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First Look At Control Plots

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Overview

- First look at control plots with data driven backgrounds after pre-selection
- Go through minor changes to preselection

Change to Pre-selection

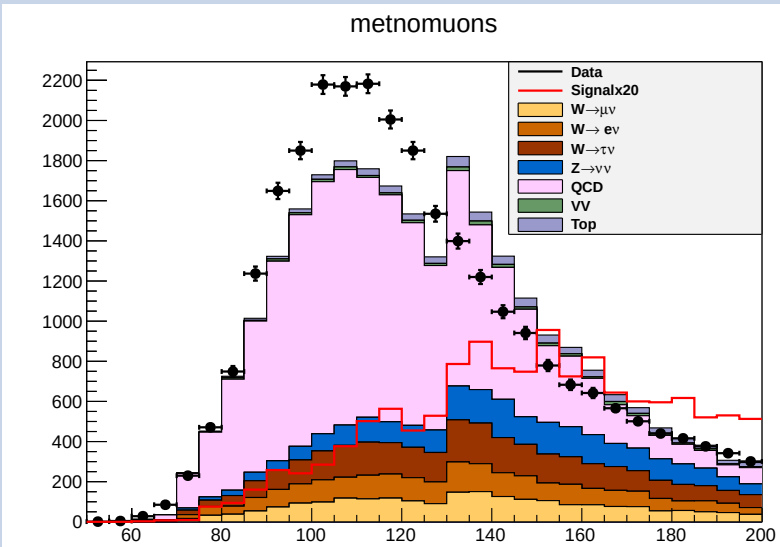
- Used pre-selection to get data driven W backgrounds: all ok
- Tried to do the same for Z backgrounds: found no events in control region!
  - $Z \to \mu\mu$ events have very low met significance and different jet to met angles
- Updated pre-selection to: min $\Delta\phi_{jet-metnomu} > 1.5$, $metnomu - sig > 3.0$, $\Delta\eta_{jj} > 3.6$
  - $metnomu - sig$ is defined as $met - sig \cdot \frac{metnomu}{met}$
- Now have $\tilde{3}50$ events in Z control region after pre-selection
  - Also have a skim with new pre-selection in dcache (505MB)

Data Driven Backgrounds

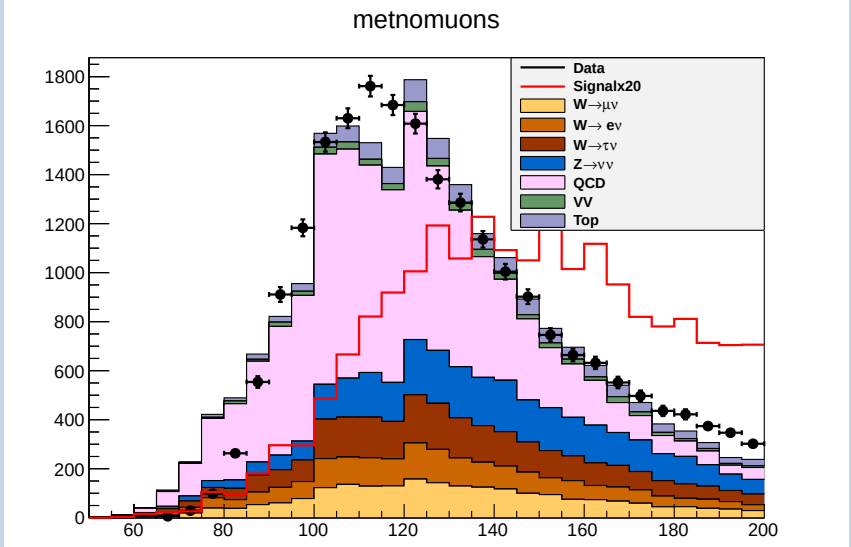
- W,Z and QCD data driven background first pass done
  - W and Z control regions same as prompt analysis
  - QCD control region is $dijetmet_p tfraction > 0.6$
- Control plots shown below are for signal region
  - No axis labels yet, plotting package still under development

