

BOSS Redshift Comparisons

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SDSS-SN Meeting 10-25-10

Outline

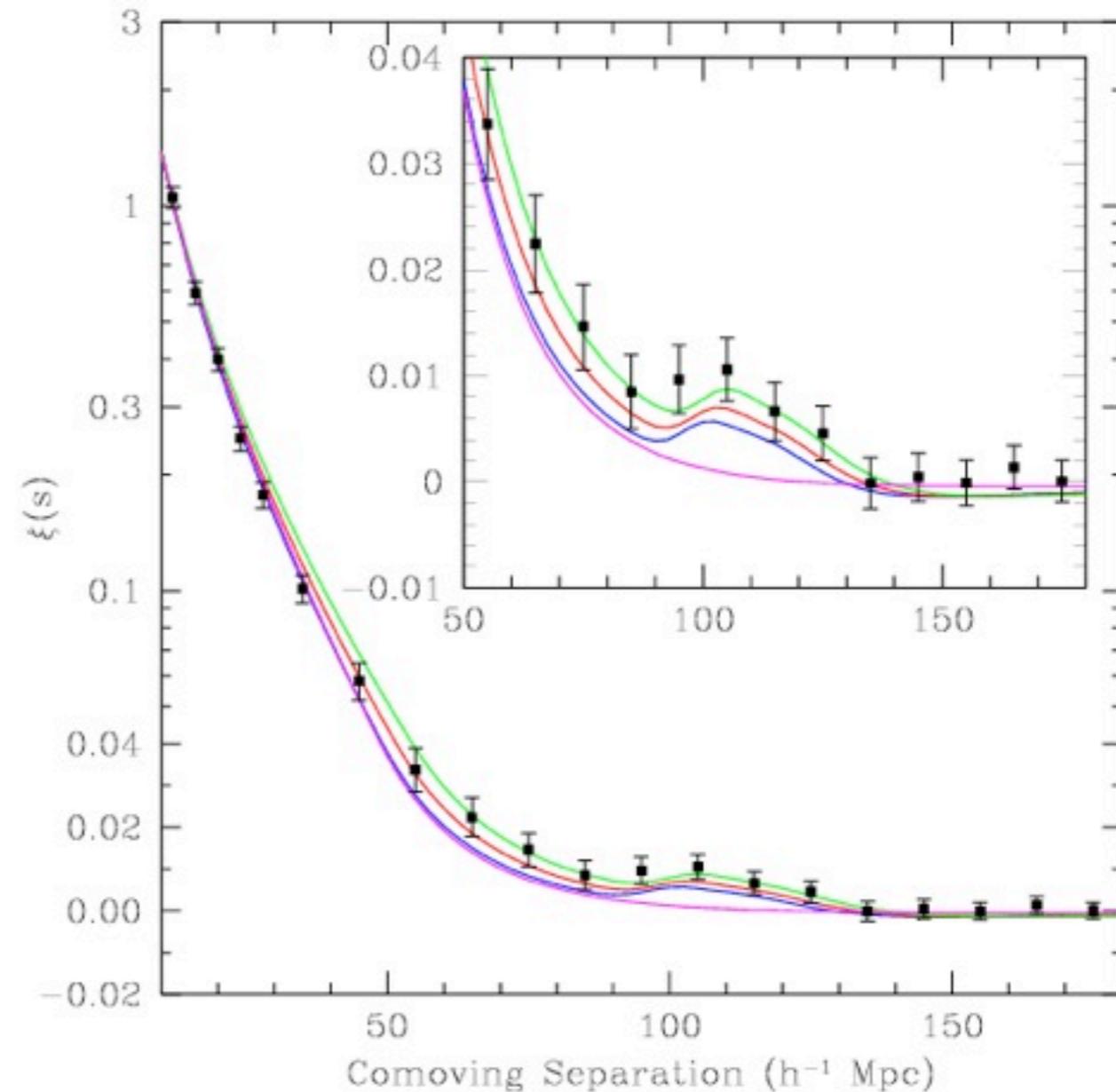
- General BOSS Overview
- Ancillary Project
- Target Selection
- Tools and Spectra
- Comparison with SDSS-I/II

Baryon Oscillation Spectroscopic Survey

- Primary dark-time survey for SDSS-III
- 1.5 million galaxies
- 150,000 high-redshift quasars
- Targets 1-2 magnitudes fainter than original SDSS spectroscopic targets

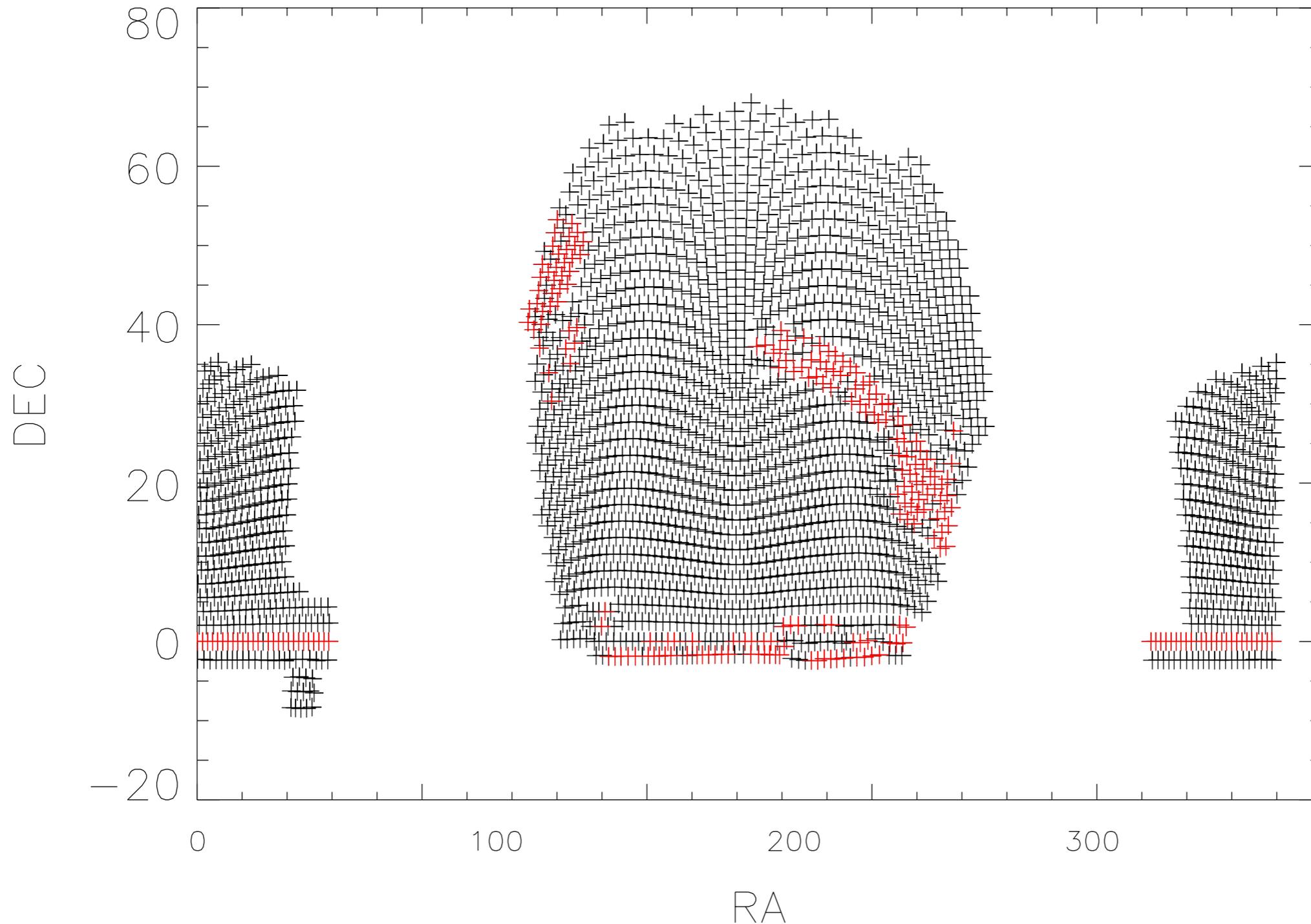
General BOSS Overview cont.

