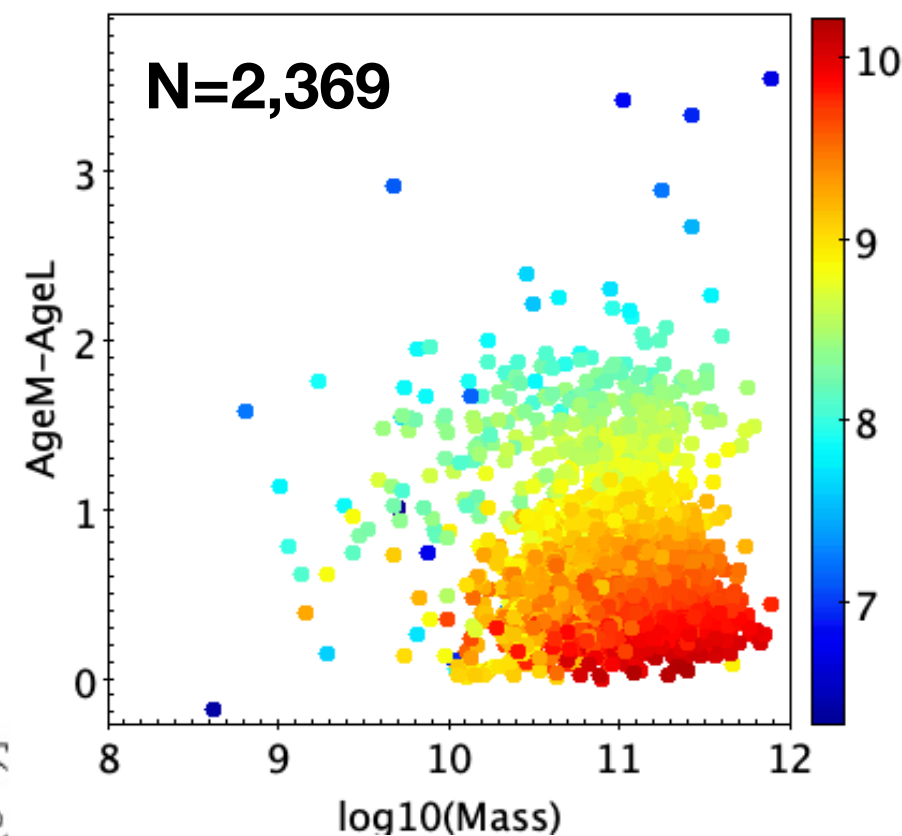
Target Selection

$(u-r)_{z=0} > 0.5$

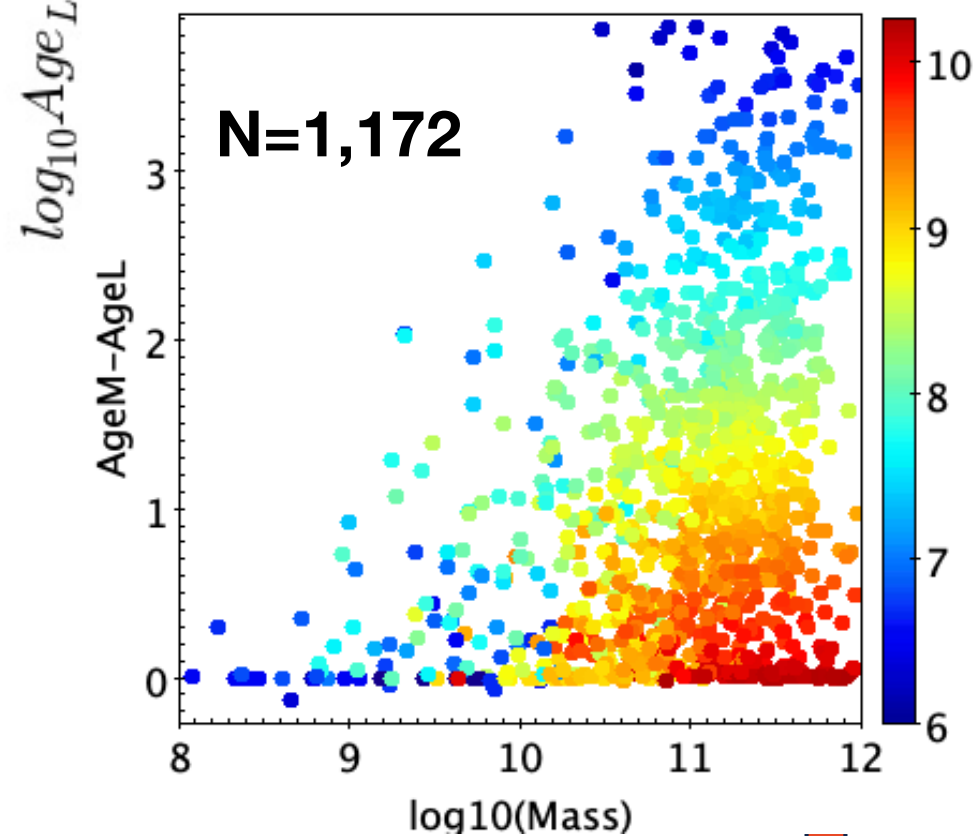
Mass vs Δ Age



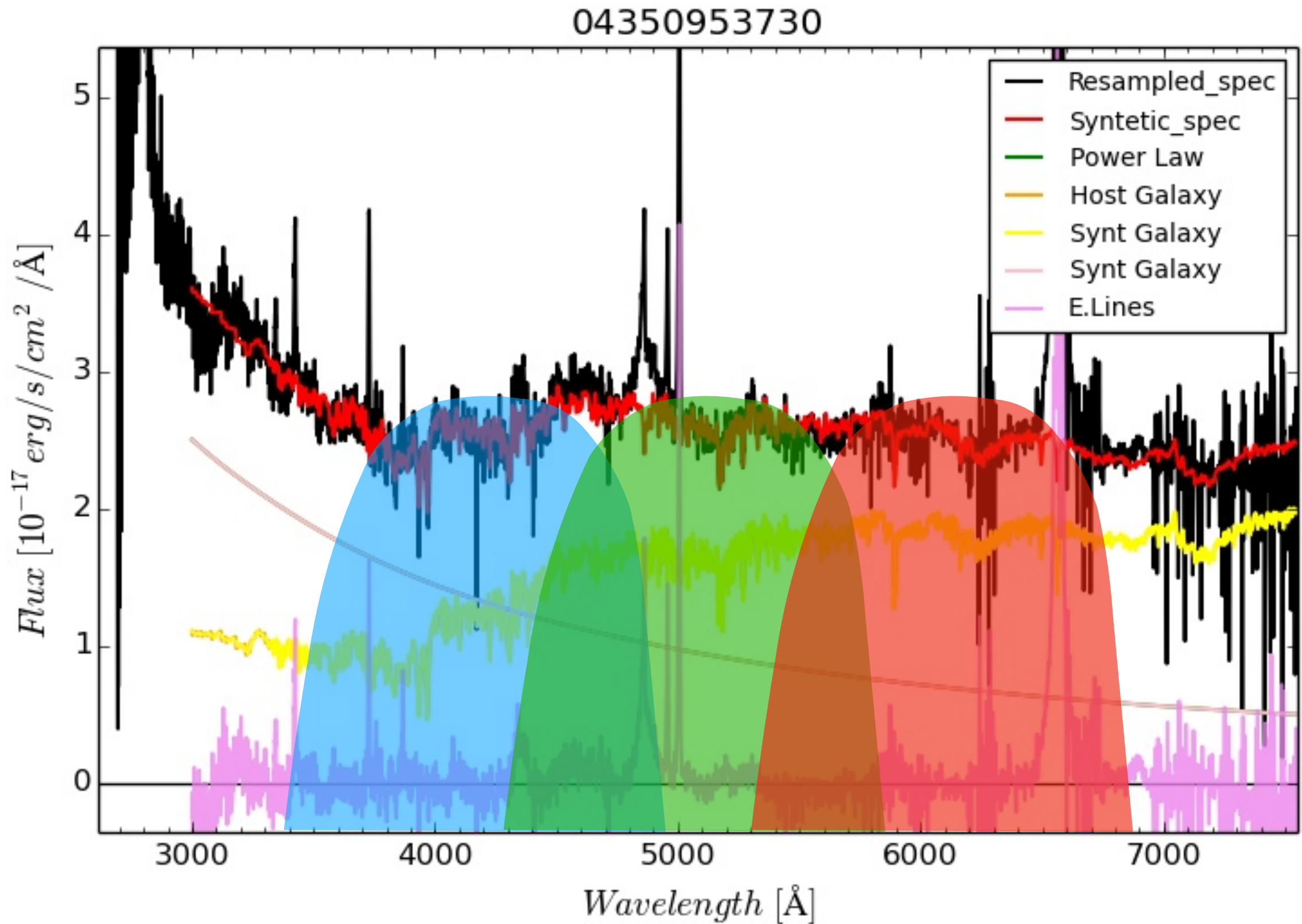