metnomuons

parked

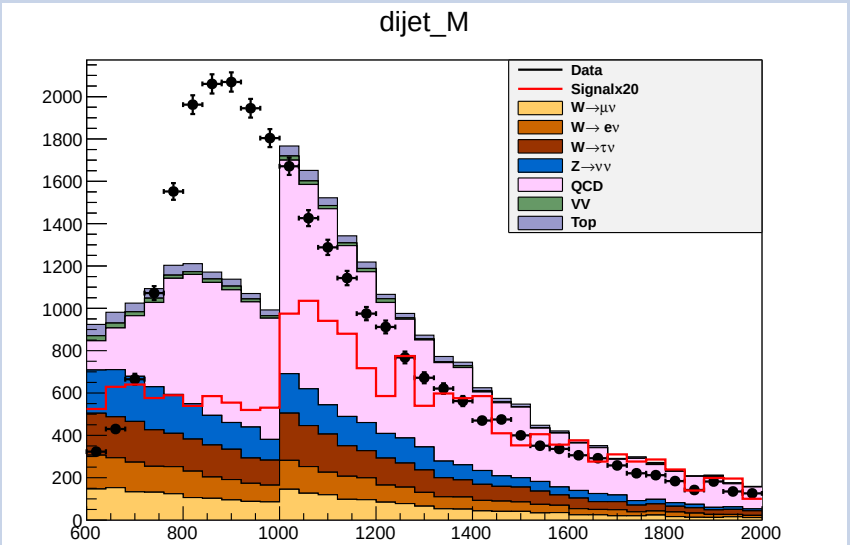


prompt



mjj

parked



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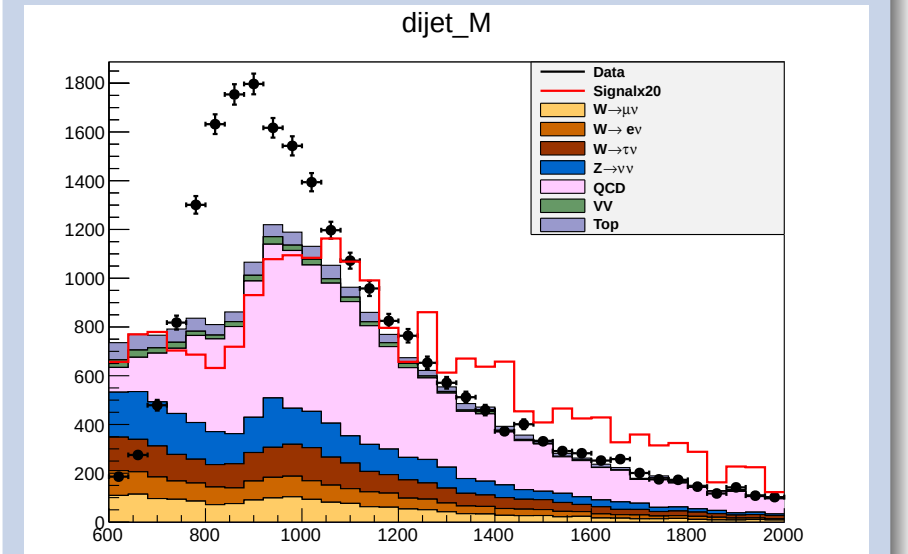
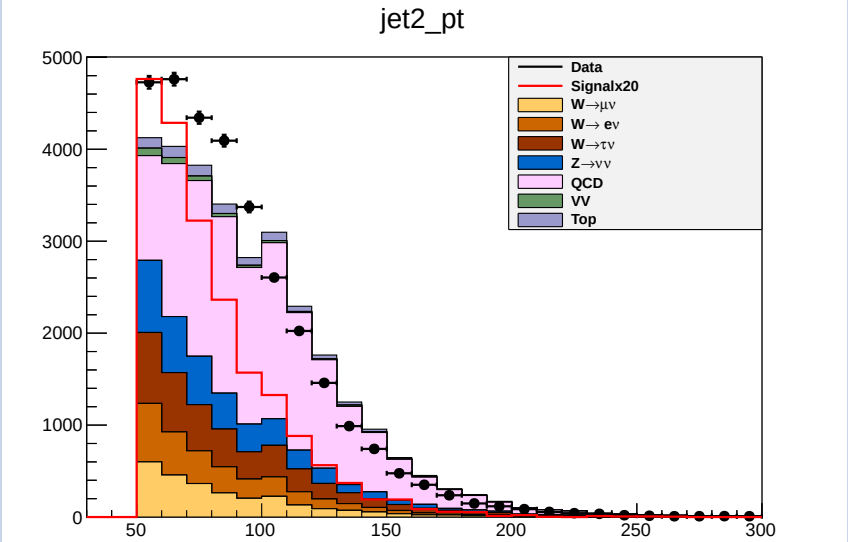


