



# Flavour Composition

Laurie McClymont, Andreas Korn

Di-bjet Meet  
20 April 2016



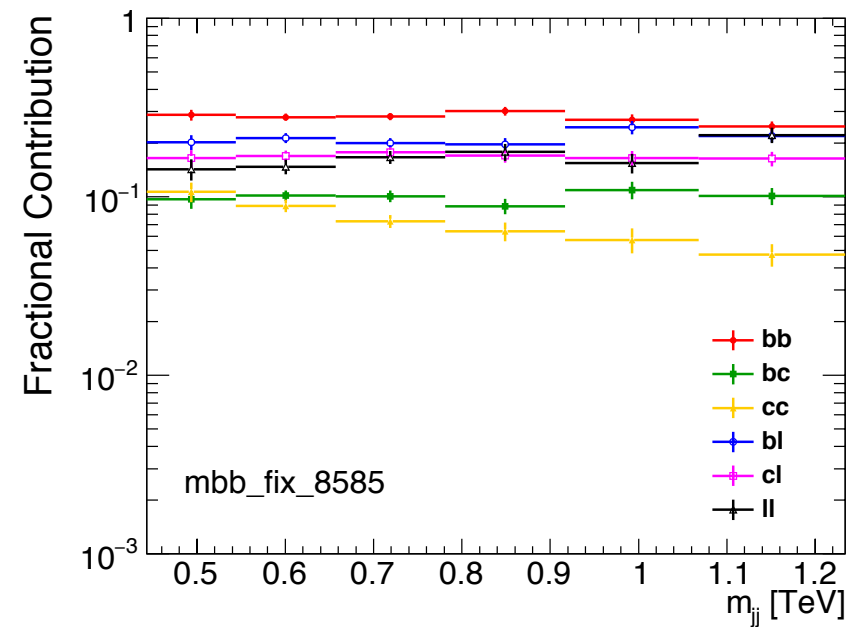
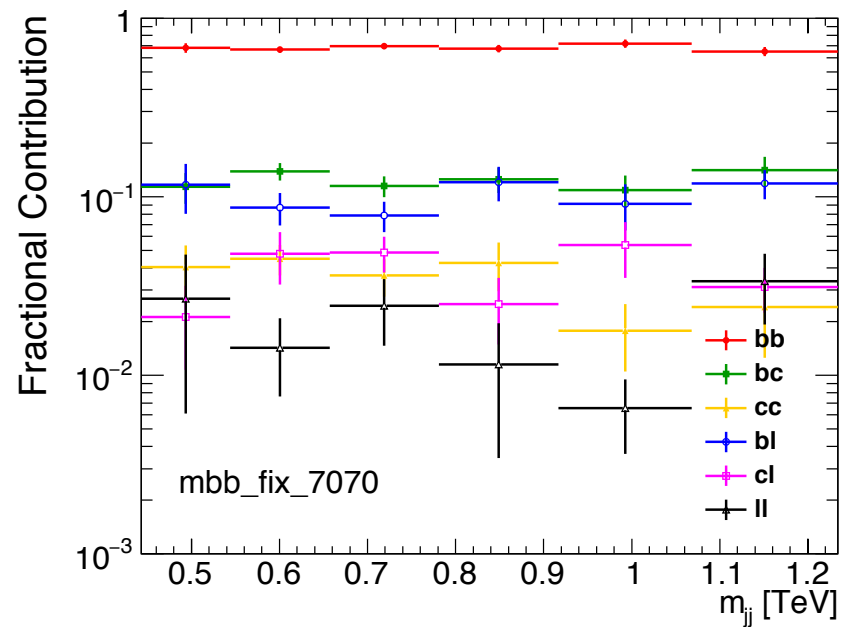
