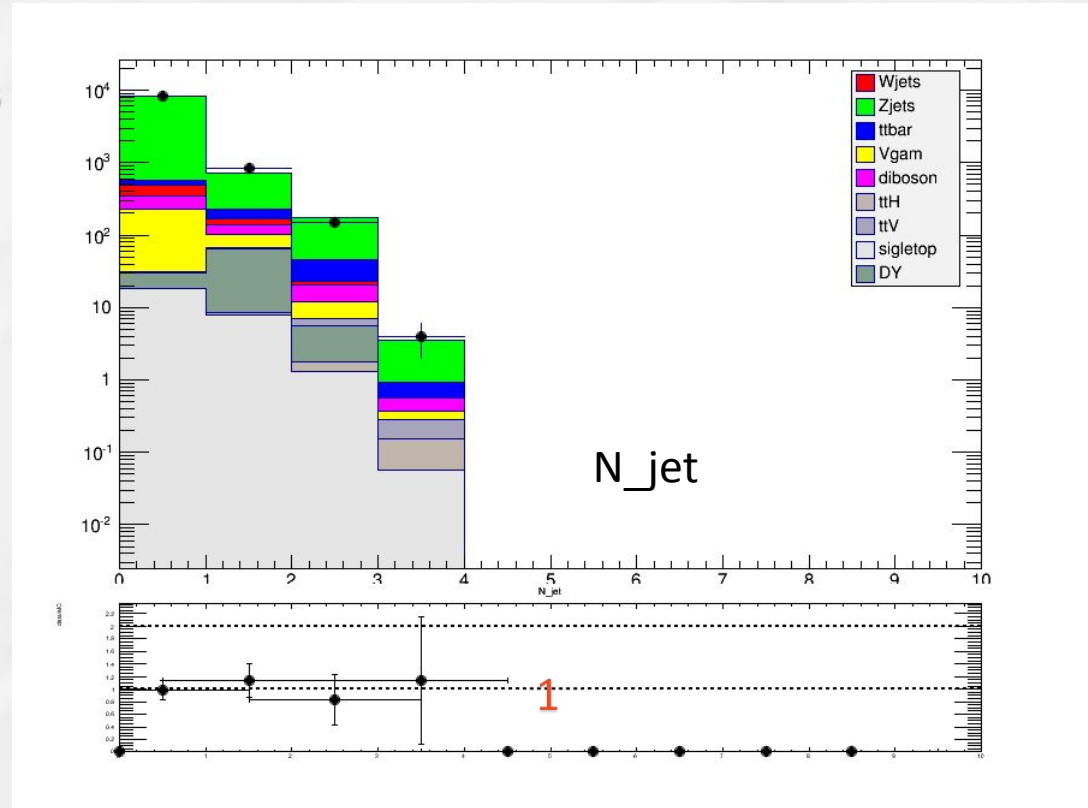
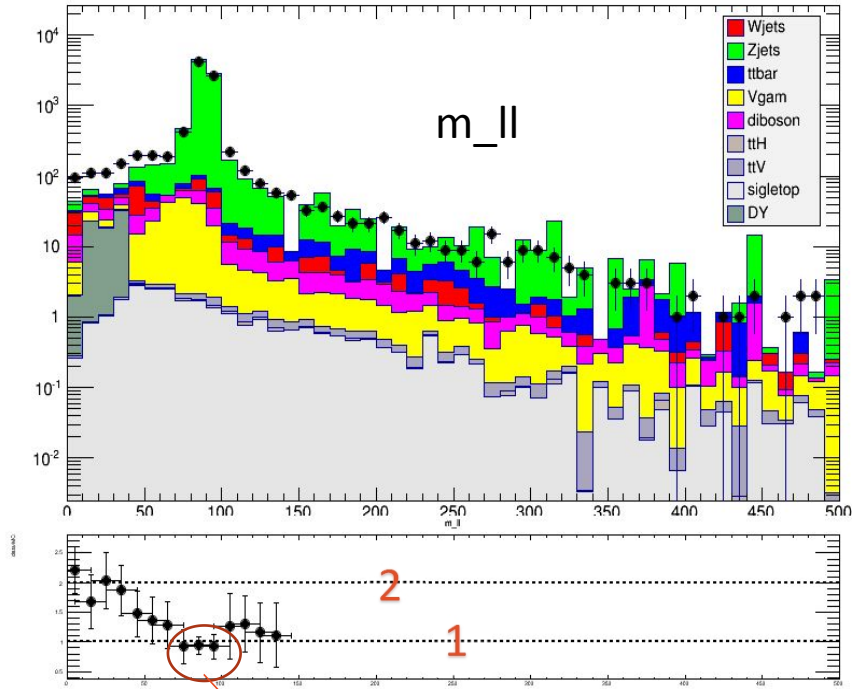

