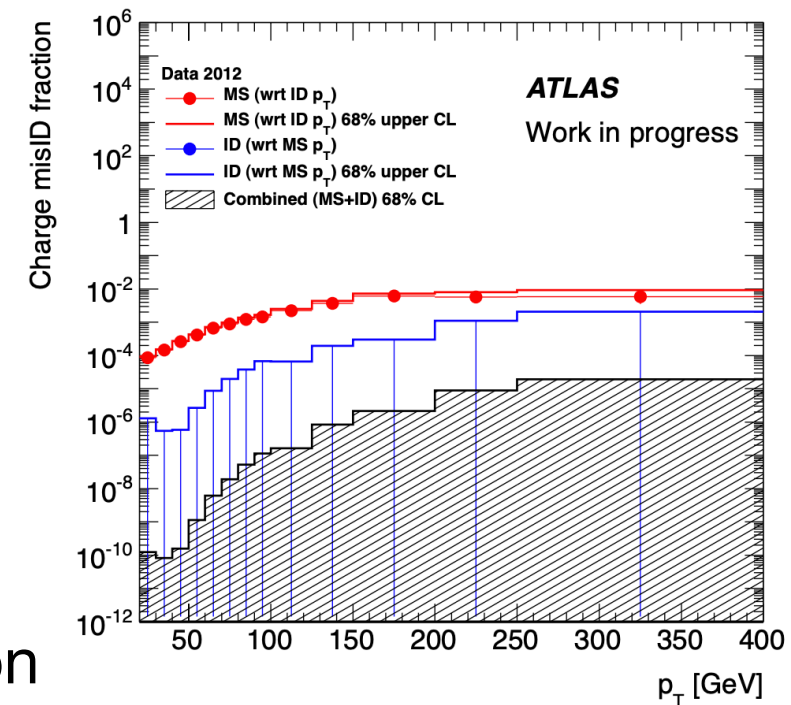# Weekly Report

Xin Shuiting
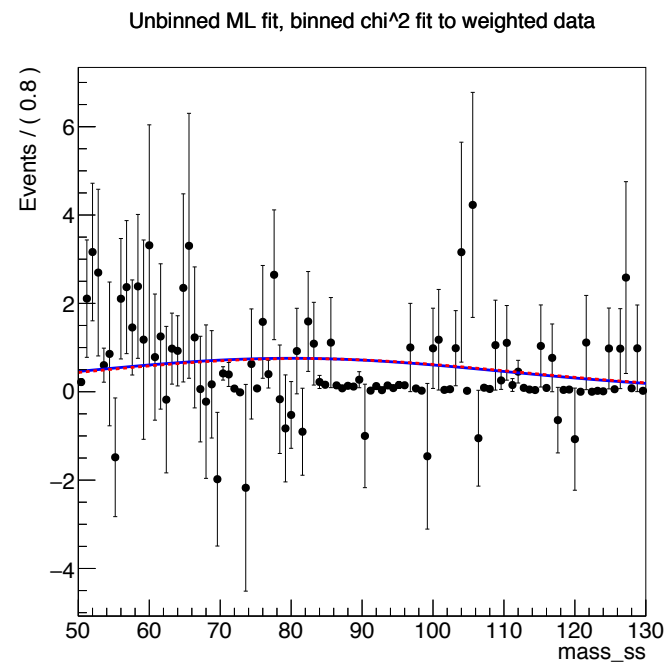
Muon charge misID rate study