Pure Stellar Emission



With a Power Law

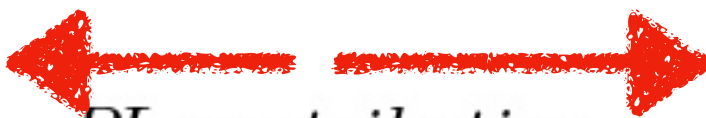


Synthetic Magnitudes

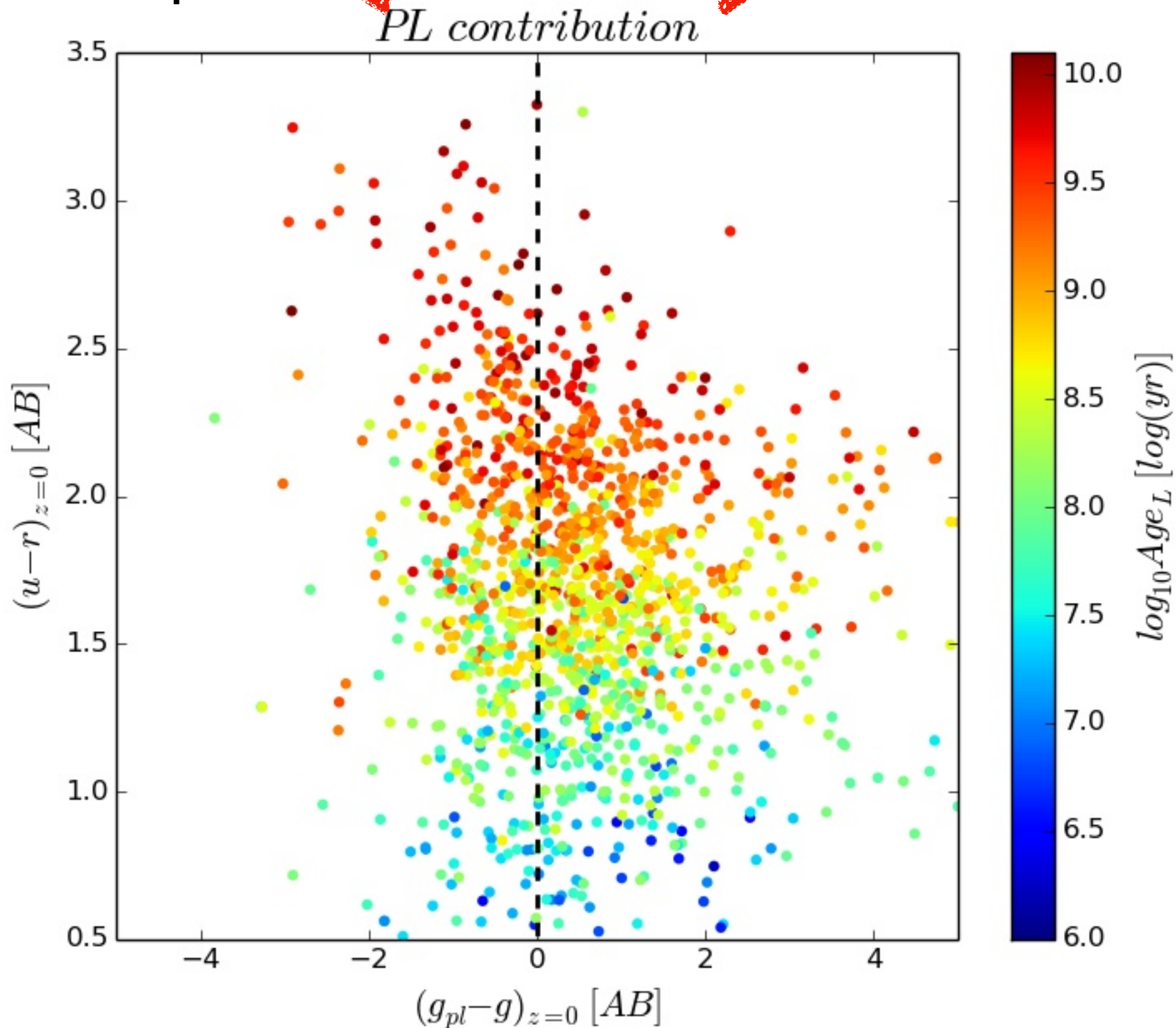


