



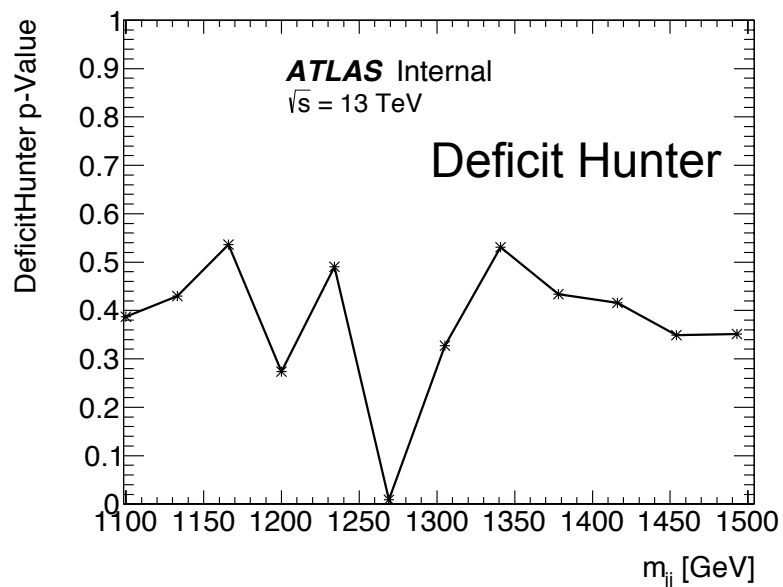
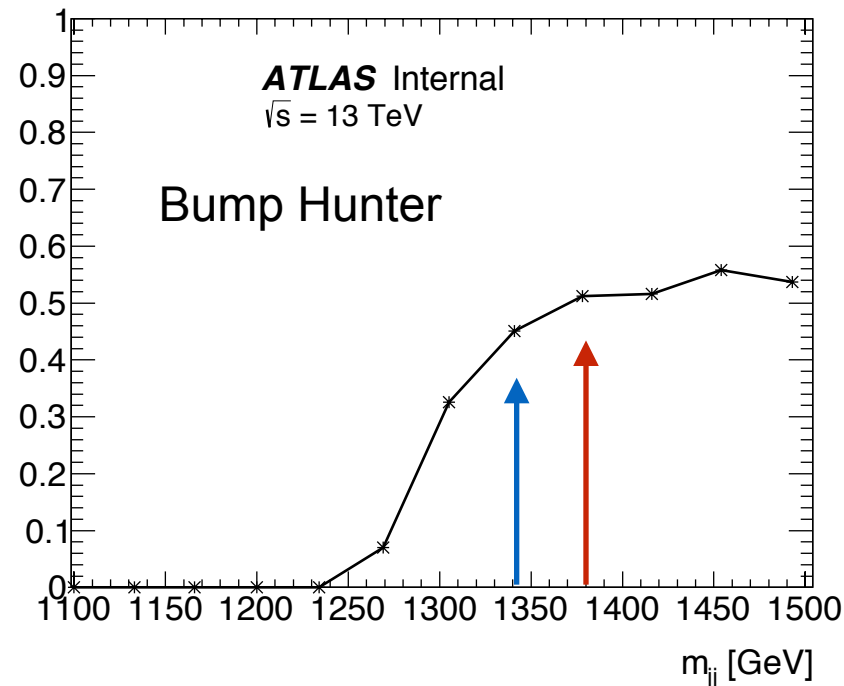
