Update of the LAMOST Data

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悼念LAMOST的先驱

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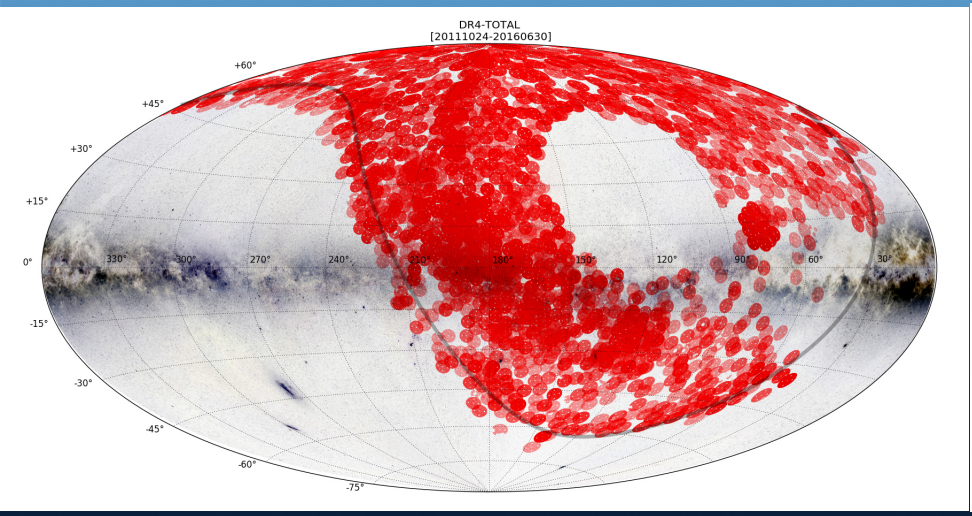
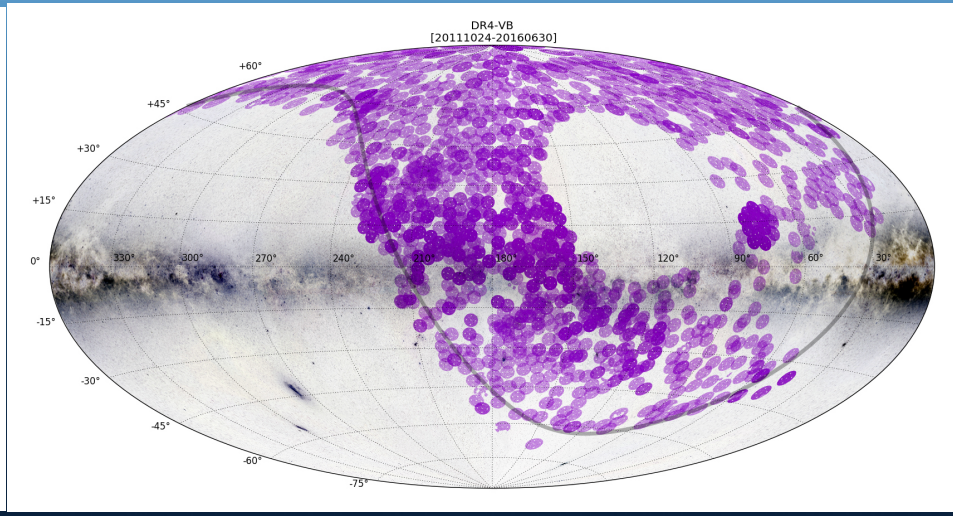
Outline

- Overview of the Fourth Data Release (DR4)
- Improvement of data reduction
- Working plan in 2017