Weekly

Maosen Zhou

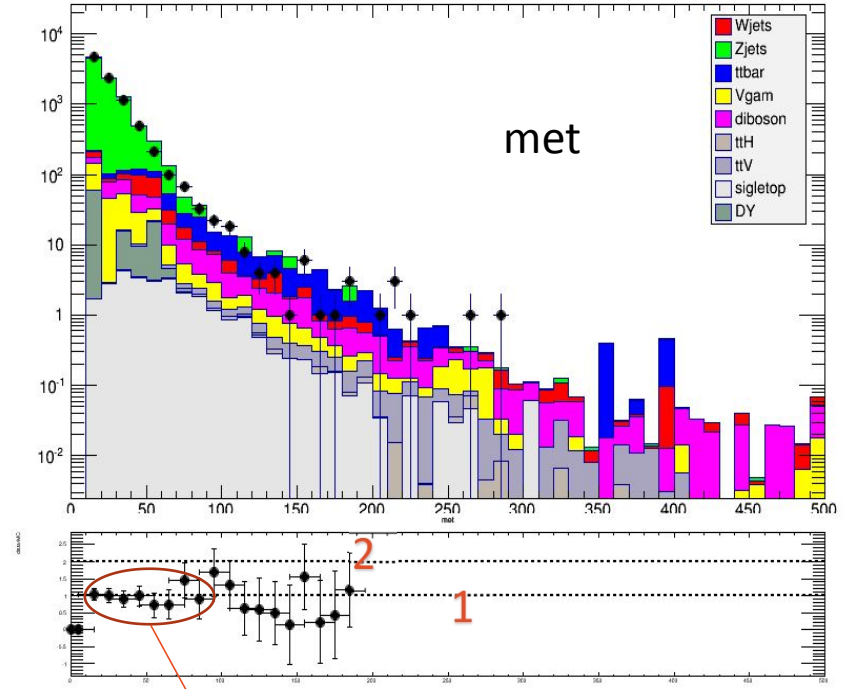
4 Apr, 2016

- select objects following OB;
- Overlap removal
- B veto: reject any events with b jets
- ...
- two SS leptons, met > 10GeV
- Fixed: using Sherpa samples for Z+jets, MG+Pythia last time





70-90GeV



10-80GeV

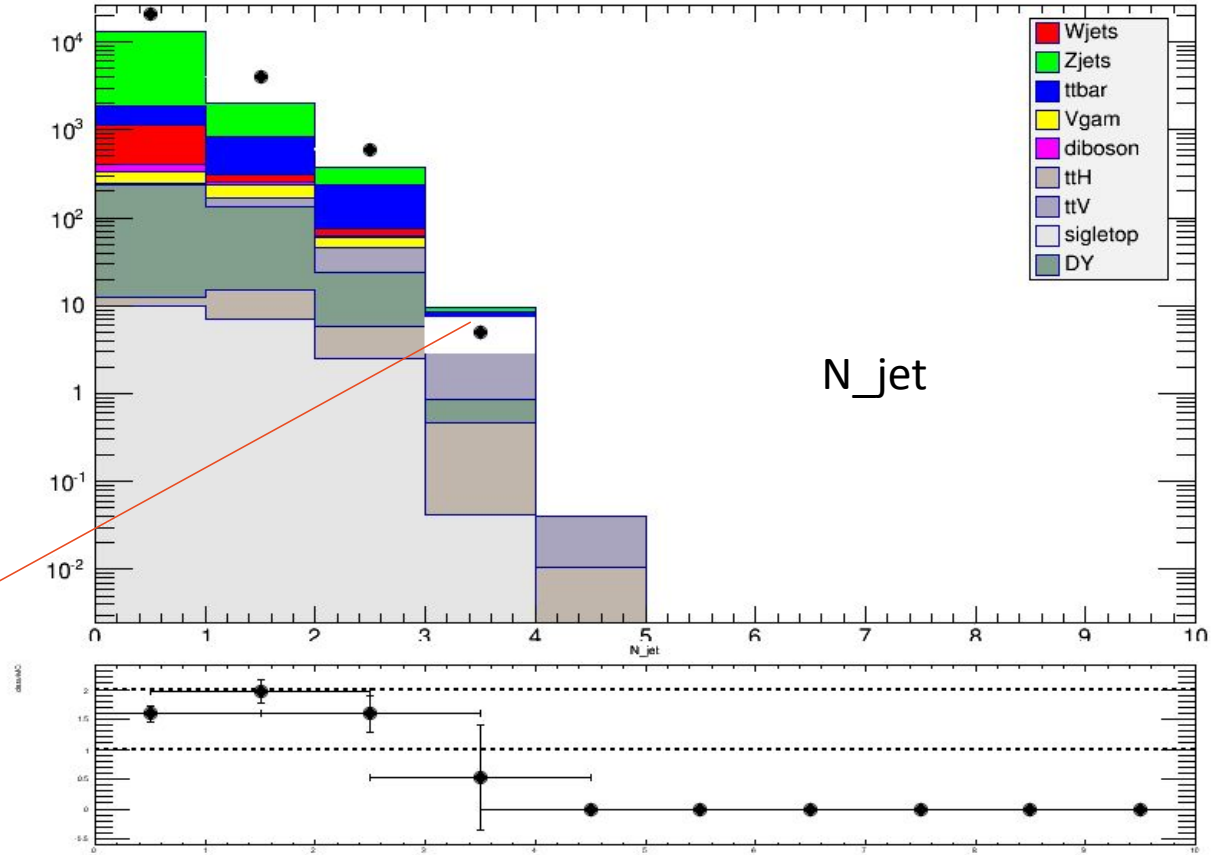
OS, W+jets control region?