jet2pt

parked



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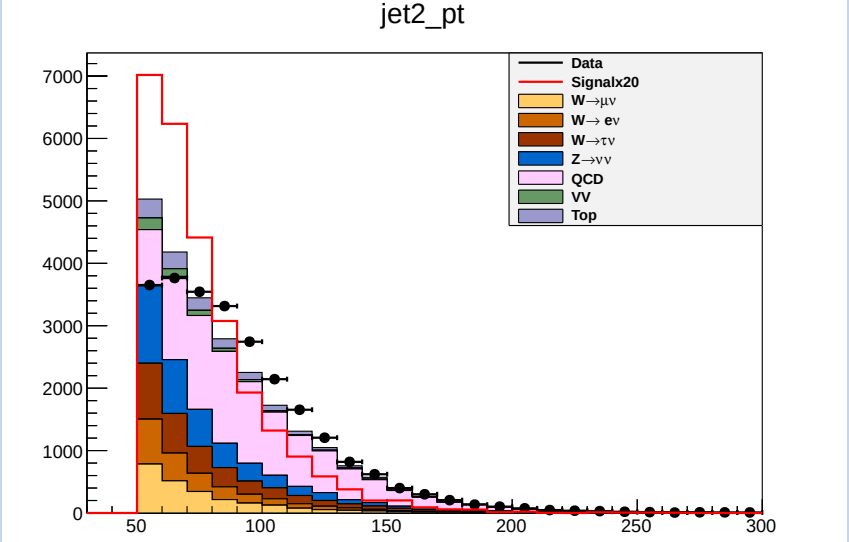
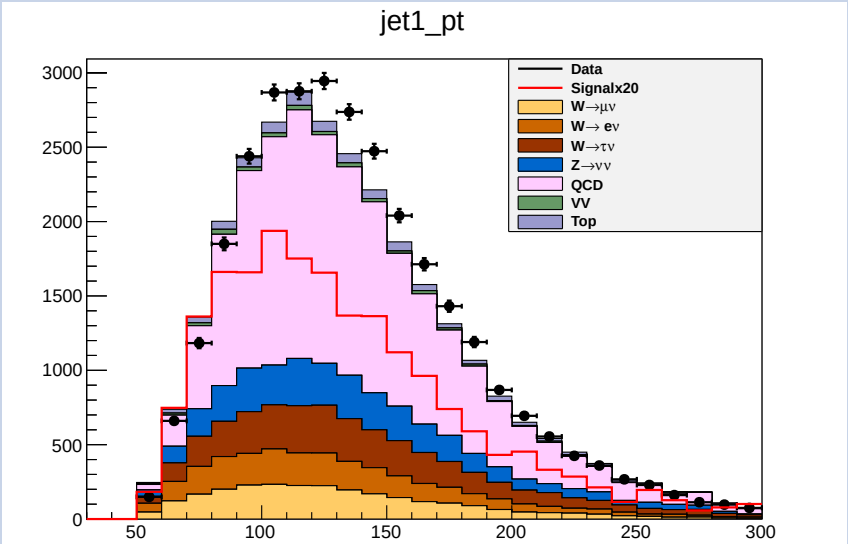


