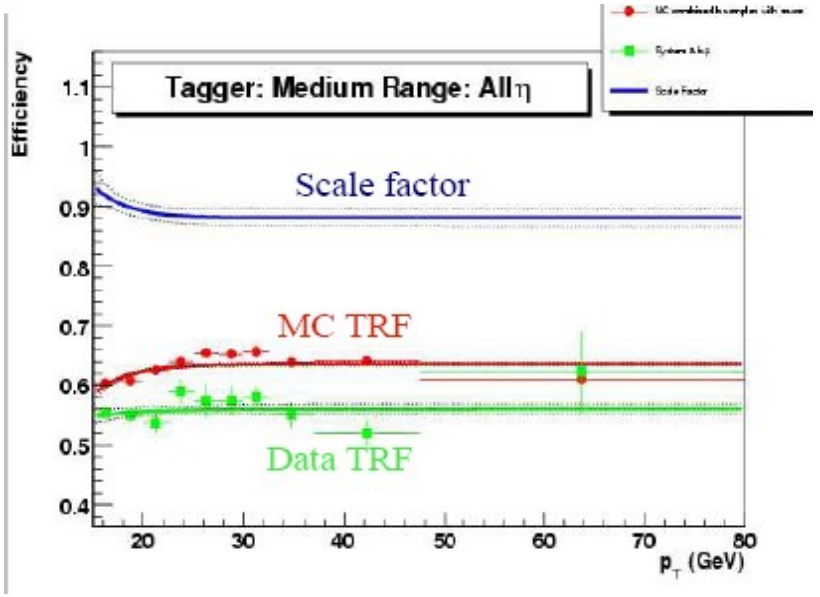
**b-ID:**

**p17 certification**

version 0: a pre-preliminary version…
  TRFs and fake rates exist, in btags_cert
  Has a fairly major bug – no JES applied during training or for TRFs!
  Has been released… being run on data and MC samples

version 1: for preliminary summer '06 p17 analyses
  Full data set, fixed MC, no !isEM cut, correct JES
  On schedule -- should be ready in ~1 week

version 2: for p17 publications
  Move to interpolated rather than functional parameterizations?
  Additional parameterizations (PV_z, time, luminosity)
  Additional systematics studies (data/MC b-mu/b-incl SF, Kappa_b)
  Summer '06? - need to focus on now…
  Have been generating the needed additional MC…



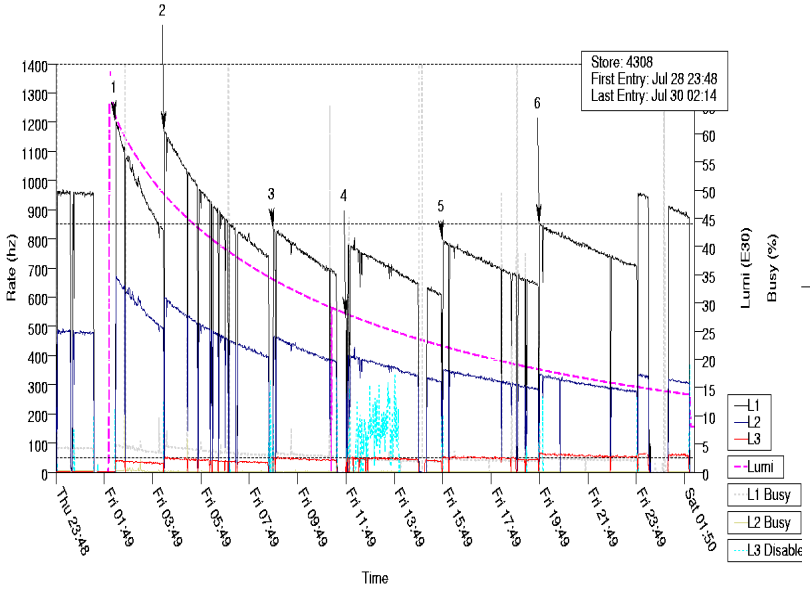

**CAFe interface:**

  new ROOT version… works!
  p18.06.00 can do full b-tagging, with version 0, in CAFe.
  working on adding features – taggability of data samples in CAFe ->
    apply back to MC samples in an automated way

