

Initial bbVV Framework Tests

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Introduction

- Set up and test easyjet framework used for run 3 in DiHiggs group
- Feed in test data and plot a few basic quantities
- Familiarize with code setup and workflow

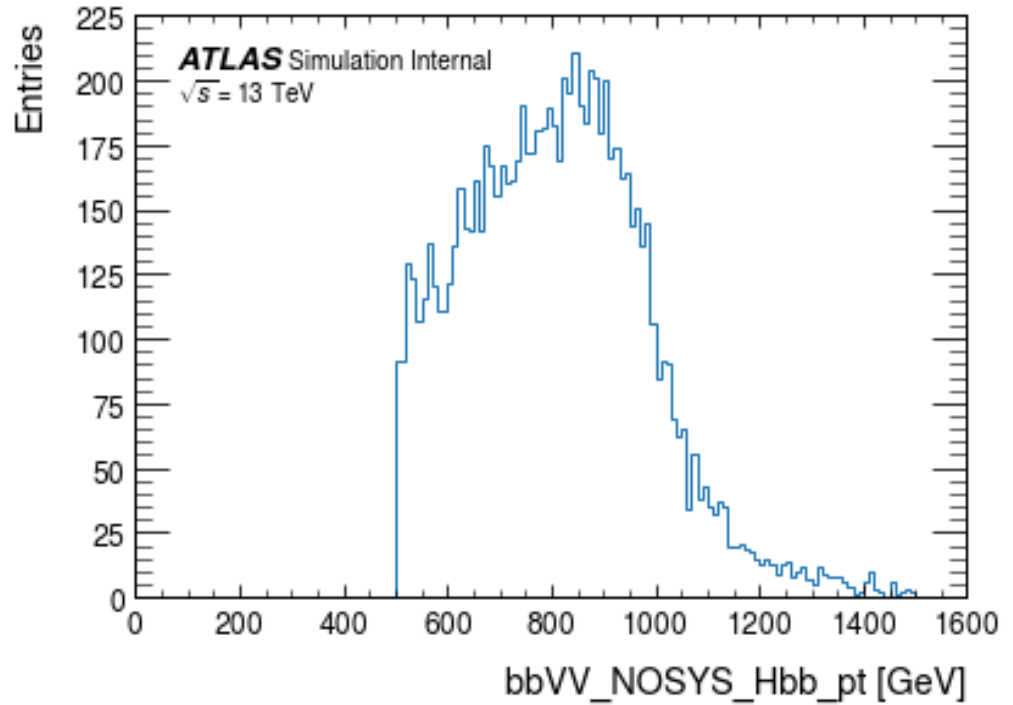
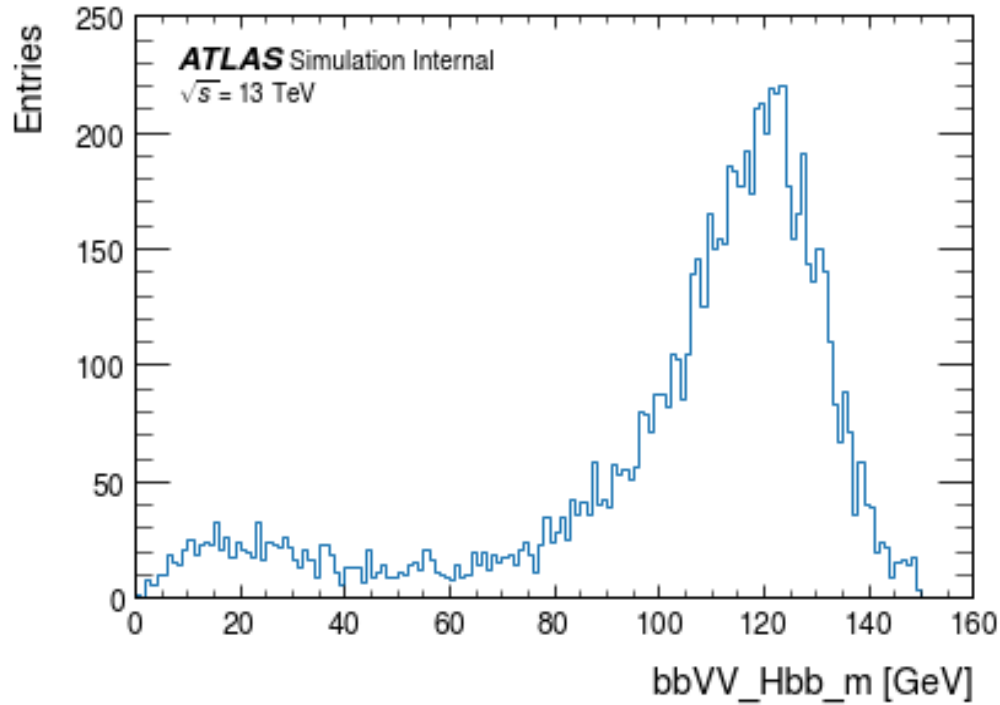
Test Sample

