# Spurious Signal Tests

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Di-bjet Meet

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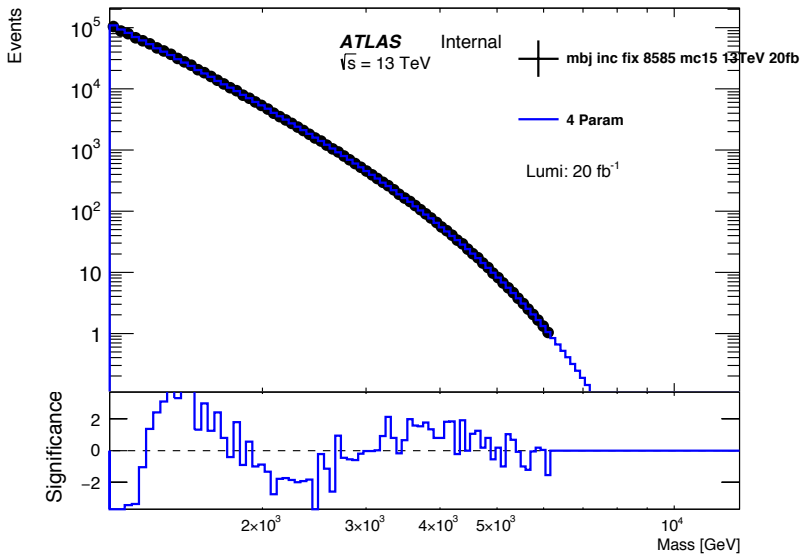
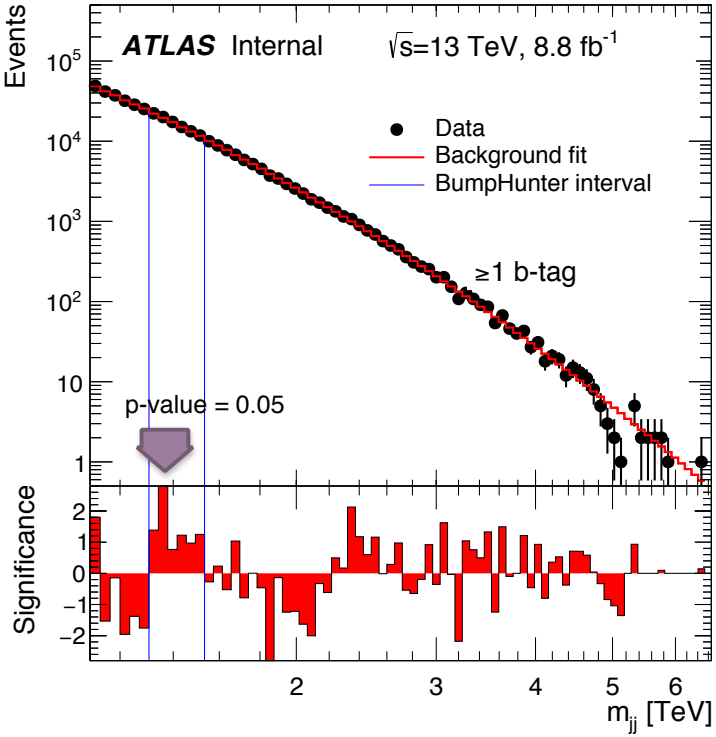
- **Evidence that fit is performing badly at low masses**

