

Dilepton Invariant Mass in SU1

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SUSY-6 note meeting
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SusyView Ntuple

- I ran SUSYView-00-00-13-02 on 50K (6.7 fb⁻¹ of data) SU1 reco events with Athena release 11.0.5 using the new EventView tags and created an ntuple.

- Default SusyView cuts are used:

For Reco particles:

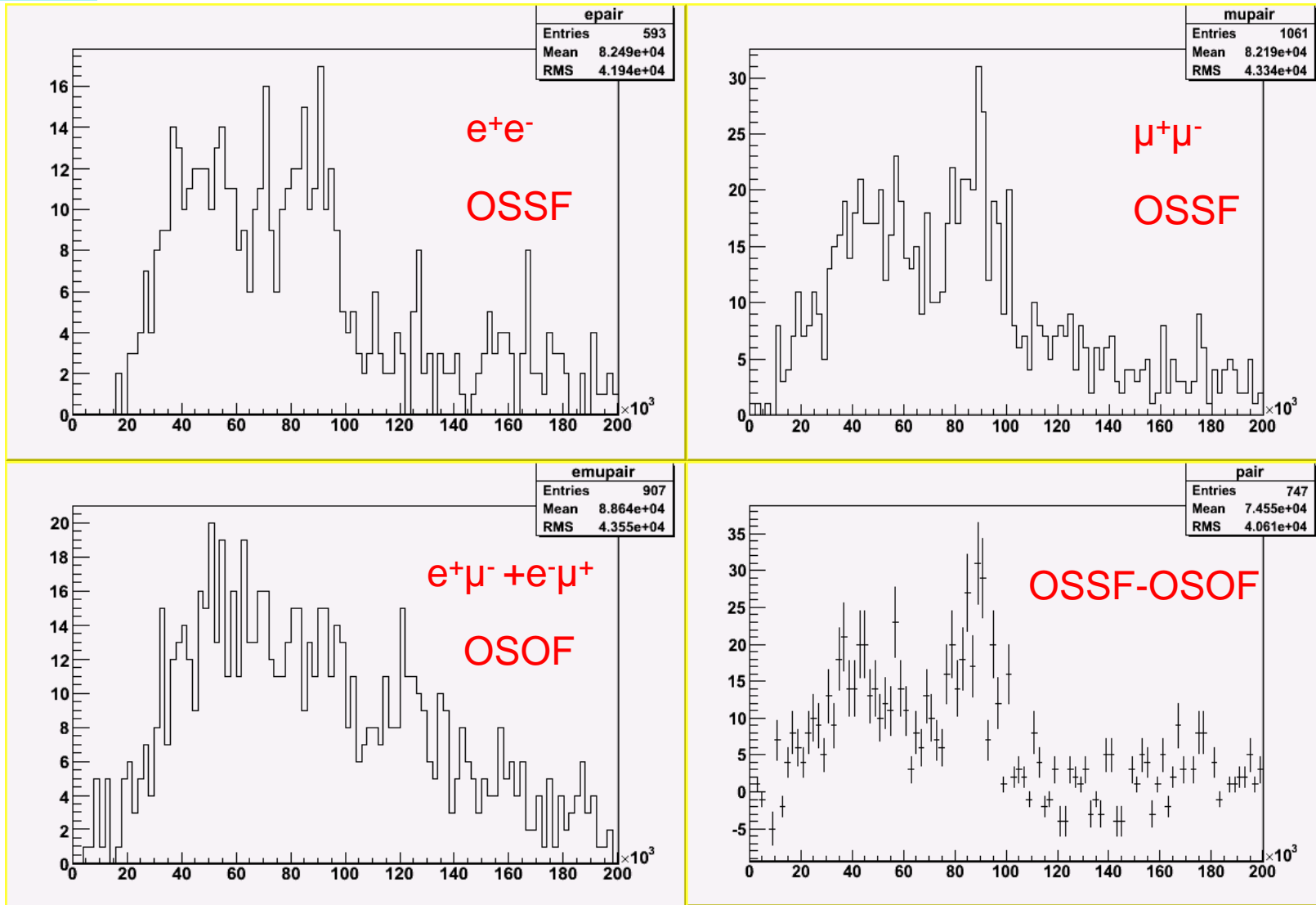
- **Electron cuts:** etCut=15*GeV, onlyEgamma=True, useIsEM=True, useTRT=False, useNN=False, nnCut=0.7, useIsolation=True, isolationCone=0.45, absoluteIsolationCut=15*GeV, deltaRCut=0.1
- **Photon cuts:** etCut=15*GeV
- **Muon cuts:** etCut=15*GeV, onlyHighPt=False, relativeIsolationCut=1, useChi2FromCombinedMuon=True, chi2NdofCut=20
- **TauJet cuts:** etCut=20*GeV, LikelihoodCut3p=2, LikelihoodCut1p=2, HadronicEnergyFraction=0.1
- **JetTag cuts:** etCut=15*GeV, useWeight=True, weightCut=4, deltaRCut=0.7
- **ParticleJet cuts:** etCut=15*GeV, deltaRCut=0.5
- **MissingETKey** = MET_Final, **MissingETTruthKey**=MET_Truth