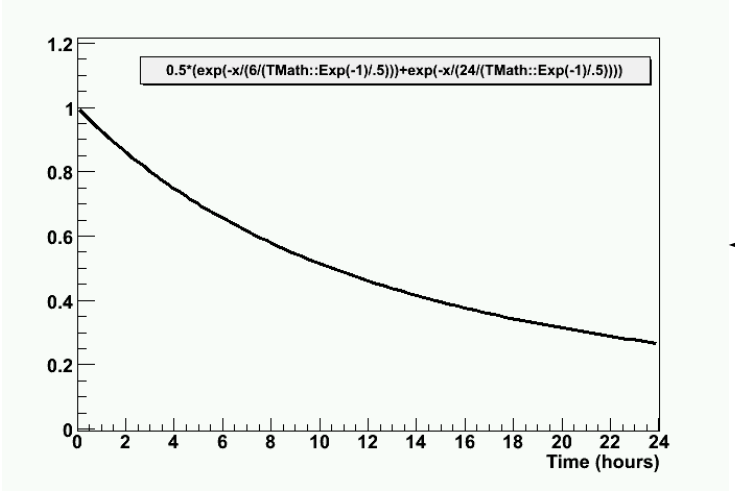
**Stopped Gluinos:**

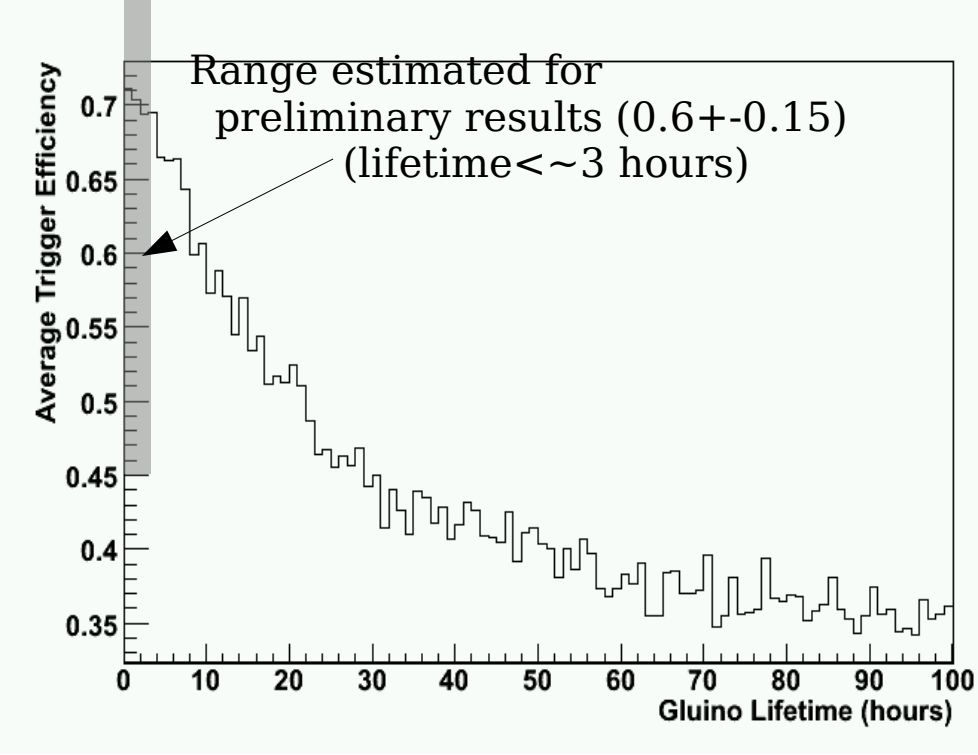
Gave a seminar at Stanford.

Next step: publish the p14 result!
Have to address a couple issues before publication, as agreed with the EB:
- gluino lifetime
- modeling of the out-of-time cal response
- data/MC differences in energy scale