jet1pt

parked



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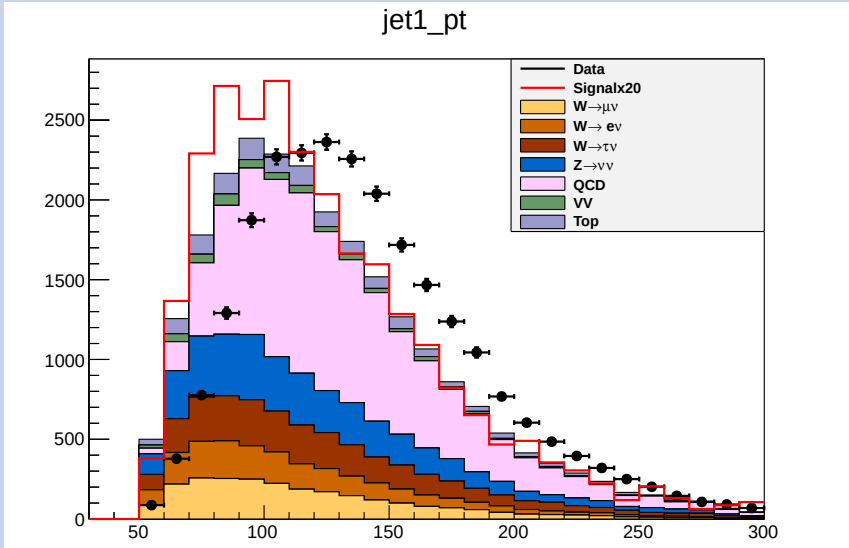
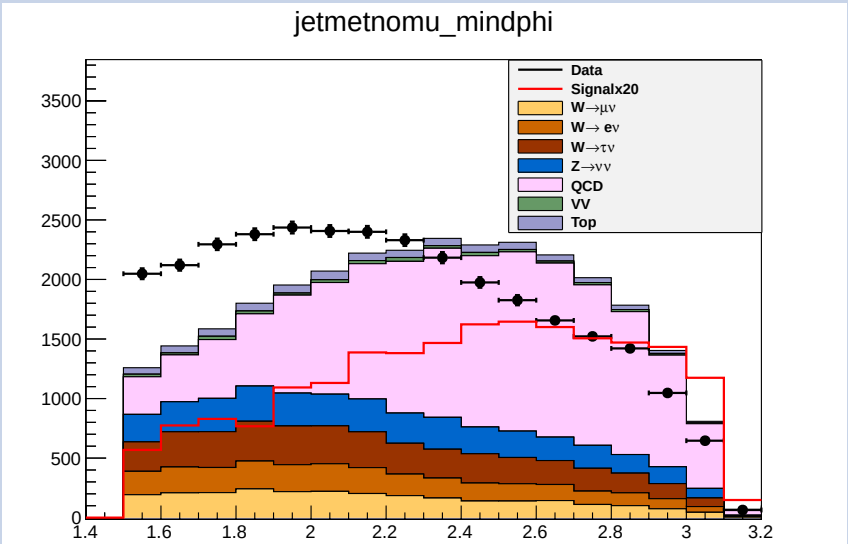


jetmetnomu_mindphi

parked



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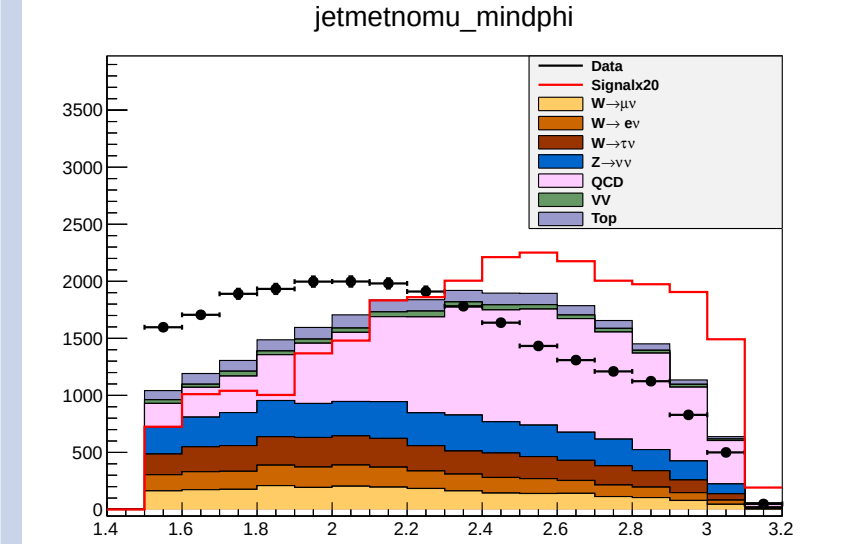
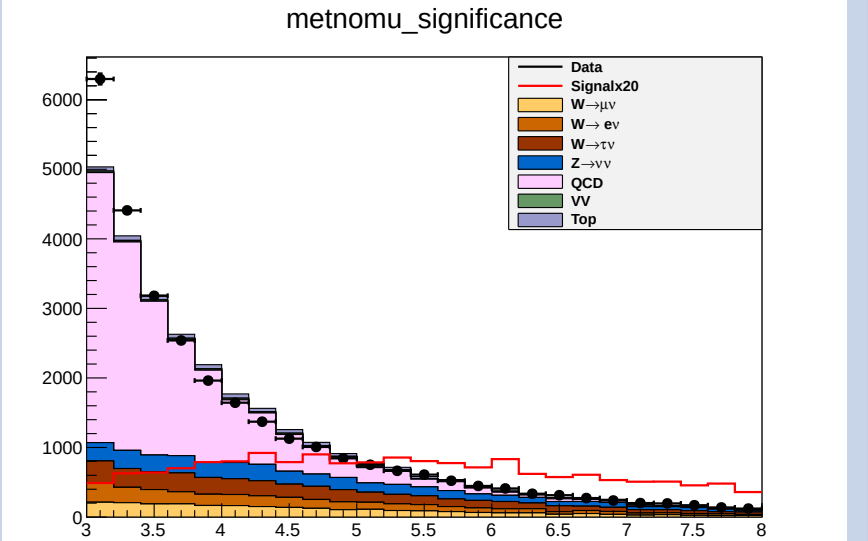