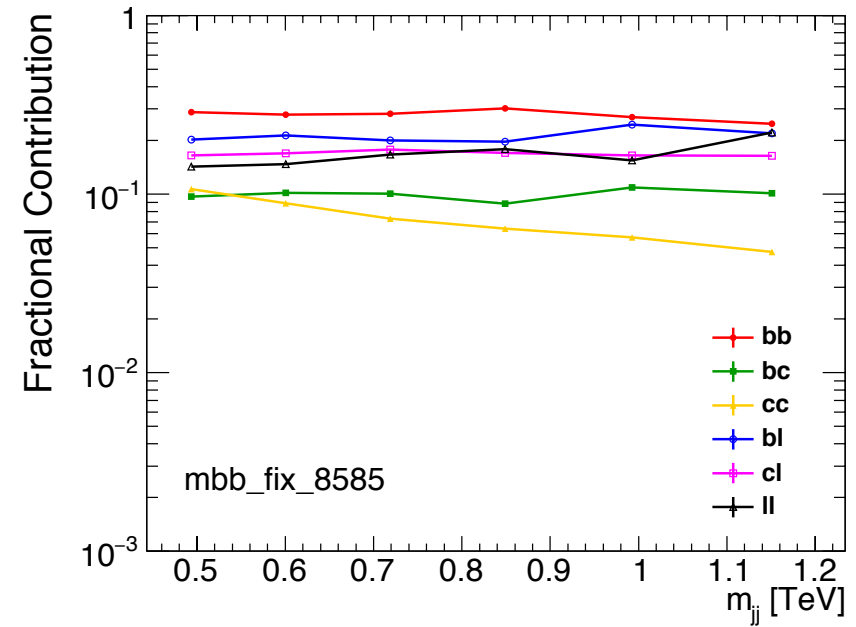
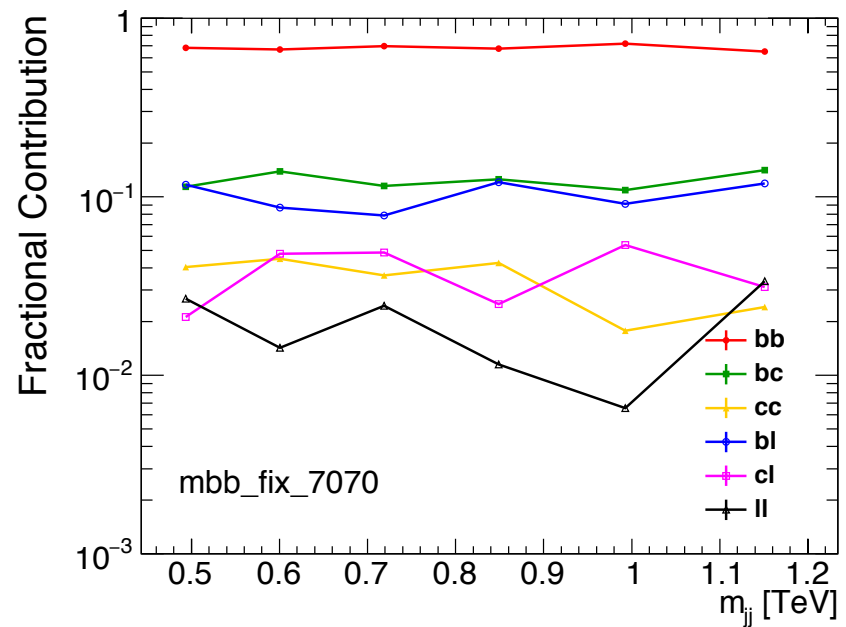
Studying the flavour fraction, after offline tagging:

- Show that offline tagging doesn't sculpt background
  - Check that flavour fractions are smoothly changing
  - No spurious signal
- Just offline tagging gives upper limit on non-b flavour fraction
- Show that after offline tagging we have good bb purity

---

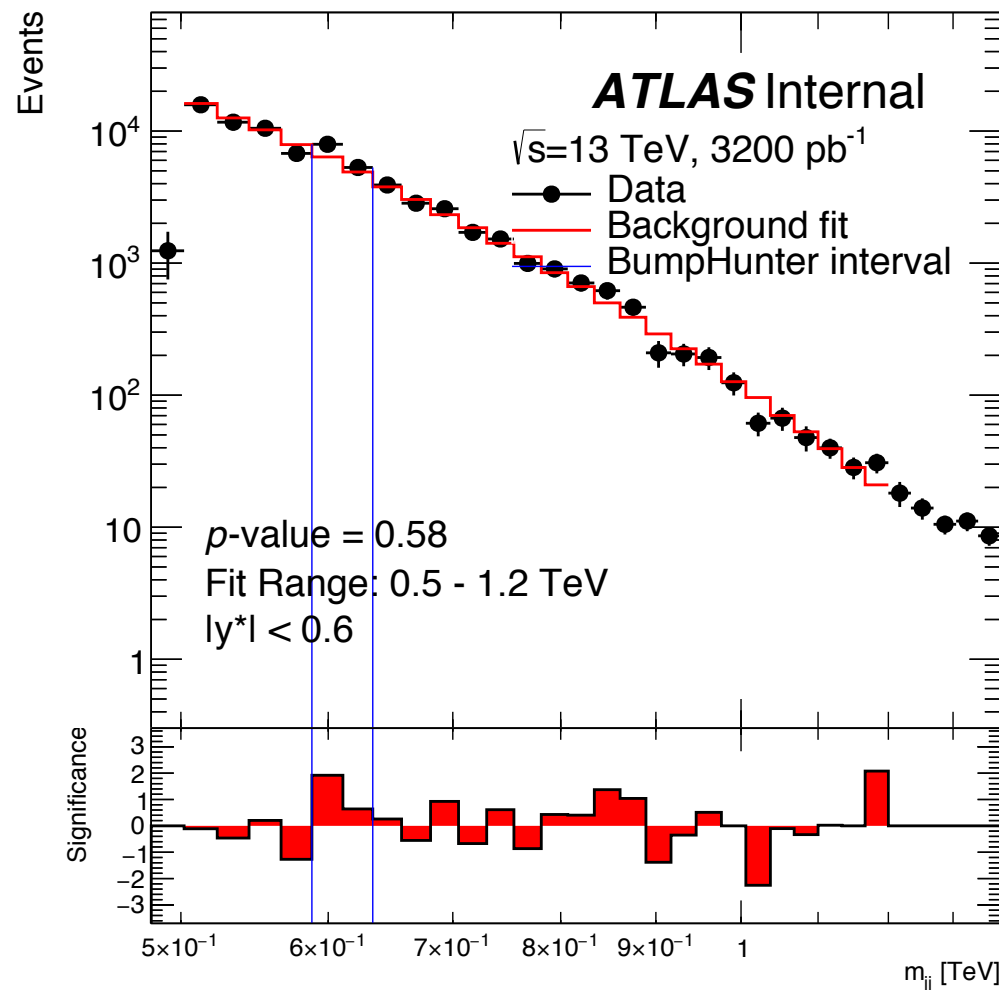
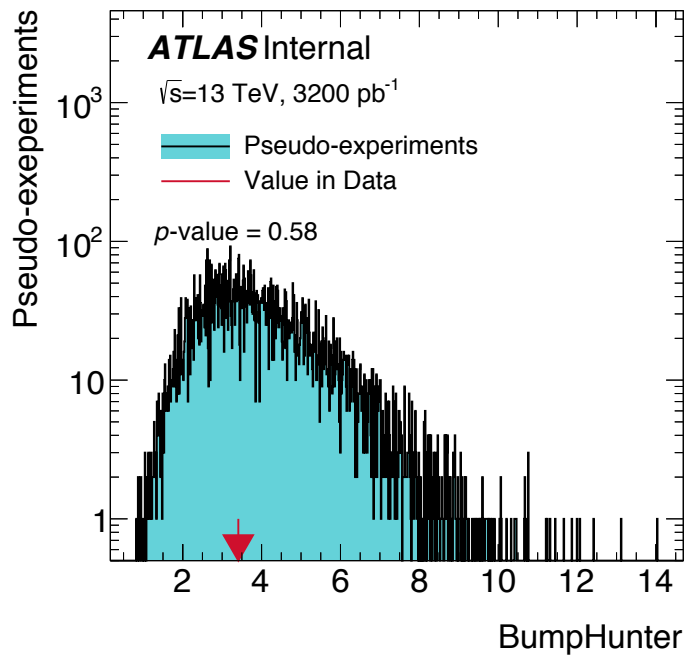
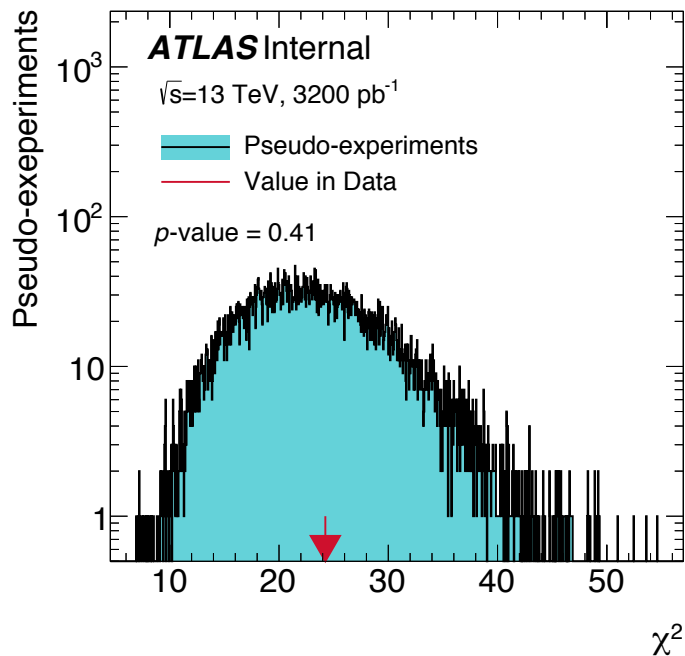
### Match Karol's Event Selection