- Primary Purpose
- Measure large scale structure to measure BAO
- Use galaxies to $z \approx 0.7$
- Use quasars at $z \approx 2.5$

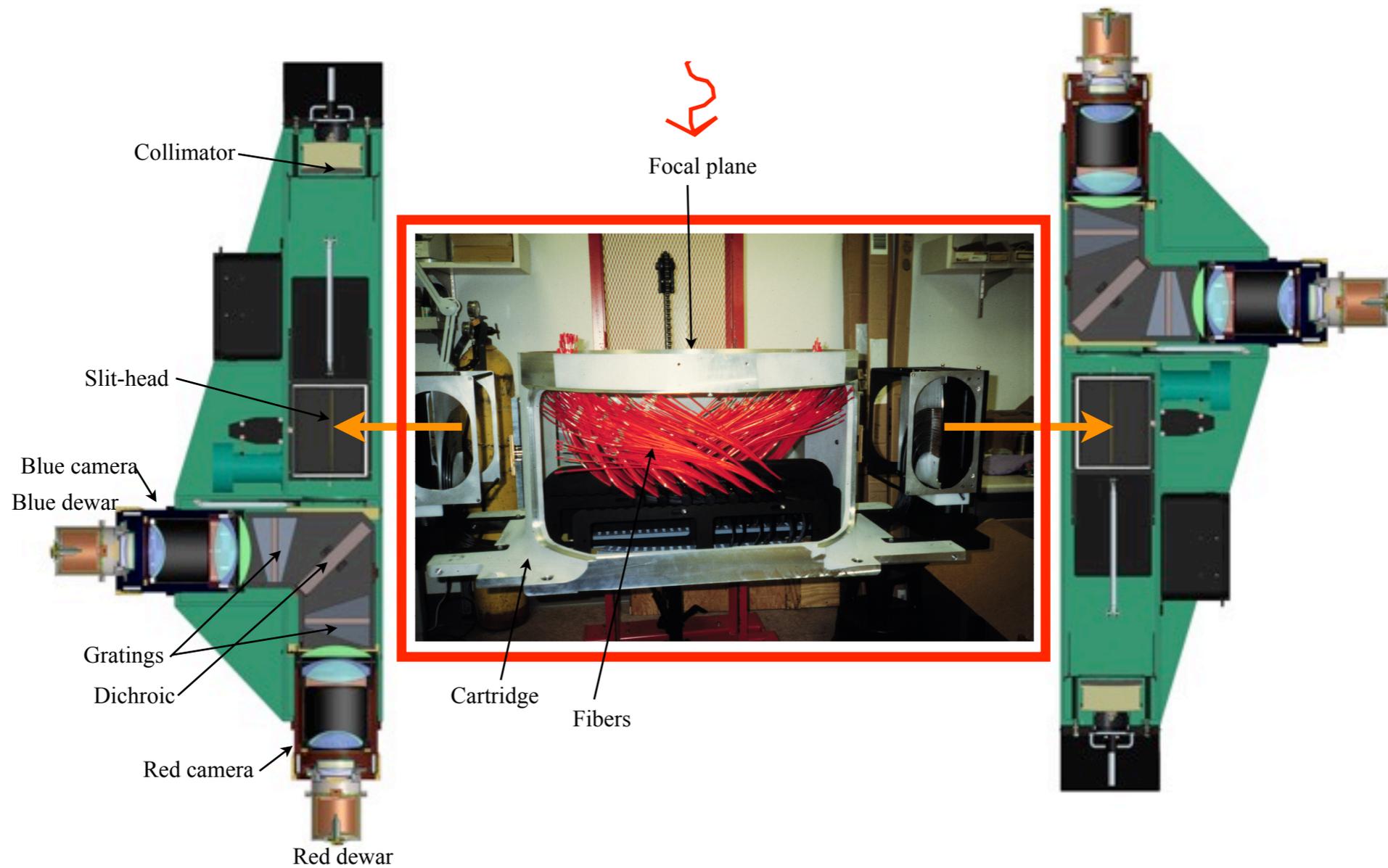


General BOSS Overview cont.

Progress of BOSS Spectroscopy



General BOSS Overview cont.



Ancillary Project

- At least 12 Ancillary Projects on BOSS SDSS-II Supernova Search
- Use BOSS to get spectral redshifts of host galaxies

Target Selection

- Select anything with a reasonable probability of being a supernovae (type Ia, II etc) from photometry
- 3600 targets submitted first year (from 21,787 variable objects in database)
- Magnitude cut of 22.5 in r fiber
- Usually target host galaxy

	N-drilled	N-Submitted
SN_GAL1	2832	3227
SN_GAL2	93	101
SN_GAL3	22	25
SN_LOC	208	242
SPEC_SN	2	2

Target Selection Cont.

