Lyman-α WG

What can we learn from the first observation of a g=23 QSO target? Is it a quasar? Is it a Lyman-alpha quasar? What can we say about its redshift?

4 Nov 2015 Update

Michael Blomqvist, Elizabeth Buckley-Geer, Timothée Delubac, Julien Guy, David Kirkby, Isabelle Paris, Mat Pieri, Javier Sanchez, Debopam Som

DESI Science Workshop, Argonne Nov 2015

dkirkby / **ArgonneLymanAlpha**

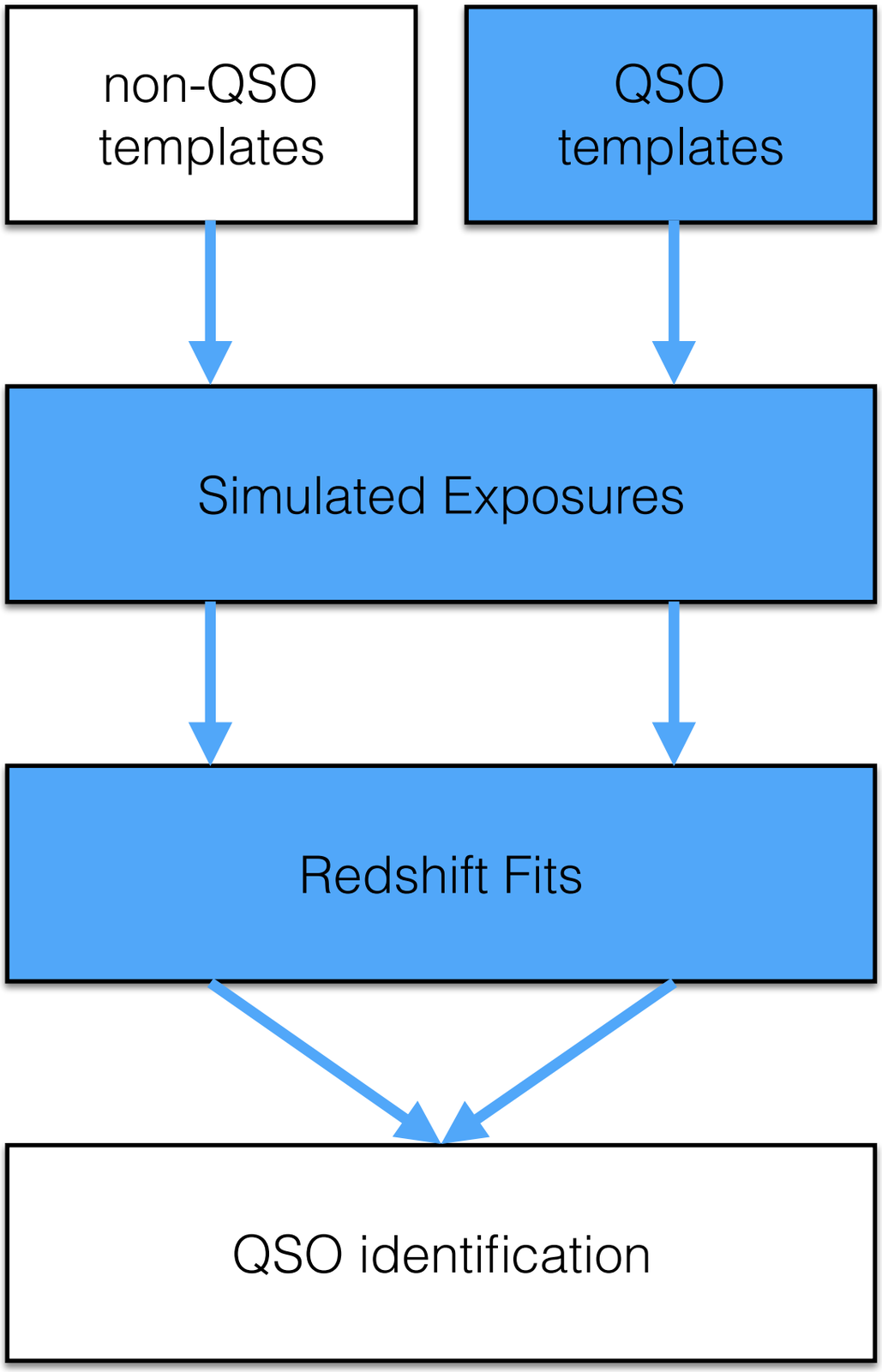
Unwatch 10 | Star 1 | Fork 0

Issues | Pull requests | Labels | Milestones

Filters | is:issue is:open | New issue

8 Open ✓ 0 Closed | Author | Labels | Milestones | Assignee | Sort

- **Add high column density intervening absorbers** — 4
  #8 opened 19 hours ago by matpieri
- **Calculate quasar luminosity function weights over the simulated grid** — 0
  #7 opened 19 hours ago by dkirkby
- **Calculate magnitudes used by DESI targeting for simulated QSO grid** — 0
  #6 opened 19 hours ago by dkirkby
- **Prepare brick files with simulated QSO spectra** — 2
  #5 opened 2 days ago by dkirkby
- **Perform chi-square scan in redshift starting from brick file of simulated QSOs** — 2
  #4 opened 2 days ago by dkirkby
- **Simulate the variability between passes** — 0
  #3 opened 2 days ago by dkirkby
- **Learn how to use redmonster** — 5
  #2 opened 2 days ago by dkirkby
- **Prepare QSO templates for redshift and identification success studies** — 8
  #1 opened 2 days ago by dkirkby



#1: Prepare QSO templates for redshift and identification success studies

#3: Simulate the variability between passes

#8: Add high column density intervening absorbers

#6: Calculate magnitudes used by DESI targeting for simulated QSO grid

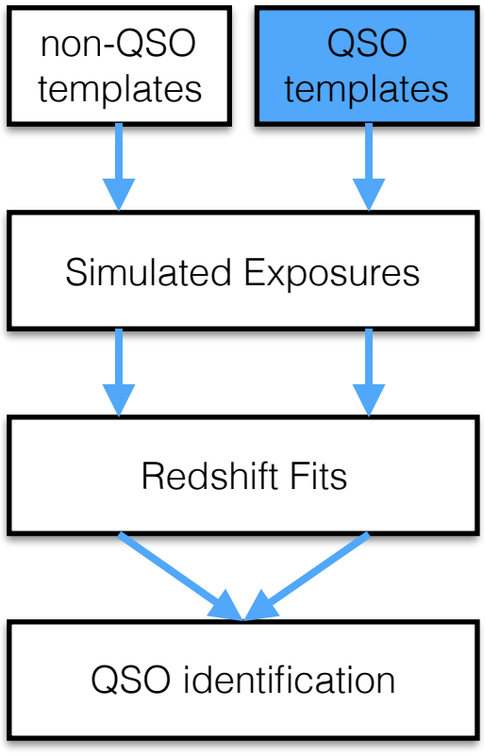
#7: Calculate quasar luminosity function weights over the simulated grid

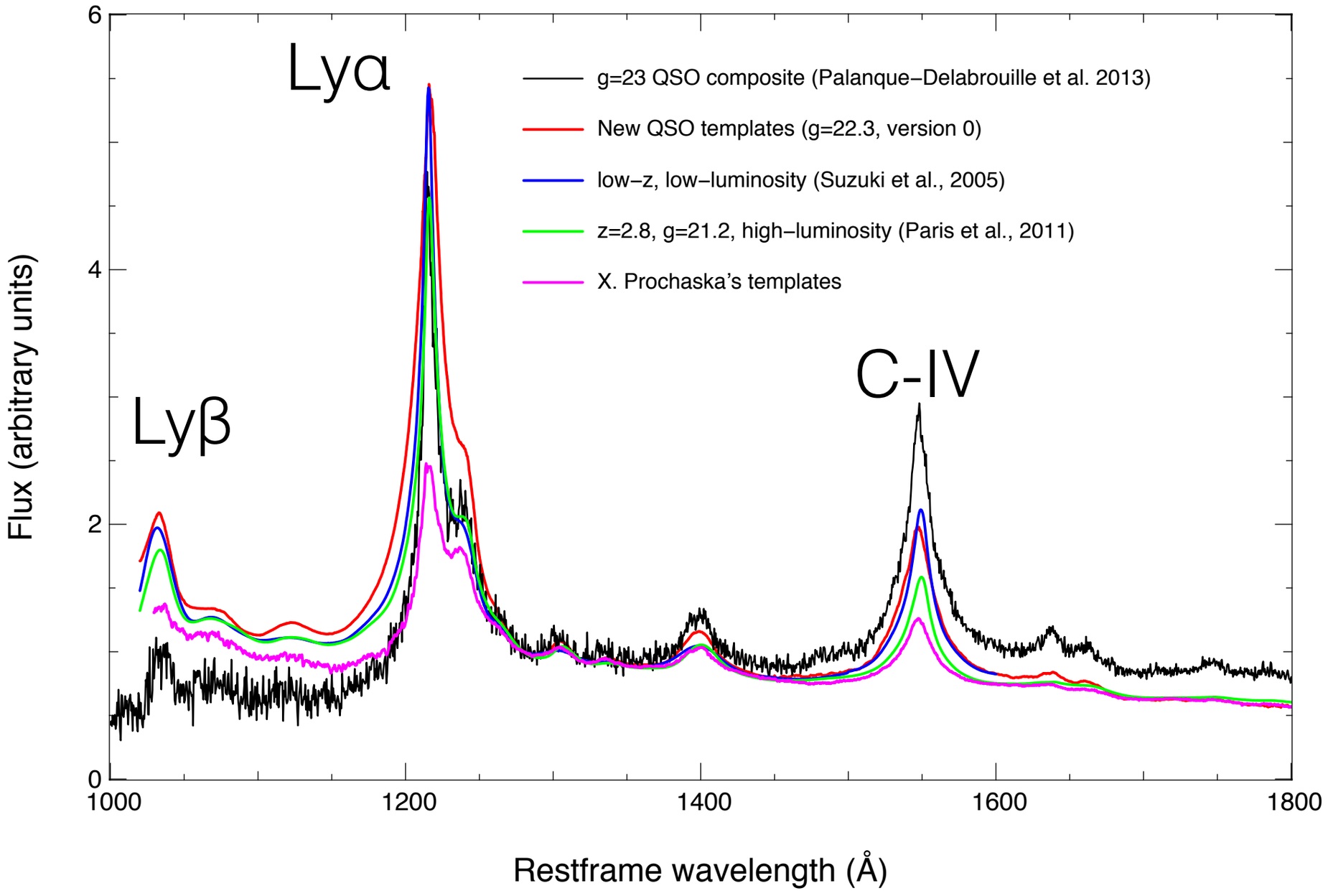
#5: Prepare brick files with simulated QSO spectra