- **No Trigger**
- **Trigger Eff. Applied**
  - Emulate trigger using bTrig Effs.
  - Histograms from John
  - Same Landau Fits as Karol
- 70% / 85% Eff. Point
- Leading jet  $p_T > 200$  GeV,  $|\eta| < 2.5$
- Subleading jet  $p_T > 80$  GeV,  $|\eta| < 2.5$
- $|y^*| < 0.6$
- $500 < m_{jj} < 1200$  GeV





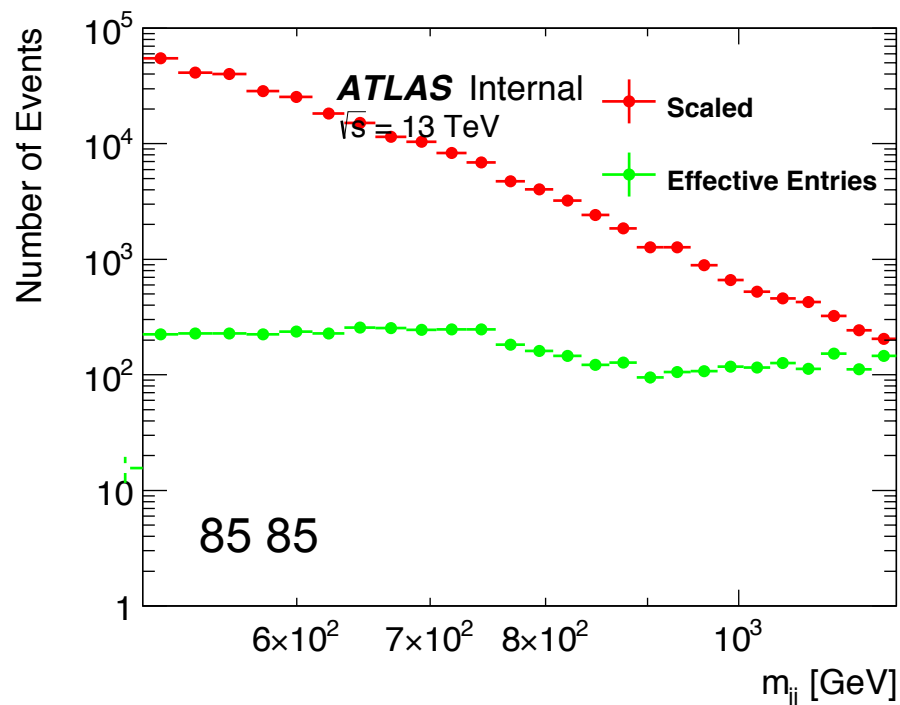
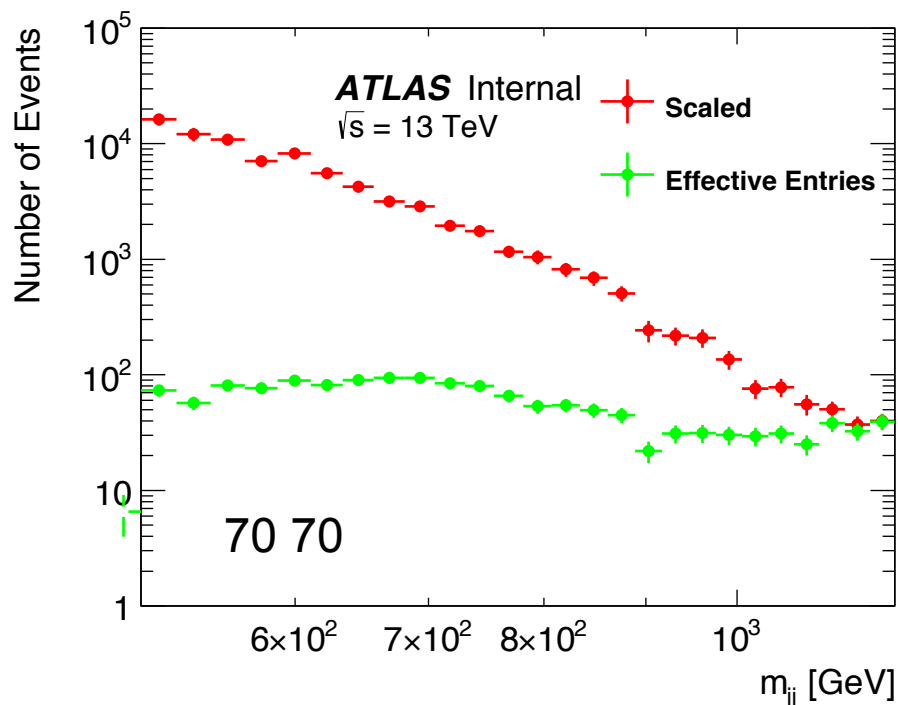
- Trigger Eff. Applied - Emulate Trigger  
- Smooth Landau fit function
- 70% Eff. Point





- **No Trigger**
- Leading jet  $p_T > 200$  GeV,  $|\eta| < 2.5$
- Subleading jet  $p_T > 80$  GeV,  $|\eta| < 2.5$
- $|y^*| < 0.6$

