Weekly

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Status

- New 2016 data not available(still 0.6 fb^{-1})..
- cut-flow challenge;

jet fakes updates

- **For emu channel, id+antiid can have jet fakes, first need subtract them;** $N^{e\mu}_{\text{jet fakes}} = (==3\,jets)(e\mu - \not{e}\mu \times f_e - QmisID - promtSS) \times f_\mu + (==3\,jets)(\not{e}\mu - \not{e}\not{\mu} \times f_\mu - QmisID - promtSS) \times f_e$

	ee	mumu	emu
data	150	66	78
QmisID	15.8	~	19.1
prompt SS	10.1	12.4	20.1
jet fakes	117.5	47.0	85.6
(data-bkg)/bkg	6.0%	11.1%	-37.5%

	ee	mumu	emu
data	150	66	78
QmisID	15.8	~	19.1
prompt SS	10.1	12.4	20.1
jet fakes	117.5	47.0	56.1
(data-bkg)/bkg	6.0%	11.1%	-18.2%

pheno side

- **ttbar + 0, 1, 2 jet**
  - semi-leptonic(with b veto): 12.5 pb → 0.2 fb
  - full-leptonic(with b veto): 5.76 pb → 5.8 fb
- **W + 3, 4 jet**
  - 278 pb → 36 fb
- **Z + 4 jet**
  - 63 pb → 32 fb

- **fake rate:**
  - QmisID: f(ele) = $1e^{-3}$; f(mu)=$1e^{-5}$
  - light jet fake rate: f(ele)=$6.7e^{-5}$; f(mu)=$1.7e^{-5}$;
  - b jet fake rate: f(ele/mu)=$5e^{-3}$

Back up

276262, 20.7

```
# input electrons: 22257
# electrons after pT: 20727
# electrons after eta: 20613
# electrons after ID: 20613
# electrons after z0: 20613
# electrons after d0: 20613
# electrons after iso: 17081
# electrons after ORv1: 17058
# electrons after ORv2: 17058

# input muons: 31229
# muons after pT: 27431
# muons after eta: 27364
# muons after ID: 27364
# muons after z0: 27364
# muons after d0: 27364
# muons after iso: 22712
# muons after OR: 20058

# input jets: 257274
# jets after pT: 121692
# jets after eta: 109130
# jets after jvt: 87048
# jets after ORv1: 70285
# jets after ORv2: 70126
```

276262, 20.1

```
# input electrons: 23937
# electrons after pT: 21852
# electrons after eta: 21733
# electrons after ID: 21733
# electrons after z0: 21733
# electrons after d0: 21733
# electrons after iso: 17759
# electrons after ORv1: 17667
# electrons after ORv2: 17667

# input muons: 32226
# muons after pT: 28274
# muons after eta: 28207
# muons after ID: 28207
# muons after z0: 28207
# muons after d0: 28207
# muons after iso: 23530
# muons after OR: 20638

# input jets: 269672
# jets after pT: 125745
# jets after eta: 112432
# jets after jvt: 89387
# jets after ORv1: 72037
# jets after ORv2: 71878
```

, 20.7

20.1 vs 20.7 on data

- data_15: 276262;
- data_16: 300279
- b tagger: MV2c10_70 > -0.8244;

	20.7 data_16	20.7 data_15	20.1 data_15
HIGG8D1	118625(100%)	211649(100%)	222751(100%)
Trigger	14425(12.2%)	50048(23.6%)	51632(23.2%)
2 loose leptons	3201(2.7%)	9270(4.4%)	9372(4.2%)
B veto	2164(1.8%)	7122(3.4%)	8826(4.0%)

20.1 vs 20.7 on MC

- ttbar 410000;
- b tagger: MV2c10_70 > -0.8244;

	20.1	20.7
input	10000	10000
Trigger	7583	7377
2 loose leptons	1649	1641
B veto	172	55

non-res cut-flow

	non-res
initial	100%
HIGG8D1	52%
trigger	43%
Object defition, overlap removal(2 loose leptons)	17%
b veto	11%
2 tight leptons, >=4 jets	3.0% (ee 42, mumu 114, emu 132)