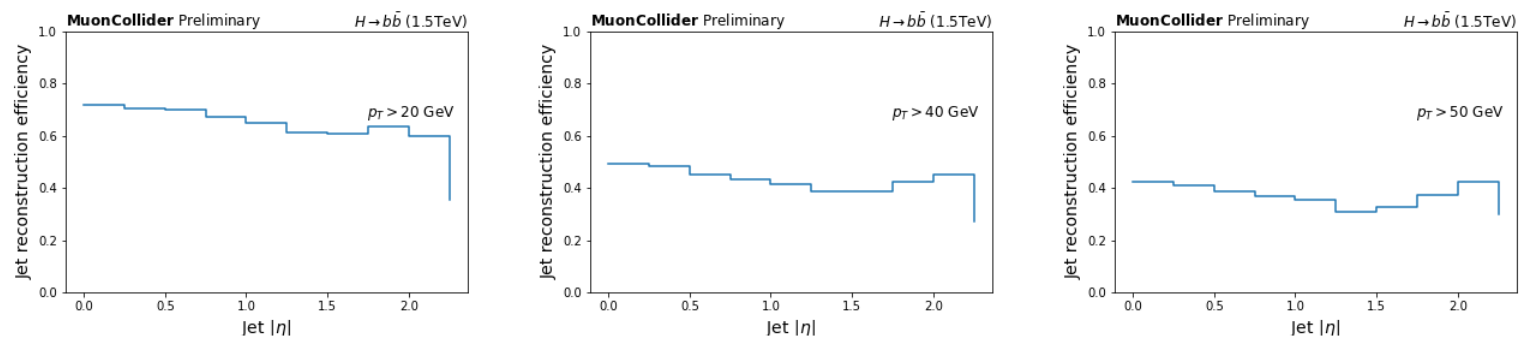
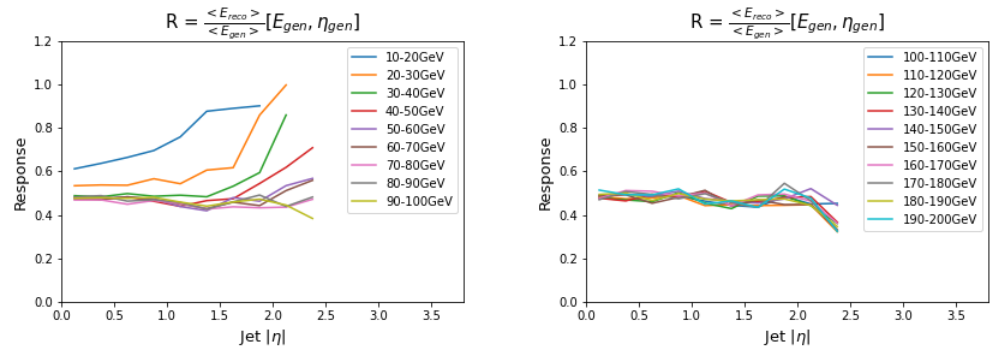