According to ATL-COM-PHYS-2013-810, QmisID rates are below 10e-5 due to

- ID Inner Detector
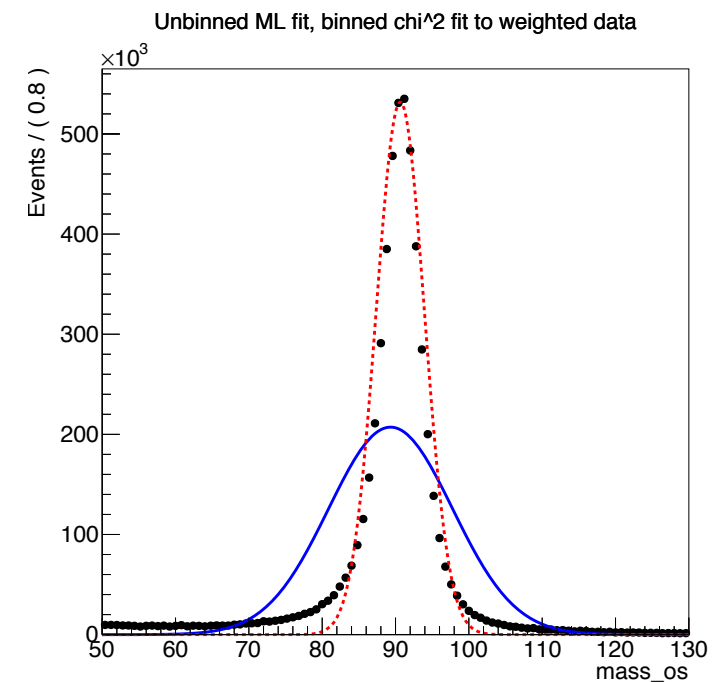- MS Muon Spectrometer

Run with Z->dimuon samples, select Loose muon

Unbinned ML fit, binned chi^2 fit to weighted data

Unbinned ML fit, binned chi^2 fit to weighted data

Type:	SS	OS
Entries:	403	1.4*10e7

Looking at V2 samples

Three channels: ee, uu, eu.