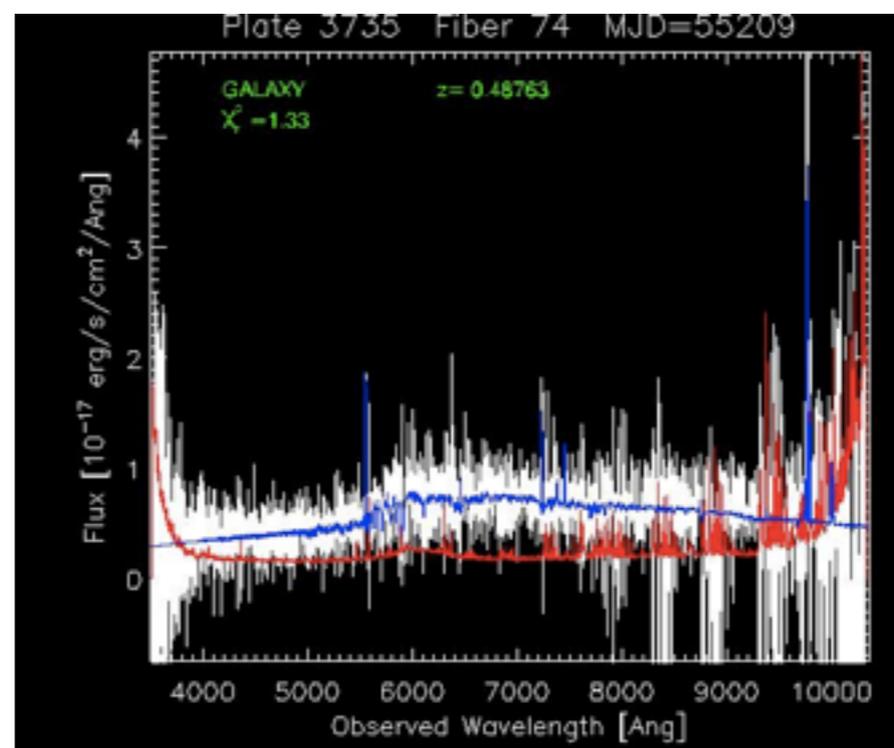
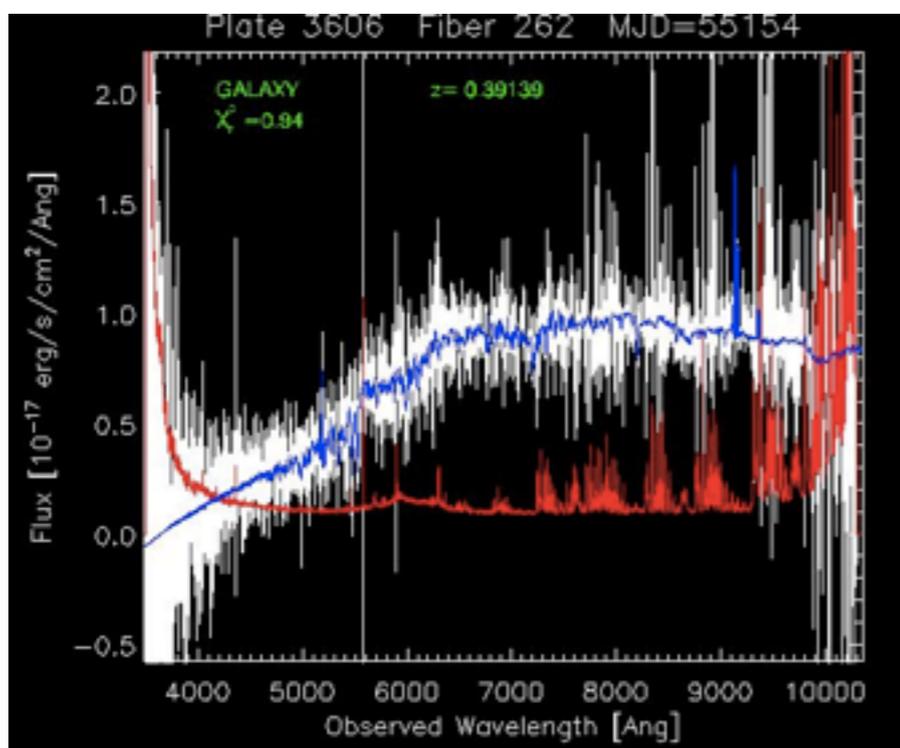
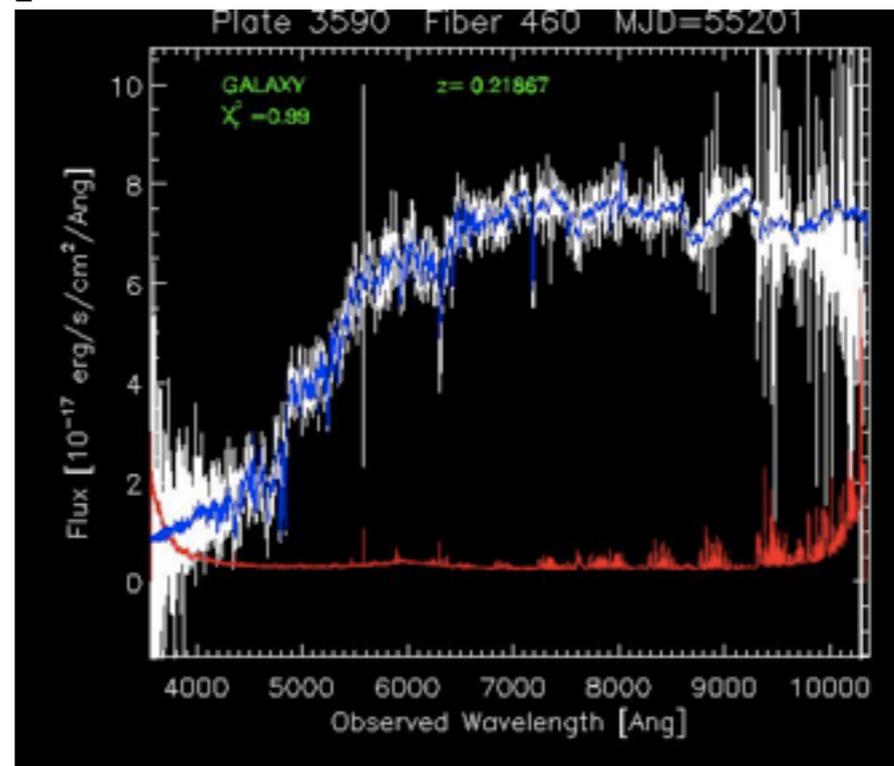
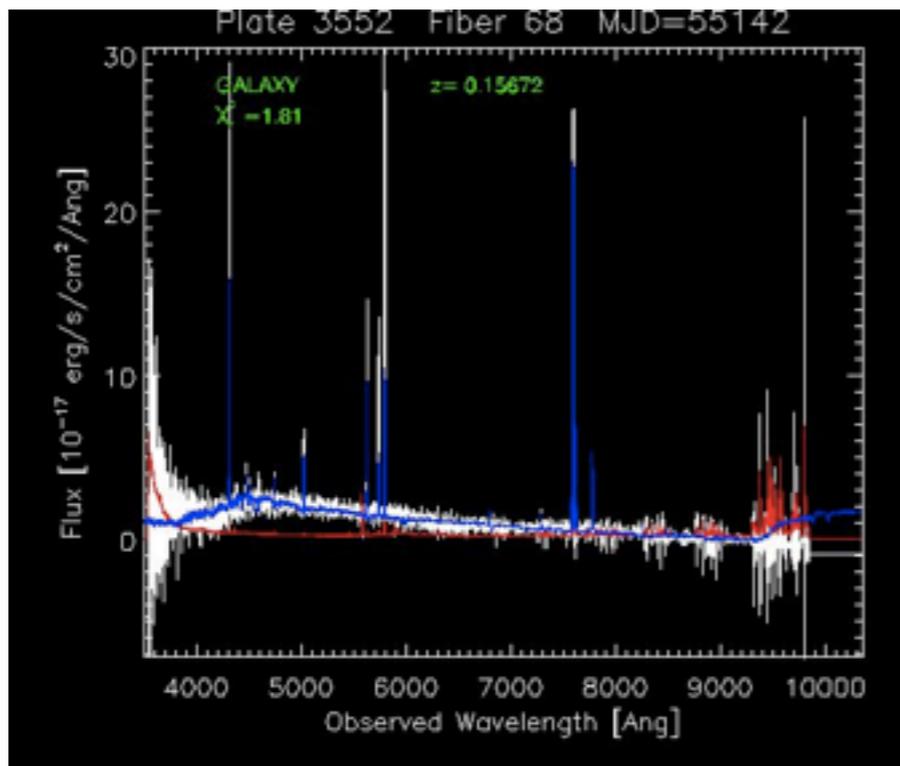
- First year, ~1000 SN host targets observed
- 650 confirmed galaxy redshifts
- Some of targets turned out to not be galaxies (QSO, Milky Way star, etc)
- Others had low signal, instrumental issues
- Second year, Stripe 82 is being reobserved
- ~3200 SN host targets (excluding 650 confirmed) on 52 plates
- Two plates left, will be done very shortly