Sanity Checks: Galaxies with non-thermal component

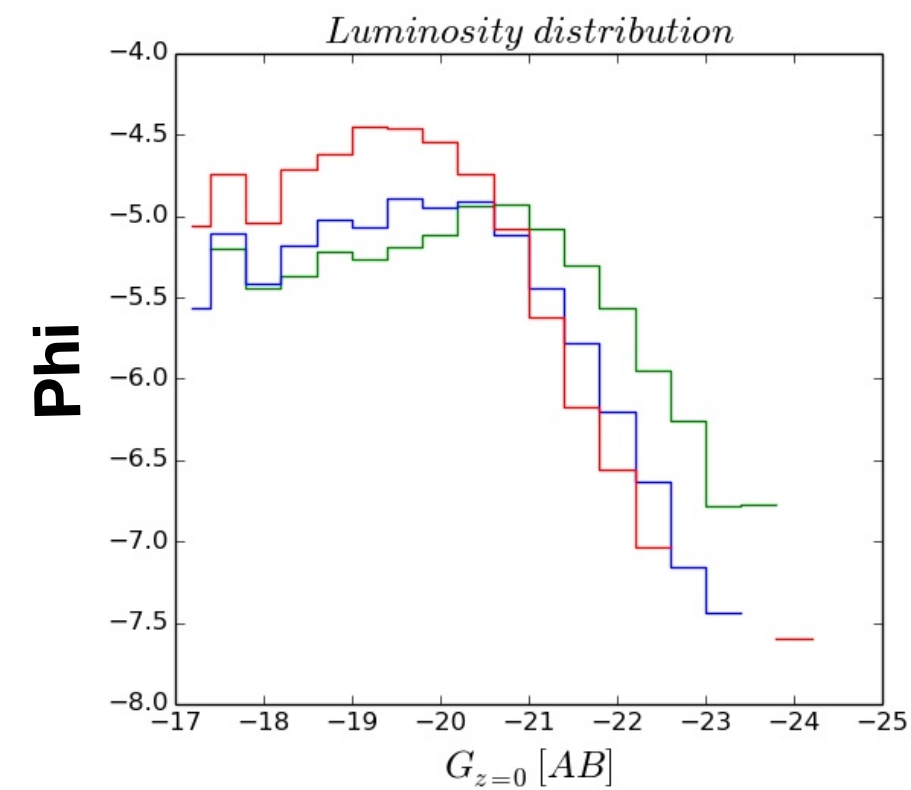
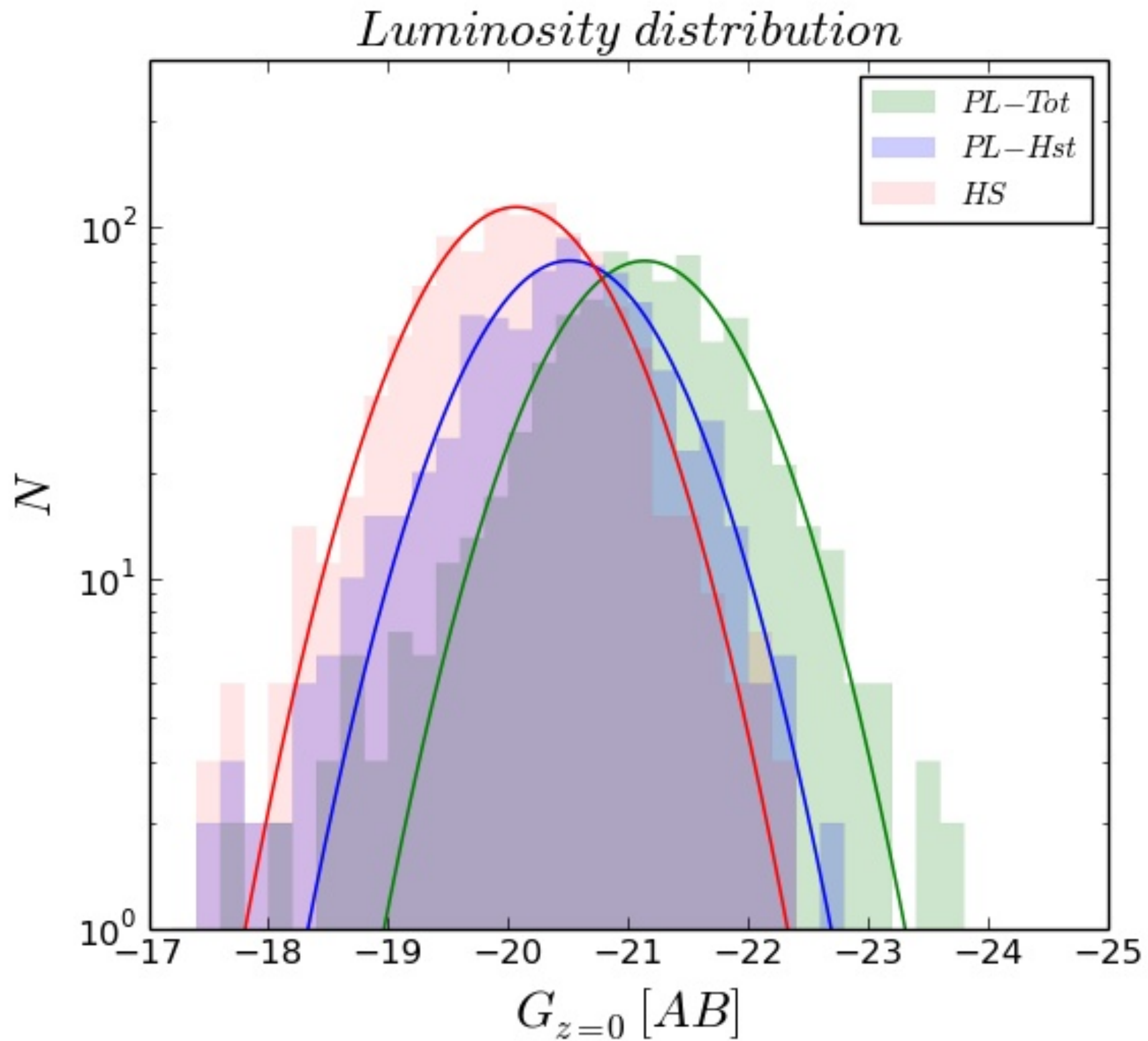
Dominate the PL component