pre-selection
- Same sign lepton
- Loose lepton(different definition for e and muon)
- B jet veto
- Njet>=0
- passEvenCleaning

```
Selection: "(abs(lep_ID_0)==13&&lep_isLoose_0)&&(abs(lep_ID_
1)==13&&lep_isLoose_1)&&passEventCleaning&&(lep_ID_0*lep_ID_1
>0)&&lep_isolationFixedCutLoose_0&&lep_isolationFixedCutLoose
_1&&nJets_OR_T>=2&&nJets_OR_T_MV2c10_70==0" //e_muon channel
```
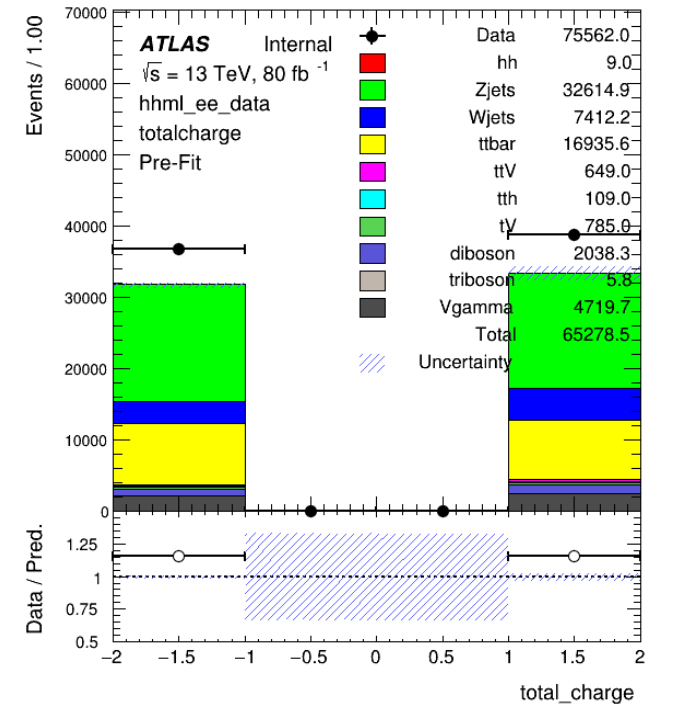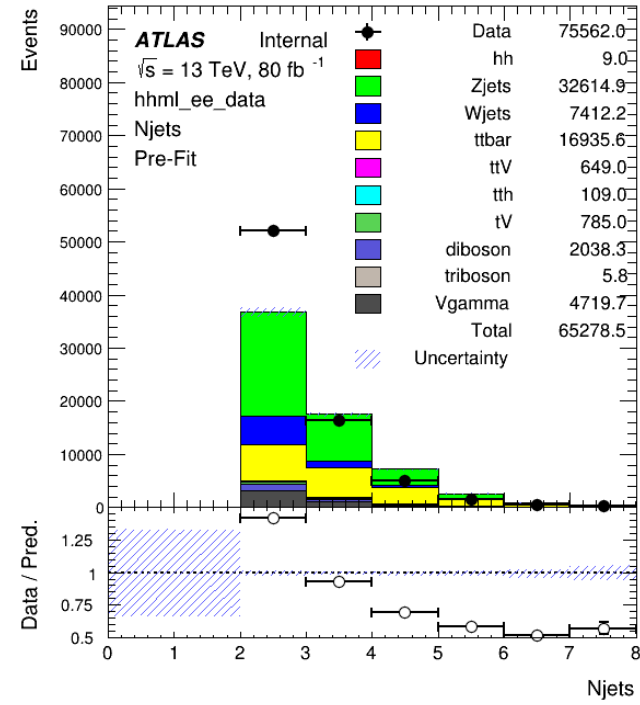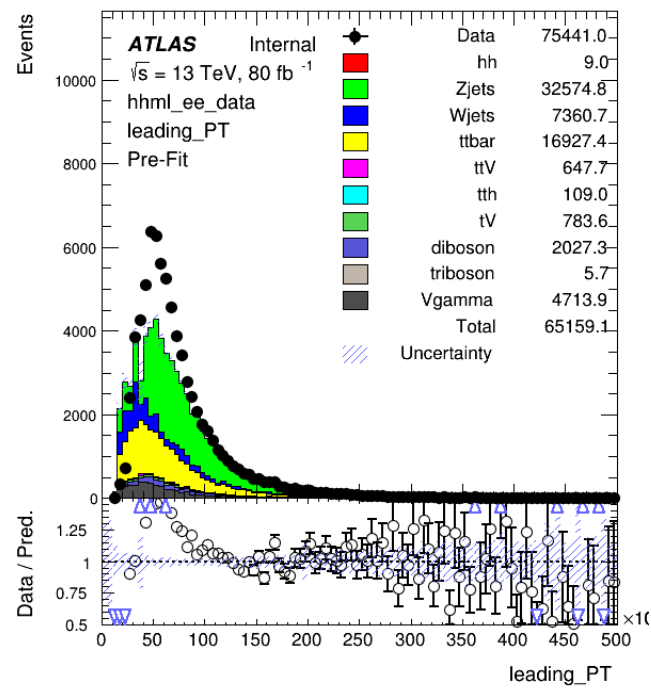
Undo
- Lepton Triggers: not available
- Lepton pt
- MET
- Zwindow in ee
- Mll