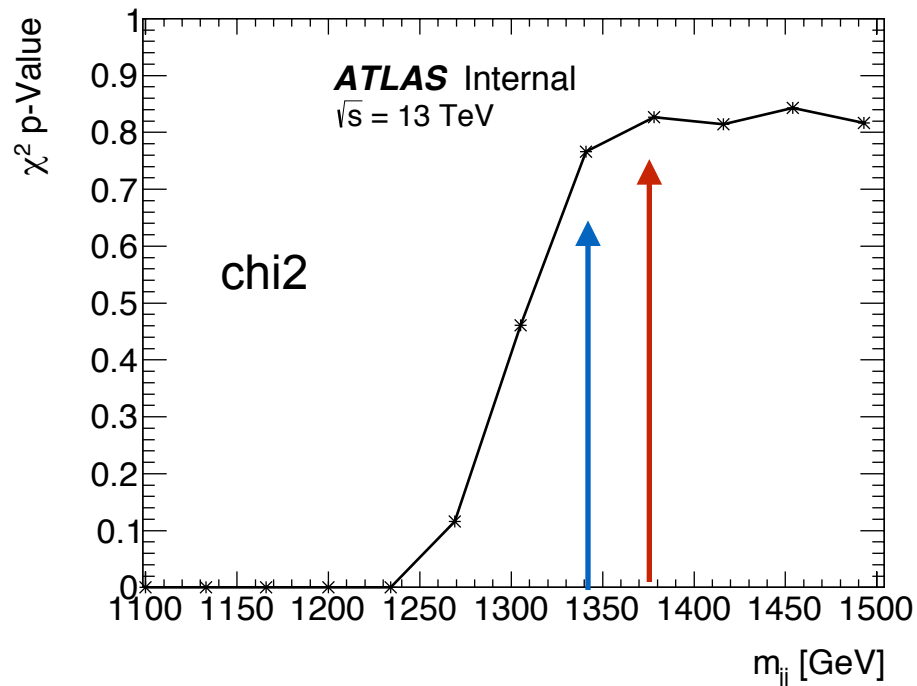
# Spurious Signal Tests