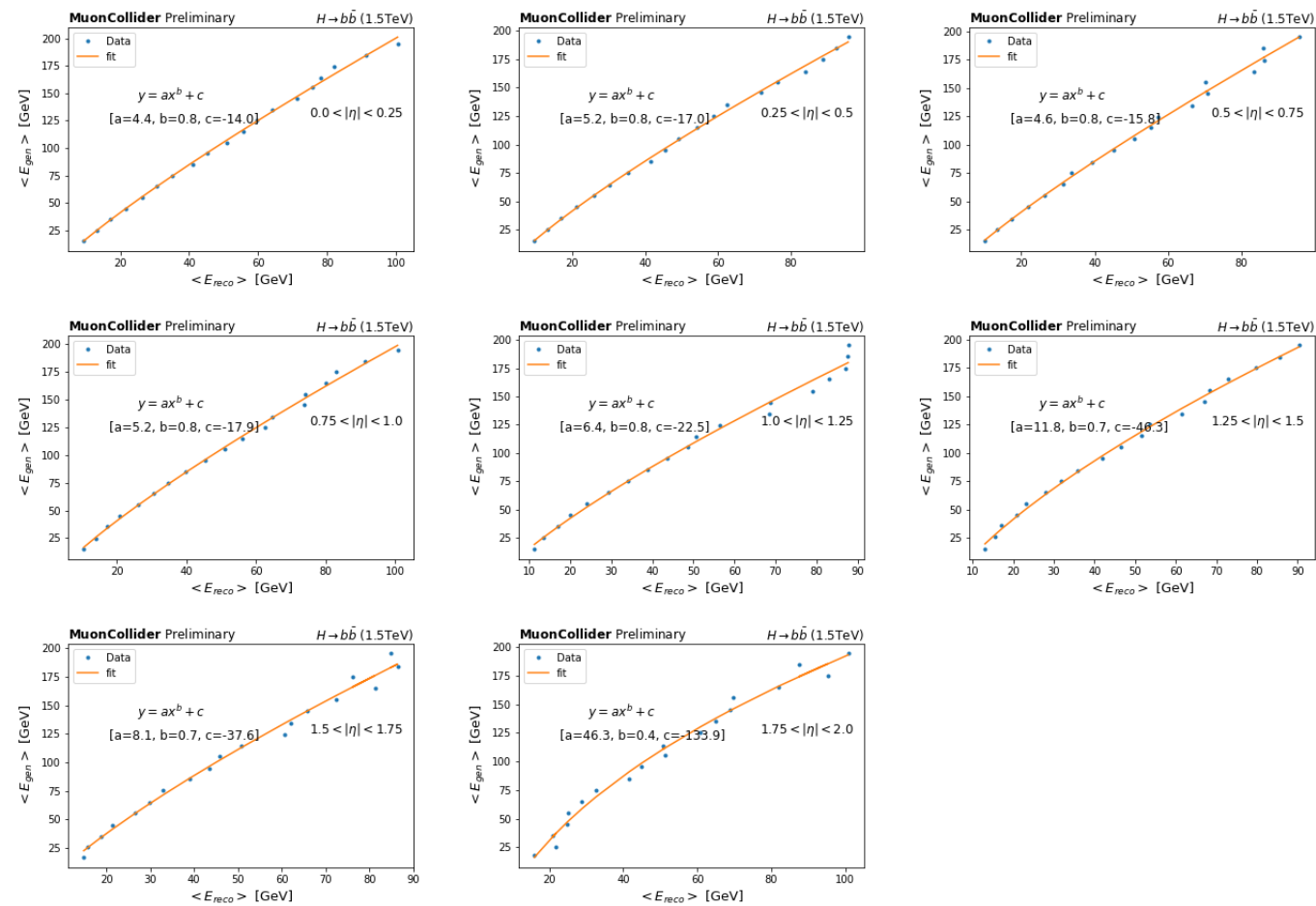
Let's look at the reconstruction efficiency, which is ratio of number of reco jets and gen jets for multiple bins of gen jet pT and eta.
(Before applying jet energy correction)



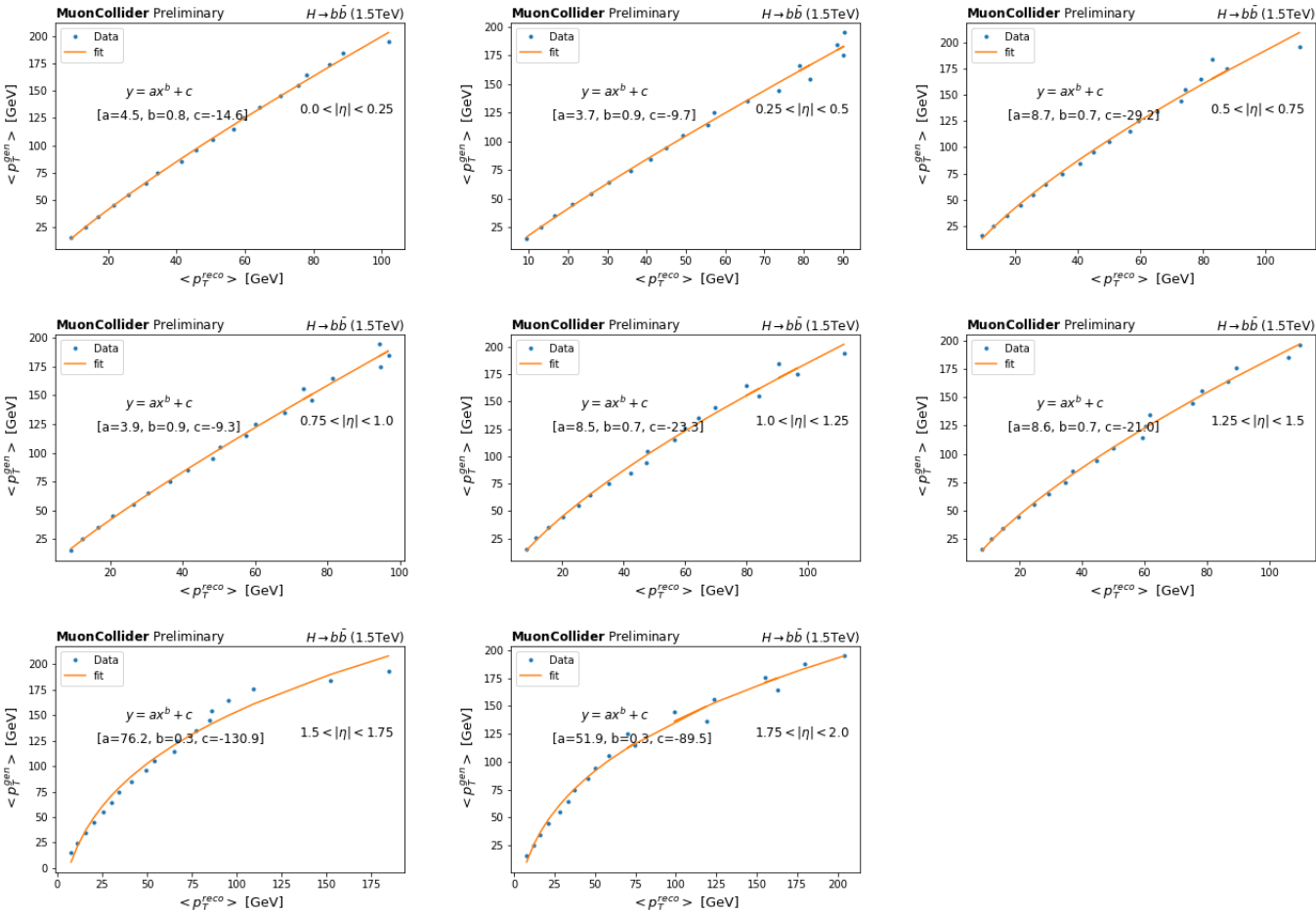
For 10 Eta regions (0 to 2.5) and 19 E regions (10 to 200 GeV), average of gen and reco jet E is calculated. Ratio of these is plotted against jet eta.
Square brakets [] imply binning variables and < > imply average within bins of variables