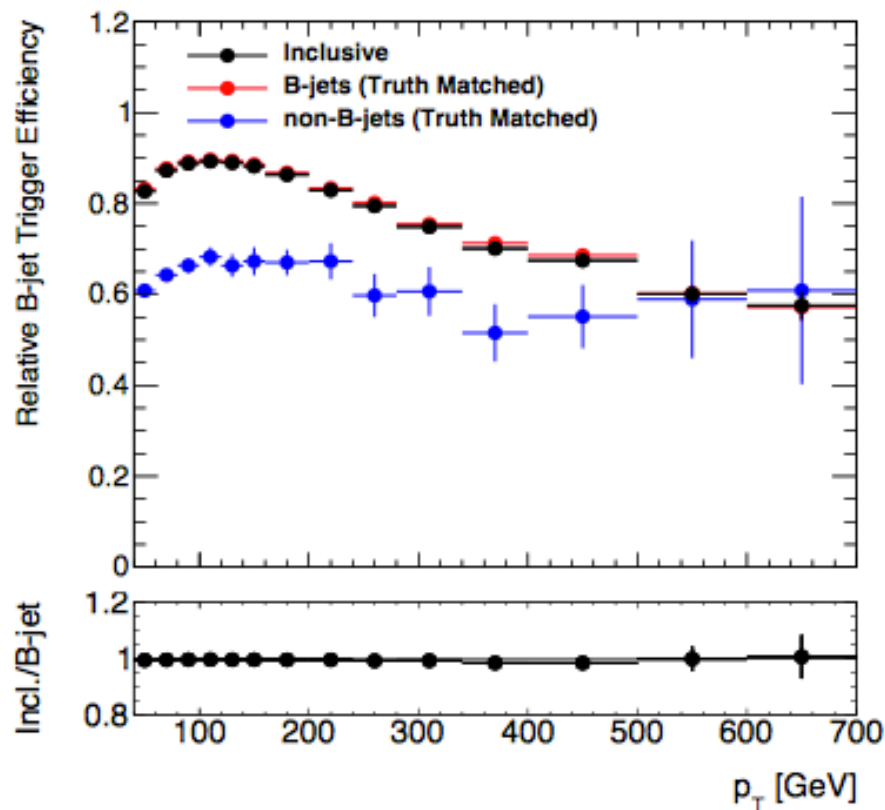
- **Trigger Eff. Applied**
- **70% / 85% Eff. Point**



Scaled > Effective Entries  
Thus, MC drives errors



- Study online tagging's effect on flavour composition