Need produce GN2 by myself
GN1 sample as input : ~ 2TB

Draw MC/Data plots with TRexFitter

ee

eu
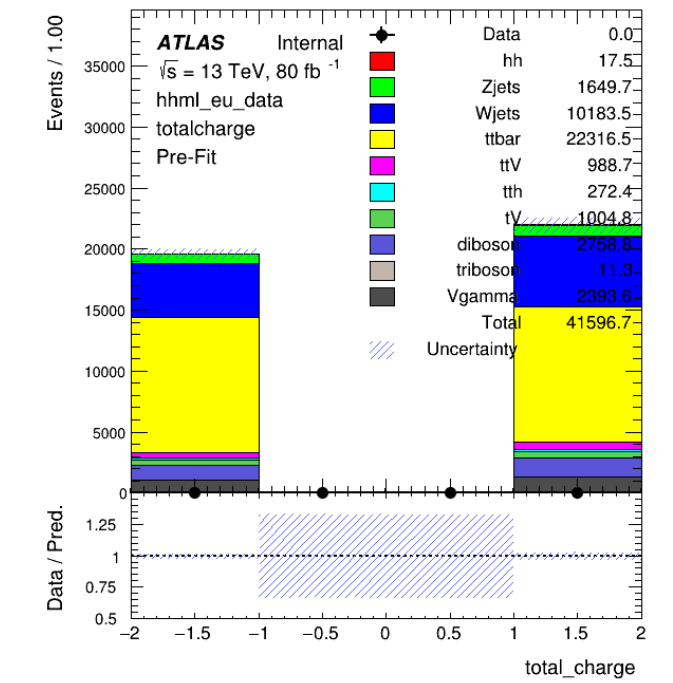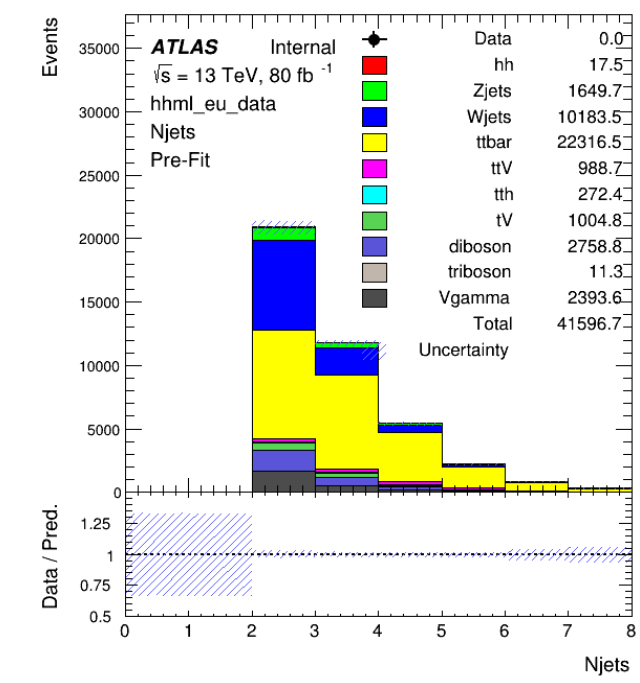