Tools and Spectra

- SDSS-III Spectroscopic Pipeline
 - From SDSS-I, upgraded for BOSS
 - New templates
- zcode
 - Emission Line
 - Cross-correlation

Tools and Spectra Cont

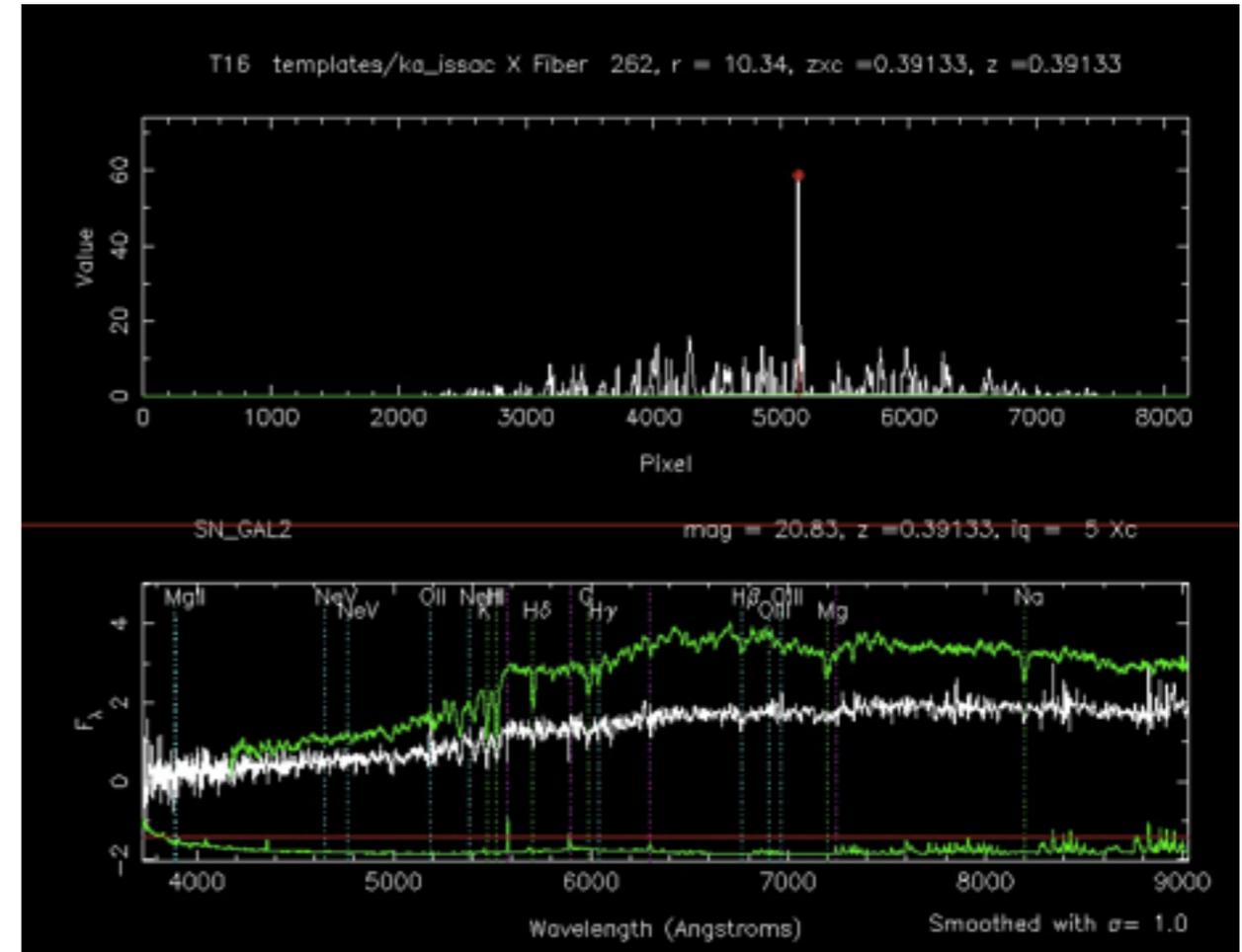
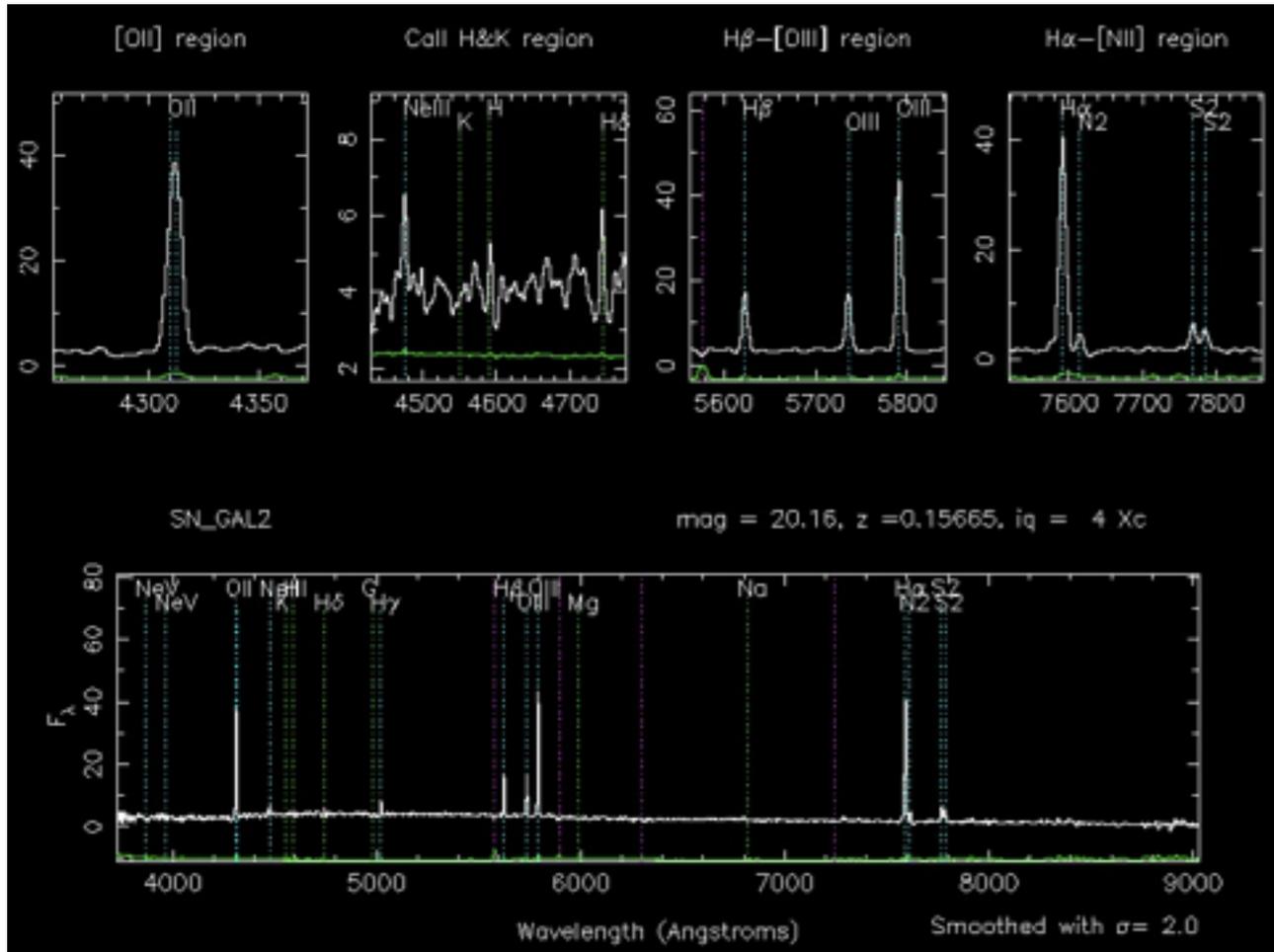
Good Spectra