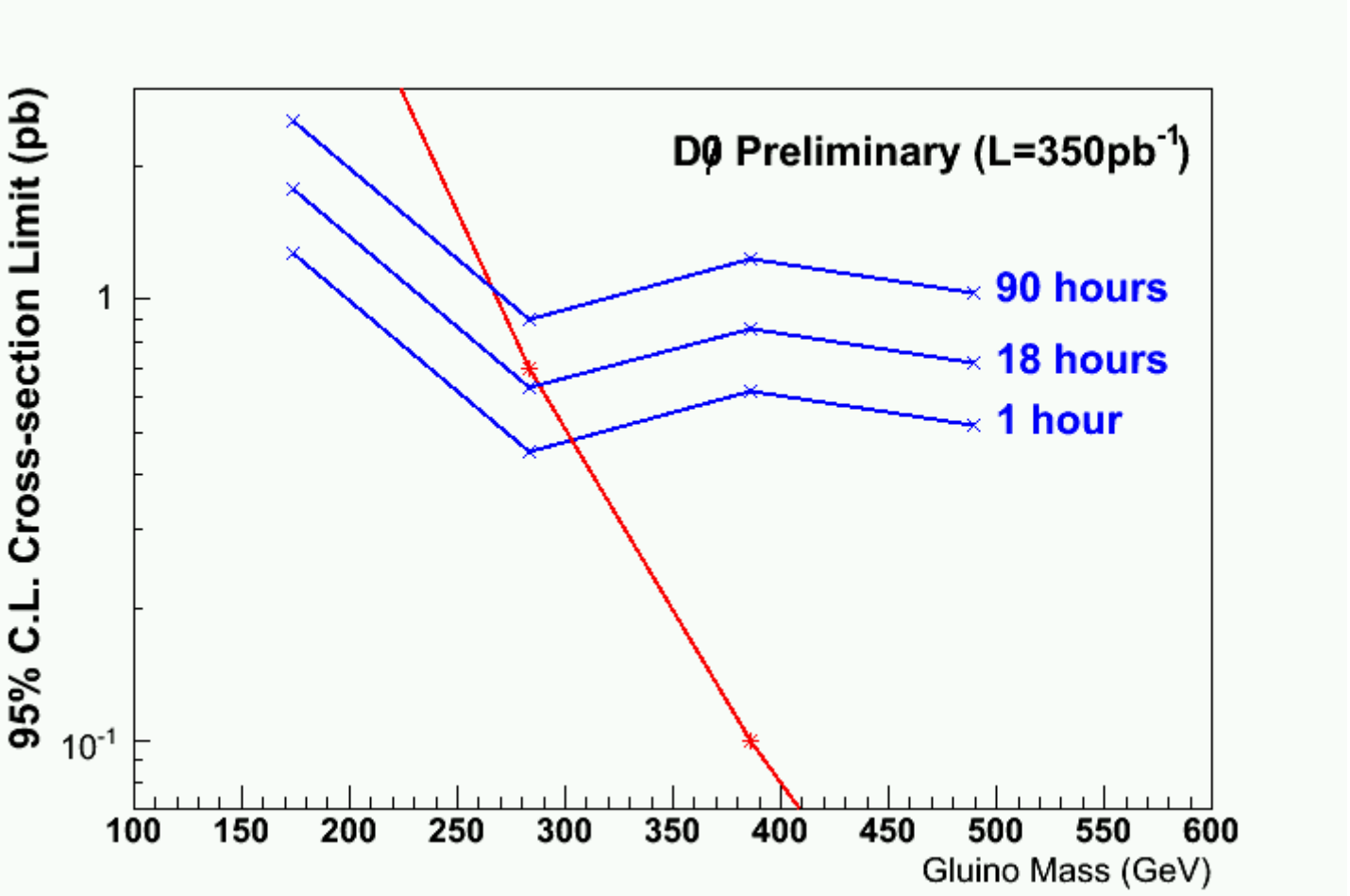

Translate to ROOT



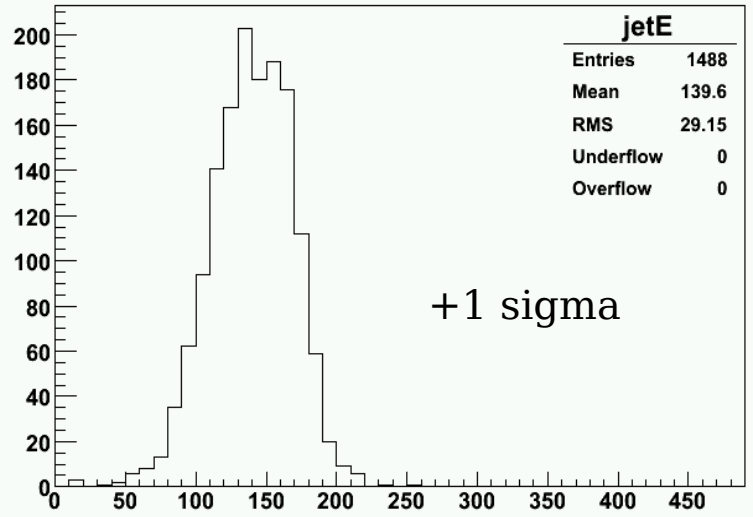

**Trigger eff. modeled vs. lifetime:**

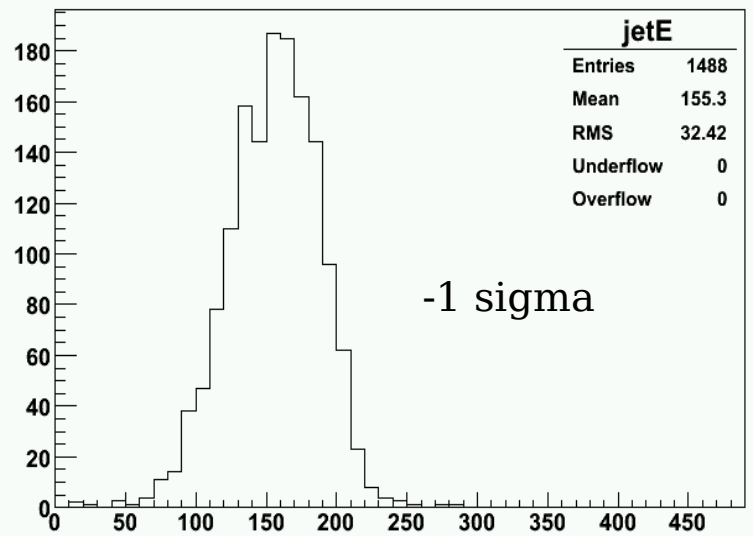
1) Choose production time randomly, according to inst. lum. distribution
2) Choose decay time = production time + random contribution from half-life distribution
3) Figure out if we're still taking data:
assume a 24 hour store
assume a 50% chance of another store starting, at least 6 hours later
4) Calculate the GAPSN efficiency at the current decay time (modeled by exp(-0.3*lum), where lum is the relative inst. luminosity)