Dominate the Stellar component

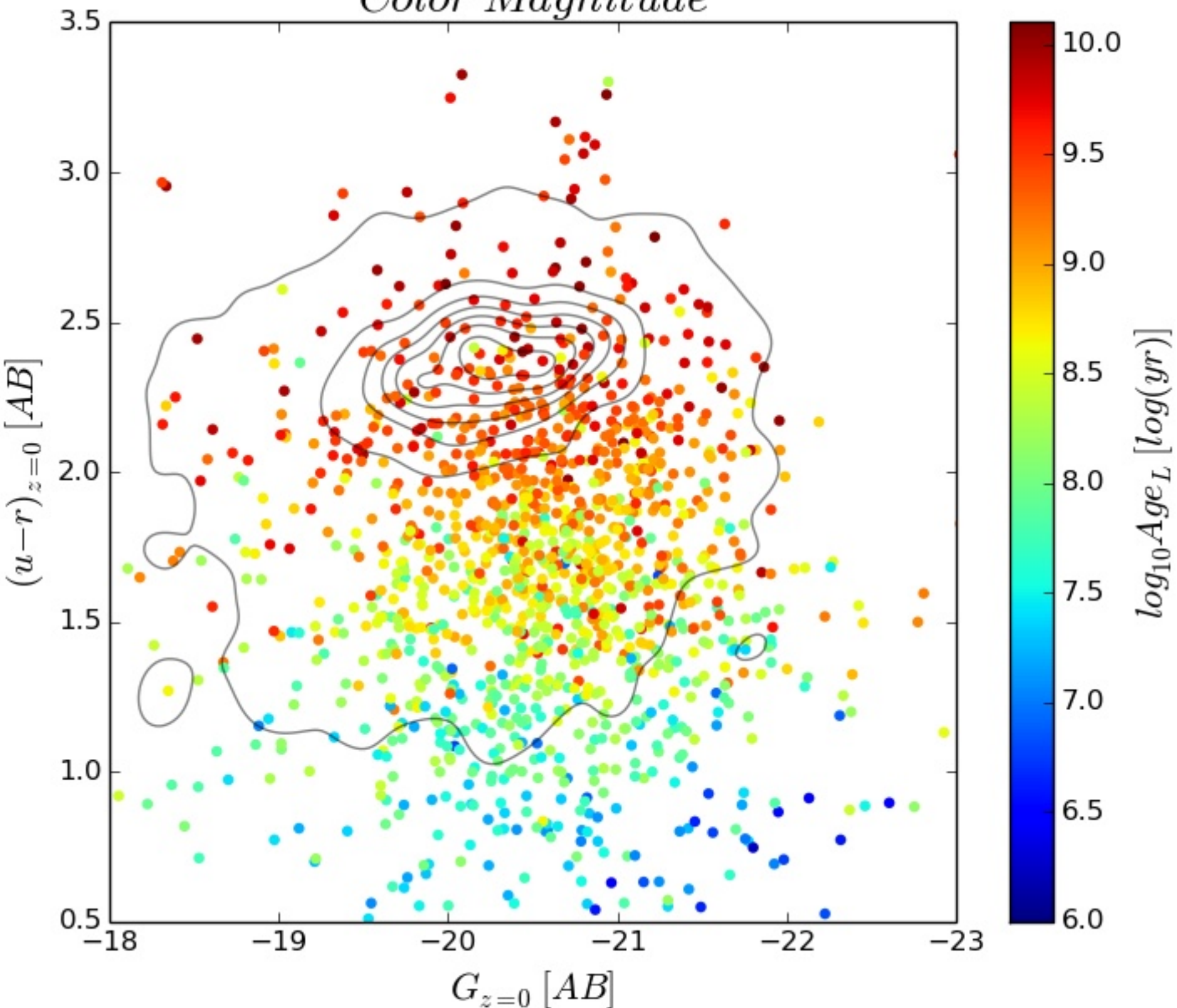


Sanity Checks: The Luminosity distribution

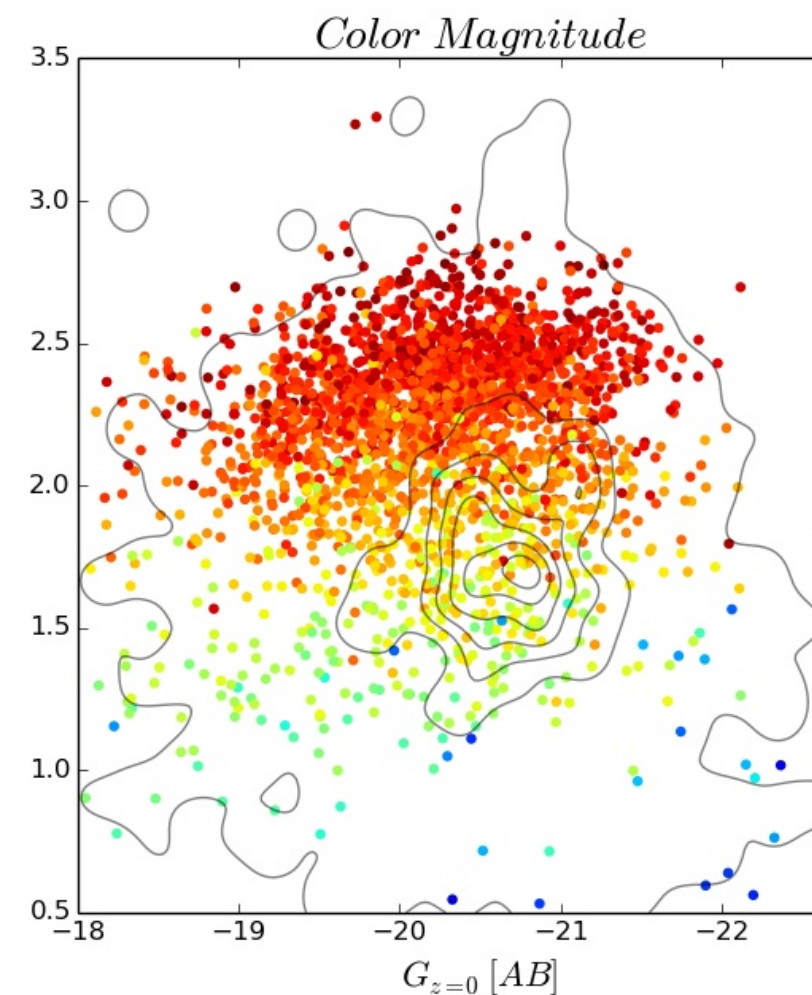


Sanity Checks: The Host galaxy color magnitude

