

# updates

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# New Analysis code

AOD

egmmaD3PD maker

- Make custom ntuples
- Truth/track/jet matching



## Electron cuts:

- Pt > 1 GeV (15 GeV)
- Eta |Eta| < 2.5 excluding cracks
- isem loose (tightiso)
- (isolationLH > 8)
- author = 1 or 3

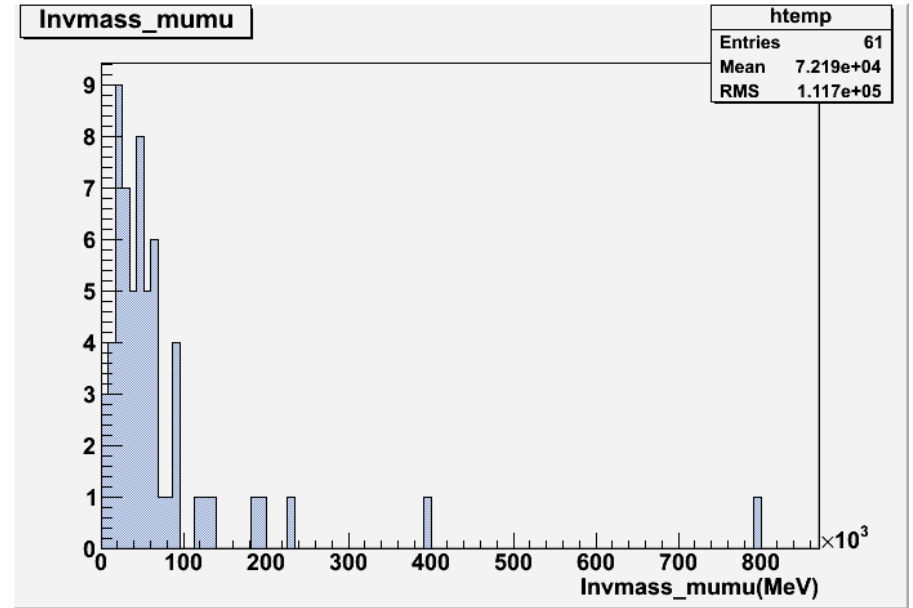
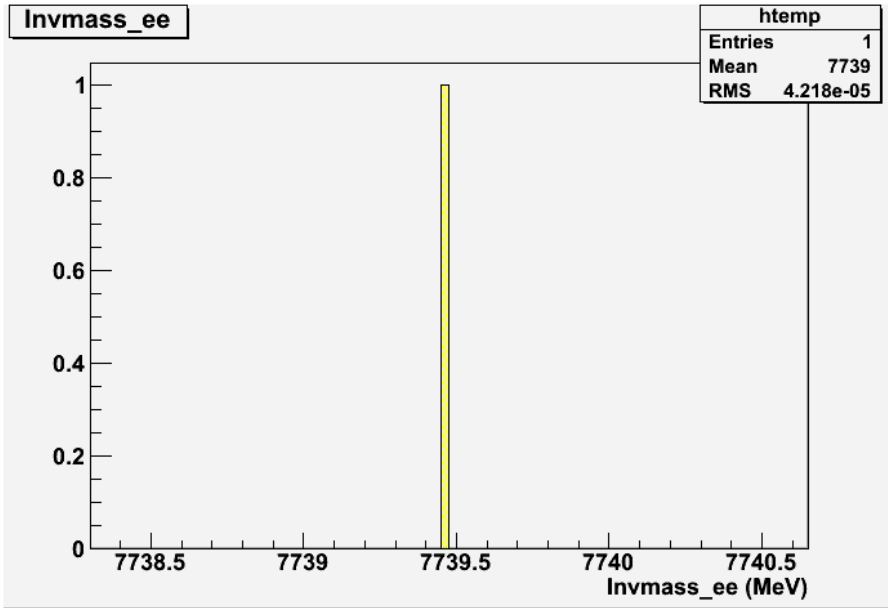
## Muon cuts:

- Pt > 1 GeV (15 GeV)
- Eta |Eta| < 2.5
- etcone40 < 2000
- matchchi2overdoF < 20
- (best match True)

## Event based cuts:

- (Trigger: L1\_MU6\_EM3, L2\_e10\_mu6, EF\_e10\_mu6)
- Jet multiplicity: #jets with pt > 10 GeV < 0 except the e's and mu's
- MET: MET\_final < 20 GeV
- (Inv mass (80-100) GeV)