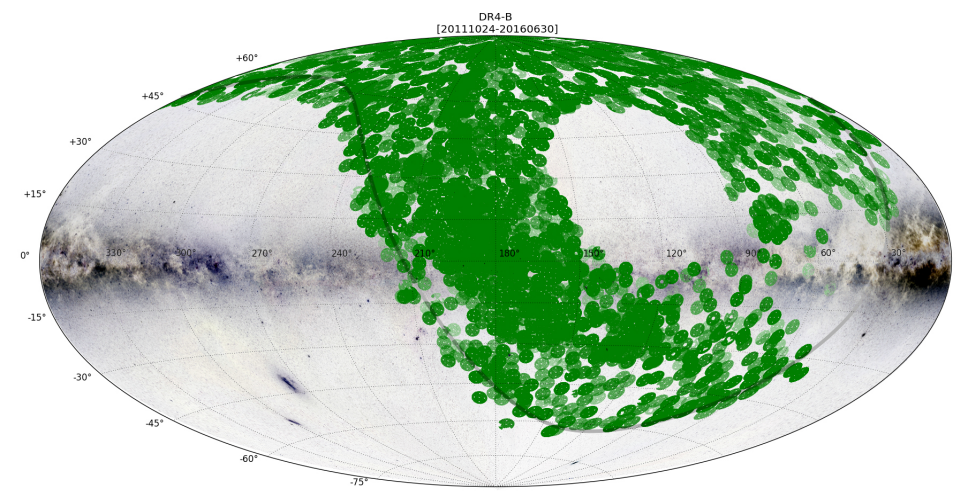
Released Data in DR4



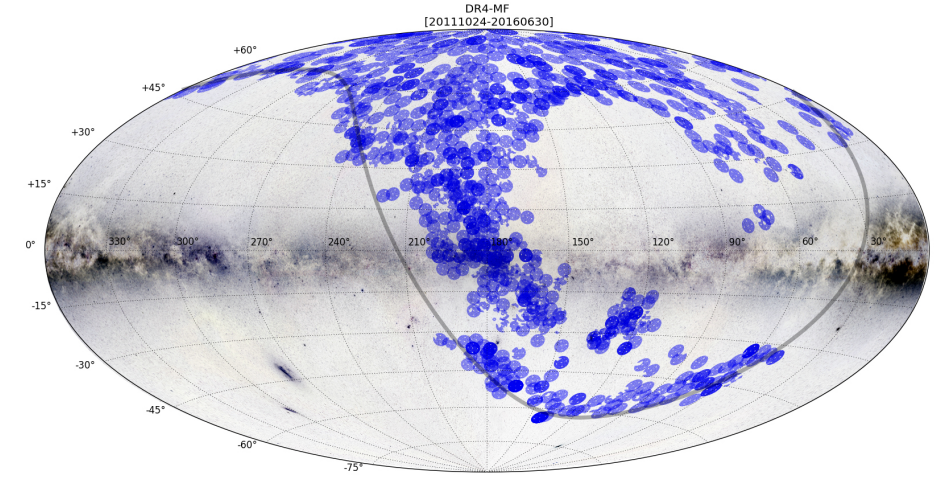
DR4 total:：7.68 Million spectra



VB (>14 Mag_r)：3 Million spectra



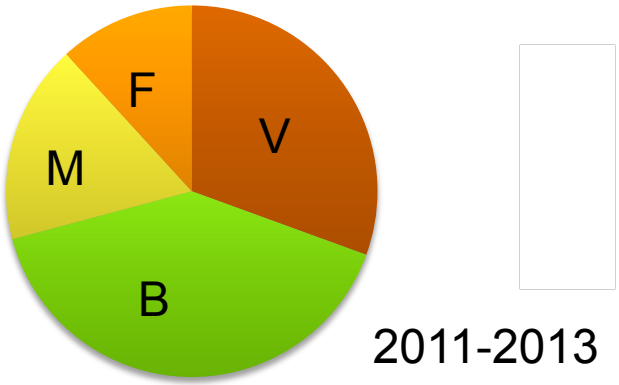
B(14-16.3 Mag_r)：2.85 Million spectra



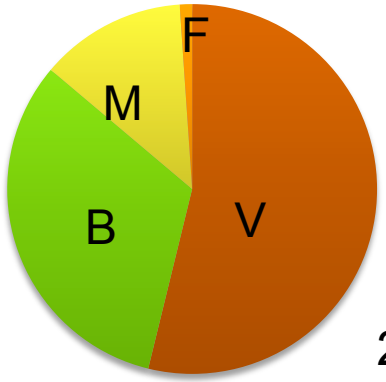
M&F(<16.3 Mag_r)：1.83 Million spectra

Magnitude distribution of targets

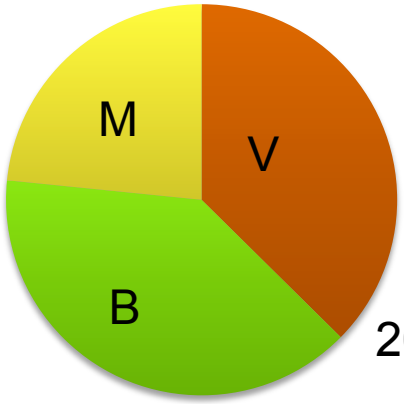
	V	B	M	F
2011-2013	30.56	40.28	17.37	11.79
2013-2014	53.82	32.33	12.77	1.08
2014-2015	37.4	39.19	23.41	0
2015-2016	39.53	34.99	25.38	0.1