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Di-bjet Meet  
15 July 2016



## 2 p-Values vs. $m_{jj}$ cut : $\geq 1$ b-tag

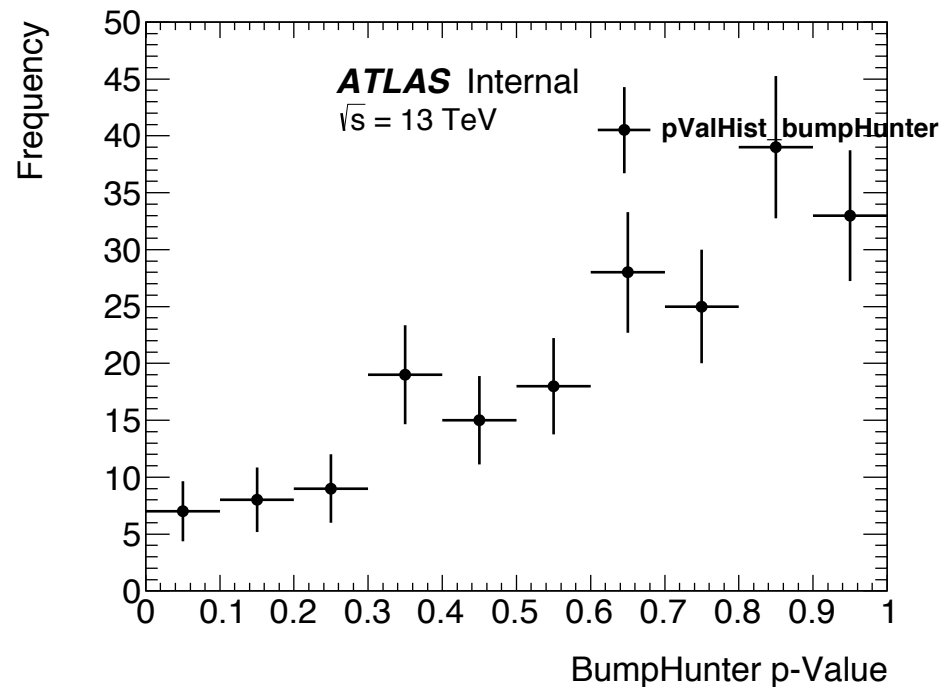
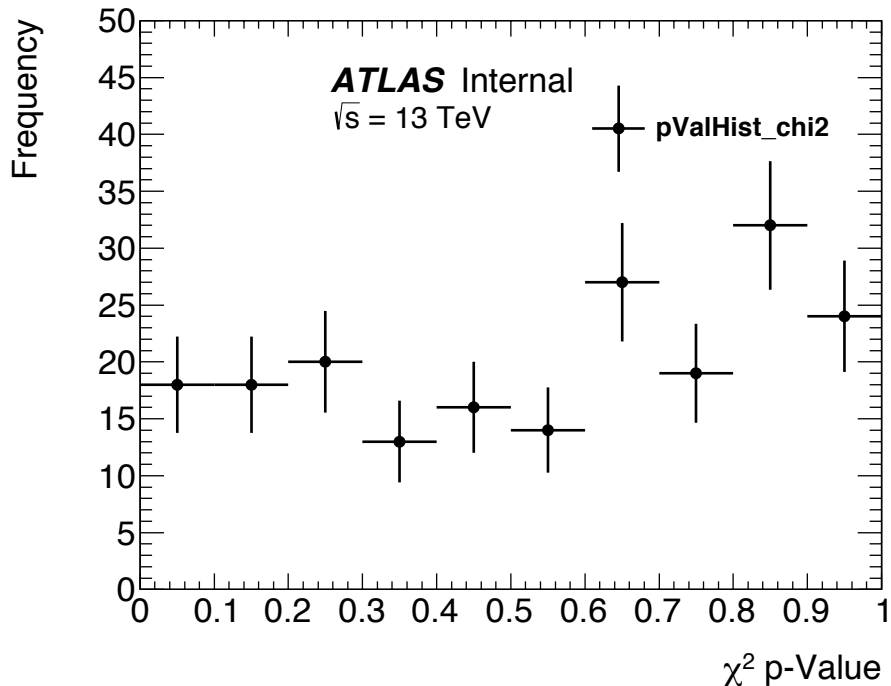