#2: Learn how to use redmonster

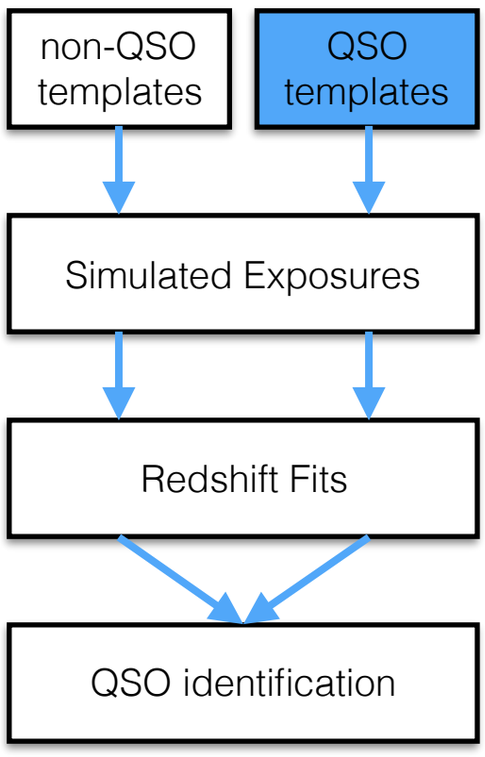
#4: Perform chi-square scan in redshift starting from brick file of simulated QSOs

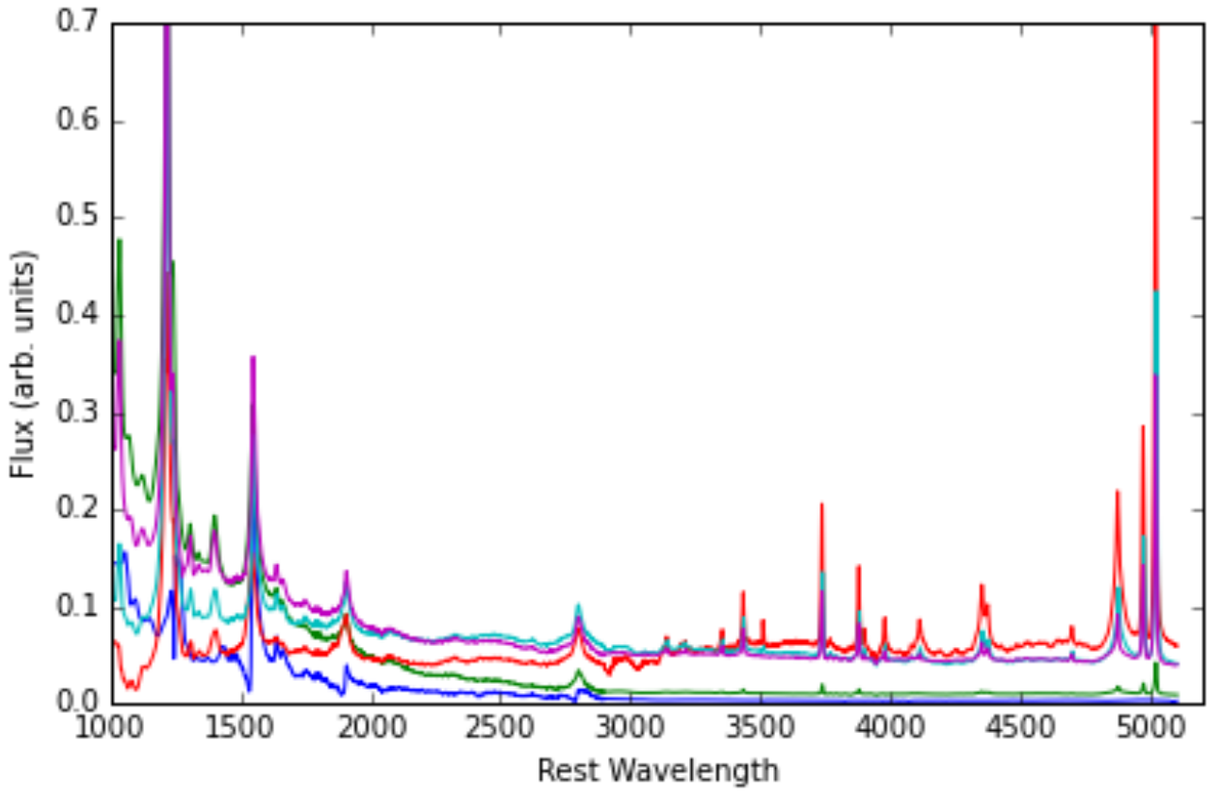
How does QSO spectrum vary with luminosity and redshift?