For all Truth particles: TruthEtCut=10*GeV, TruthNeutrinoEtCut=100*MeV

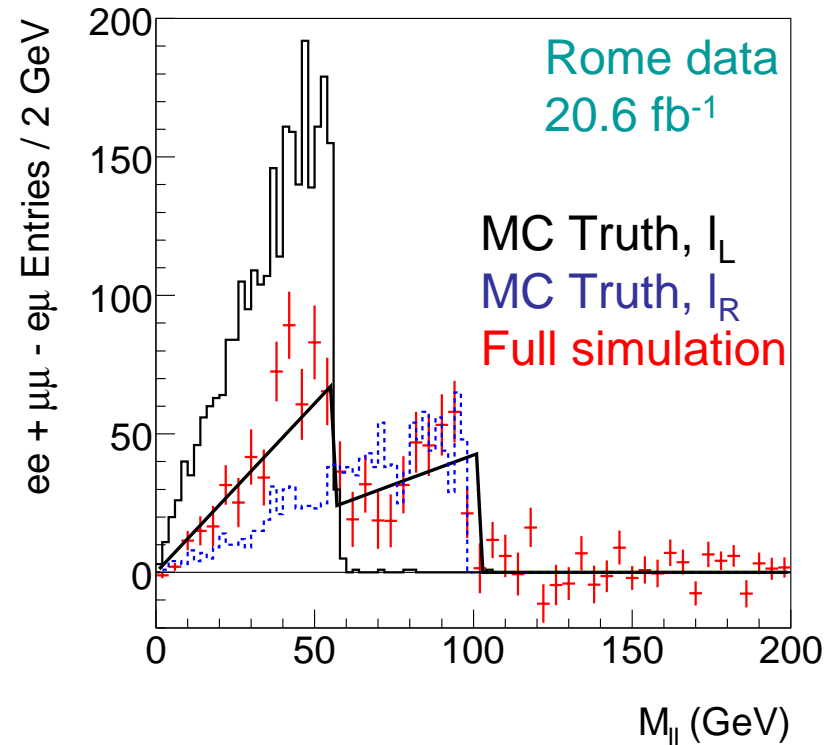
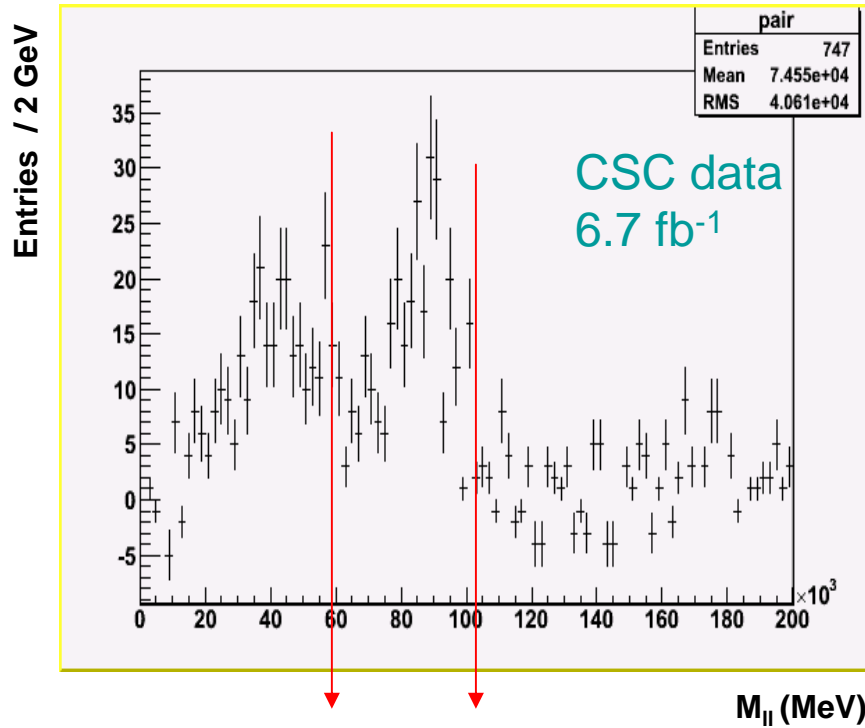
- **Truth photons:** useIsolation=True
- **Truth taus:** onlyStable=False
- **Truth jets:** deltaRCut=0.7

Dilepton Invariant Mass

6.7 fb⁻¹



Compare with Rome result



$$\tilde{\chi}_2^0 \rightarrow \tilde{l}_L^\pm l^\mp \rightarrow \tilde{\chi}_1^0 l^\pm l^\mp \quad \text{Expected endpoint: 58.2 GeV}$$

Fit result: (56.45 ± 1.15) GeV

$$\tilde{\chi}_2^0 \rightarrow \tilde{l}_R^\pm l^\mp \rightarrow \tilde{\chi}_1^0 l^\pm l^\mp \quad \text{Expected endpoint: 100.9 GeV}$$

Fit result: (102.0 ± 0.01) GeV

Plans, Questions

- After creating the ntuple with SusyView, Root level analysis goes quite well.

Remember to comment out all references to fUniqueID, fBits, fX, fY, fZ in the header file.

- Need to run SusyView on more data to be able do the edge fitting.
- Calculate the invariant mass of dilepton+jets and lepton+jets and do the edge fitting.
- Questions:
 - Which default cuts to choose
 - Which SusyView version to run. There is a version SUSYView-00-00-13-06 using configurables as opposed to SUSYView-00-00-13-02 that I use
 - Any news on HighPtView (I see a meeting scheduled today)