MC - 20160712  
=> Fixed b-tagging  
=> Old scale factors  
4 parameter fit function  
Inclusive 1 b-tag category  
Short @ 10 fib (cut off at 1 event)

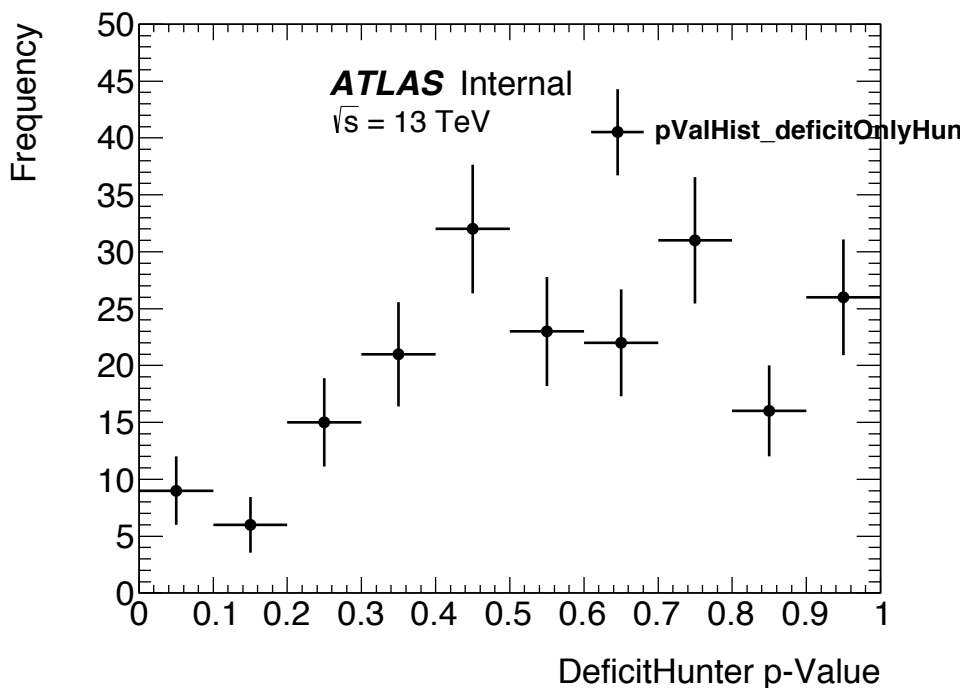
- Plateau at 1378
- Fits good at 1341



### 3 Spurious Signal: $\geq 1$ b-tag

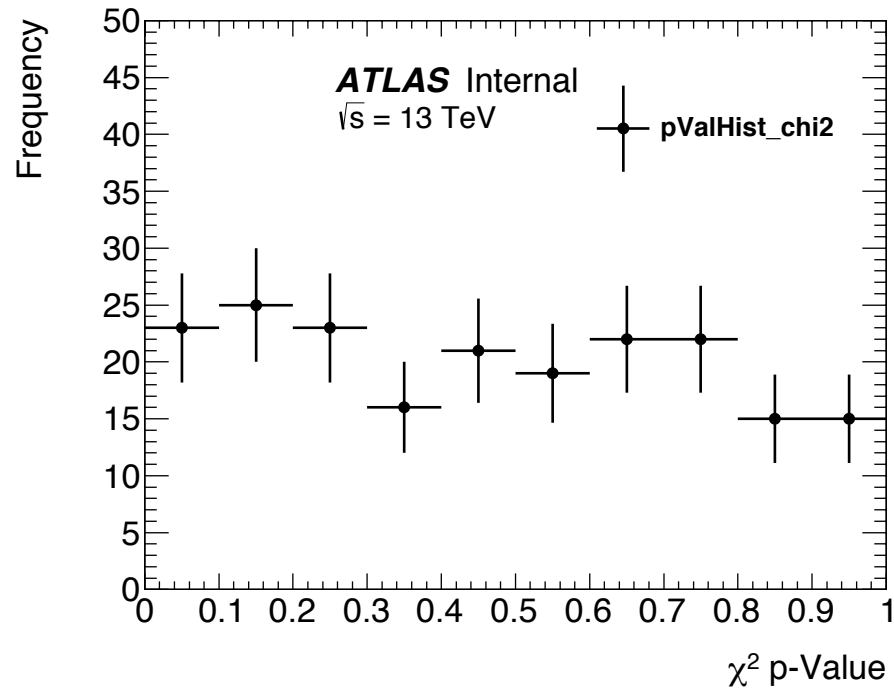


Updated MC  
 $\geq 1$  b-tag category  
Patched Data Like@ 10 fb  
Fit Range: 1341 - End of Data