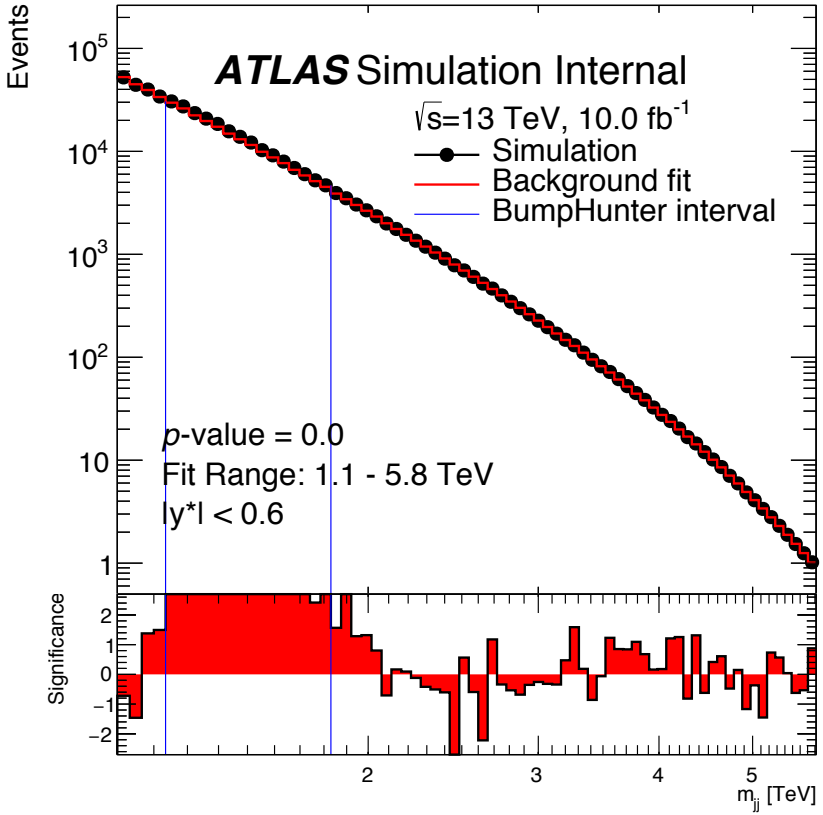


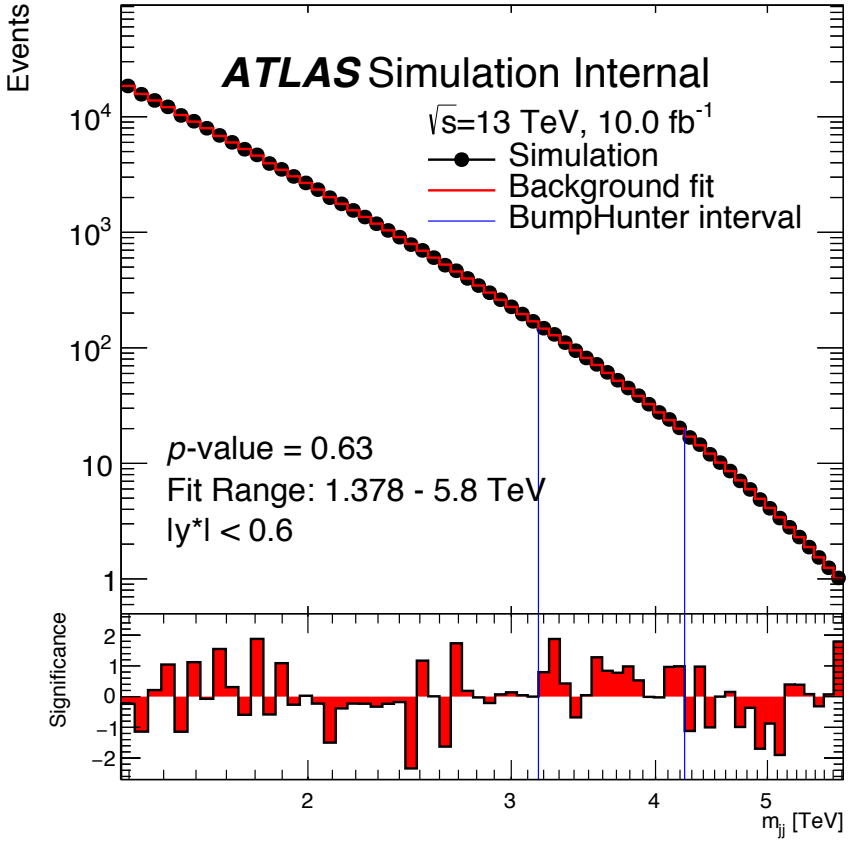




- **Where should we cut off**
  - Study p-values against mjj cut off in data and MC
  - Look for plateau in p-values

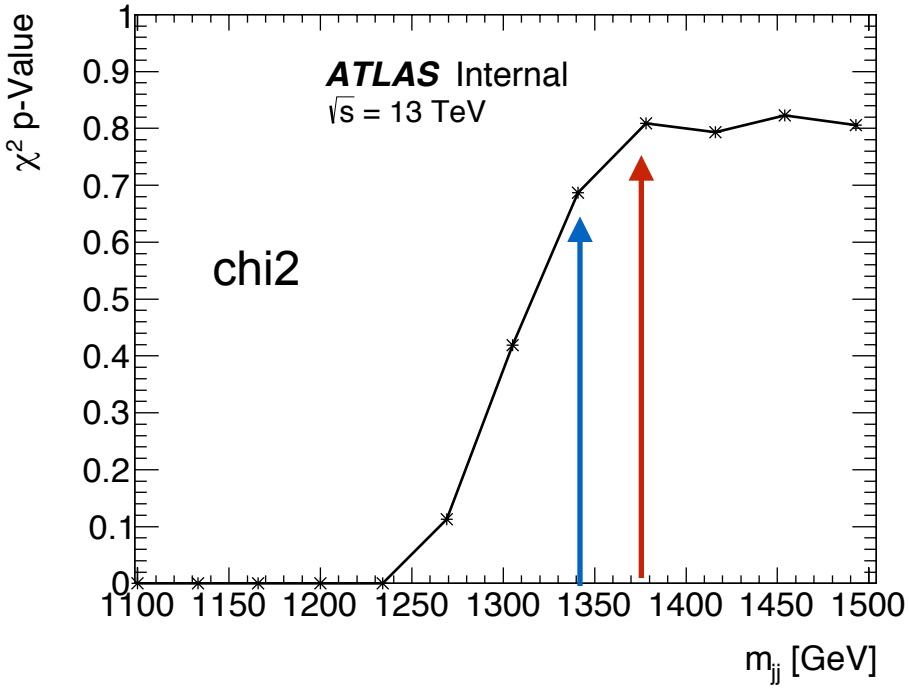
- **Currently looking at mbj_inc in MC**