- two OS leptons, one id-lepton + antiidlepton;
- id-lepton: one lepton passed tight ID and tight isolation
- antiidlepton: failing tight ID and no requirement on isolation(only applied loose isolation)
- Z mass window veto: $|m_{ll}-m_Z| > 15\text{GeV}$
- met > 20GeV
- B veto: reject any events with b jets

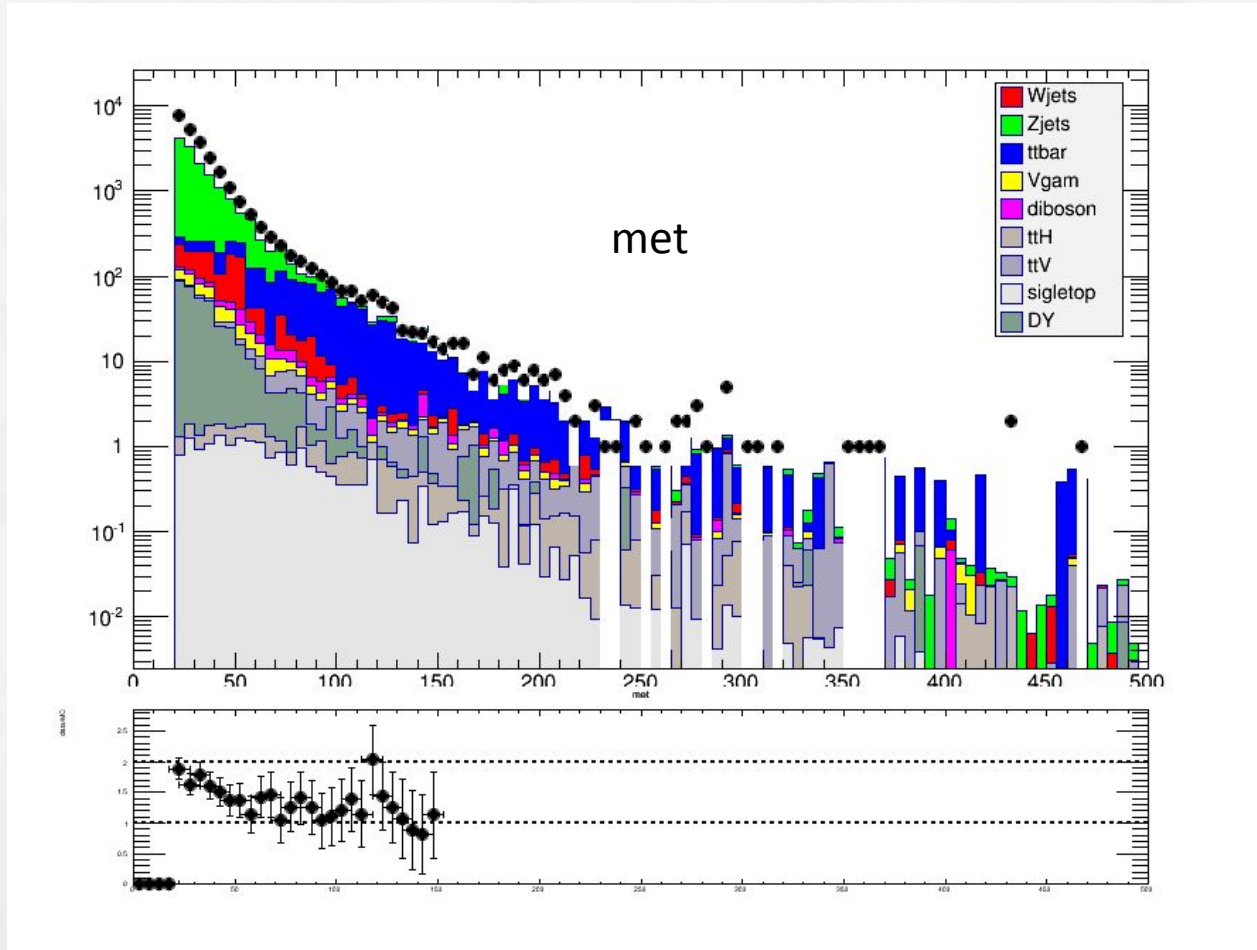
results

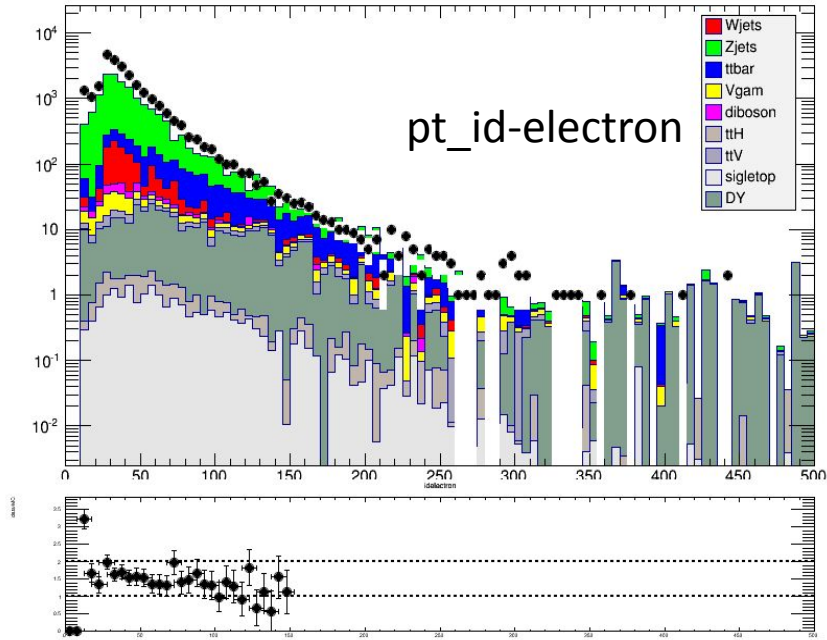
- ◆ agreement not quite good;
- ◆ #evnets with ≥ 3 jets is quite low