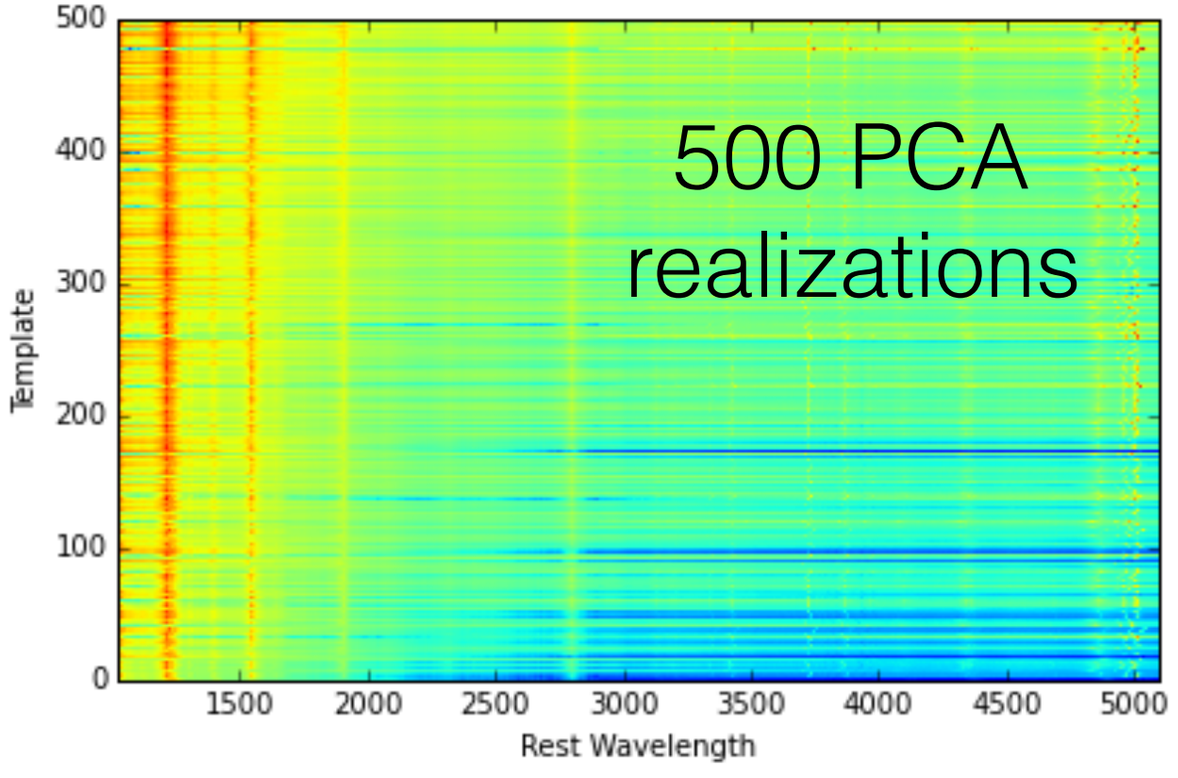




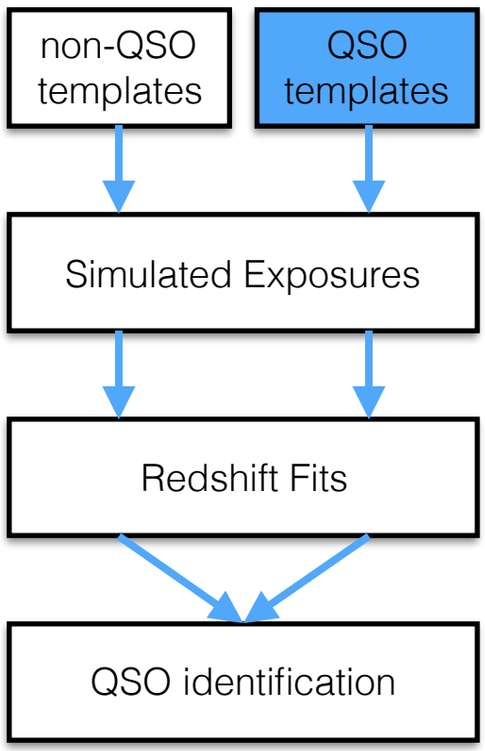
How diverse are QSO spectra?

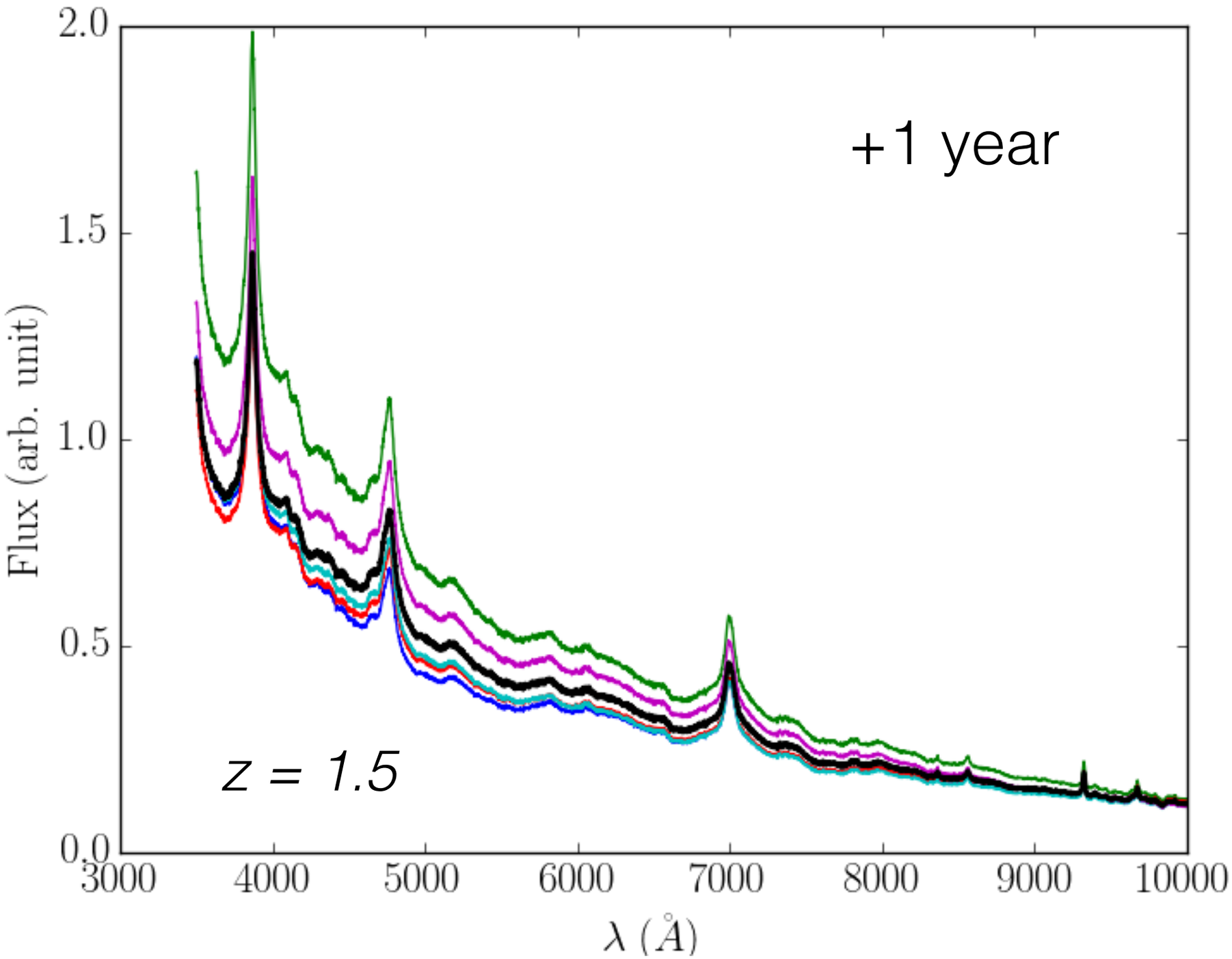




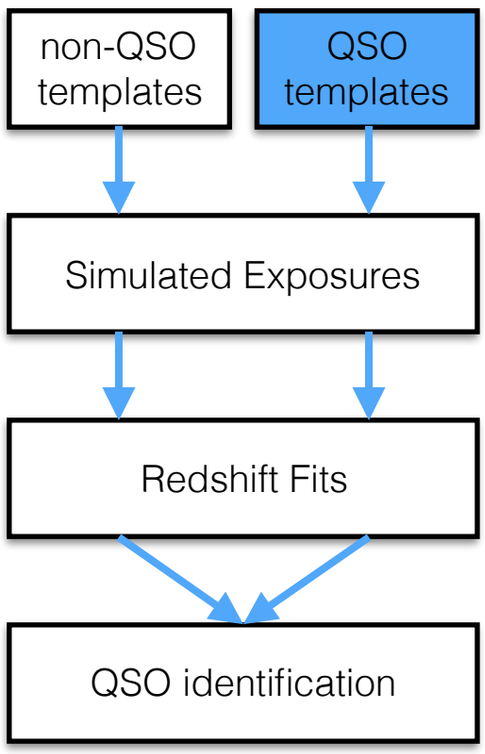


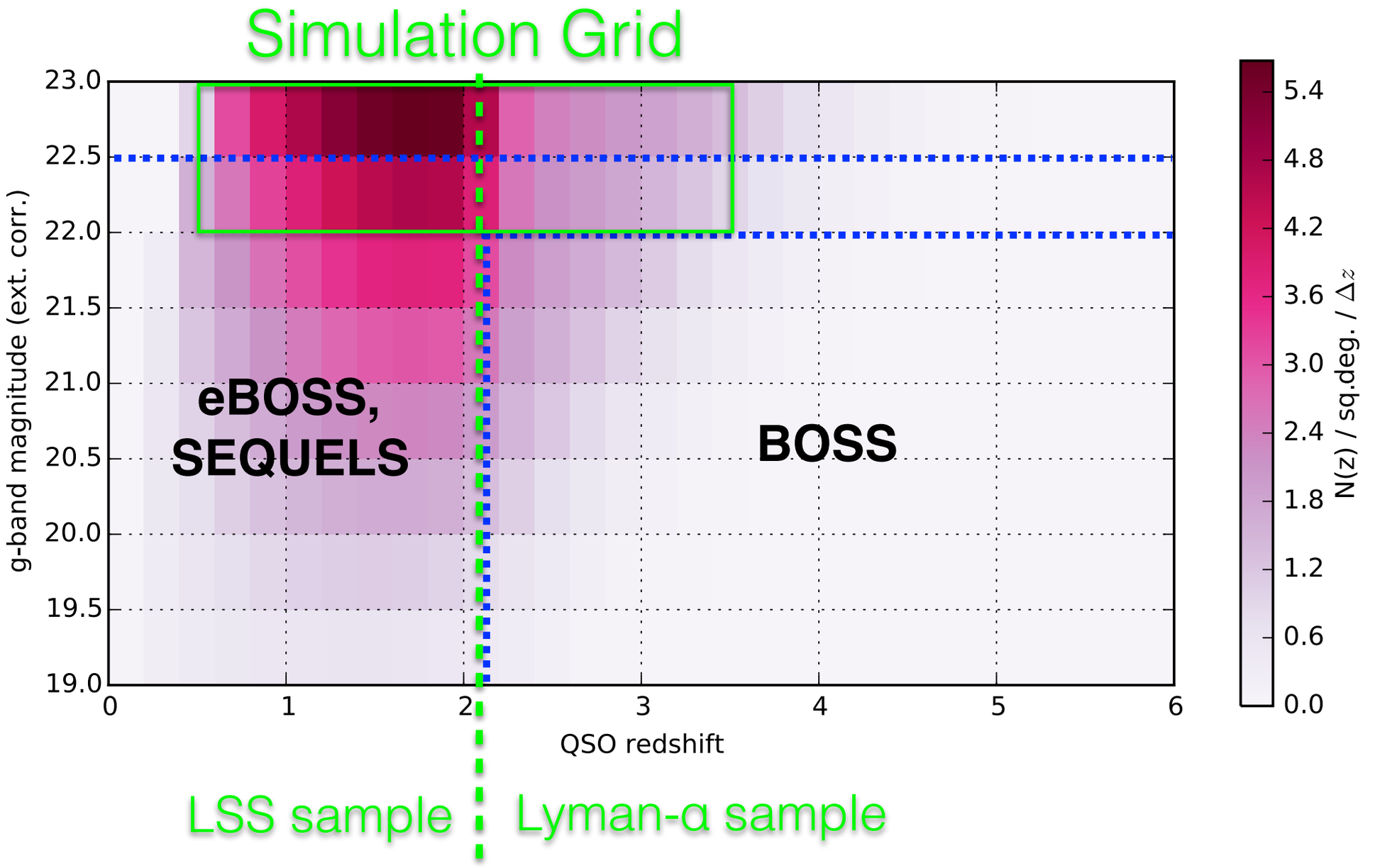
How variable are QSO spectra?