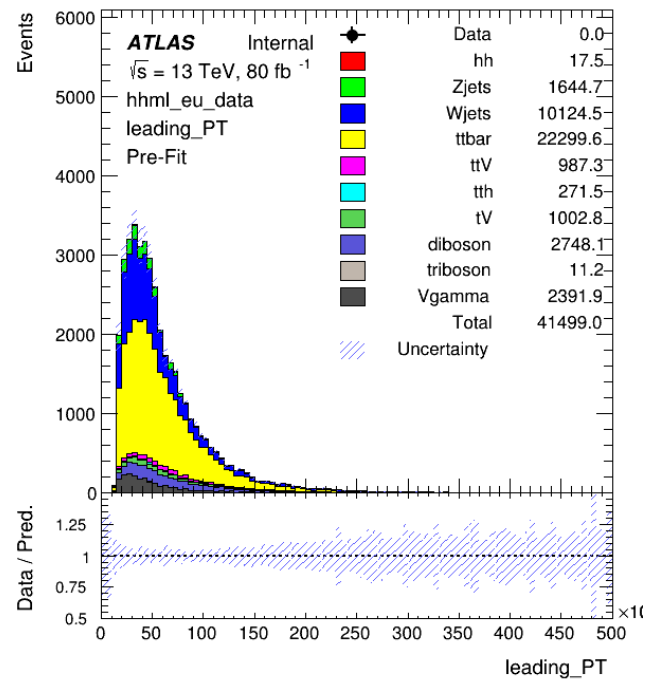
uu
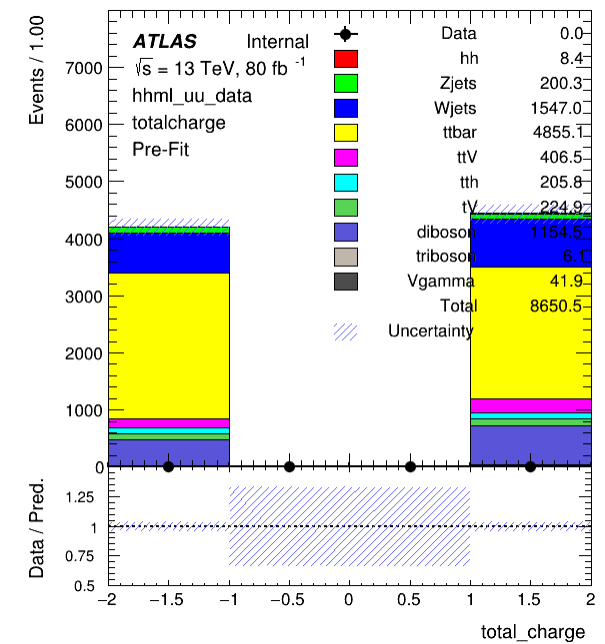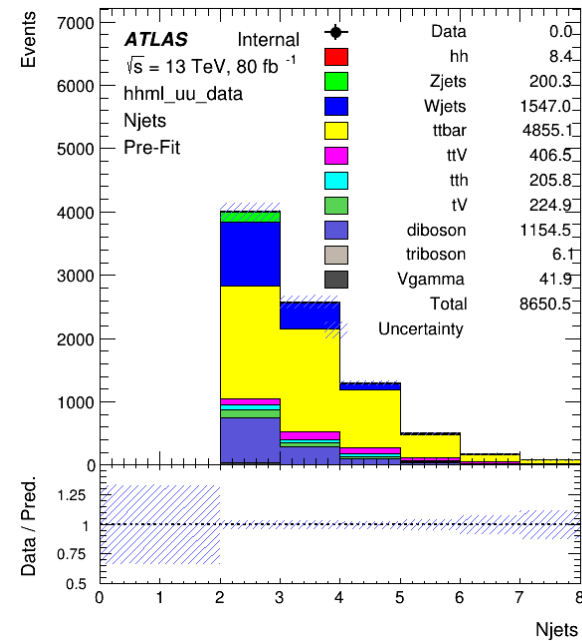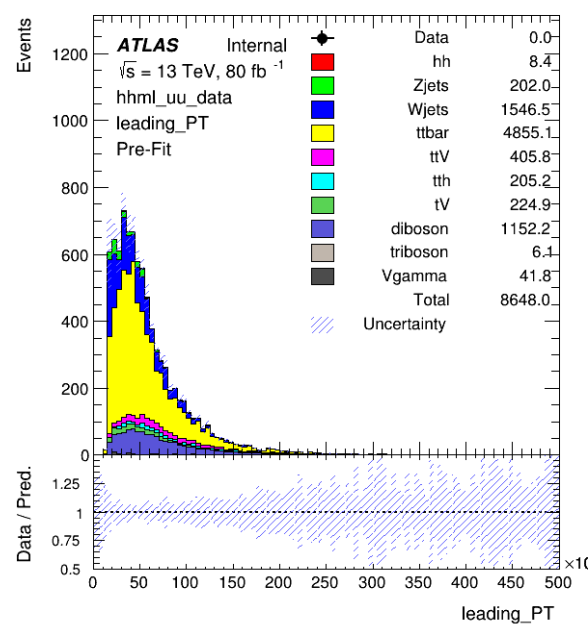
Problems