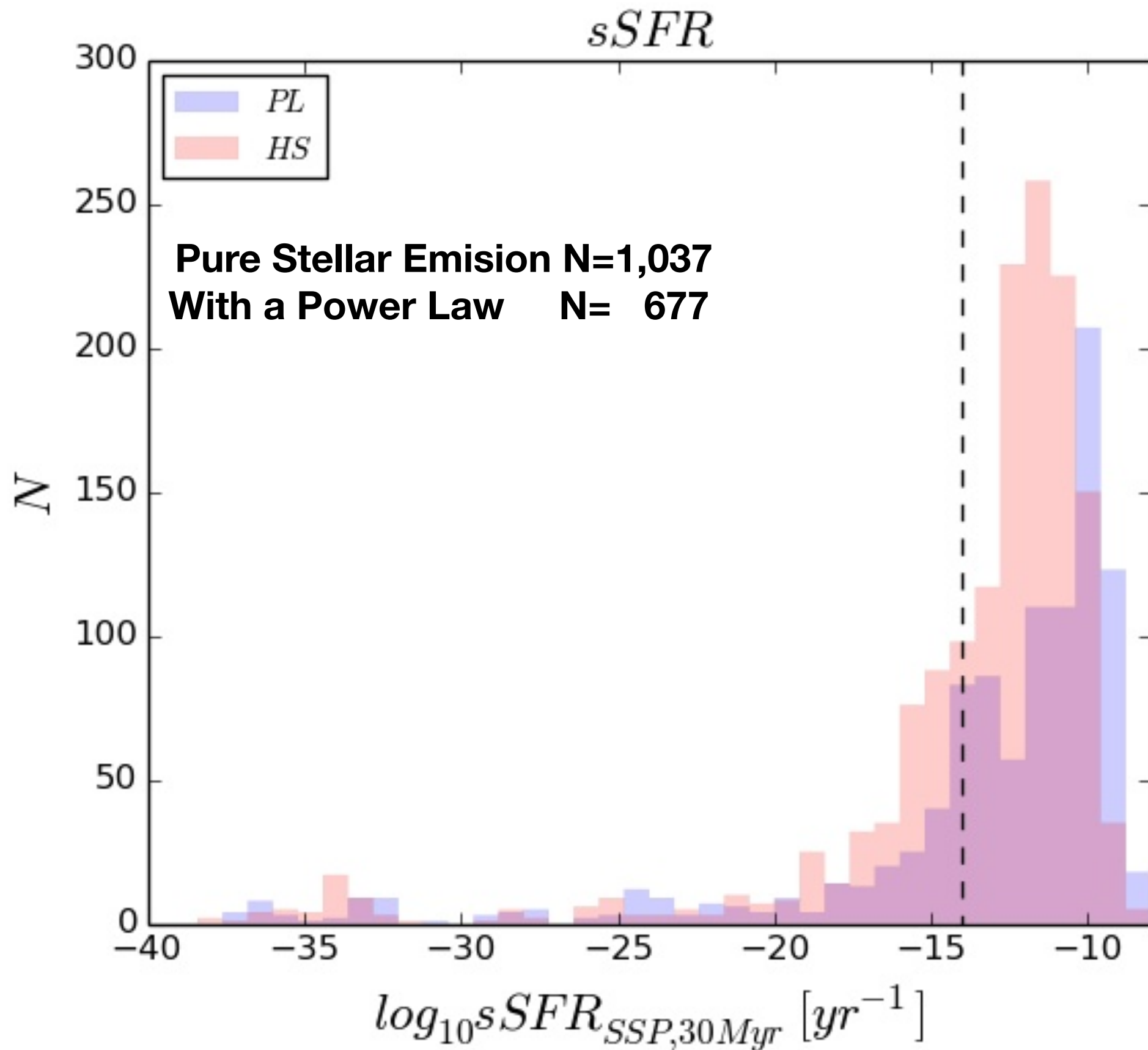
With a Power Law
Color Magnitude



Pure Stellar Emission



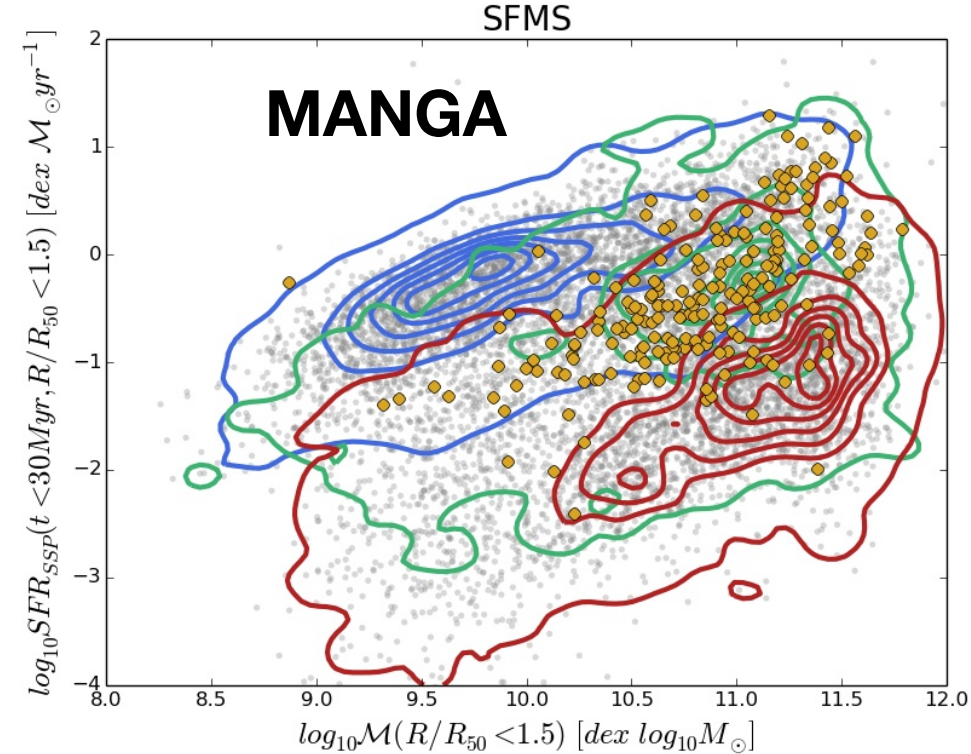
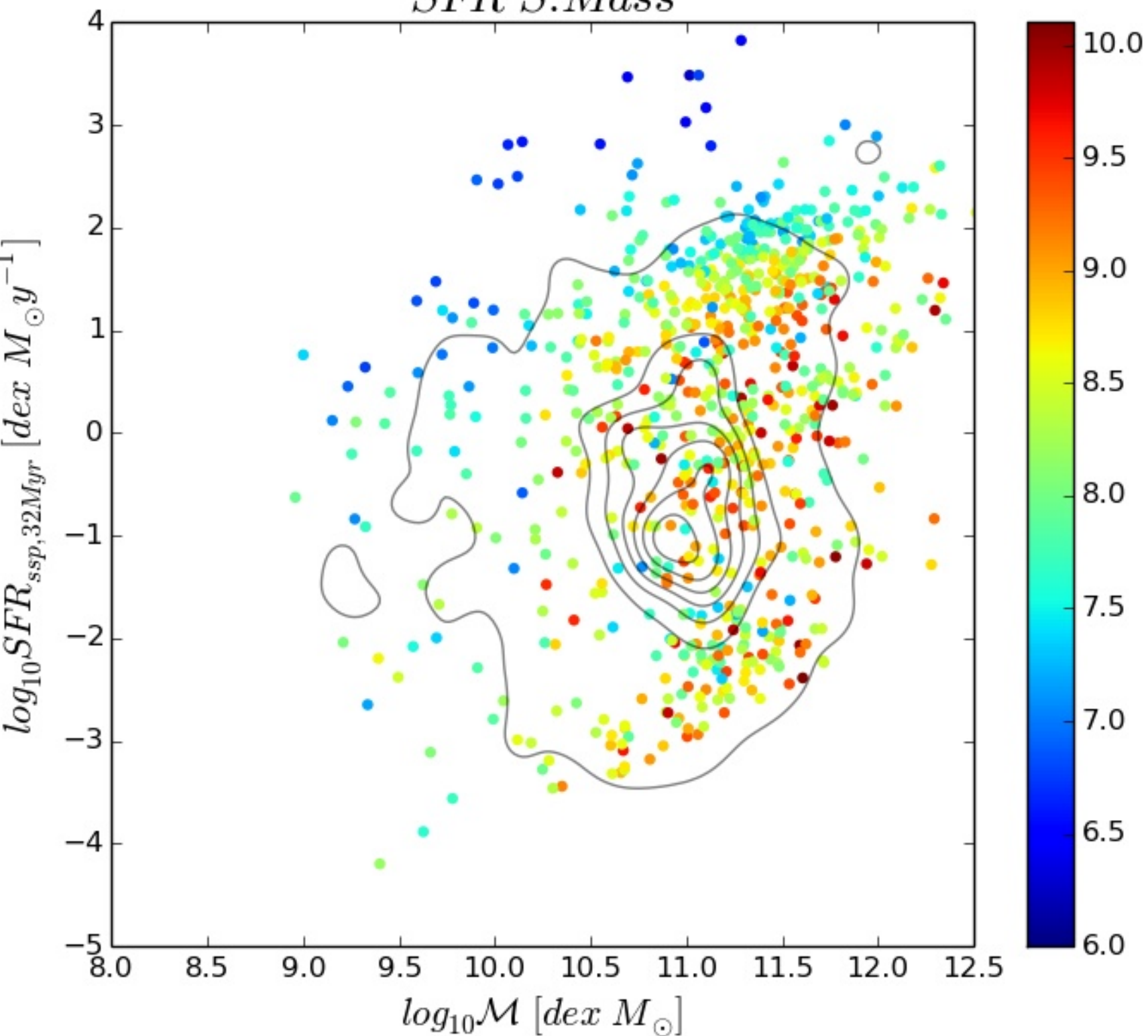
Target Selection: The specific Star Formation Rate