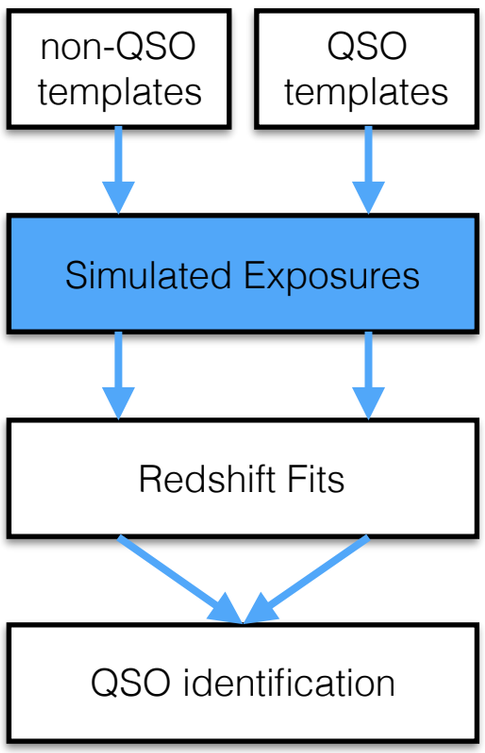


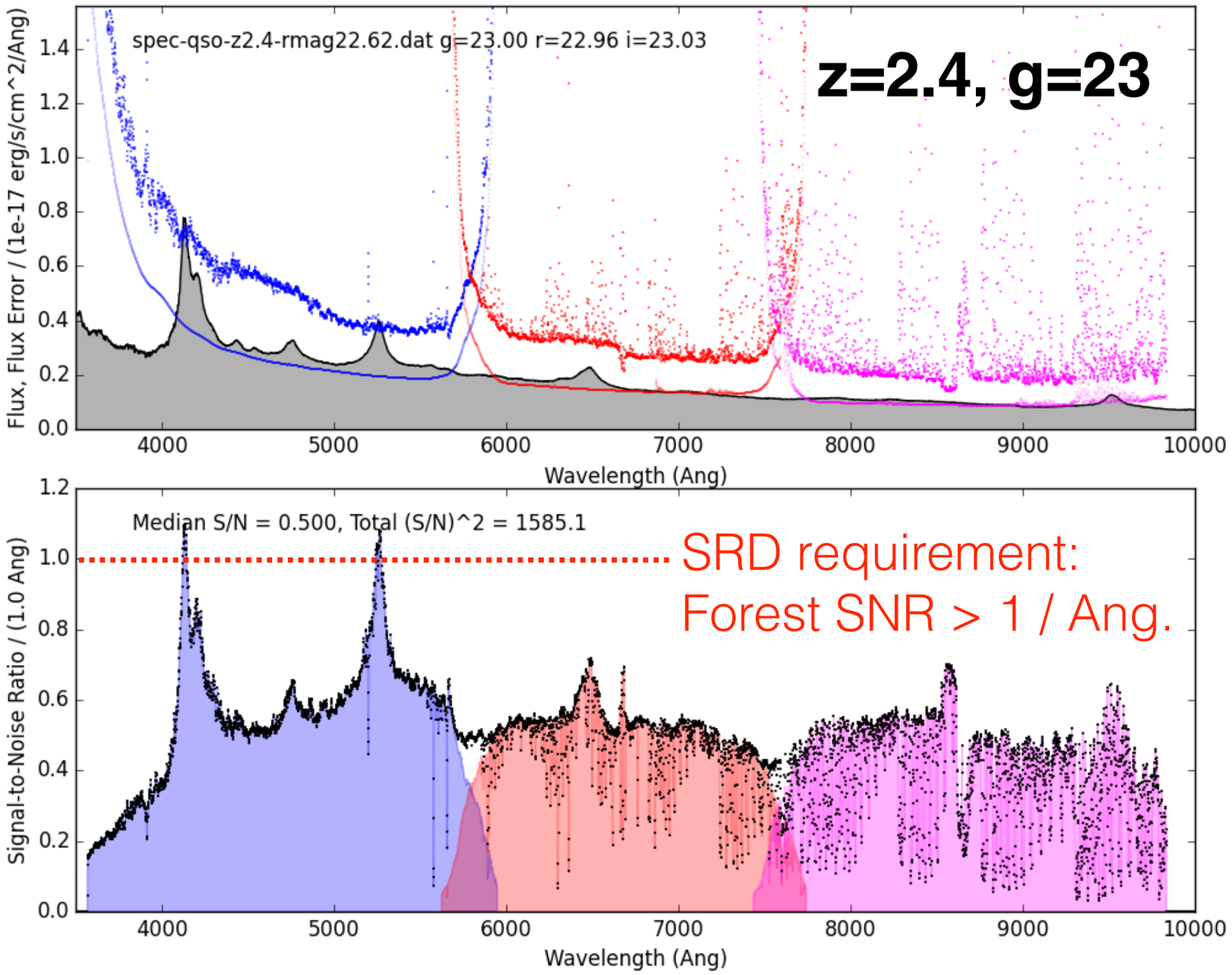
How is the targeted sample distributed?





What will first-pass exposures look like?





900s at X=1, 1.0A binning

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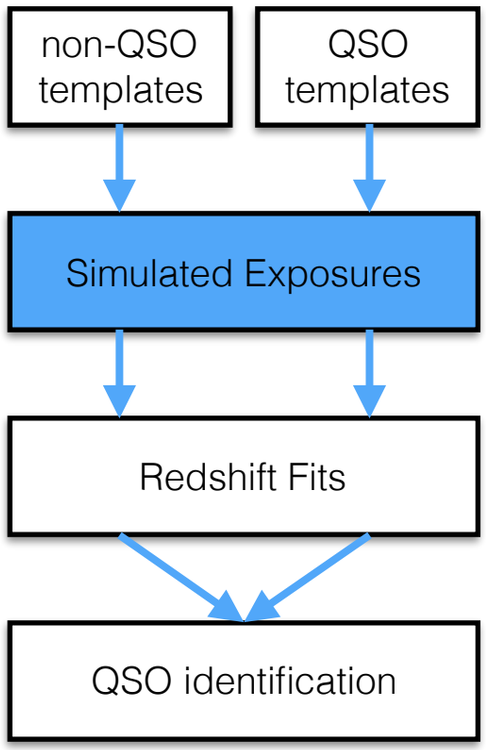