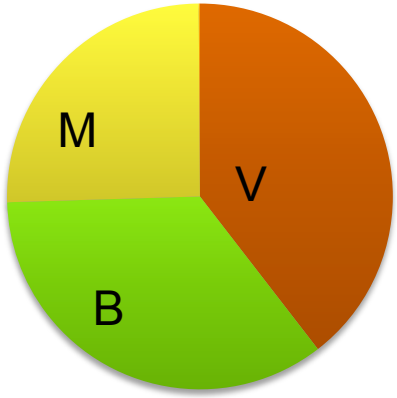
2011-2013



2013-2014



2014-2015

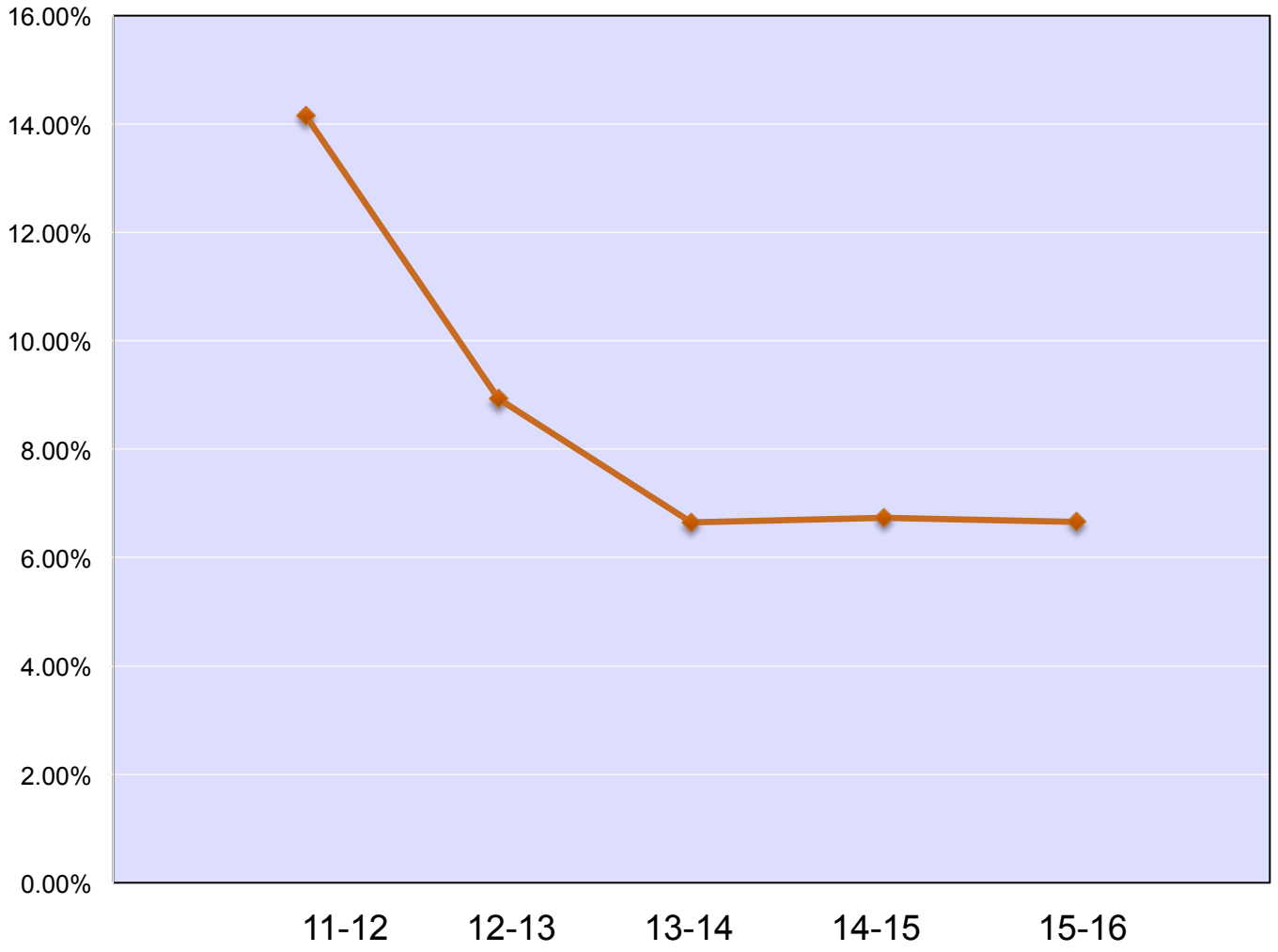


2015-2016

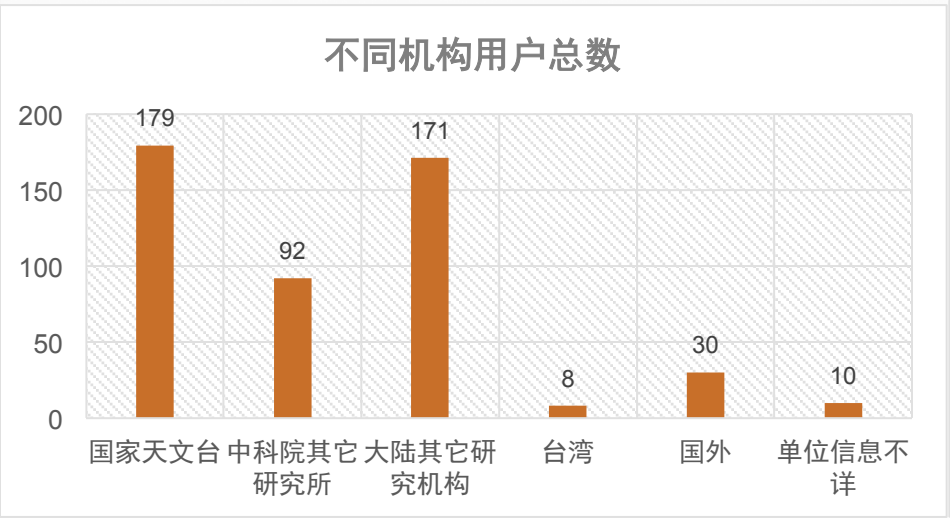
Numbers of DR4

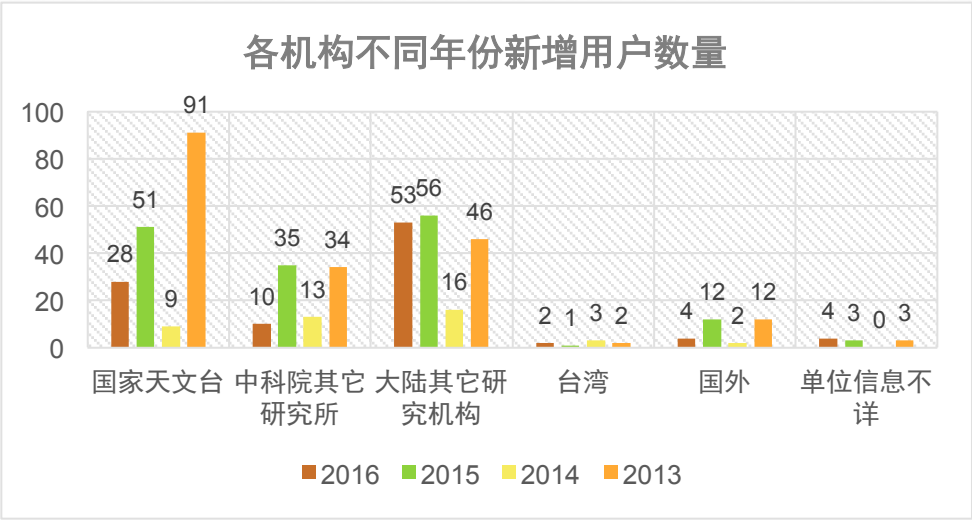
	Pilot survey	First year	Second year	Third year	Forth year	TOTAL
Total spectra	958,944	1,701,669	1,648,485	1,659,028	1,713,059	7,681,185
STAR	812,911	1,529,938	1,501,002	1,511,032	1,543,415	6,898,298
STAR (SNR>10)	619,151	1,306,584	1,367,865	1,371,471	1,411,139	6,076,210
GALAXY	8,465	13,029	30,887	26,917	39,445	118,743
QSO	2,026	6,772	7,002	9,294	16,258	41,352
Unknown	135,542	151,930	109,594	111,785	113,941	622,792
Stellar Parameter	396,249	731,623	1,046,940	1,010,663	1,016,652	4,202,127
A type star	53,268	69,130	71,305	78,121	92,776	364,600
M type star	83,415	67,279	78,988	104,111	99,454	433,247