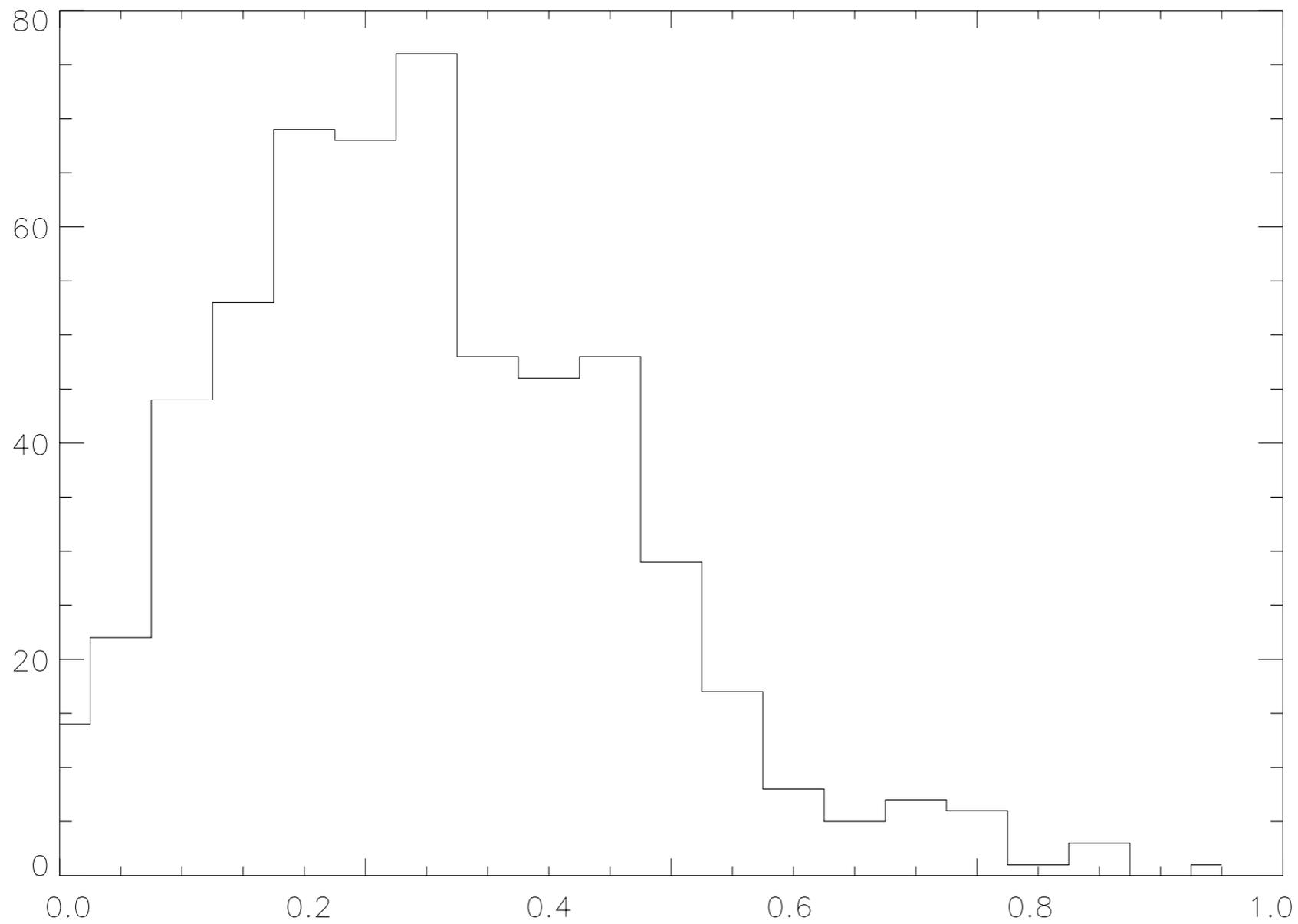
Tools and Spectra Cont

emission

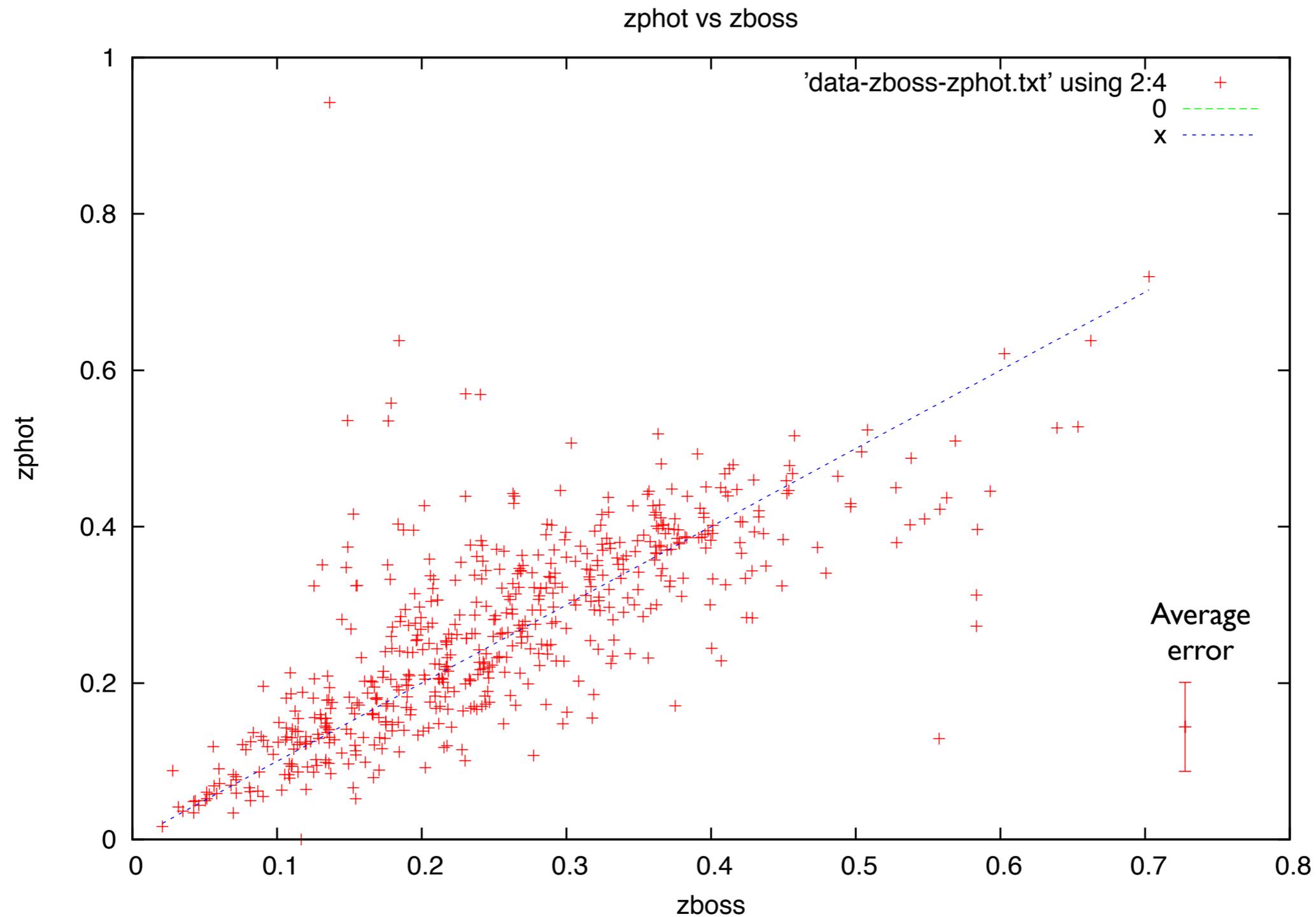
cross-correlation