metnomu_significance

parked



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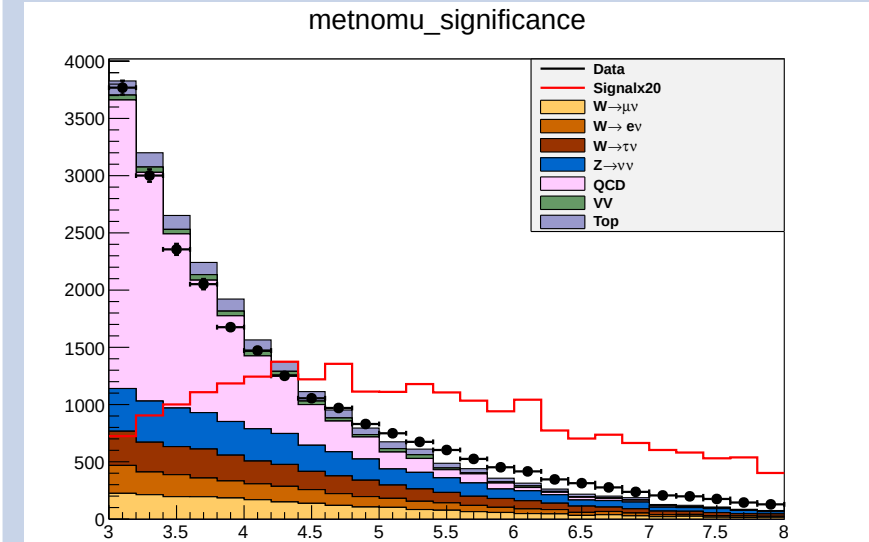
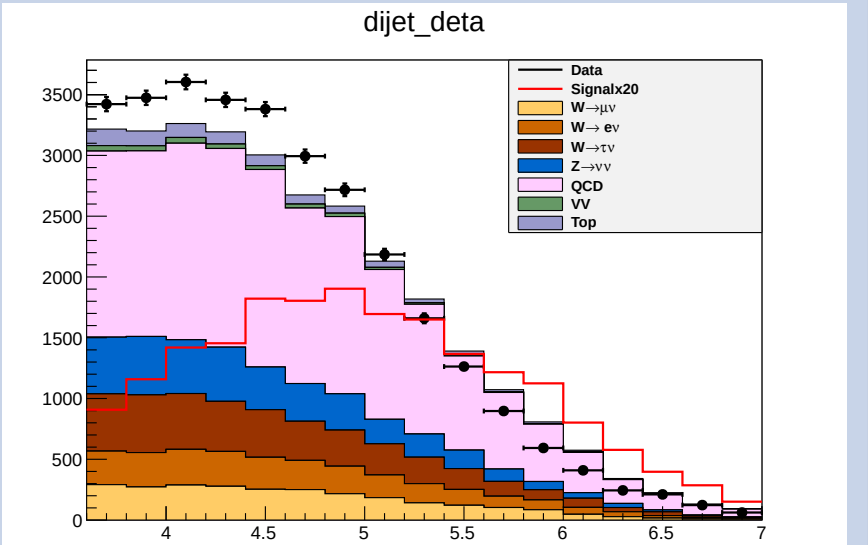