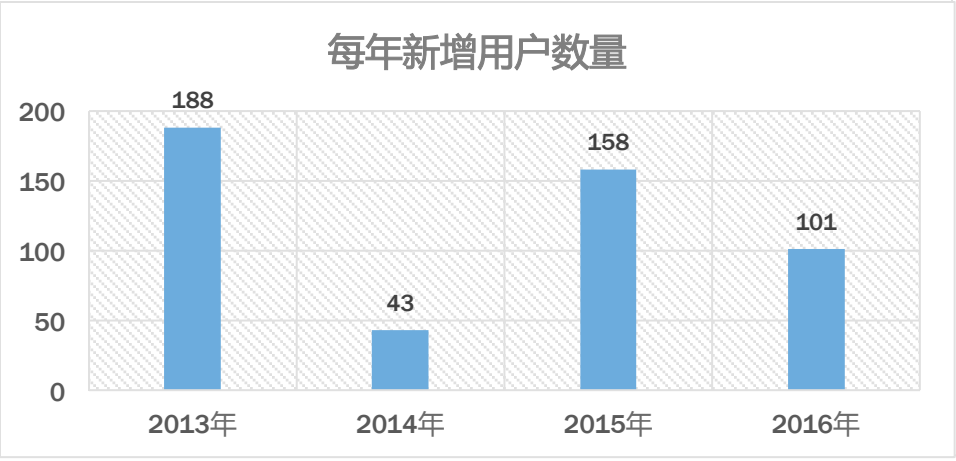
Proportion of Unknown Spectra

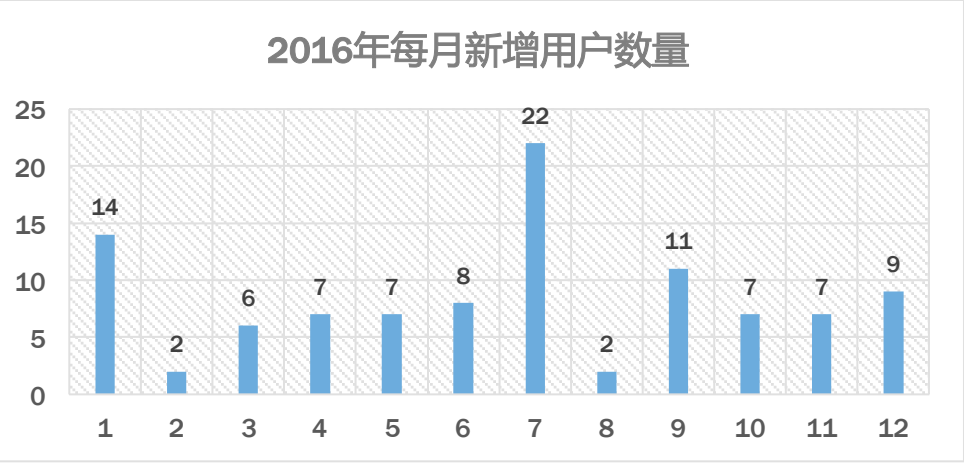


Data users increasing



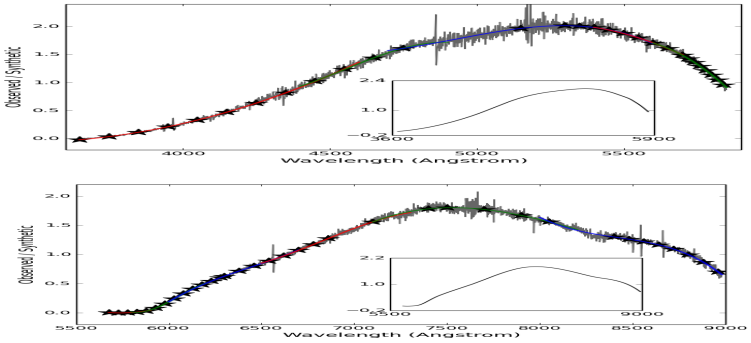




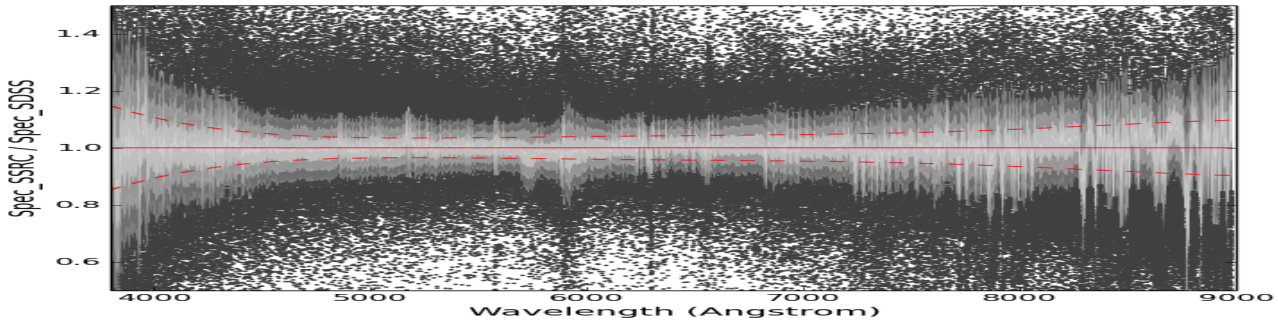


LAMOST Statistical response curve

- **Using the LASP measured stellar parameters of more than 200,000 standard stars，comparing with theoretical spectra, we derive the statistical response curve, and the variations of each spectrograph are within 10%.**