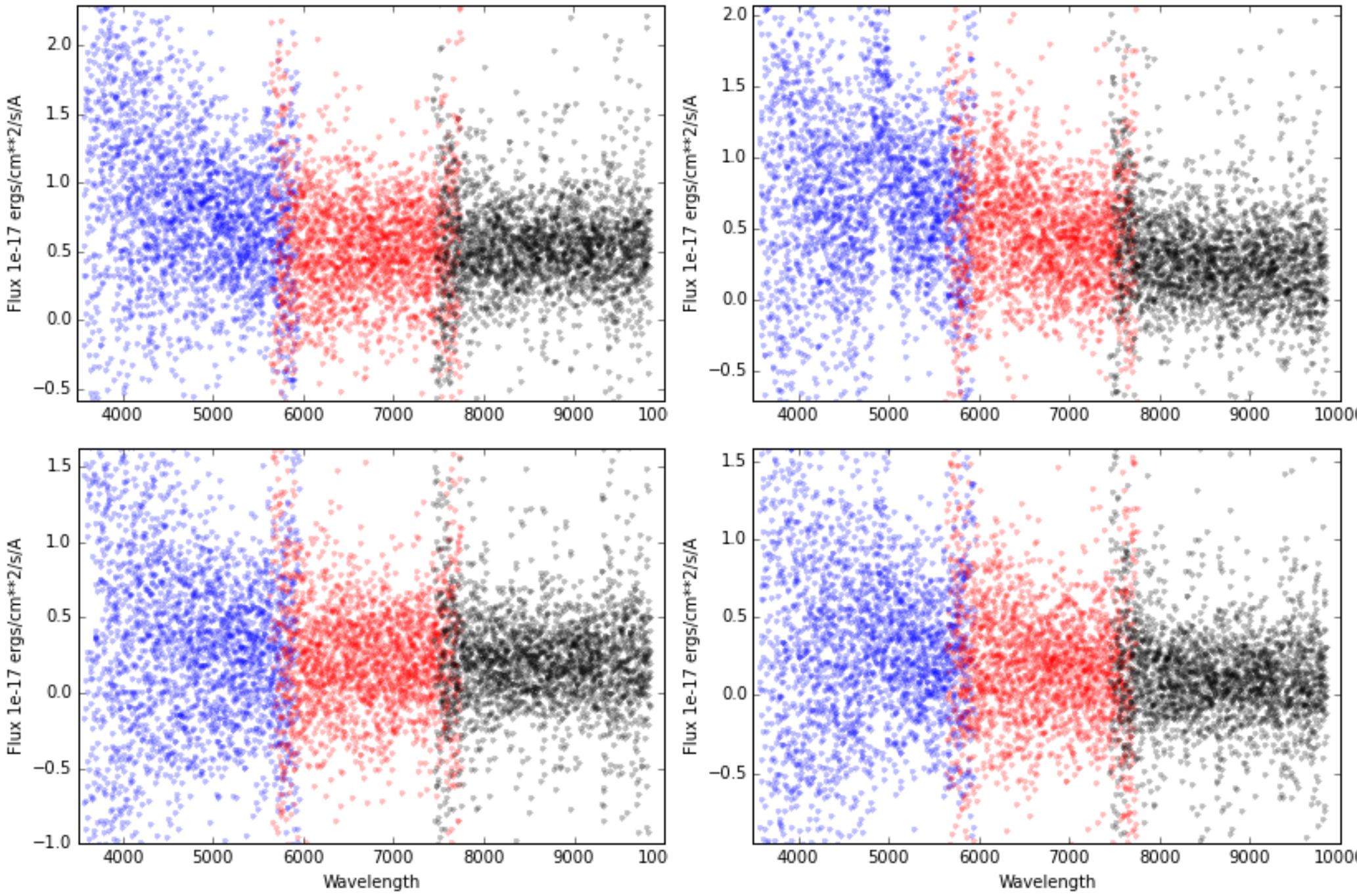

900s at X=1, 1A binning

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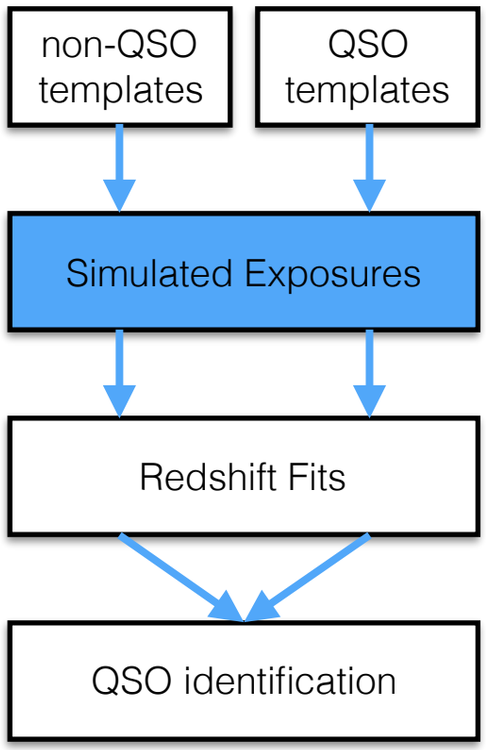