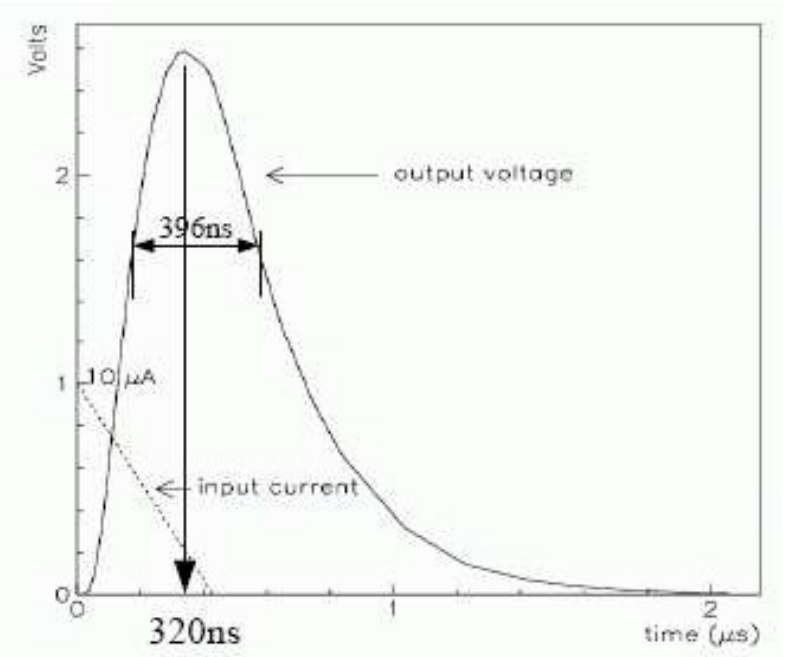

DØ Preliminary (L=350pb$^{-1}$)
95% C.L. Cross-section Limit (pb)
1
$10^{-1}$
90 hours
18 hours
1 hour
100
150
200
250
300
350
400
450
500
550
600
Gluino Mass (GeV)

# Data/MC JES Uncertainty

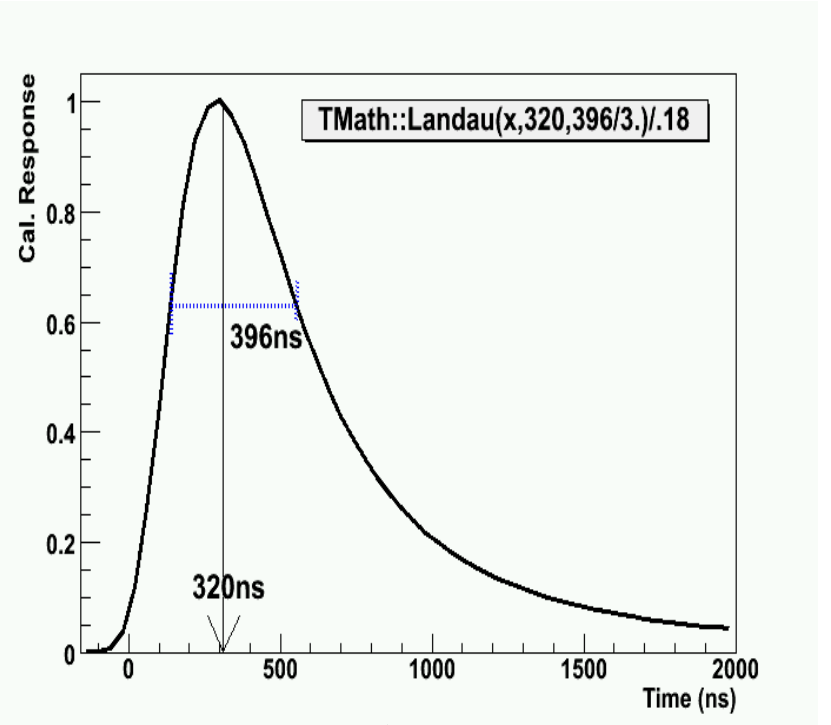
- MC jets are shifted by the data/MC JES
- Studied the uncertainty due to altering the data/MC JES correction within its sys+stat errors
- Uncertainty depends on signal gluino mass
  - larger for small mass (9%)
  - smaller for larger mass (5%)
- All are well-within the prescribed 20% total MC efficiency uncertainty