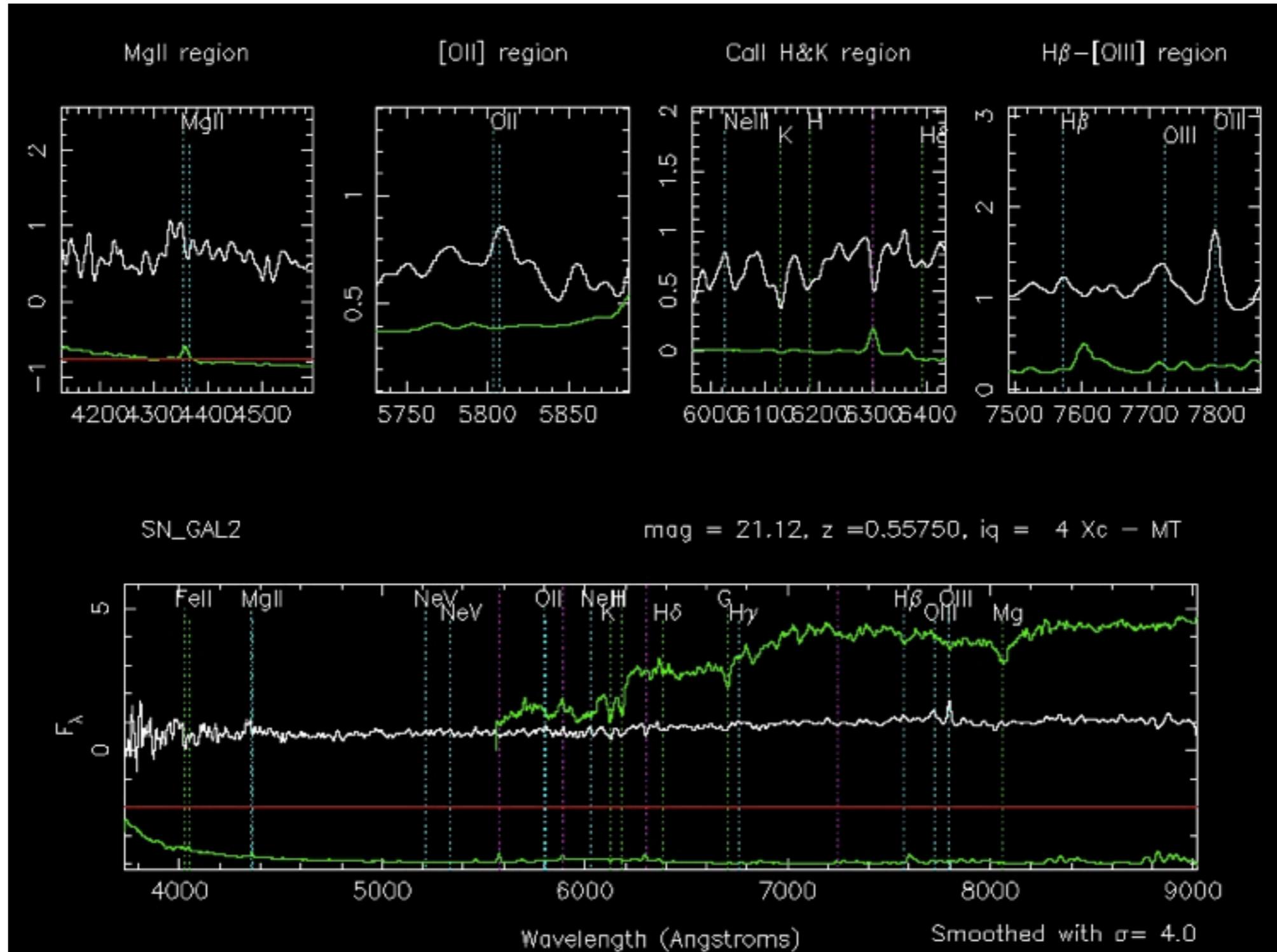
BOSS Redshift Distribution



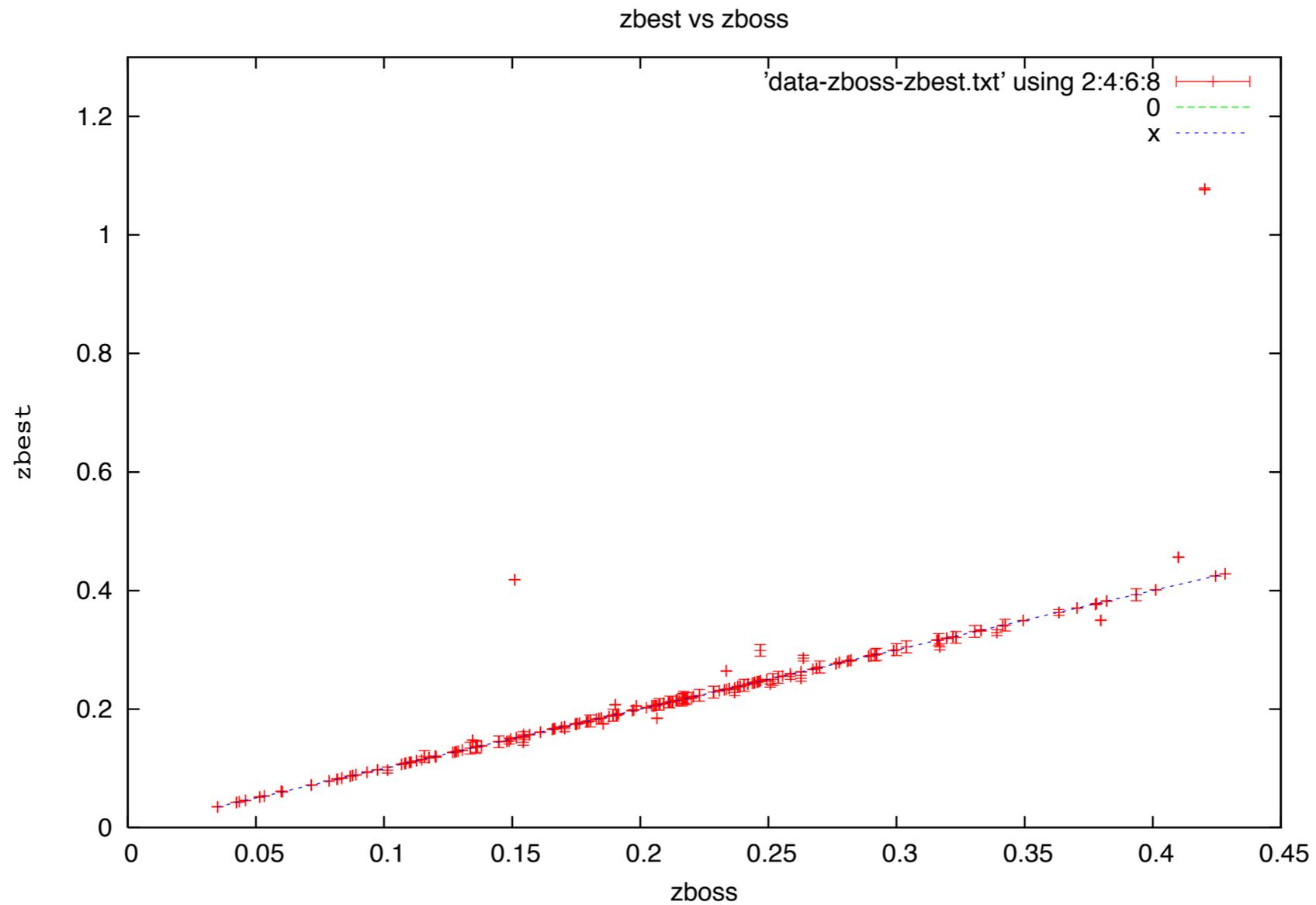
Comparison with SDSS-I Photometric Redshifts