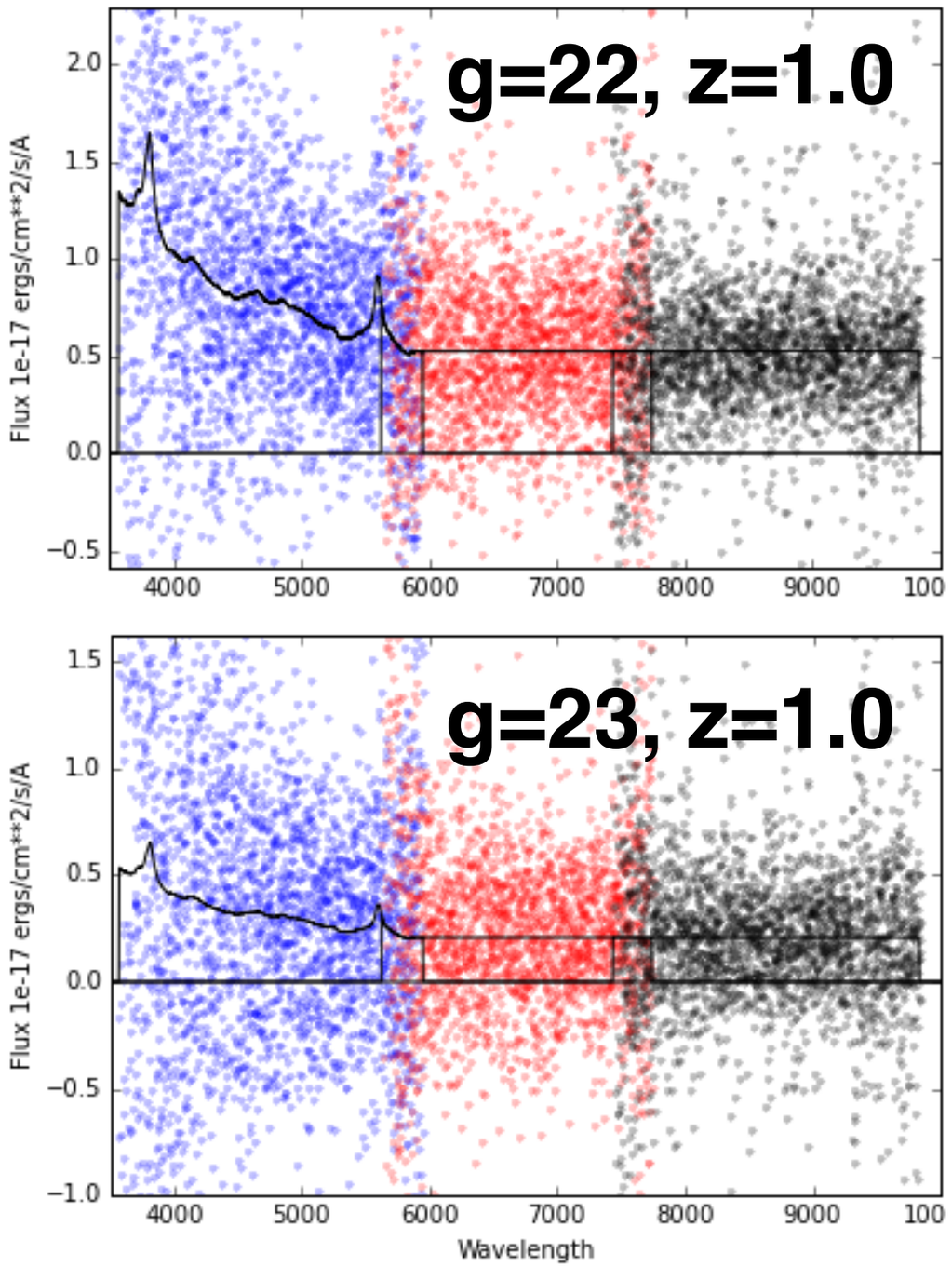

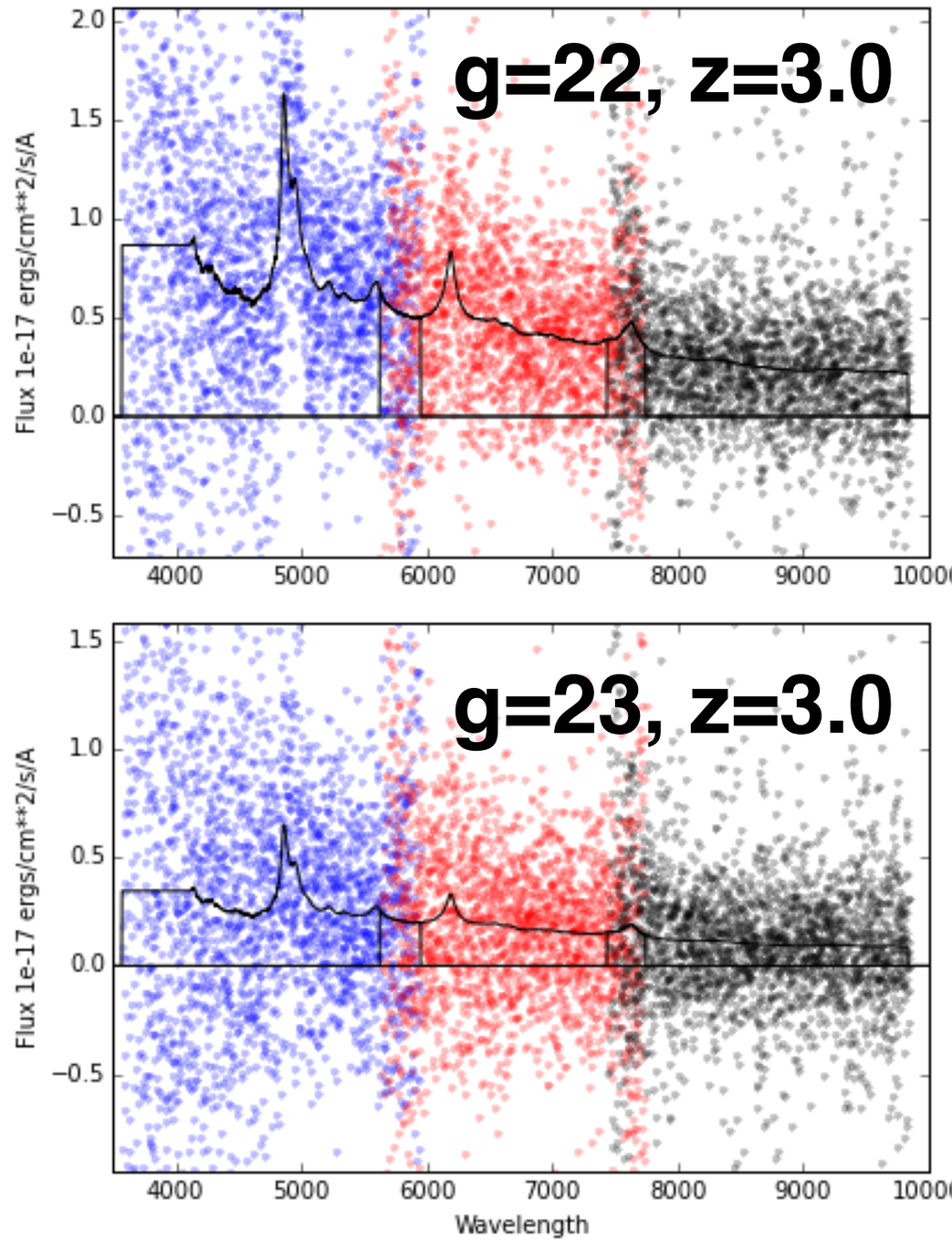

900s at X=1, 1A binning

First Experiences with RedMonster

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28 REDMONSTER      Contiguous region of bad chi^2 in sky residuals
                   (with threshhold of relative chi^2 > 3)
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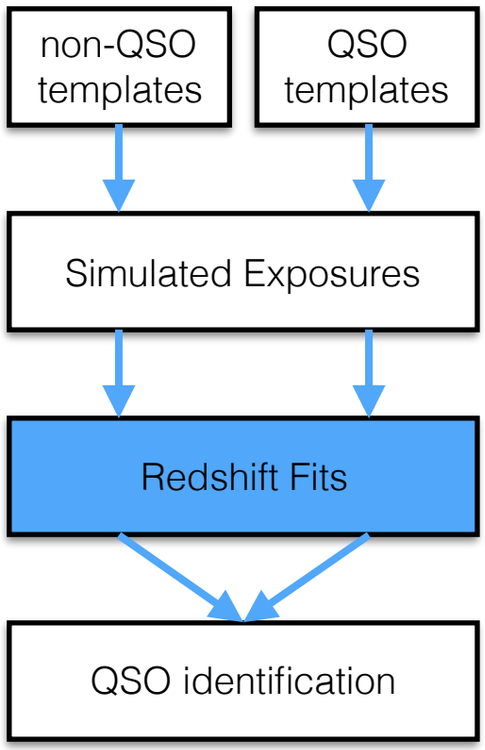
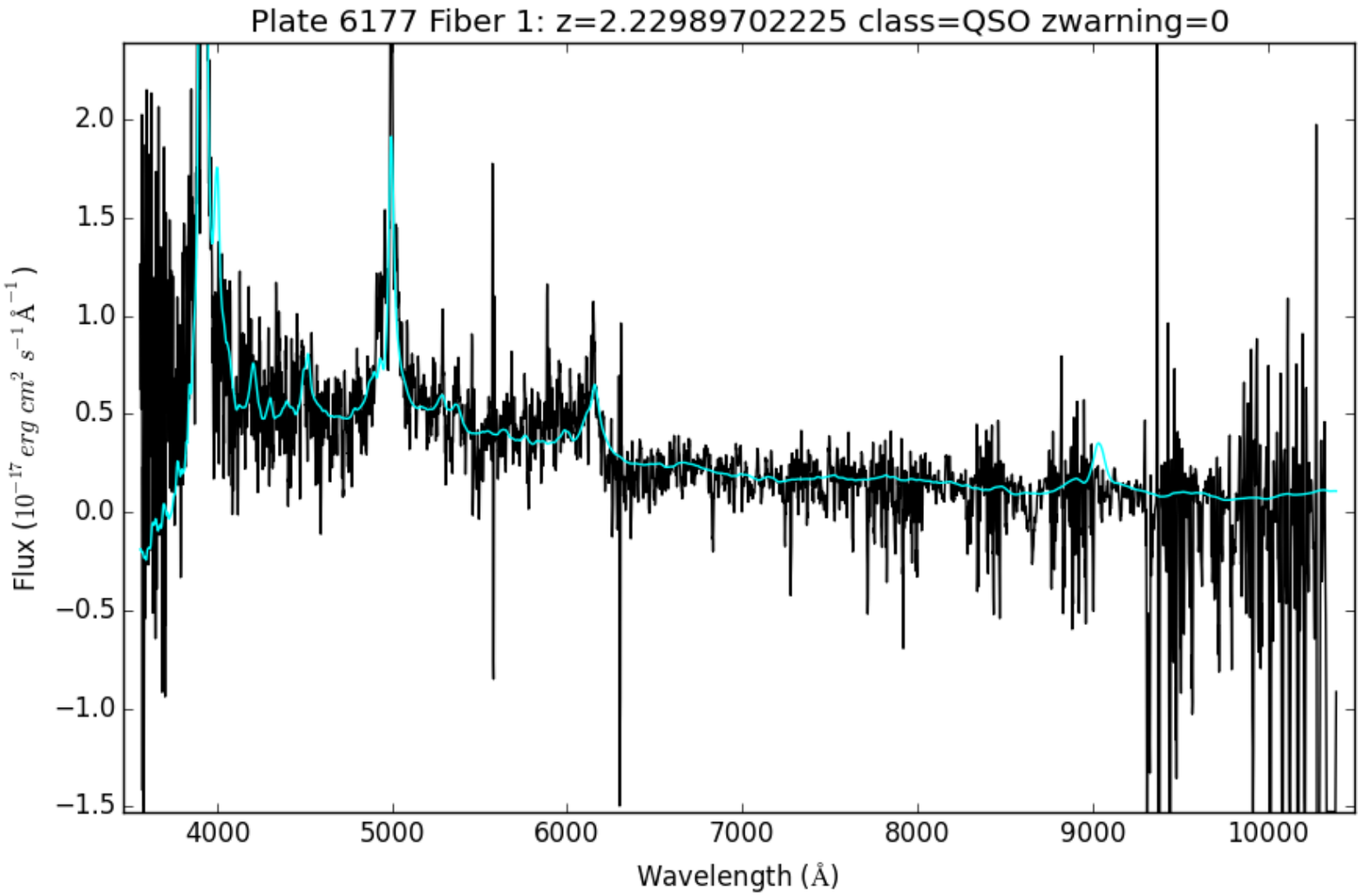
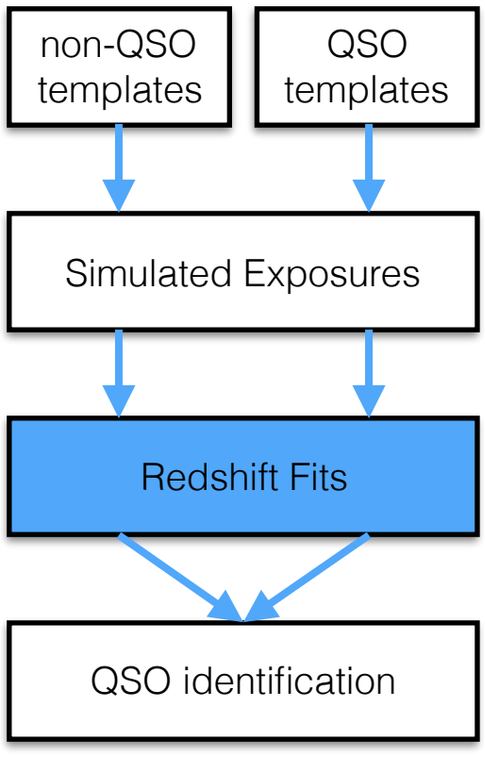
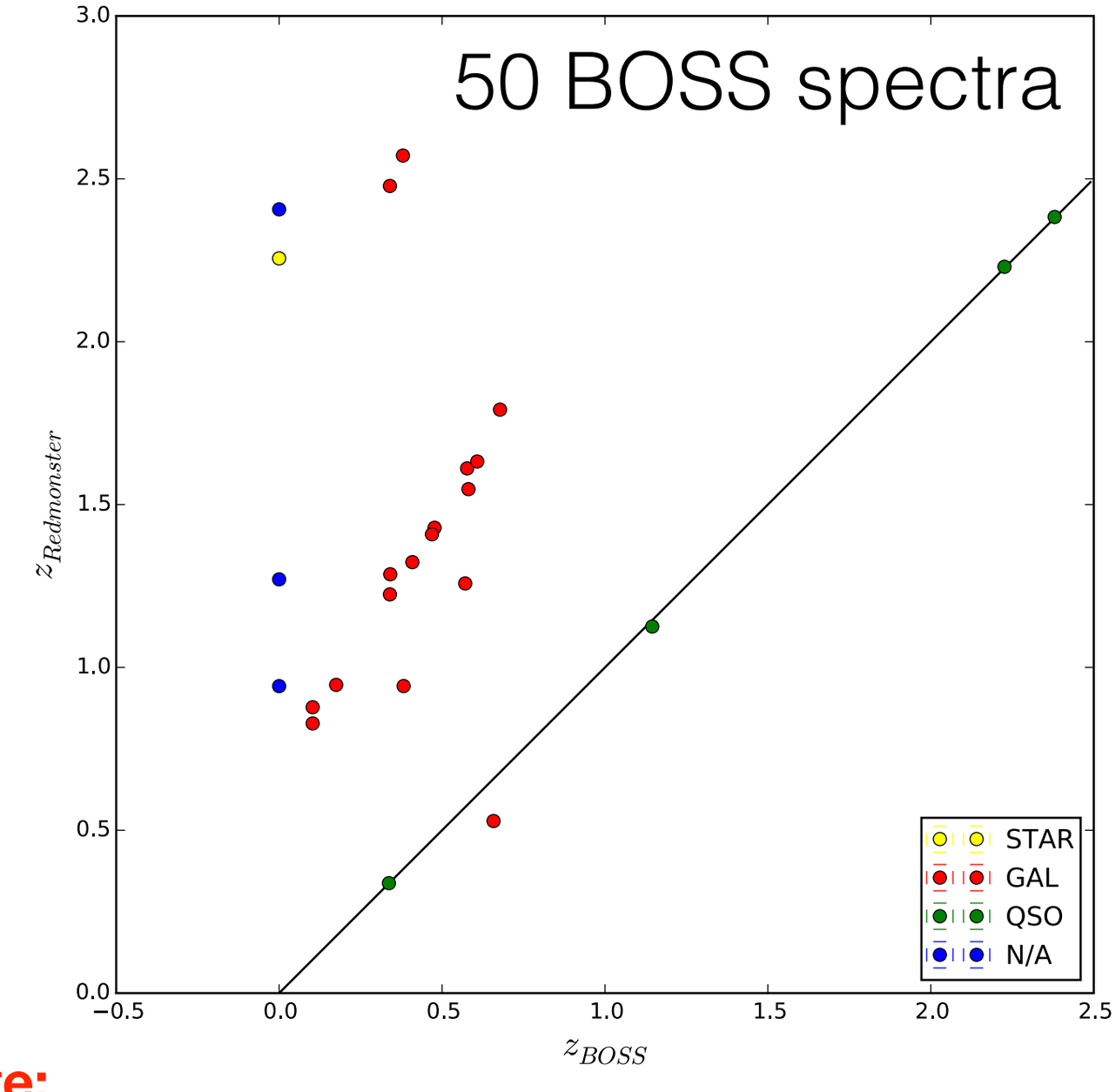