- **Comparison of 1746 spectra corrected using the response curve with SDSS spectra, the relative ratio is less than 10%.**

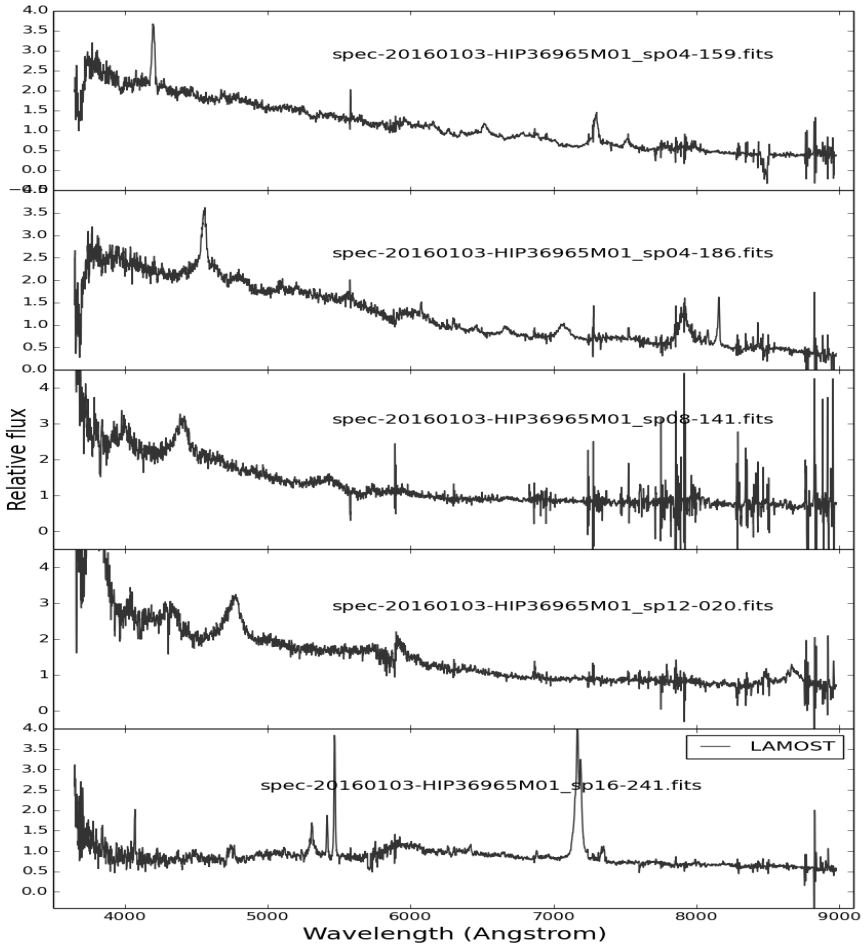


The application of the statistical response curve

1. Rescue some unconnected spectra because of failure of standard star, totally 1.77 thousand specta；

2. Prof. Jianmin Wang's experiment of 20 QSO variables (without standard star arranged）

3. Calculate the line-indices for M subdwarf



The stellar parameter

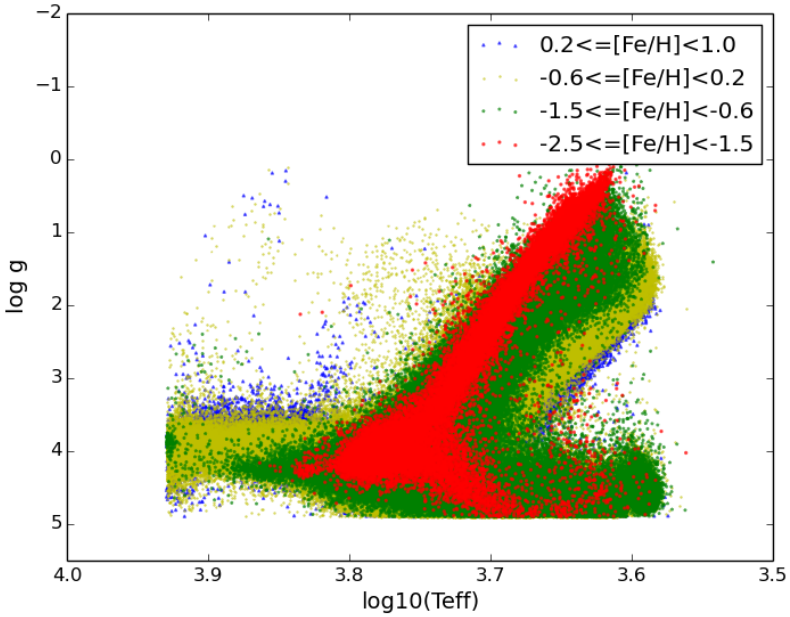