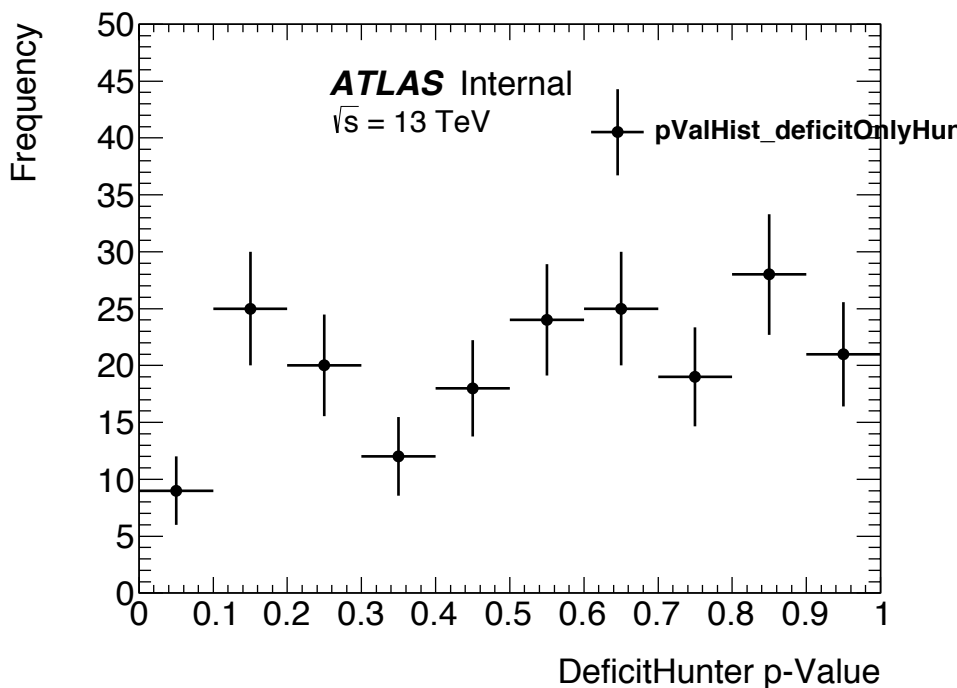
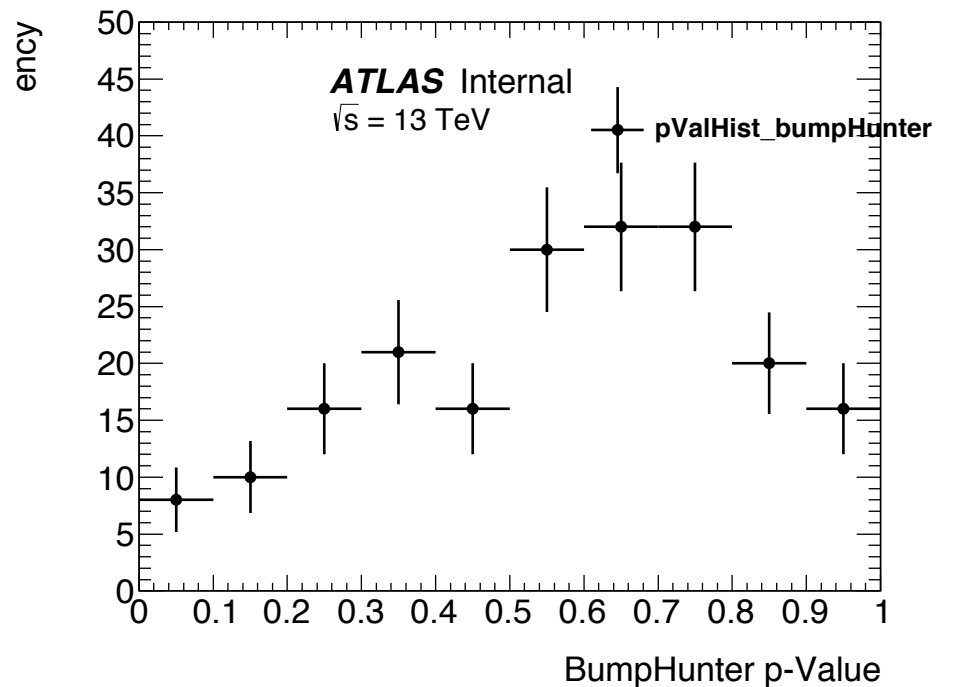




## 4 Spurious Signal: 2 b-tag



Updated MC  
2 b-tag category  
Patched Data Like@ 10 fib  
Fit Range: 1100 - End of Data





- **MC - 20160712**

=> Fixed b-tagging

=> Old scale factors

- **>= 1 b-tag category**

- **chi2 and bH p-value plateau @  $m_{jj} > 1378$  GeV**

- No spurious signal,  $m_{jj} > 1341$  GeV

- Running 3-parameter now

- **2 b-tag category**

- No spurious signal,  $m_{jj} > 1.1$  TeV

- Running plateau studies now, but there was never any evidence of a bad fit here!

- **MC - 20160713**

=> Fixed b-tagging

=> New scale factors

- Will run now/over weekend

- Differences should be small



### 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  $p_T > 430$  GeV
- Sublead Jet  $p_T > 60$  GeV
- $|y^*| < 0.6$
- $m_{jj} > 1100$  GeV

- **MV2c10**

- Using fixed cut 85% for both jets
- mbb\_fix\_8585
- mbj\_inc\_fix\_8585