- Use X to HH test sample from valerio
- Heavy resonance X with $m_X = 2000$ GeV decays to Higgs pair
 - ▶ Boosted topology
- HH decays to single lepton bbWW final state

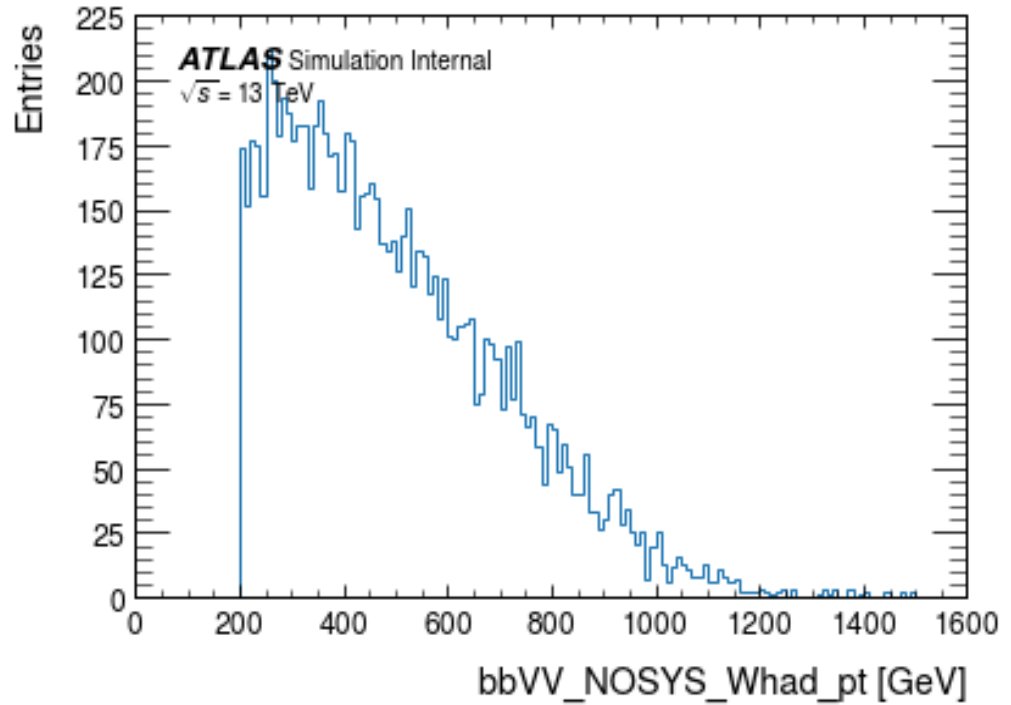
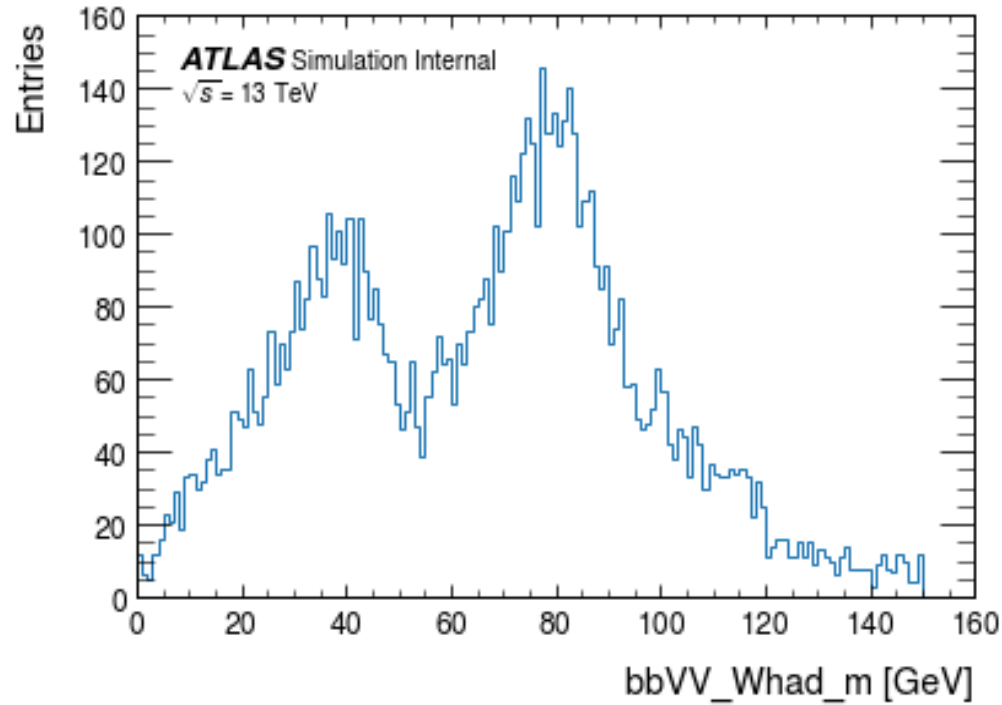
Event Selection