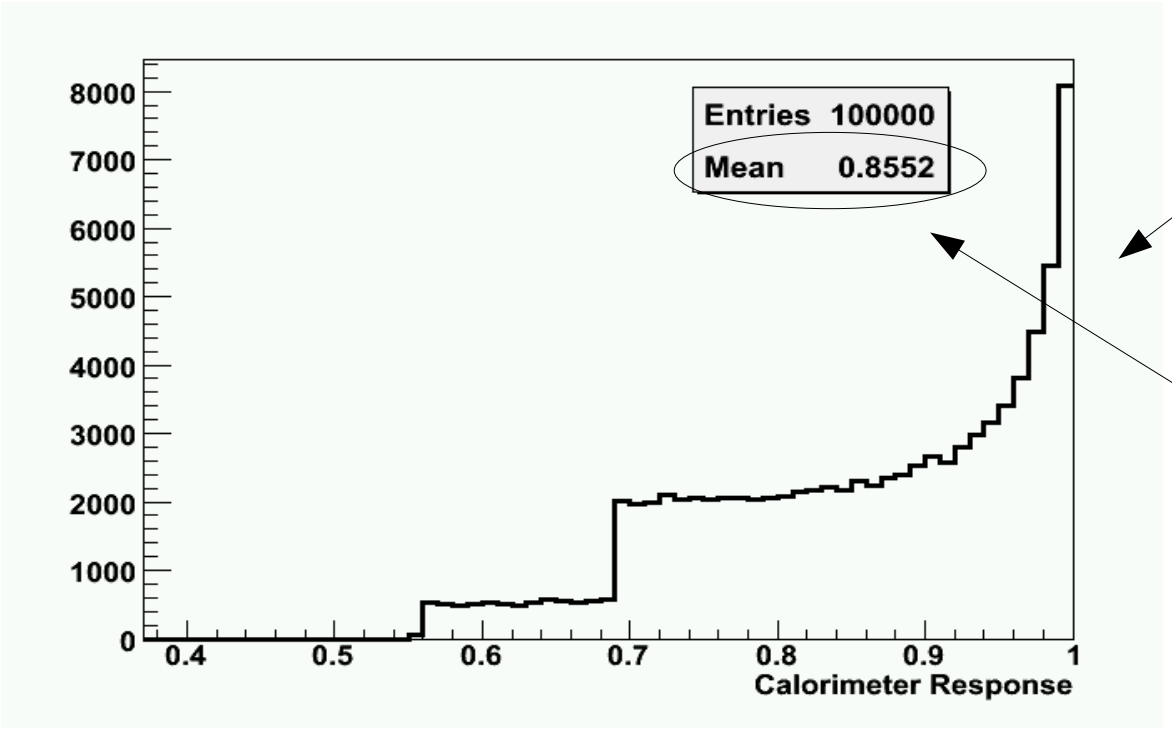






Translate into ROOT



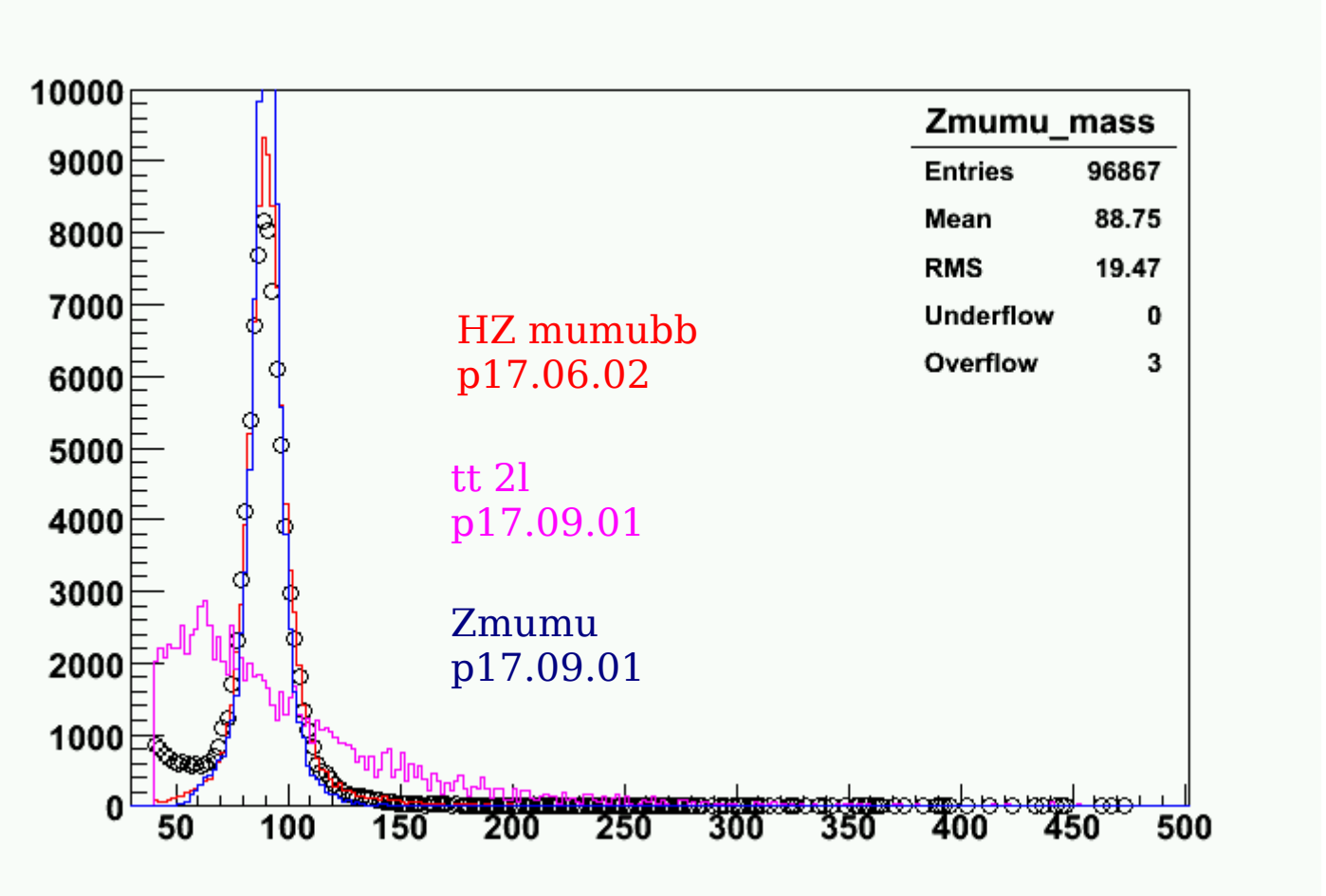