version of DR4 v.s. DR3

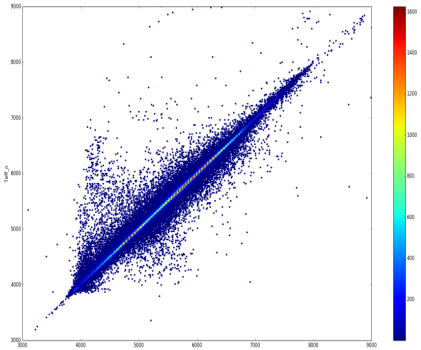
Teff （-2.1K，145K）

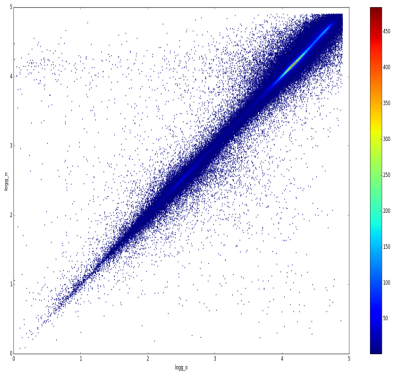
Logg（-0.009dex，0.145dex）

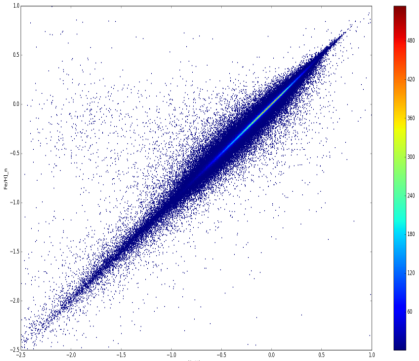
Metallicity（-0.0013dex，0.082dex）

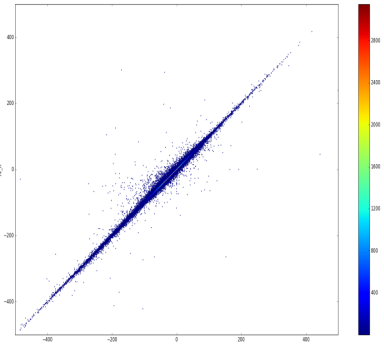
rv （-0.25km/s，3.52km/s）



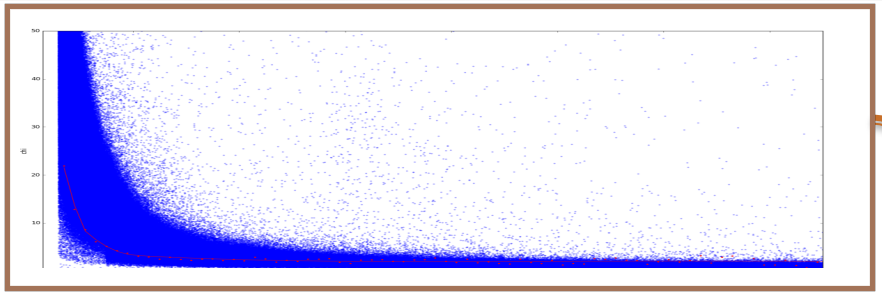


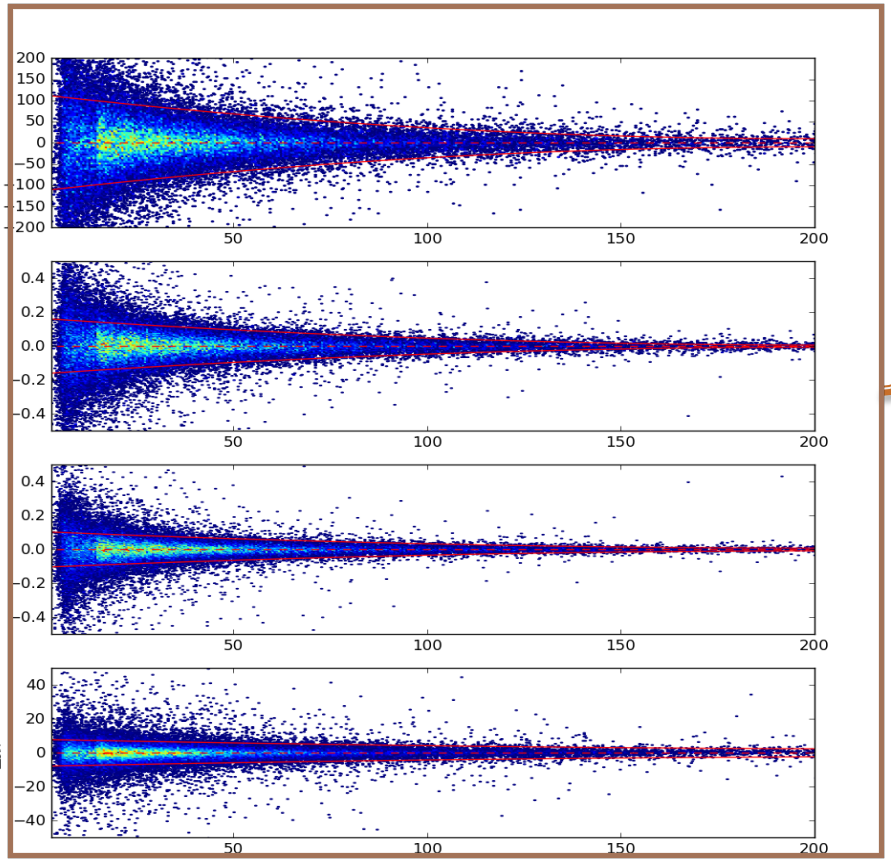


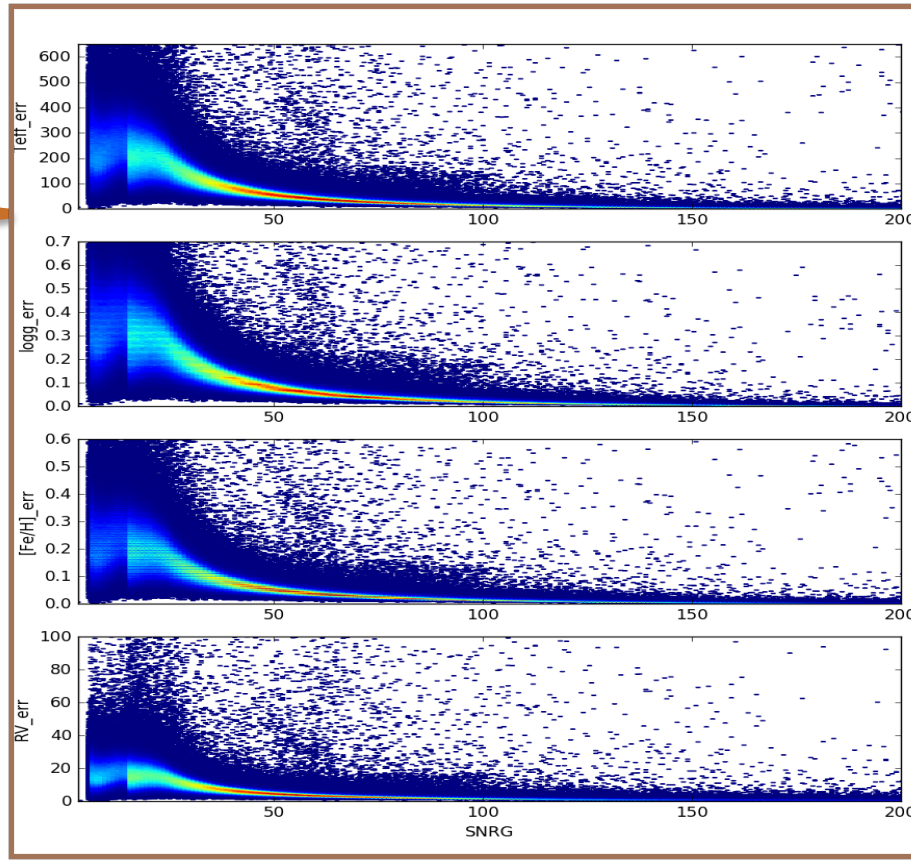




Error of parameters in DR4







Improvement of the pipeline for recognizing galaxies and QSOs

	11-12	12-13	13-14	14-15	15-16
DR1	2723	9359			
DR2	2754	9555	25356		
DR3	2754	9555	25356	24105	
DR4	8465	13029	30887	26917	39445

	11-12	12-13	13-14	14-15	15-16
DR1	621	4396			
DR2	618	4094	3921		
DR3	618	4094	3921	7721	
DR4	2026	6772	7002	9294	16258

The work plan in 2017

- DR3 international release (Jun)
- DR5 Alpha release Q2 (Apr) & Q3(Jul)
- DR5 internal release (Dec)
- Sky sampling method (Sky substraction)
- Continue the calibration work for stellar parameters using external survey such as Kepler, Gaia etc.

感谢大家支持，

希望多提宝贵意见！