zboss 0.56, plate 3735, fiber 535

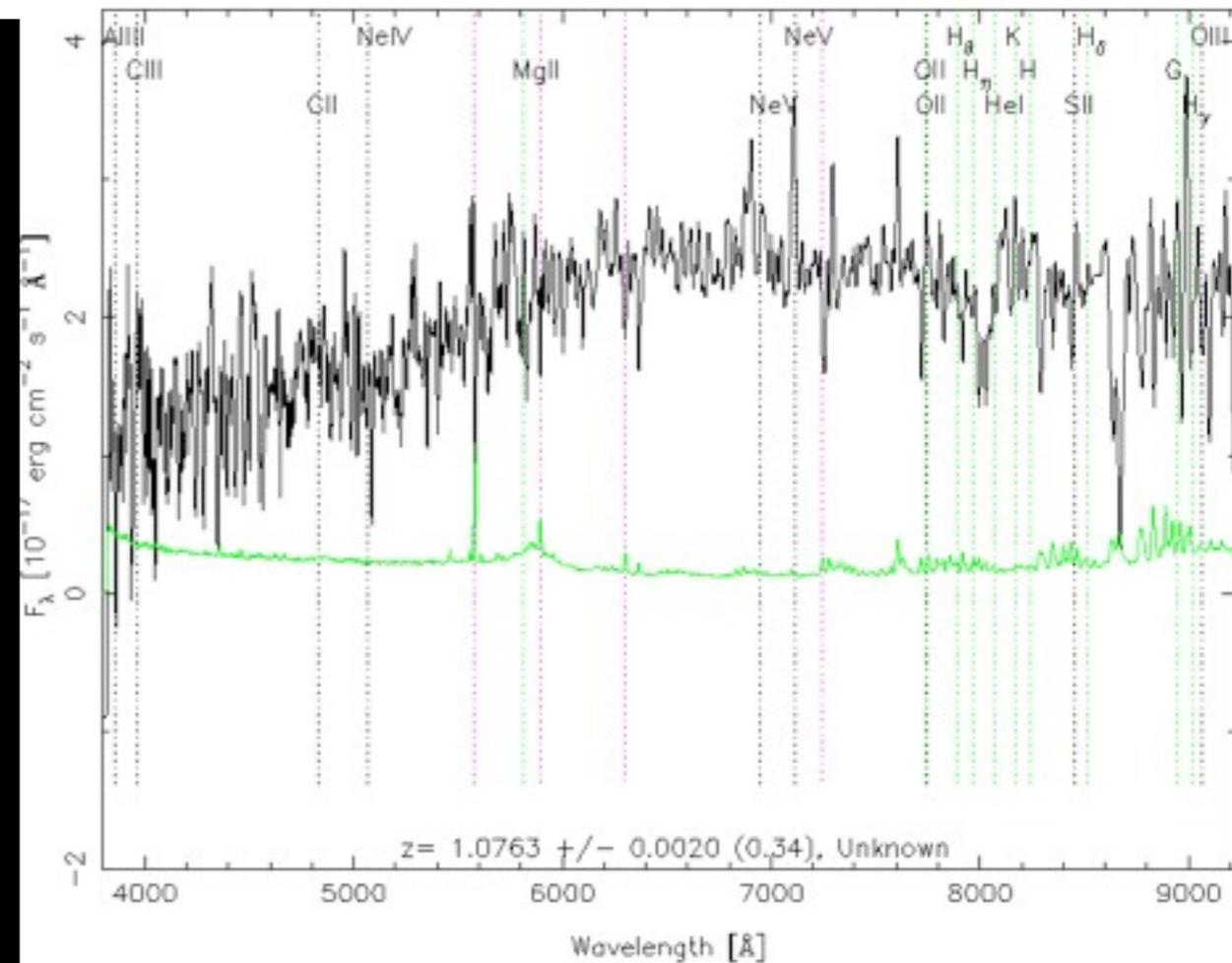
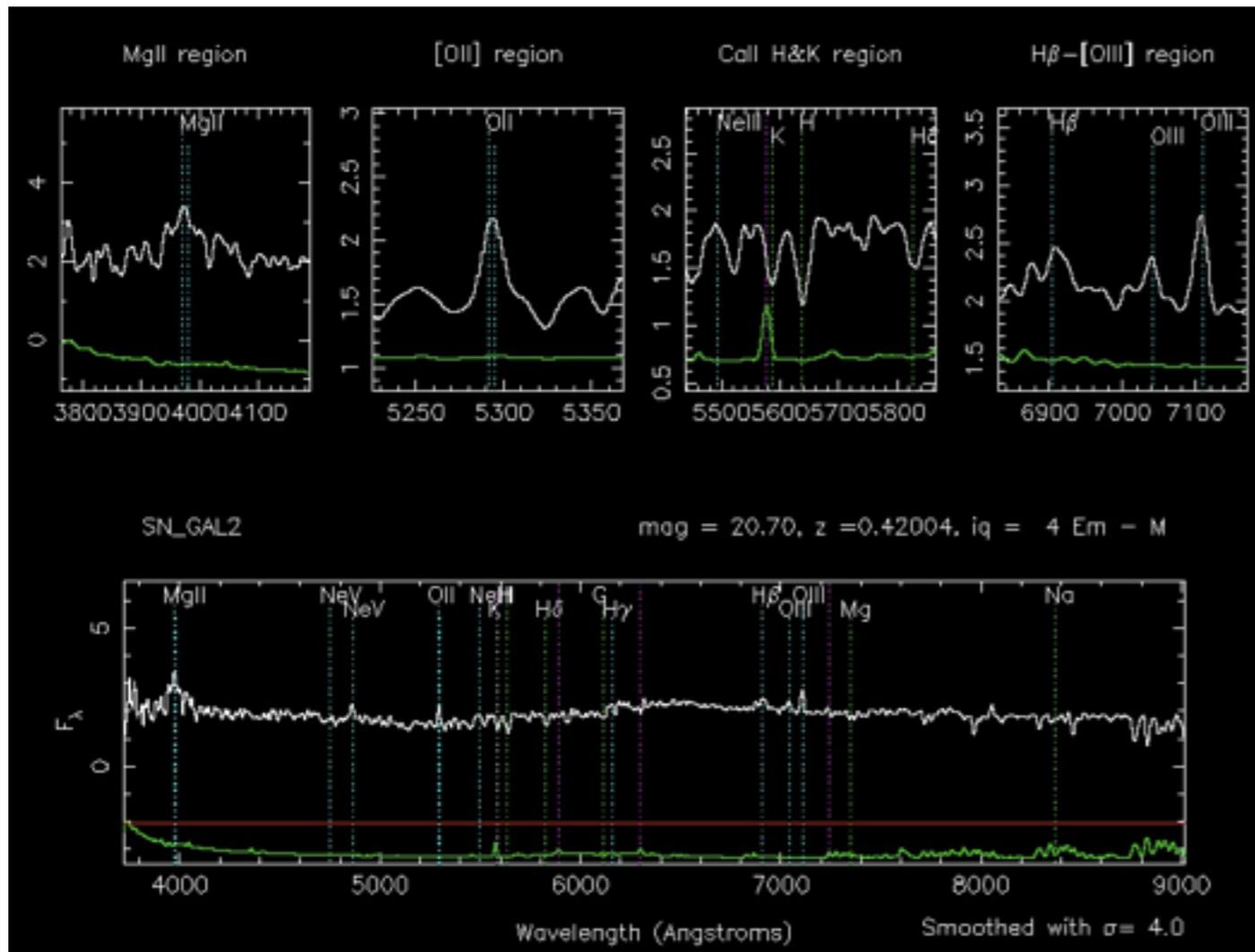