dijet_deta

parked



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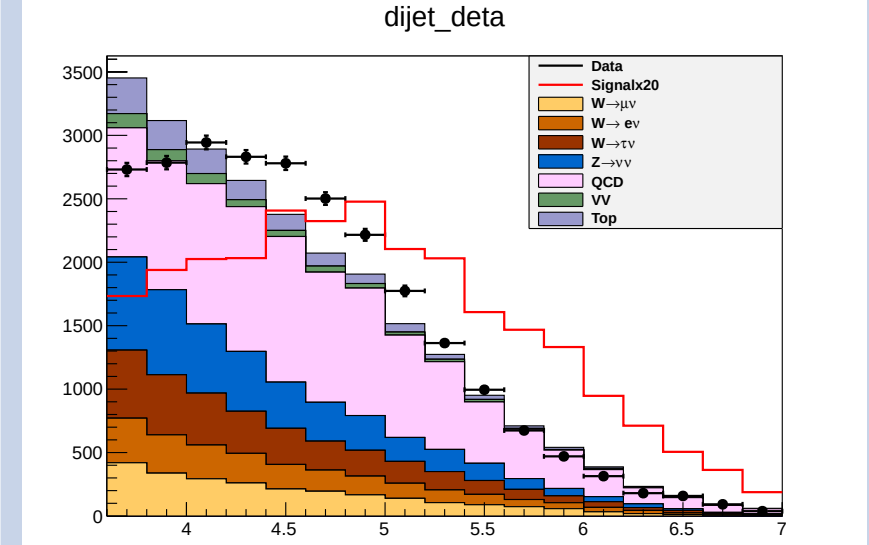
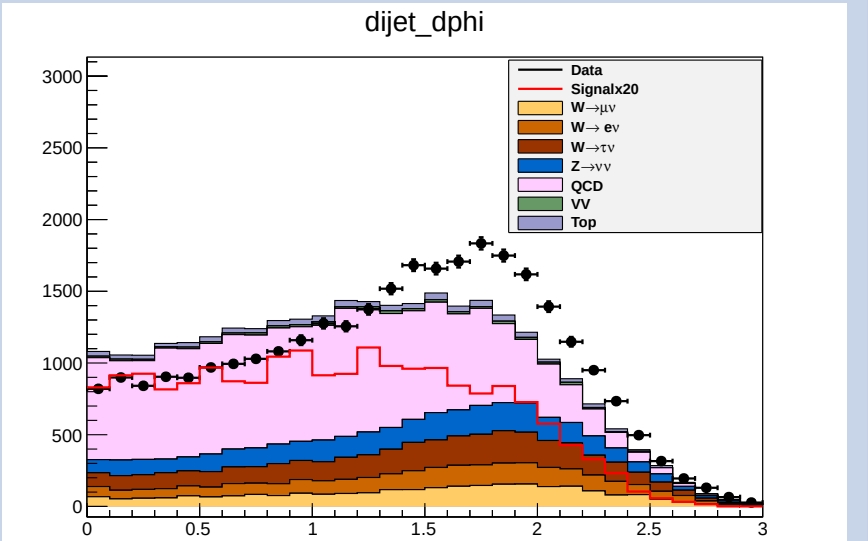