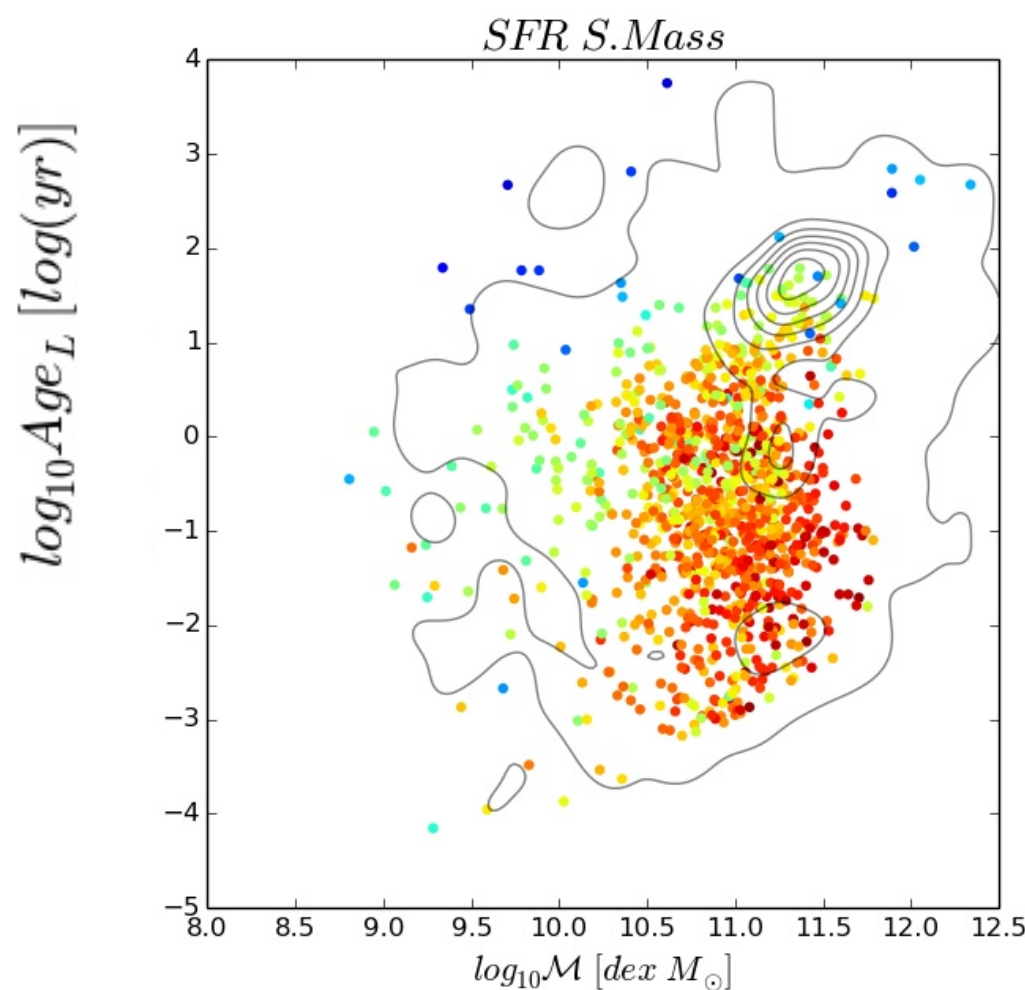
The SFR-stellar Mass Diagram

With a Power Law

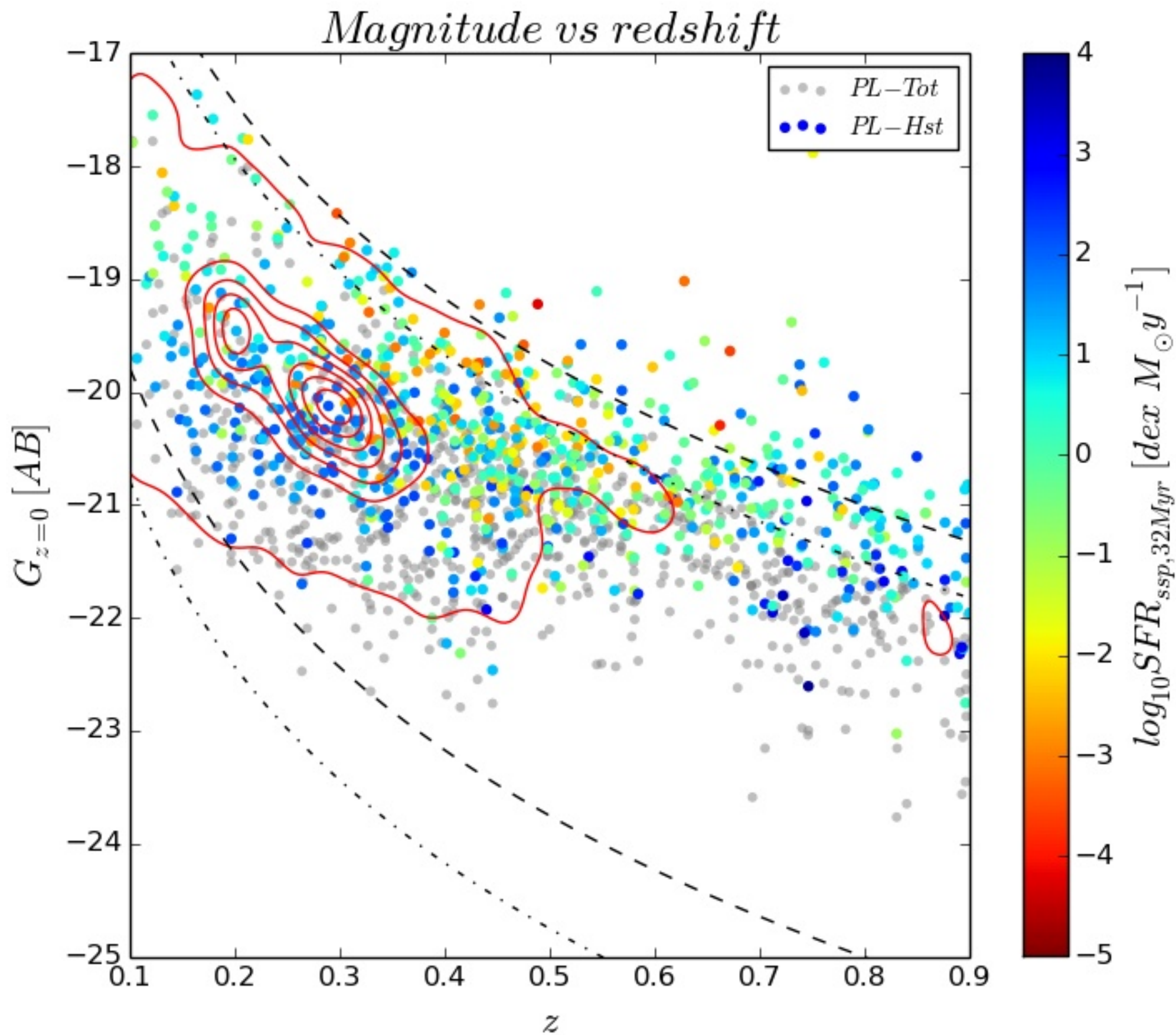