# Inv mass



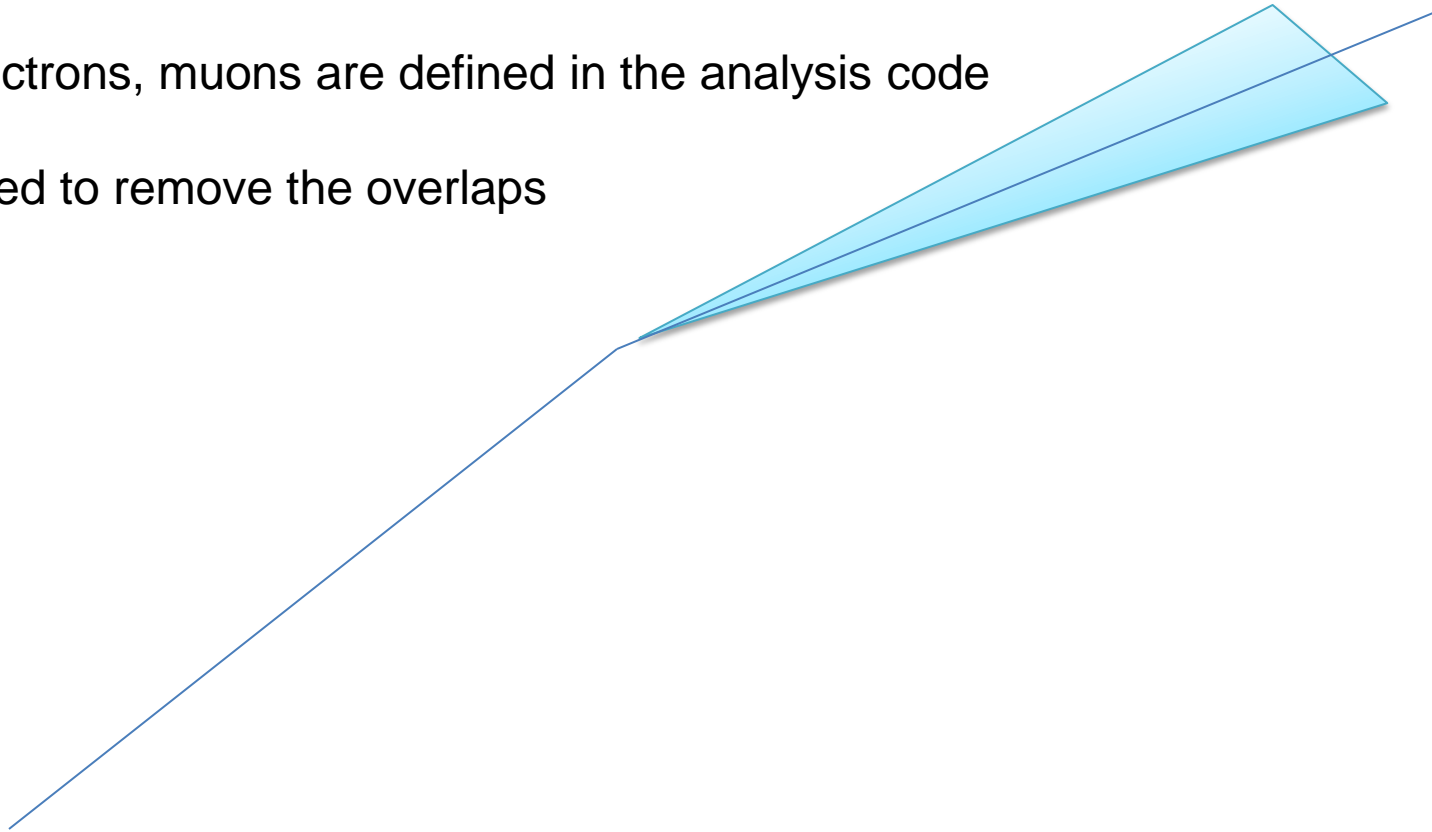
No events in emu

# Overlap

All we have are electron candidates , jet candidates....etc.

Electrons, muons are defined in the analysis code

Need to remove the overlaps



# Example :1

$$\text{deltaR} = \sqrt{(\Delta\eta)^2 + (\Delta\phi)^2}$$

$$\text{deltaP} = \frac{|\Delta p|}{p}$$

ele

pt= 30250.4 eta= -2.66959 phi= -2.28323 isEM= 0,

mu

pt= 27965.5 eta= -0.645737 phi= 0.817202

jet

pt= 34289.6 eta= -2.67307 phi= -2.28728

ele 0 deltaR 0.00532799 deltaP 0.0625851

pt= 9920.37 eta= -0.670466 phi= 0.804773

mu 0 deltaR 0.027677 deltaP 0.476302

pt= 7750.25 eta= 1.87528 phi= -3.14022

pt= 7484.47 eta= 1.87382 phi= -0.465461

1 electron, 1 muon, 4 jets  
Standard overlap removal  
2 jets

# Example :2

ele

pt= 29089.1 eta= 2.05645 phi= -1.89634 isEM= 0,  
pt= 10073.4 eta= 0.982075 phi= -1.76692 isEM= 5701632,

mu

pt= 39696.6 eta= 0.954018 phi= 0.80432

jet

pt= 35057.6 eta= 2.08223 phi= -1.90364

ele 0 deltaR 0.0267966 deltaP 0.0930443

pt= 20351.3 eta= 0.666585 phi= 2.81562

pt= 15593.8 eta= 1.04726 phi= -1.71875

ele 1 deltaR 0.0810513 deltaP 0.215078

pt= 7541.64 eta= 0.845523 phi= 0.812339

pt= 7199.26 eta= -0.281486 phi= -1.16894

pt= 6993.3 eta= 1.10441 phi= 2.47532

2 electrons, 1 muon,  
6 jets  
Standard overlap  
removal 4 jets  
My overlap removal  
5 jets

# Example :3

ele

pt= 36923.7 eta= 2.07876 phi= 0.903983 isEM= 0,  
pt= 31115.8 eta= 0.29644 phi= -2.28253 isEM= 117440512,

mu

ph

pt= 2275.73 eta= -0.687407 phi= 1.12966 isEM= 0,

jet

pt= 44776.9 eta= 2.07817 phi= 0.896699

ele 0 deltaR 0.00730767 deltaP 0.0961217

pt= 38860.6 eta= 0.280236 phi= -2.2541

ele 1 deltaR 0.0327238 deltaP 0.110677

pt= 9142.38 eta= -0.676893 phi= 1.07793

ph 0 deltaR 0.0527798 deltaP 0.601383

# summary

- Need a custom overlap removal
- Jets= jets- (selected {e + mu} +isolated photons)
- Test of overlap of electrons and photons with background.