- Use preexisting configuration for boosted single lepton selection
- Require at least 2 large radius jets (“=” H and W_had)
- General cuts on leading l_{rjet} and Higgs p_{T} (> 500 GeV) as well as Higgs b-tag score
- Additional cuts : only a single lepton, cut on dR between lepton and W_had (< 1)
 - ▶ Not 100% sure yet how these are implemented in detail, might need to double check if everything was understood
 - ▶ Still need to understand how object selection for l_{rjets} works in detail

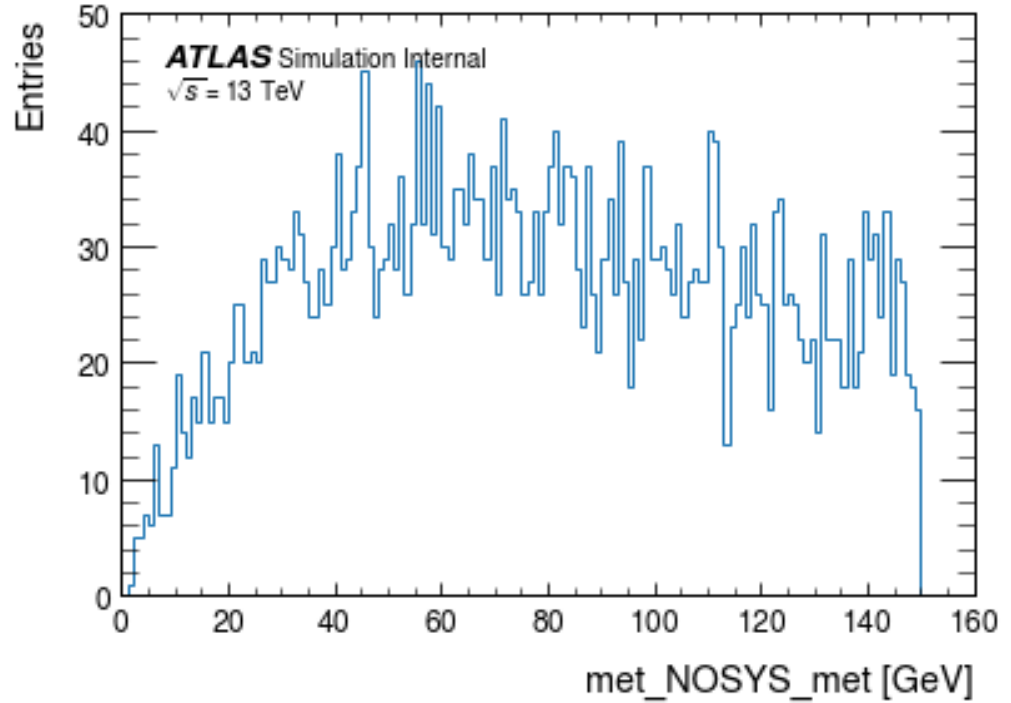