#jets	data	MC
0	20866	13149.1
1	3971	2024.61
2	600	376.821
3	5	9.54754

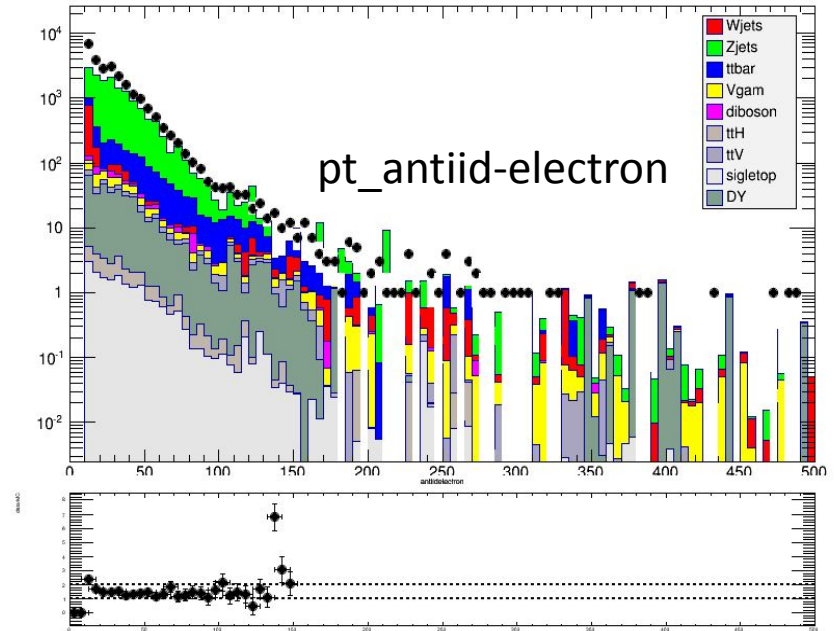


continued





antiid-lepton much softer than id one



Summary and plan

- Looks like data/MC agrees well for SS case, so we can say our main bkg come from: W+jets, Z+jets, ttbar, Vgam, ttV, diboson, single-top and ttH?
- For W+jets control region, ttbar and Z+jets still dominate, should apply more cuts to get better control.

- Gave a talk in upgrade tracking meeting
- will focus on 开题报告 this week...

Backup

Id and anti-id definition

You can define you own anti-di, but keep in mind to model the fake process and ensure less “real” contamination.

Electron

	Id electron	Anti-id electron
p_T	>15 GeV	Same as Id electron
$ \eta $	<2.47, excluding $1.37 < \eta < 1.52$	Same as Id electron
Vertex	$ z_0 \sin\theta < 0.5 \text{ mm}; d_0 /\sigma(d_0) < 5$	Same as Id electron
Likelihood identification	Pass LHMedium(LHTight) for $E_T > 25(15 < E_T < 25) \text{ GeV}$	Fail LHMedium(LHTight) for $E_T > 25(15 < E_T < 25) \text{ GeV}$ but pass LHLoose
	And	OR
Isolation requiremnt	Yes	No

Muon

	Id muon	Anti-id muon
E_T	>15 GeV	Same as Id muon
$ \eta $	<2.5	Same as Id muon
Quality of the reconstruction and identification	Pass Medium(Tight) for $p_T > 25(15 < p_T < 25) \text{ GeV}$	Pass Medium(Tight) for $p_T > 25(15 < p_T < 25) \text{ GeV}$
Vertex	$ z_0 \sin\theta < 0.5 \text{ mm}; d_0 /\sigma(d_0) < 3$	$ z_0 \sin\theta < 0.5 \text{ mm}; 3 < d_0 /\sigma(d_0) < 6$
	And	OR
Isolation requiremnt	Yes	No

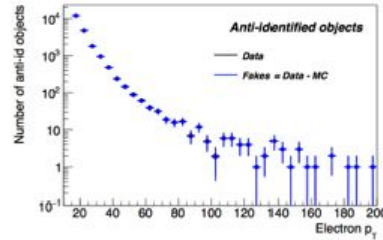
Fake factor

Di-Jets process trigger by: **HLT_mu14, and HLT_e12_lhvloose_nod0_L1EM10VH**

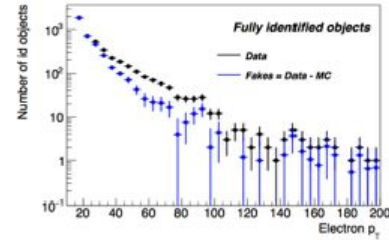
Event selection: **exactly one anti-di lepton and the following requirement**

- Number of jets > 0
- $p_T^{\text{jet}} > 22 \text{ GeV}$
- $p_T^{\text{fake}} > 15 \text{ GeV}$
- $\Delta\phi^{\text{fake,jet}} > 2.5$

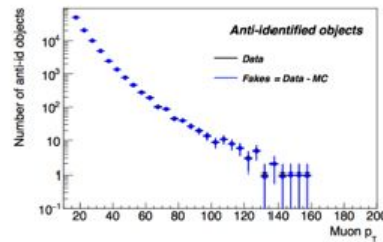
The contamination from other processes are estimated by MC



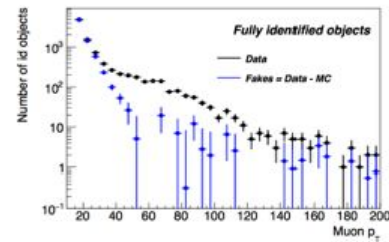
(a) Anti-identified electrons



(b) Identified electrons



(c) Anti-identified muons



(d) Identified muons