- From John we have an estimate online efficiencies w.r.t offline for non-B jets

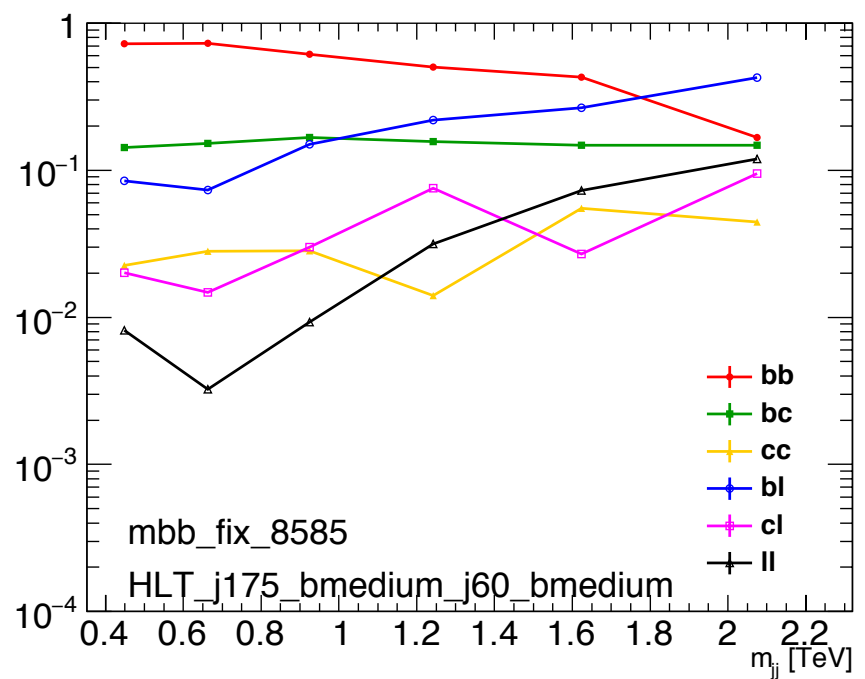
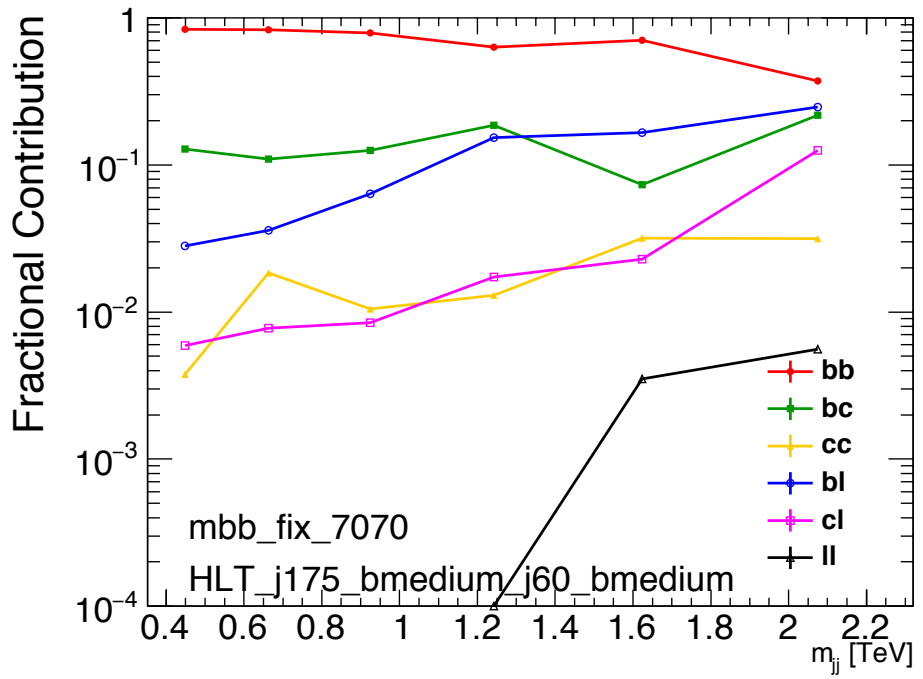