Boss redshifts compared to zbest



zboss-zbest bad redshift SDSS-I cid 21540

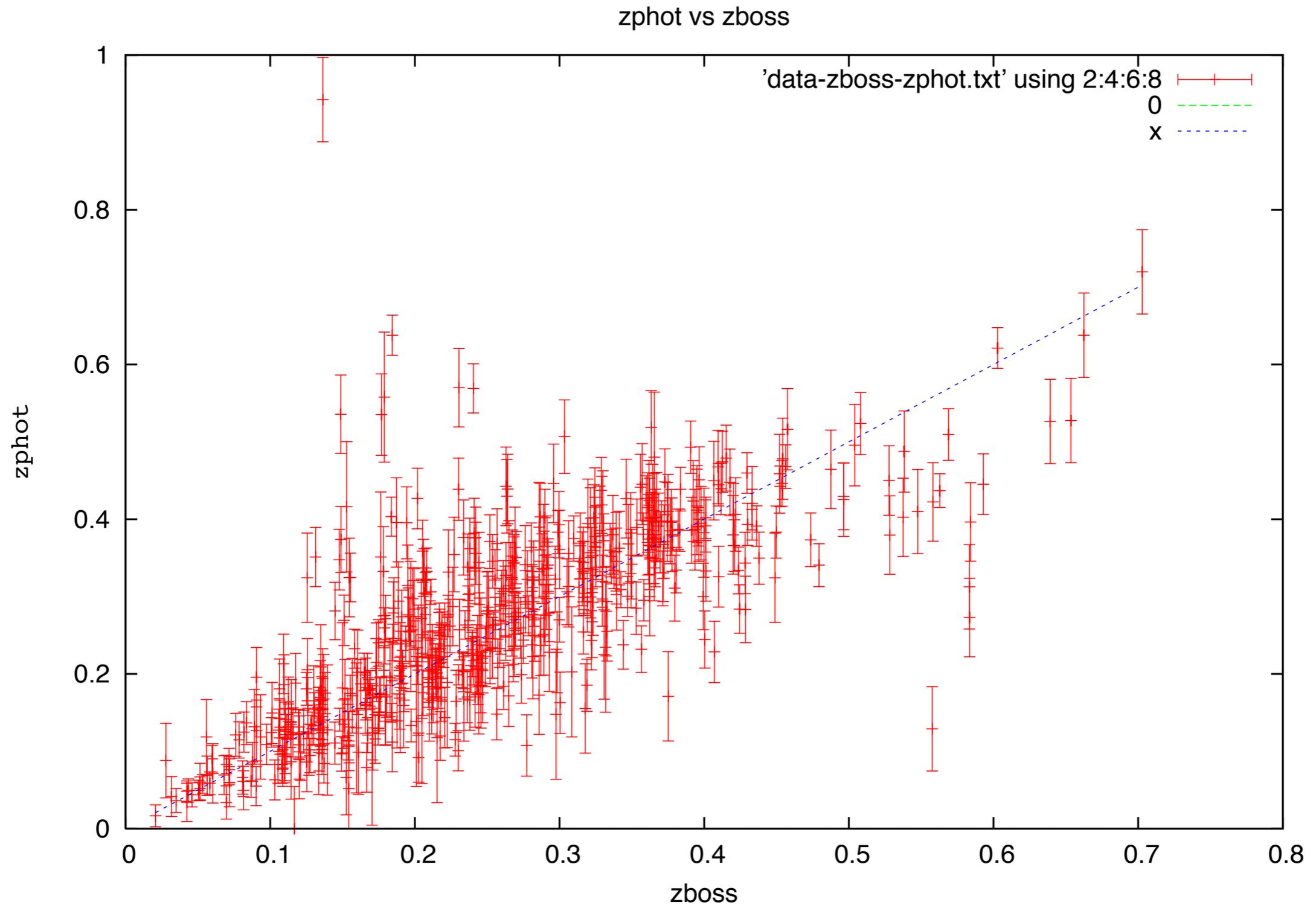
RA= 9.94092, DEC= 1.10421, MJD=52531, Plate=1085, Fiber=323



Conclusion

- Improved redshift for >3000 SN
- More accurate determination of luminosity
- Can be used for to place these SN on a luminosity distance-redshift diagram (next talk)
- Explore galaxy properties and how they relate to SN properties

Comparison with SDSS-I Photometric Redshifts



Target Selection Cont