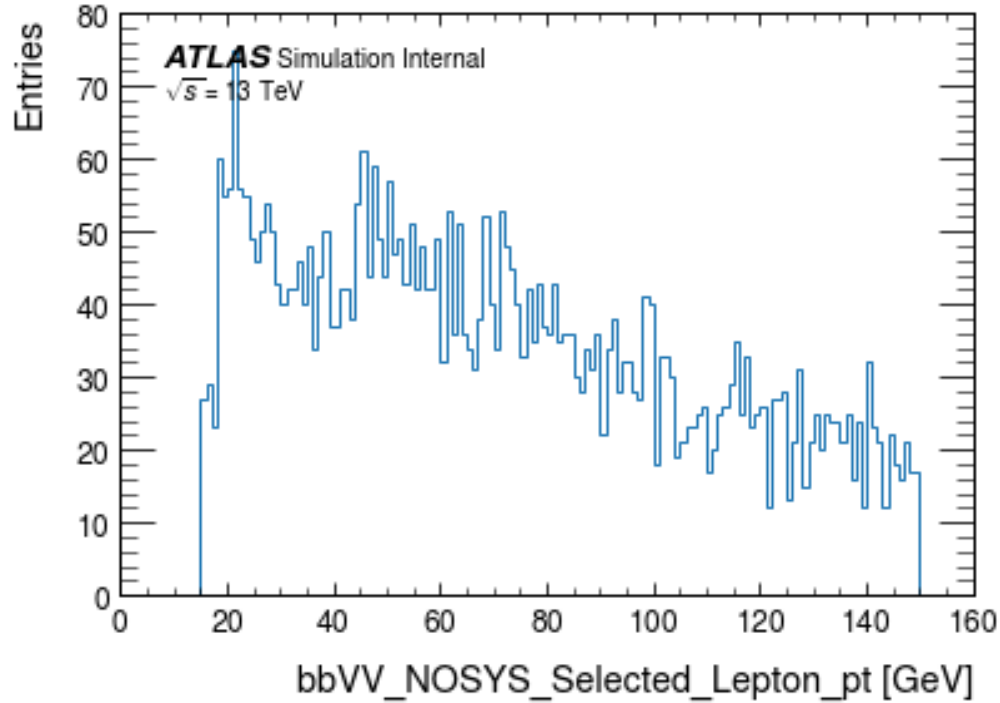
Plots For Higgs From bb Decay



W_had Plots



Lepton p_T And MET



Conclusions

- Got the framework to run and produce some plots
- Slowly starting to understand how everything works and where to find stuff

Next Steps:

- Have a closer look at event and object selections and learn how to make our own
- Understand and fix a few issues and crashes
- Produce validation plots for our VBF sample when ready
 - ▶ Will follow up with Valerio offline for some of these