Sample randomly within 320+-396/2 ns

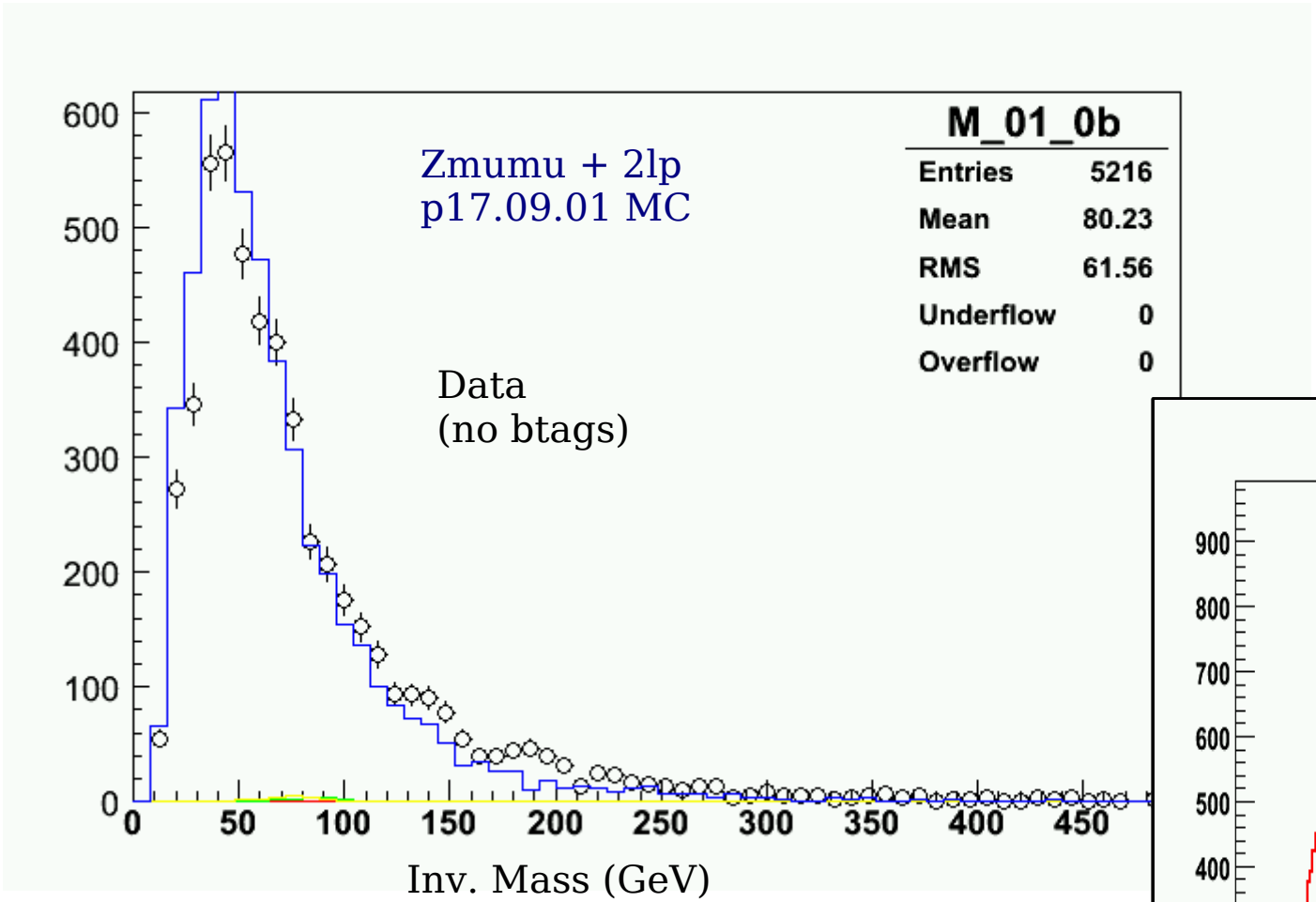


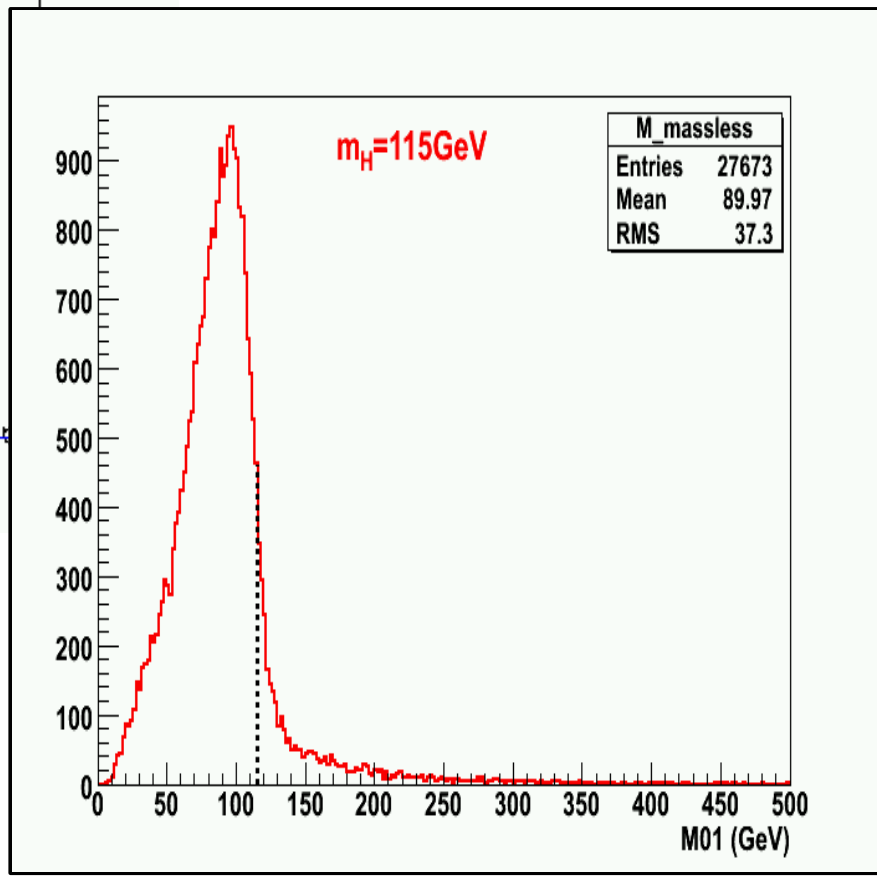

Agrees with measurement in cosmic data of 15% average energy shift...
(Just the average shift was used for preliminary results.)