SFR S.Mass



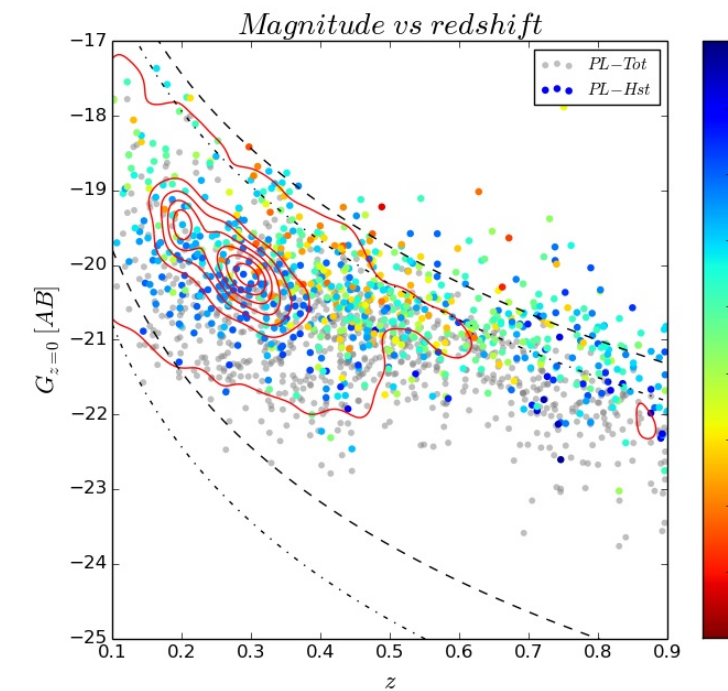
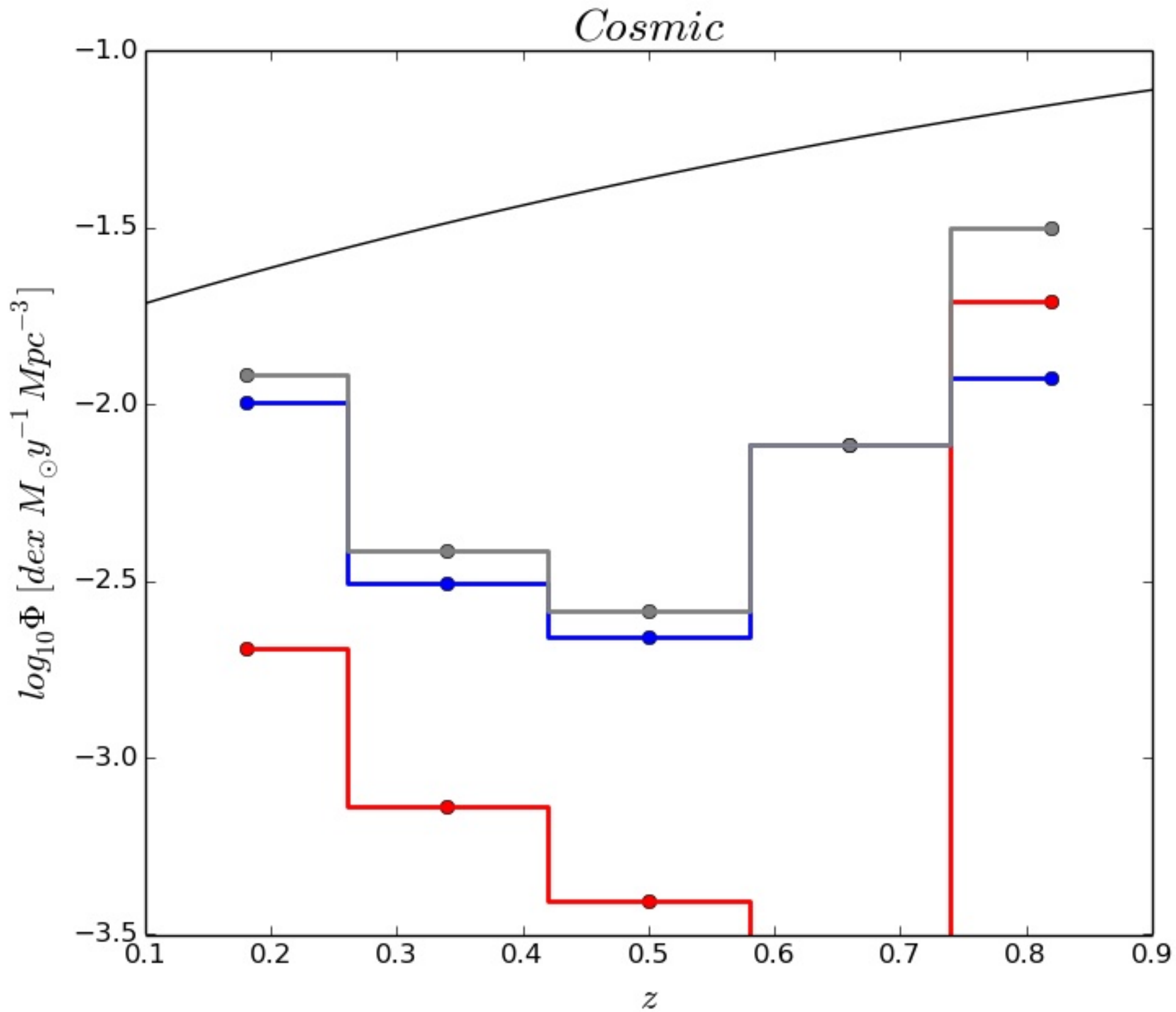
Pure Stellar Emission