Fit avgE gen vs reco jet to a function in 10 Eta regions and 19 E regions:



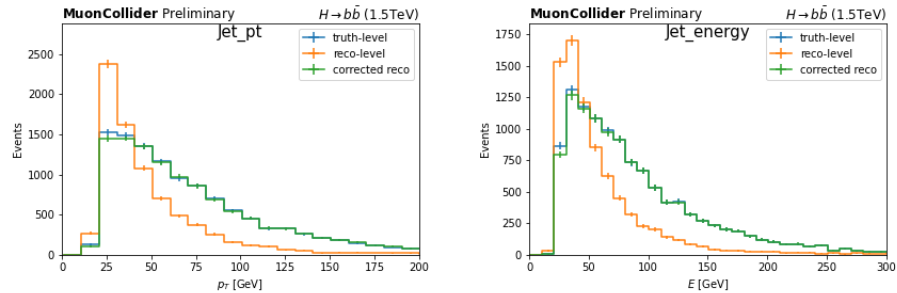
Fit avgPT gen vs reco jet to a function in 10 Eta regions and 19 PT regions:



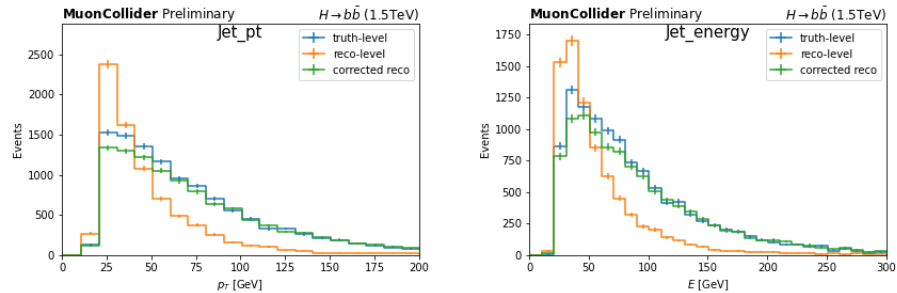
Next, apply momentum correction to reco jets to recover energy lost due to Calorimeter energy threshold of 2MeV and timing cut of 250ps
Match reco jet to a gen jet in dR of 0.25

Method1 correction: use scale factor = $E_{\text{gen}} / E_{\text{reco}}$ and apply this factor to all components of the 4-momentum of the reco jet.
Method2 correction: use scale factor = $\text{corrected_reco_E} / \text{uncorrected_reco_E}$. This uses the fitted function with reco jet E as input.
Method3 correction: use scale factor = $\text{corrected_reco_PT} / \text{uncorrected_reco_PT}$. This uses the fitted function with reco jet PT as input.
This method has higher discrepancy, especially at low E values.