BOSS QSO fit with QSO template

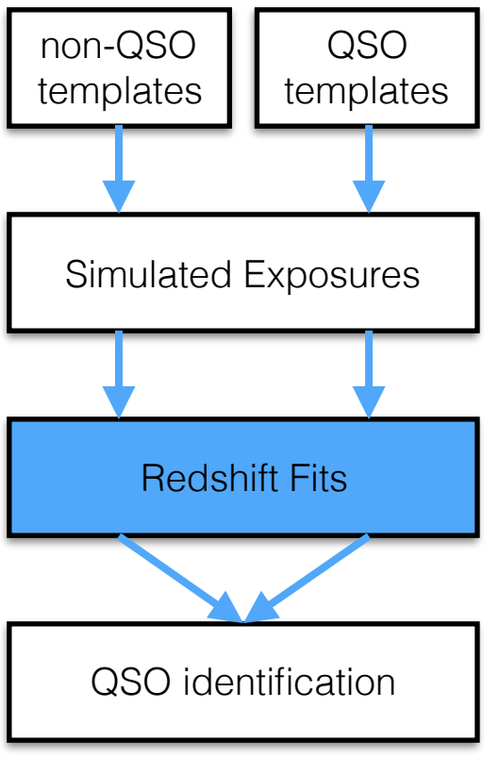
First Experiences with RedMonster

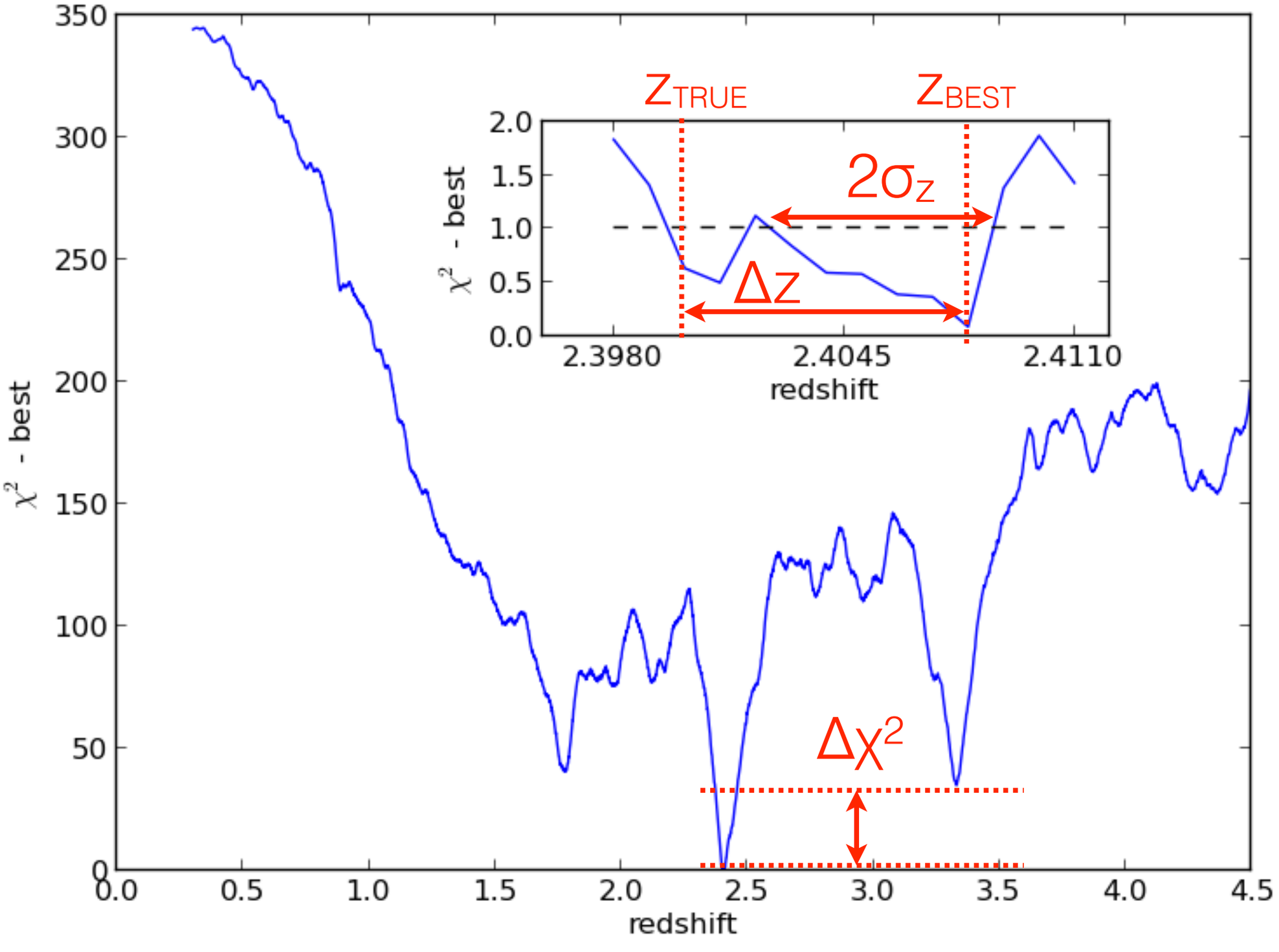




DESI (5k fiber) timing estimate:
~94 CPU hours using 4 templates (Stars, Galaxies, ELG, QSO)