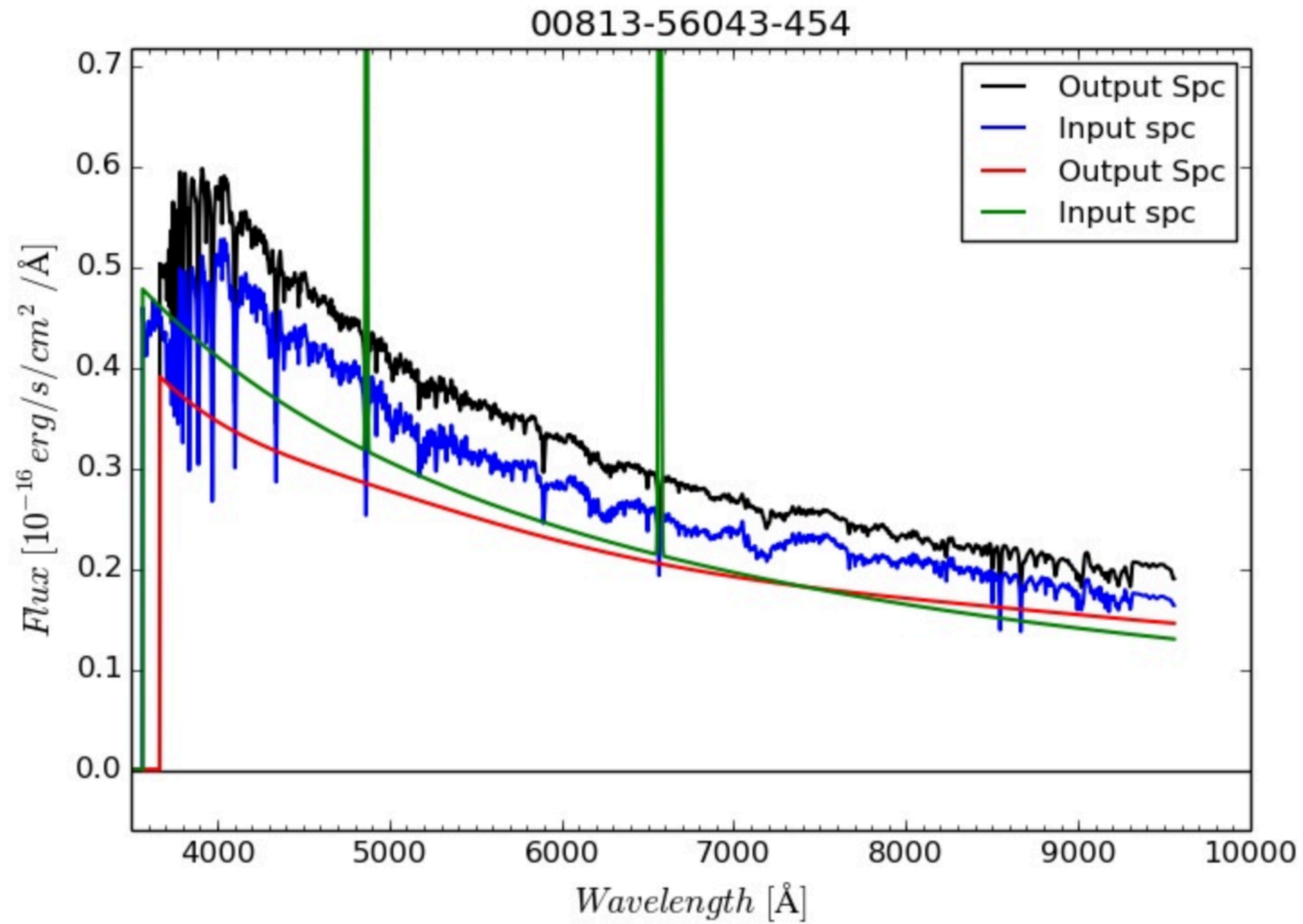
Some last plots



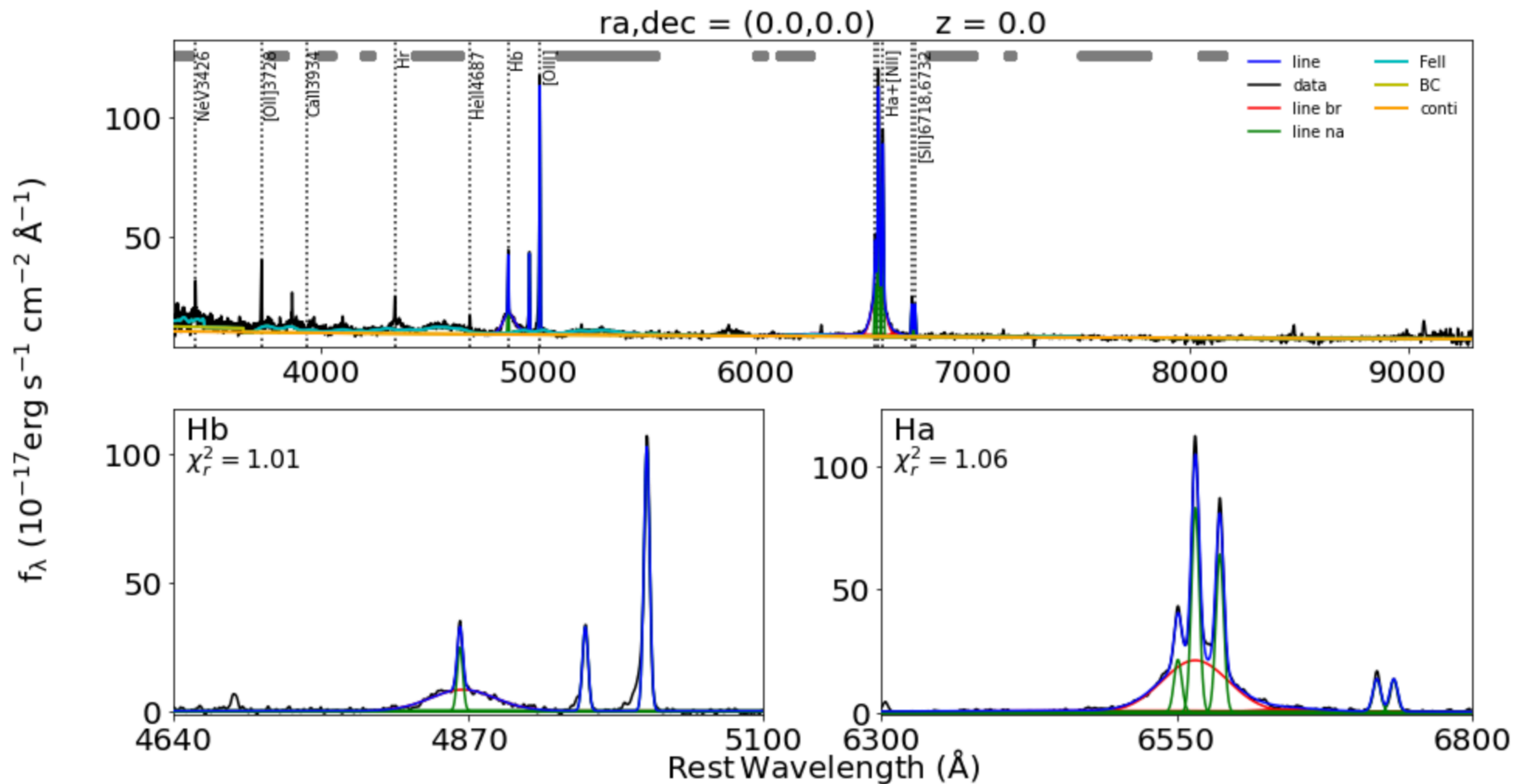
Some last plots



Future work



Future work





Thanks