dijet_dphi

parked



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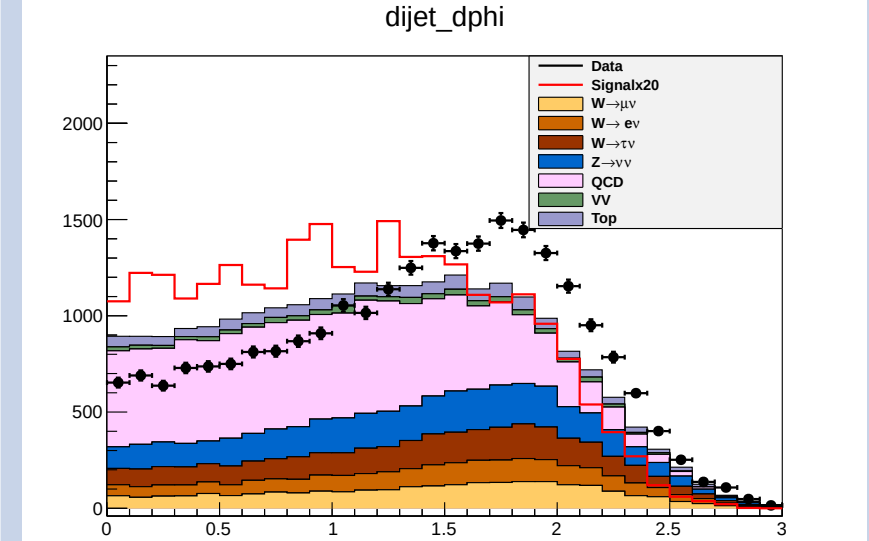
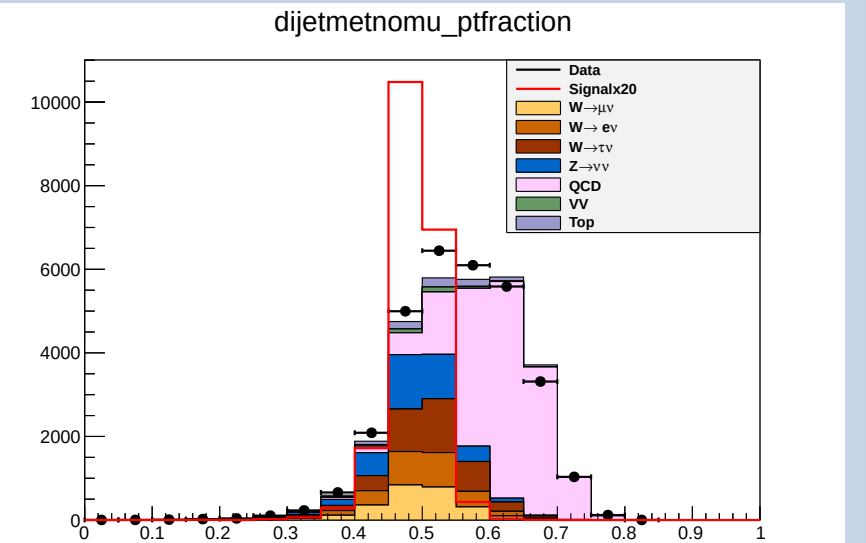


dijetmetnomu_ptfraction

parked



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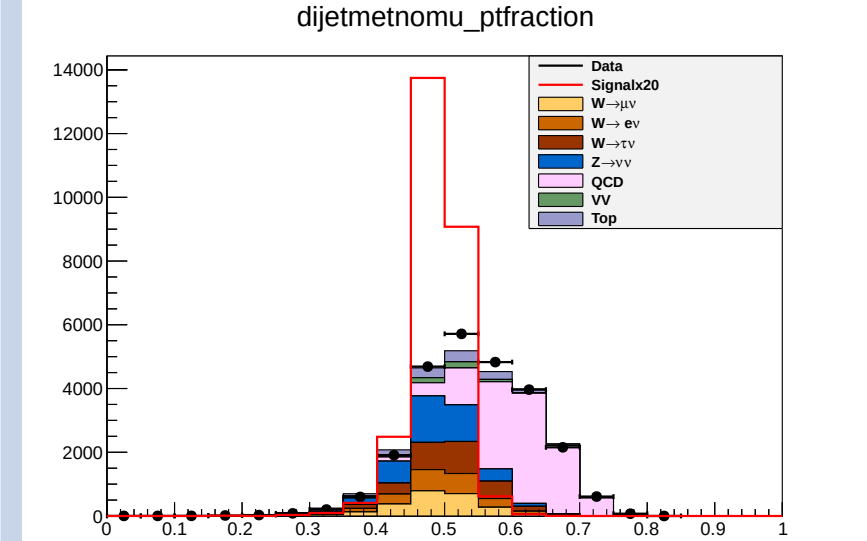

Conclusions

- New pre-selection doesn't kill all of Z background
- Full code to do background estimates and make plots runs in under a minute
- Control plots in signal region show some Data MC disagreements
  - Steps at trigger weight bin thresholds
  - Not present at same place in prompt
  - This means background normalisation probably wrong as well
- Will study control region agreement in more detail
- Instructions and info here

Backup