Simple Chi-square Redshift Scans





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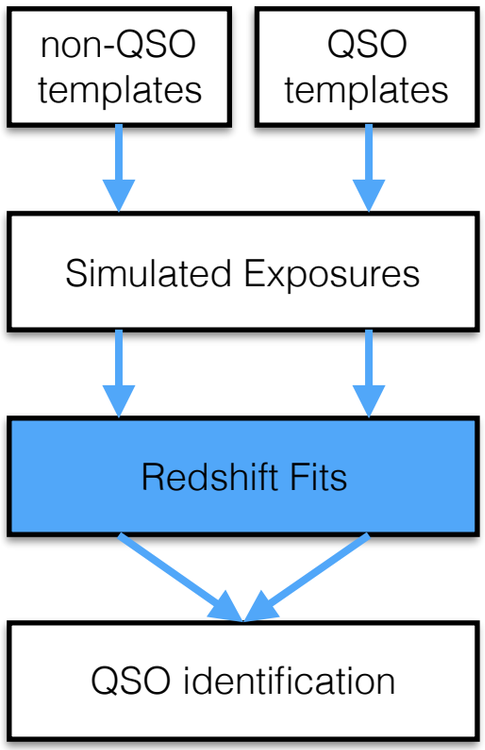

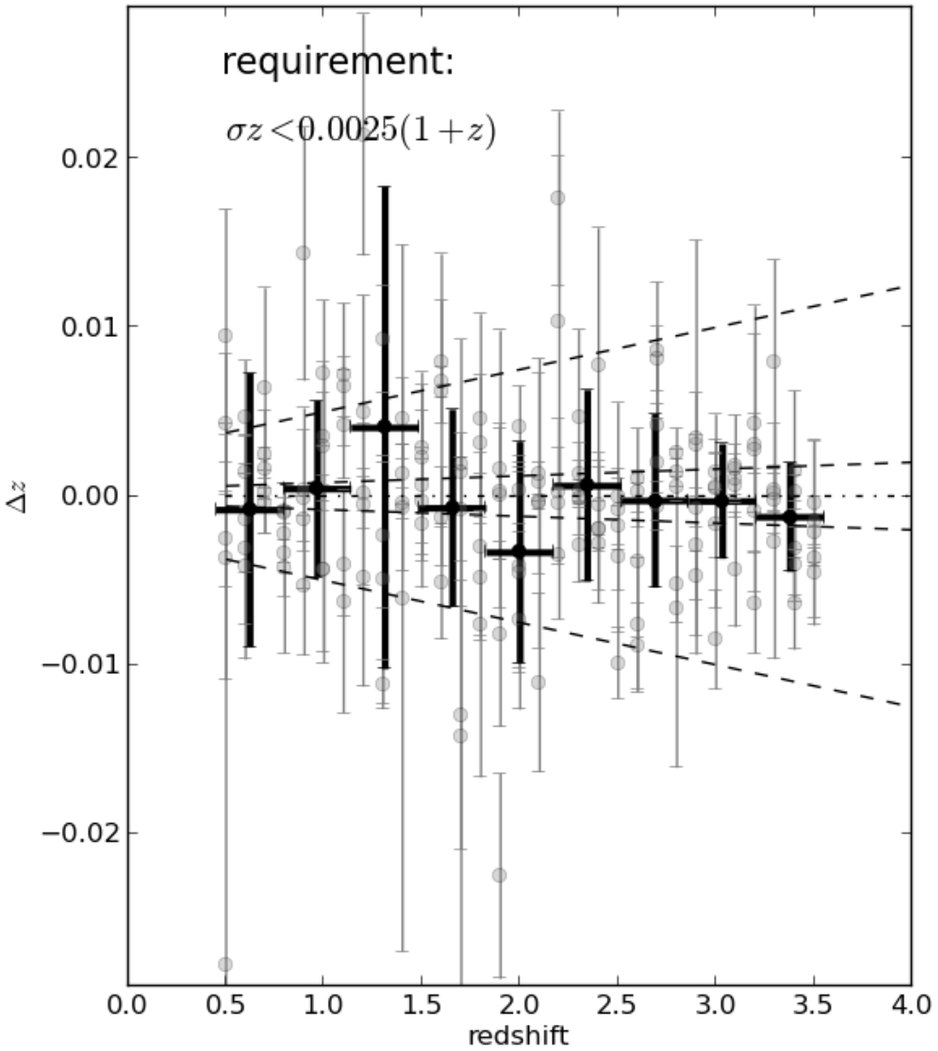

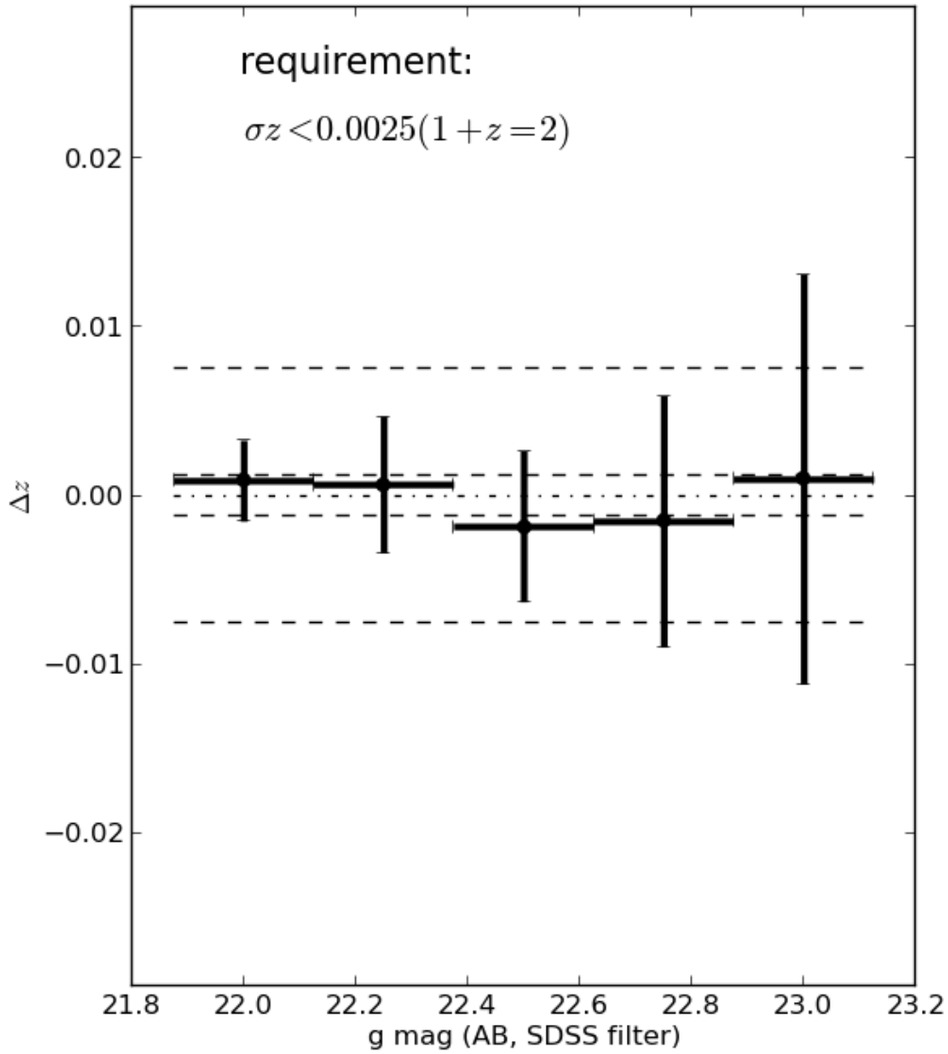

Fits and simulation use the same template: best case!

900s at X=1, uniform grid in (g-mag, redshift)