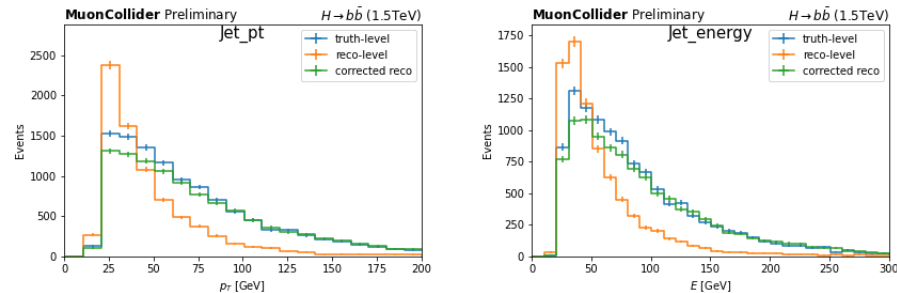
Method1 comparison kinematics:



Method2 comparison kinematics:

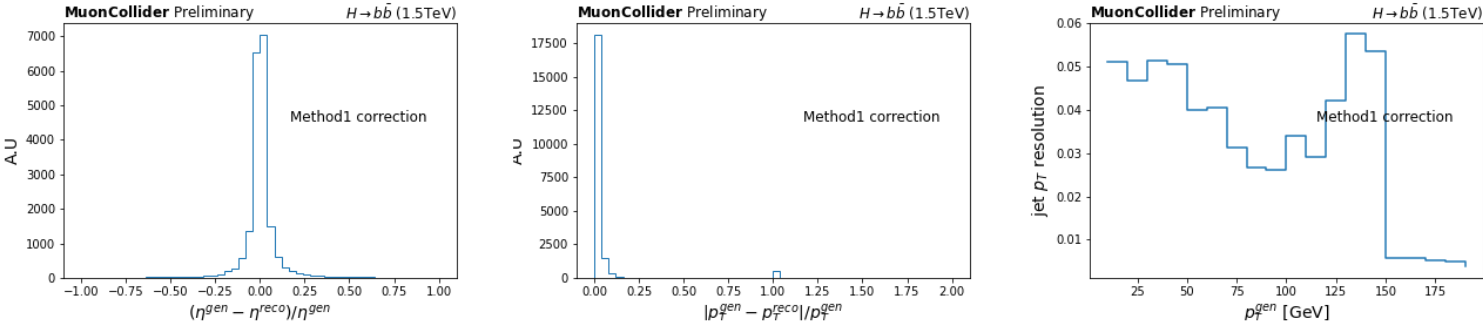


Method3 comparison kinematics:

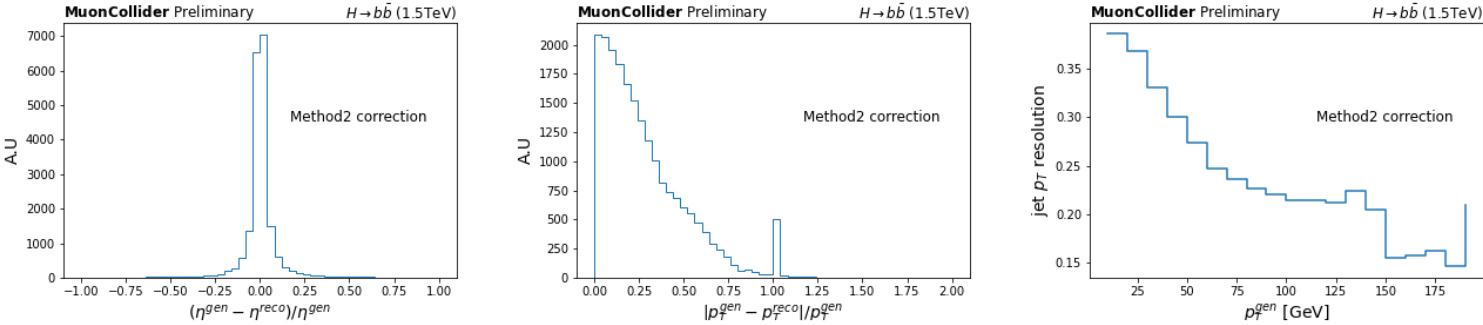


Next, we look at resolution of reconstruction. After applying the corrections (for each method for scale factor calculation) to reco jets, we find the Delta_pT of gen and reco jet divided by gen jet pT.

Method1: simple gen and reco E ratio:



Method2: E ratio of corrected_reco to reco :



Method3: pT ratio of corrected_reco to reco:

