

First Look at Samples

Carl Gwilliam



UNIVERSITY OF
LIVERPOOL



14th August 2015
hh → bbττ meeting

Introduction

- Initial look at first lep-had CxAOD production

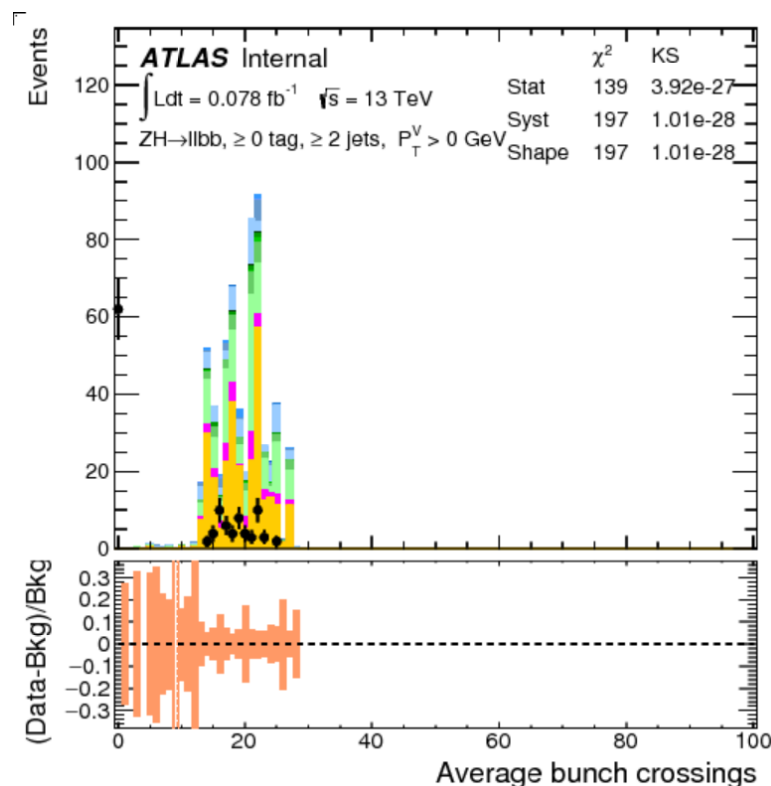
- Thanks Agni!

- Find that data is significantly lower than MC

- Factor of 5 less ☹️
- No obvious localisation in variables looked at, except peak at $\mu = 0$
- Seems data yield of CxAODs is low
 - ~1600 events compared to ~52k for VHbb 2 lepton production
 - We may be missing data somehow

- Anyway look at some plots in next slides

- See if rest of production looks OK
- No pile up reweighting applied in these



Selection



- Above what is applied in the CxAOD maker ...

- Signal objects

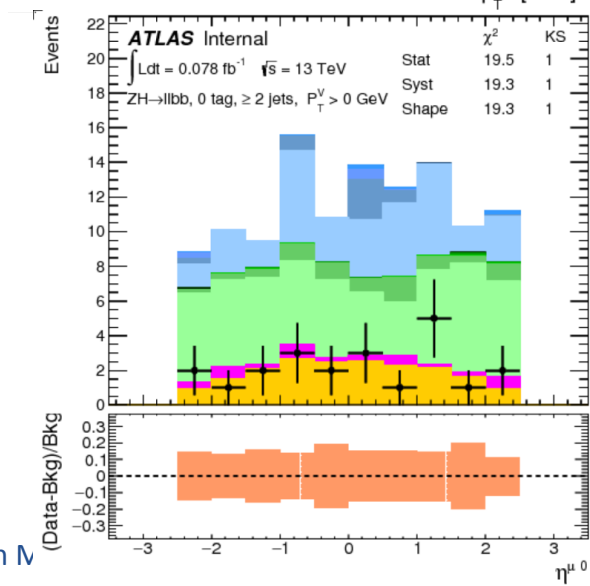
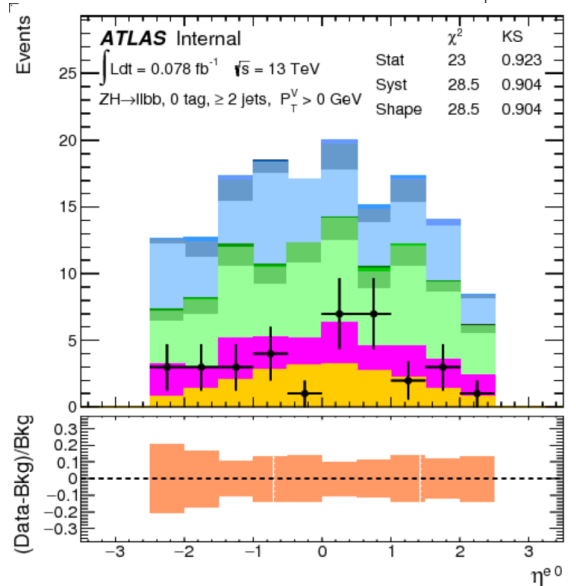
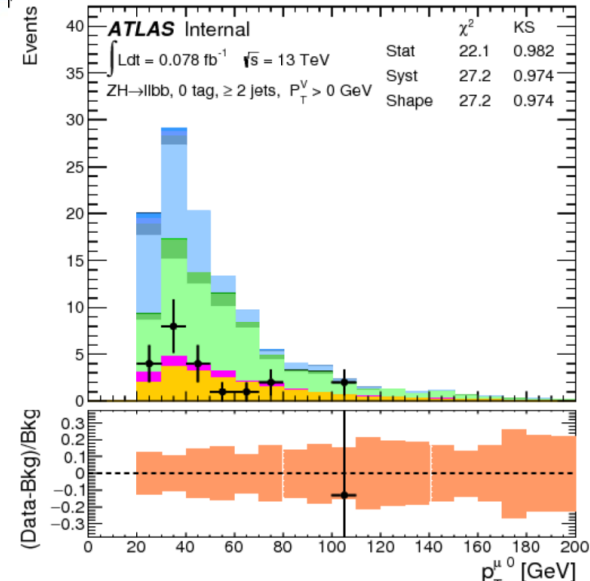
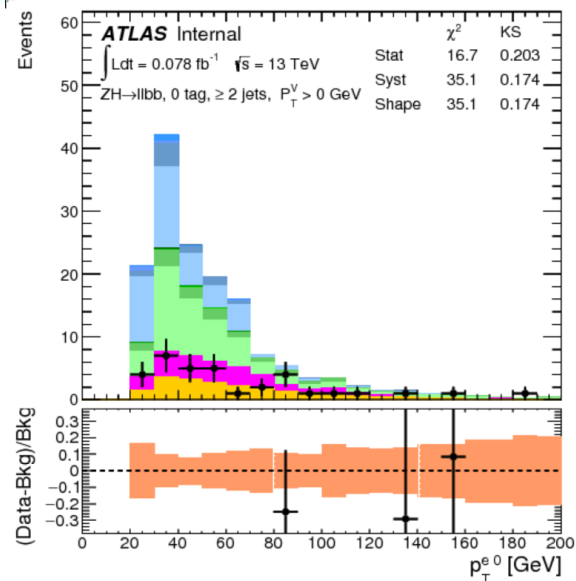
- $p_T^{\text{tau}} > 20 \text{ GeV}$
- $p_T^{\text{lep}} > 25 \text{ GeV}$
- $p_T^{\text{jet}} > 45/20 \text{ GeV}$

- Event selection

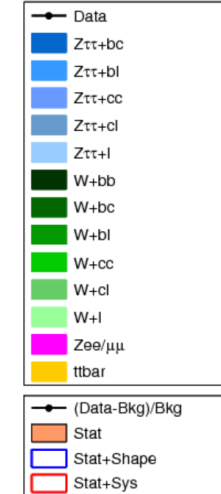
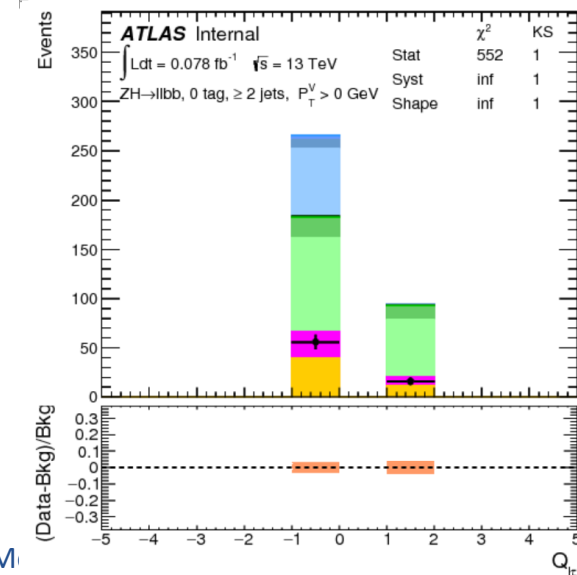
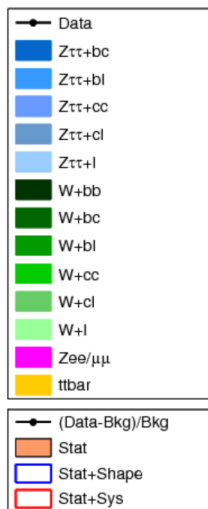
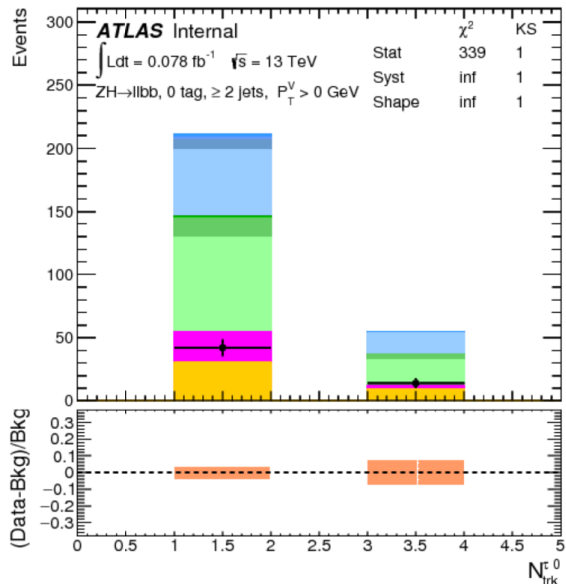
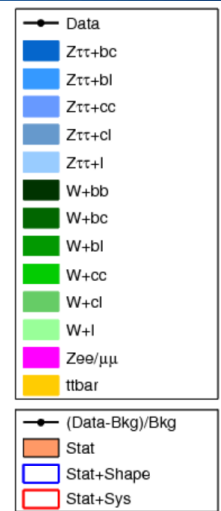
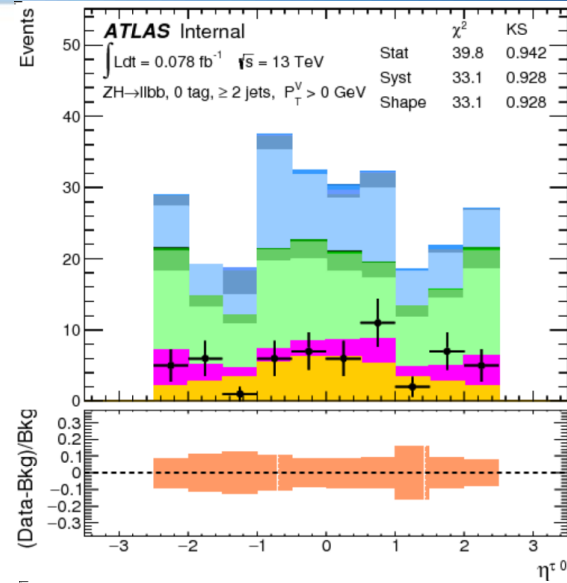
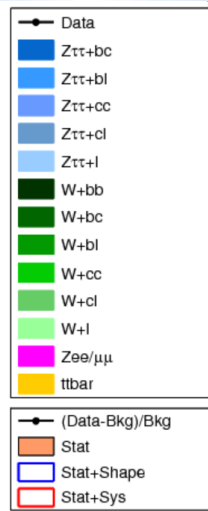
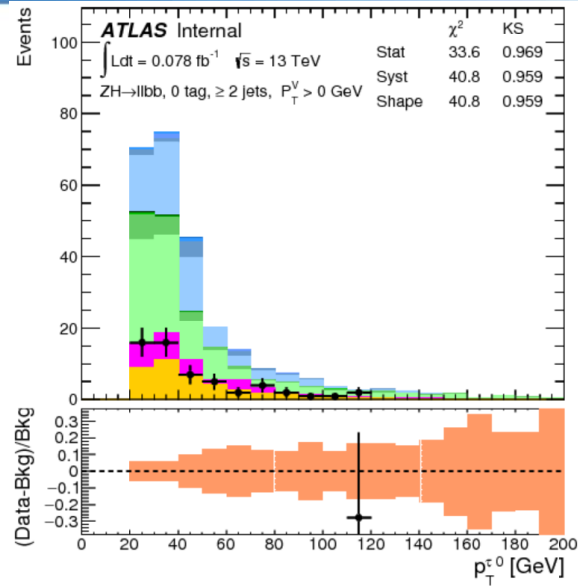
- Single lepton triggers
- 1 signal lepton and no other leptons
- 1 signal tau and no other taus
- ≥ 2 jets

- Split into 0, 1, 2 b-tags
- Opposite charge tau and lep

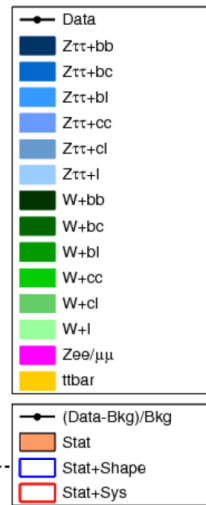
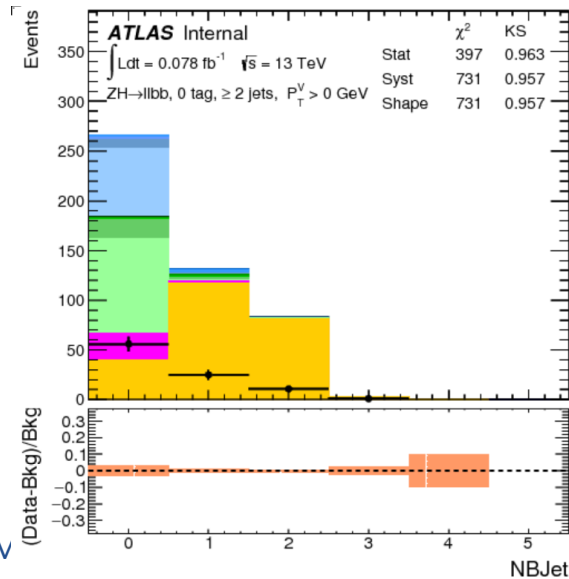
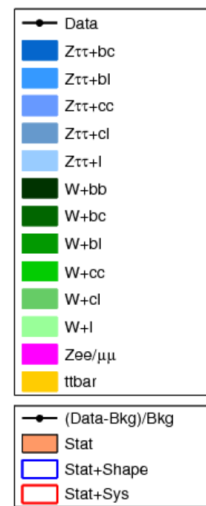
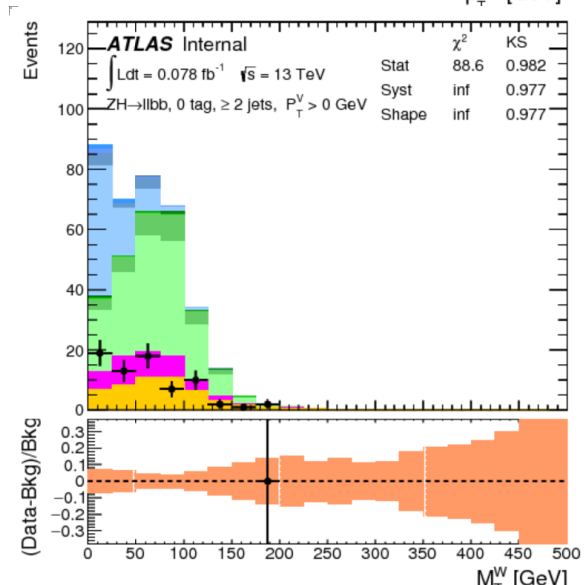
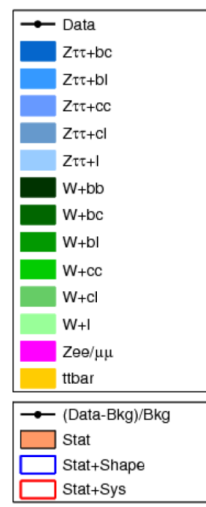
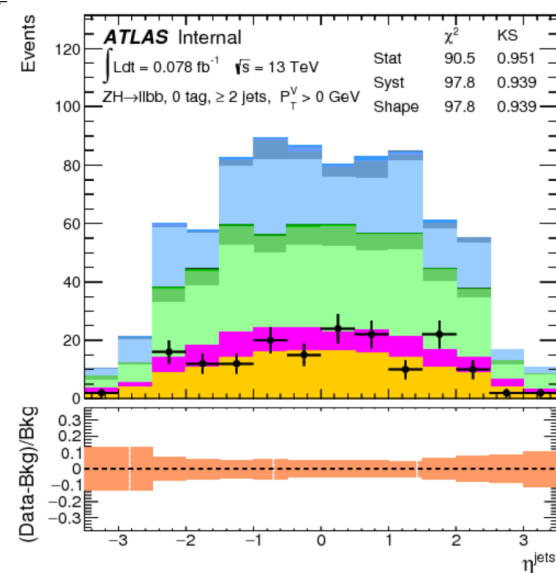
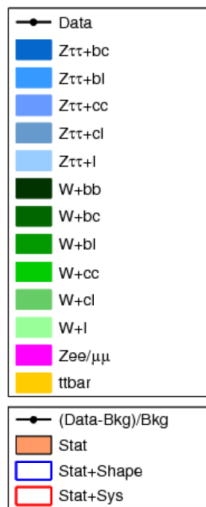
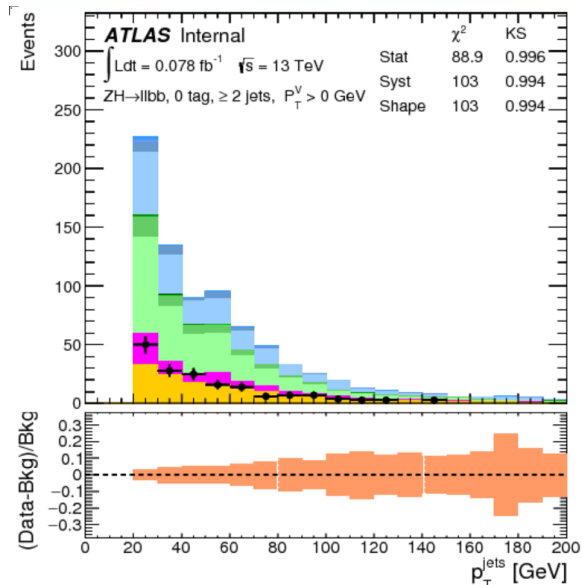
Leptons (0 b-tag)



Taus (0 b-tag)

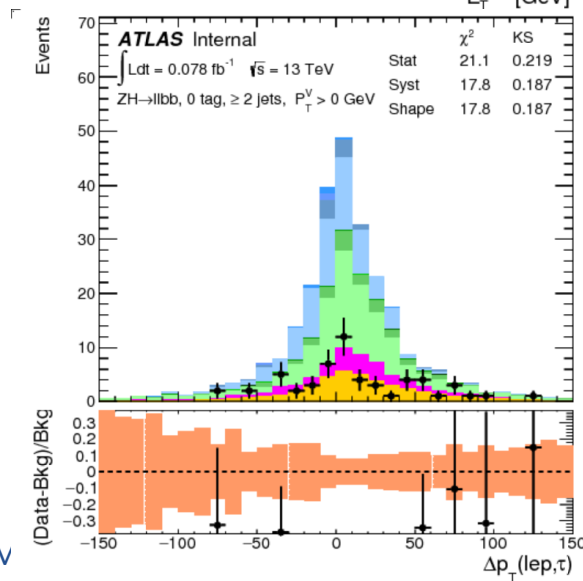
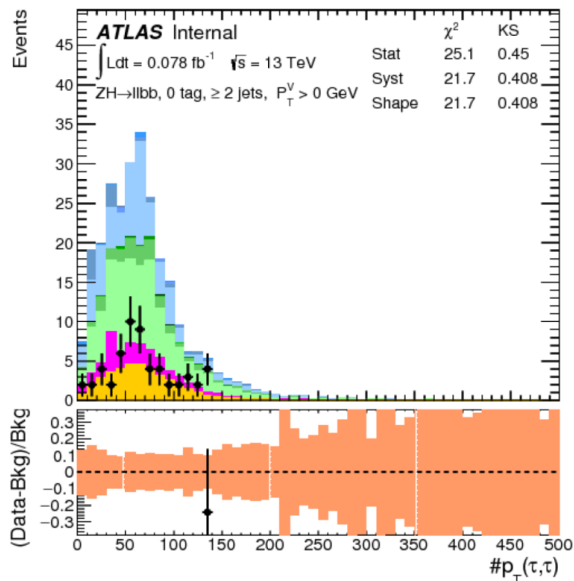
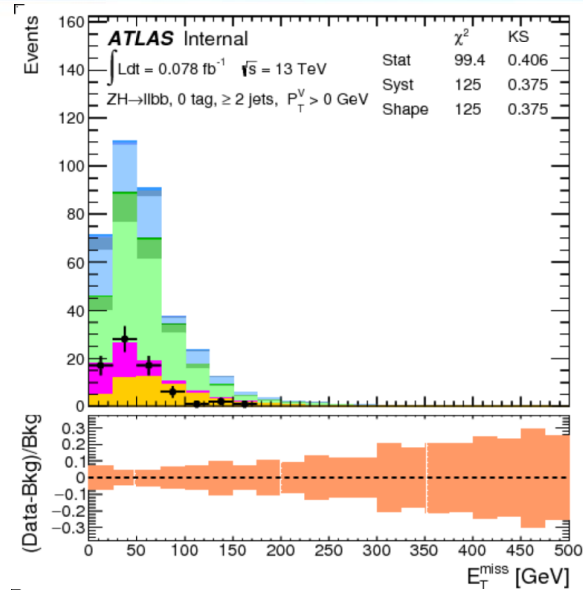
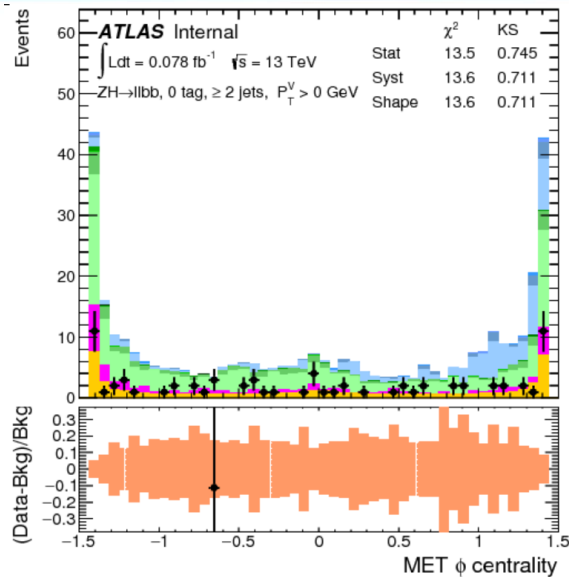


Jets/ E_t^{miss} (0 b-tag)

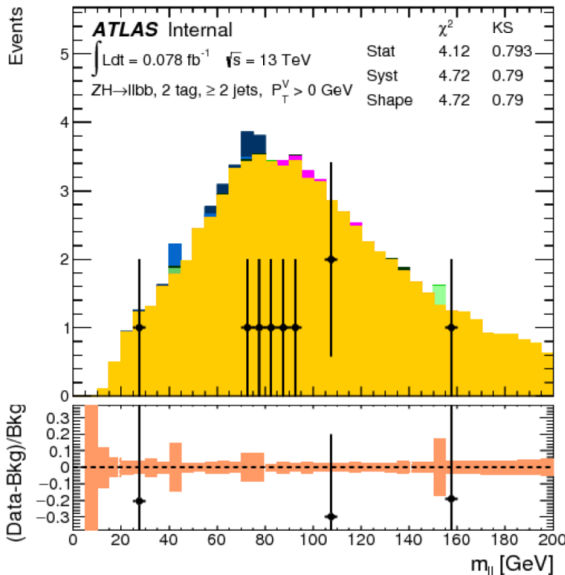
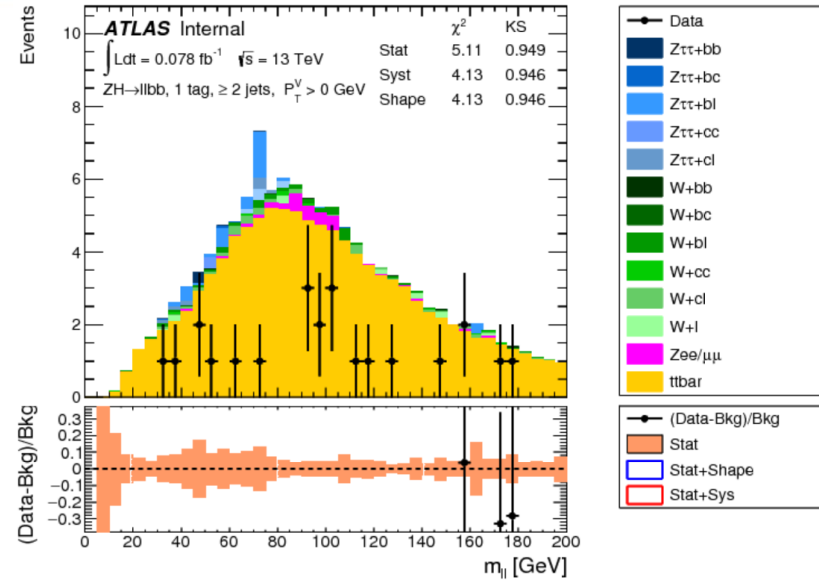
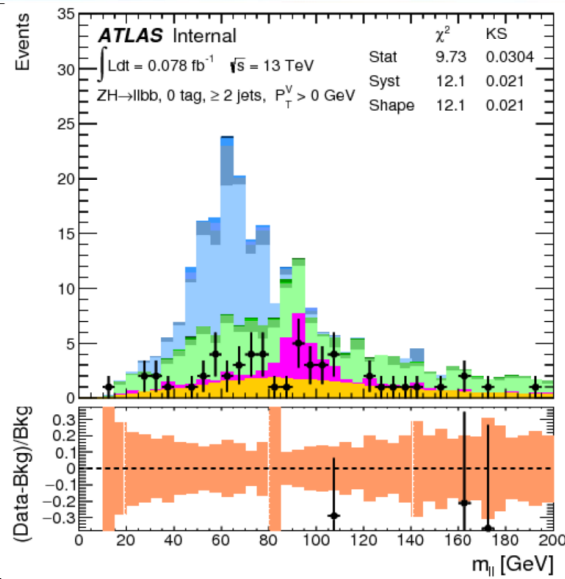


Validation N

Additional Variables (Q cut, 0 b-tags)



$m_{l\tau}$ (Q cut, all b-tags)



● No longer any spike at 0 😊