- Apply this to non-B jets to emulate effect of online trigger on flavour fraction

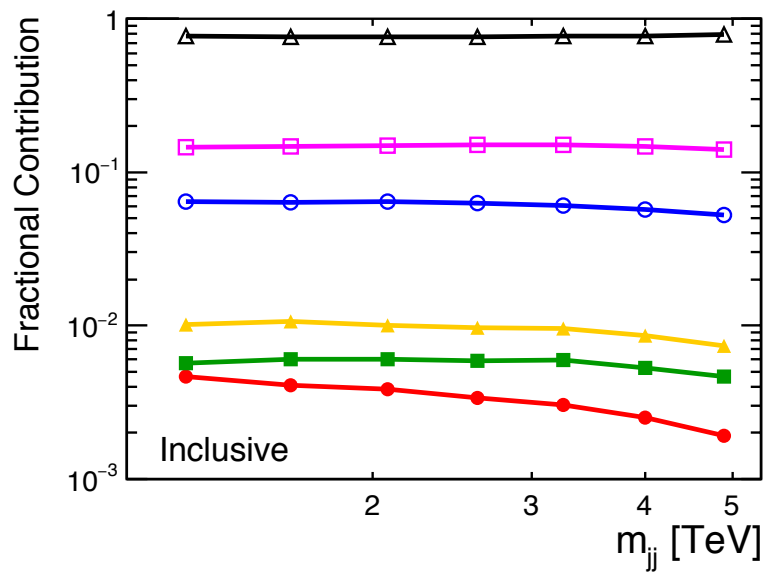


- HLT\_j175\_bmedium\_j60\_bmedium
- Leading jet  $p_T > 200$  GeV,  $|\eta| < 2.5$
- Subleading jet  $p_T > 80$  GeV,  $|\eta| < 2.5$
- $|y^*| < 0.6$

- No Trigger Eff. Applied
- 70% / 85% Eff. Point



- Dominant bb contribution
- Different Trigger WP in MC and Data



**ATLAS** Simulation  
 $\sqrt{s} = 13$  TeV