- Big problems with Official samples(written at dihiggsmultilepton twiki)

  - Some DSID are unreadable
  - Some DSID are missing, should be 260/4 for bkg/sig—> 247/3
  - Leak variables :triggers
  - Physics process should be checked.

- Ugly .py .sh code to address string. Need time to polish, make it efficient

Summary and plans

- Muon QmisID can be ignored in this analysis. Investigate latest papers research on it.
- Submit gird jobs to run HHMLFW2
- Update pre-Fit plot. (don't see data). Complete undo list , add pt and PLV cut (M.Nazlim selection optimization works)
- Try to read MC truth information to figure out the bkg composition

  lep_isTruthMatched_0 ,lep_truthType_0 ,lep_truthOrigin_0,lep_truthPdgId_0 ,lep_truthStatus_0

Backup

Data location:/publicfs/atlas/atlasnew/higgs/hgg/zhoums/ttHML/slimmed_v2/
Sample location:/cefs/higgs/xinst/hhml

```
-bash-4.1$ ls
304014.root   345875.root   364118.root   364160.root   364189.root   364243.root   364511.root   410218.root   410560.root
341177.root   361250.root   364119.root   364161.root   364190.root   364244.root   364512.root   410219.root   410644.root
341270.root   361251.root   364120.root   364162.root   364191.root   364245.root   364513.root   410220.root   410645.root
341271.root   361907.root   364121.root   364163.root   364192.root   364246.root   364514.root   410250.root   410646.root
341471.root   363355.root   364122.root   364164.root   364193.root   364247.root   364521.root   410251.root   410647.root
341488.root   363357.root   364123.root   364166.root   364194.root   364248.root   364522.root   410252.root   410648.root
341998.root   363358.root   364124.root   364167.root   364195.root   364249.root   364523.root   410276.root   410649.root
342001.root   363359.root   364125.root   364168.root   364196.root   364250.root   364524.root   410277.root   410658.root
342004.root   363360.root   364126.root   364169.root   364197.root   364253.root   364525.root   410278.root   410659.root
342282.root   363489.root   364127.root   364170.root   364198.root   364254.root   364526.root   410370.root   413008.root
342283.root   364100.root   364128.root   364171.root   364199.root   364255.root   364527.root   410371.root   423100.root
342284.root   364101.root   364129.root   364172.root   364200.root   364283.root   364528.root   410372.root   423101.root
342285.root   364102.root   364130.root   364173.root   364201.root   364284.root   364529.root   410373.root   423102.root
342561.root   364103.root   364131.root   364174.root   364202.root   364285.root   364530.root   410374.root   423103.root
343267.root   364104.root   364132.root   364175.root   364203.root   364286.root   364531.root   410375.root   423104.root
343270.root   364105.root   364133.root   364176.root   364204.root   364287.root   364532.root   410376.root   423105.root
343273.root   364106.root   364134.root   364177.root   364205.root   364288.root   364533.root   410377.root   423106.root
343365.root   364107.root   364135.root   364178.root   364206.root   364500.root   364534.root   410389.root   423107.root
343366.root   364108.root   364136.root   364179.root   364207.root   364501.root   364535.root   410397.root   423108.root
343367.root   364109.root   364137.root   364180.root   364208.root   364502.root   410080.root   410398.root   423109.root
344388.root   364110.root   364138.root   364181.root   364209.root   364503.root   410081.root   410399.root   450578.root
345672.root   364111.root   364139.root   364182.root   364210.root   364504.root   410082.root   410408.root   450661.root
345673.root   364112.root   364140.root   364183.root   364211.root   364505.root   410142.root   410470.root   450662.root
345674.root   364113.root   364141.root   364184.root   364212.root   364506.root   410143.root   410471.root   rename.sh
345708.root   364114.root   364156.root   364185.root   364213.root   364507.root   410144.root   410472.root
345716.root   364115.root   364157.root   364186.root   364214.root   364508.root   410155.root   410501.root
345873.root   364116.root   364158.root   364187.root   364215.root   364509.root   410156.root   410503.root
345874.root   364117.root   364159.root   364188.root   364242.root   364510.root   410157.root   410544.root
```