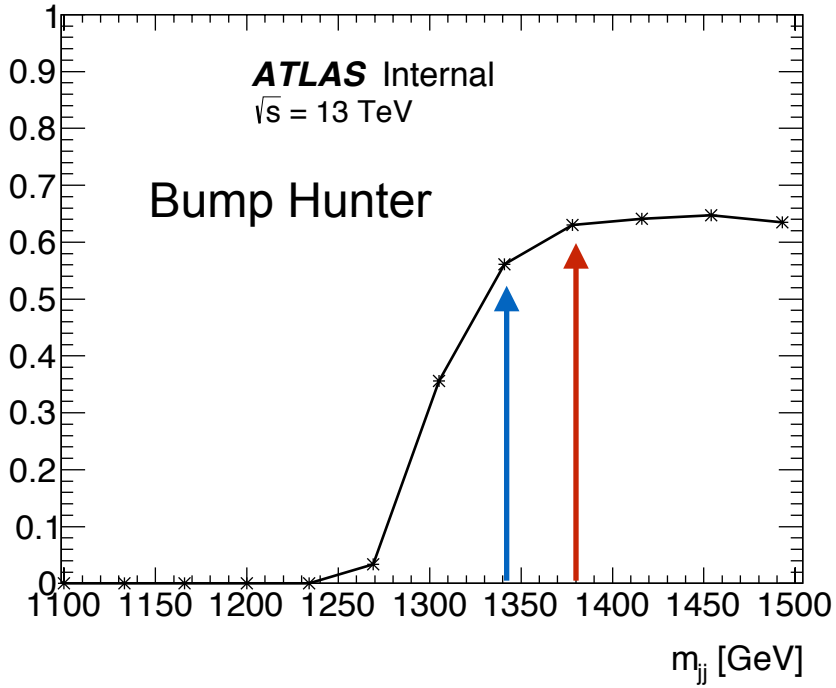
- **Fit to MC**
  - MC errors, number of effective entries
  - ‘Short’ - cut off where we expect one event
  - Fit using search phase
  - Previous iteration of MC

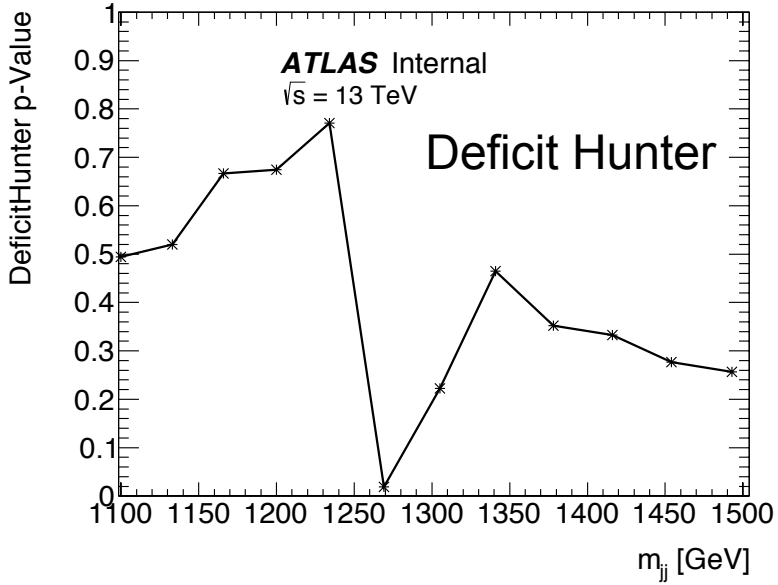


# p-Values vs. mjj cut




**Plateau at 1378**

**Fits good at 1341**

# 5 Conclusion

- **Tested 4 parameter function in short distributions at 10 fib**
  - Looking at MC
  - >= 1 tag => Framework set up to create truncated data-like distributions.
  - We can then fit to get p-values (BH, DH, Chi2)

- **Vary mjj cut**
  - Plateau @ 1378 GeV

**To Do**

- **Redo studies for Data and Updated MC**
- **2 tag**

## Event Selection

Pythia8EvtGen MC Di-Jet Sample
- **HLT_j380**
- 2016 MC
- di-b-jet Ntuple production

Scale to 10ifb
- Will update for final lumi

- **Standard Dijet Resonance Cuts**
  - Leading Jet pT > 440 GeV
  - Sublead Jet pT > 60 GeV
  - |y*| < 0.6
  - mjj > 1100 GeV

- **MV2c10**
  - Using fixed cut 85% for both jets
  - mbb_fix_8585
  - mbj_inc_fix_8585