**p17 ZH(->mumubb):**

I've got data and MC (with version 0 b-tagging)




M_01_0b
Entries 5216
Mean 80.23
RMS 61.56
Underflow 0
Overflow 0
Zmumu + 2lp
p17.09.01 MC
Data
(no btags)
Inv. Mass (GeV)


$m_H$=115GeV
M_massless
Entries 27673
Mean 89.97
RMS 37.3
M01 (GeV)

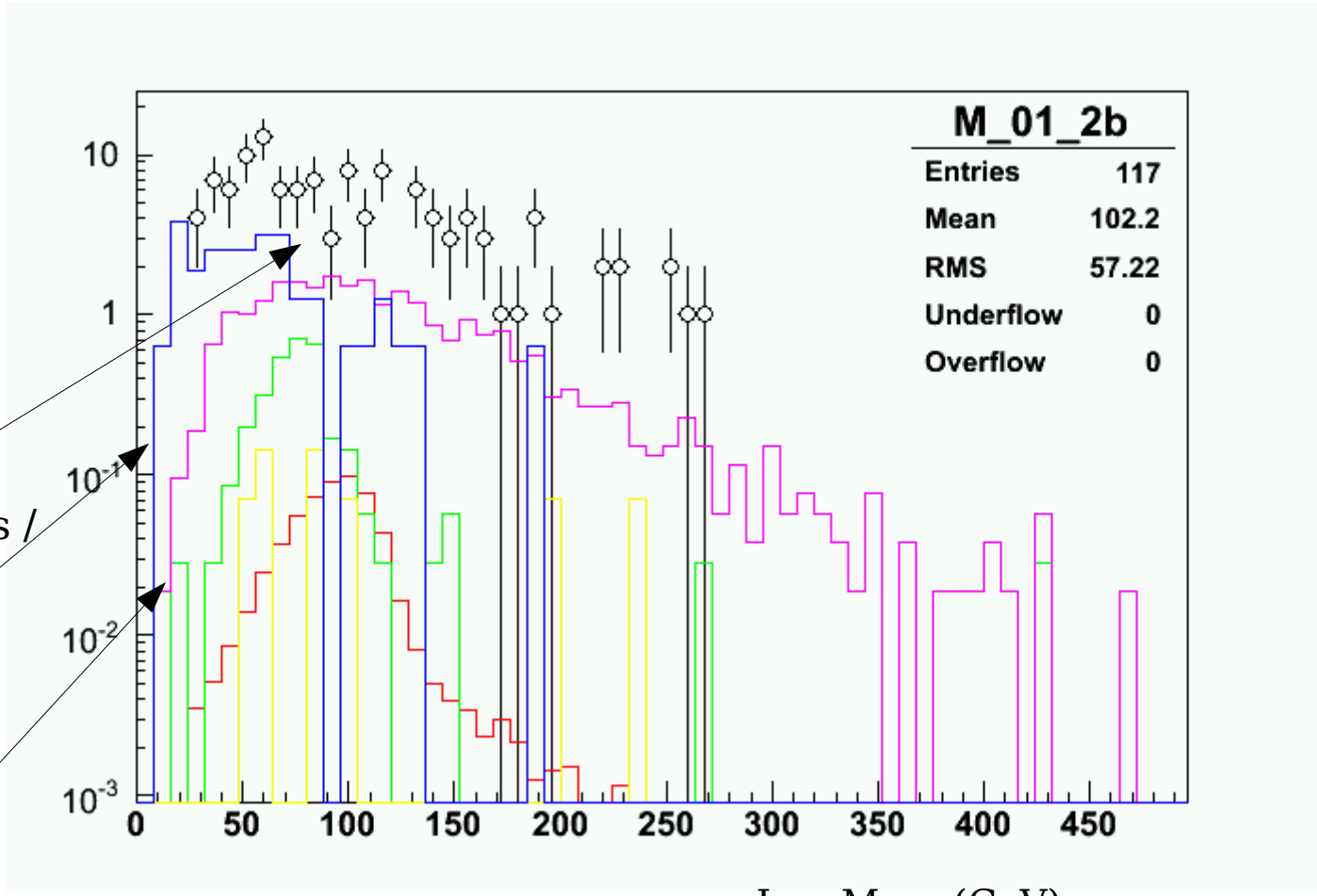
# Double b-tag

**ttbar**

**Zmumu+2lp**

**ZZ** **WZ**

**HZ mumubb**




Background is mostly Zbb/cc
- must reduce using kinematics / angles somehow...

ttbar can be largely reduced with Zmass and other cuts (MET?)

We often forget how NASTY that Z->bb background is... it's nearly *irreducible and sitting right next to the Higgs!!!*