First look

.: Background

Since W+jets+b-tags is under scrutiny, we are quickly looking at Z+jets+b-tags. Obviously, we can ask if the tag rates from SLT and SECVTX match predictions for fake tags. But o

1. Do tag rates in Z+jets match predictions?
2. Is there time-dependence to the boson+jet cross section, the jet counts, taggable jet counts, or the tag rates?

.: Samples/Code

I ran over the tight Z+jets official TopNtuples. These don't have Lester's SLT tags yet, but this will be simple to add. I modified the top analysis example code for speed and modularity, which means these results should be inspected carefully. Then I modified it further to

1. Randomly choose a Z leg to be the neutrino.
2. Ignore the ν Z leg if it was overlooked in N_{jets}, $\sum E_t$. (This is a strange way to treat sumEt.)
3. Correct for, and then add the ν Z leg back to the missing energy.
4. Compare some before-and-after distributions.

I still have some questions about the lepton energies used to make mass plots, and there are many more obvious distributions to show.

Z+jets, electrons

Found (region A,B,C,D)0 3 0 1832

Found 3 SecVtx tags

*** Inclusive dataset ***

== Positive Tag Rate ==

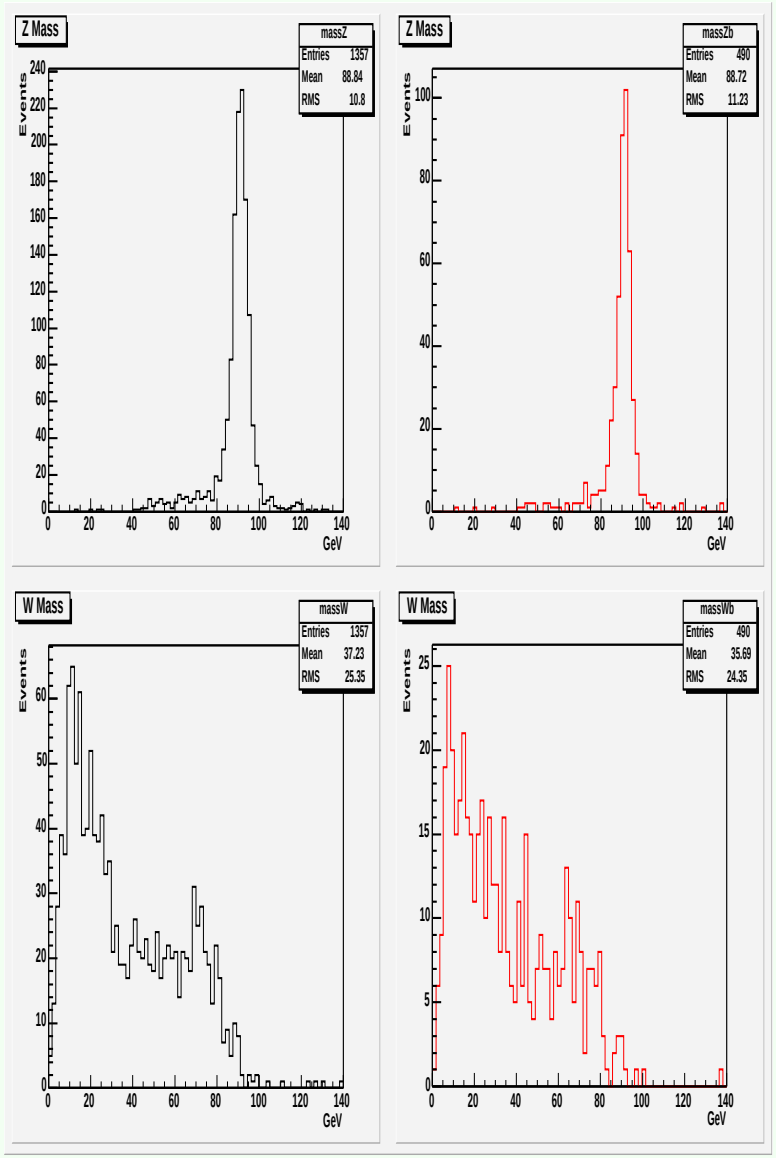
Predicted: 2.51857 +/- 0.244484

Observed: 3 +/- 1.73205

== Negative Tag Rate ==

Predicted: 0.518889 +/- 0.234274

Observed: 1 +/- 1

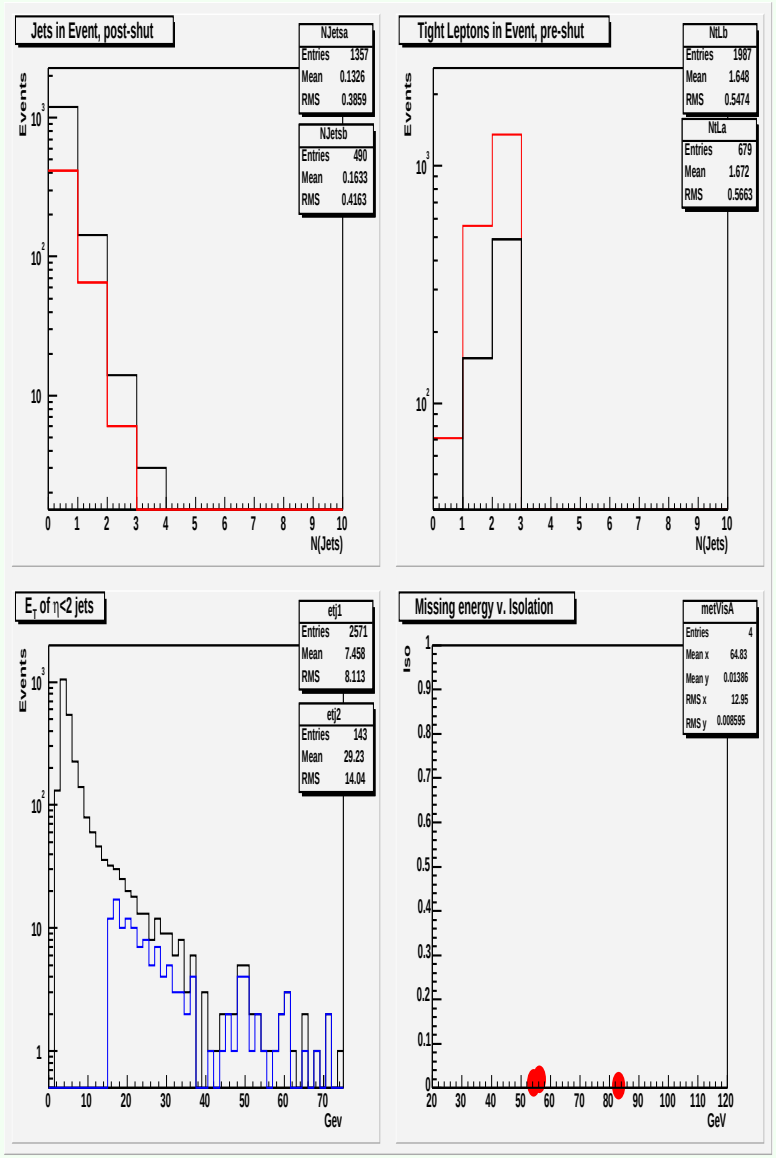


Z+jets, electrons (2)

:.

```
*** Z + Jets (0 jet) ***
== Positive Tag Rate ==
Predicted: 0 +/- 0
Observed: 0 +/- -0
== Negative Tag Rate ==
Predicted: 0 +/- 0
Observed: 0 +/- -0
*** Z + Jets (1 jet) ***
== Positive Tag Rate ==
Predicted: 1.85281 +/- 0.243863
Observed: 3 +/- 1.73205
== Negative Tag Rate ==
Predicted: 0.362333 +/- 0.233951
Observed: 0 +/- -0
*** Z + Jets (2 jet) ***
== Positive Tag Rate ==
Predicted: 0.260778 +/- 0.00869499
Observed: 0 +/- -0
== Negative Tag Rate ==
Predicted: 0.0513814 +/- 0.00548528
Observed: 0 +/- -0
*** Z + Jets (3 jet) ***
== Positive Tag Rate ==
Predicted: 0.212945 +/- 0.0106773
Observed: 0 +/- -0
== Negative Tag Rate ==
Predicted: 0.0457023 +/- 0.00827919

Observed: 0 +/- -0
```



Z+jets, muons

Found (region A,B,C,D)0 3 0 446

Found 0 SecVtx tags

*** Inclusive dataset ***

== Positive Tag Rate ==

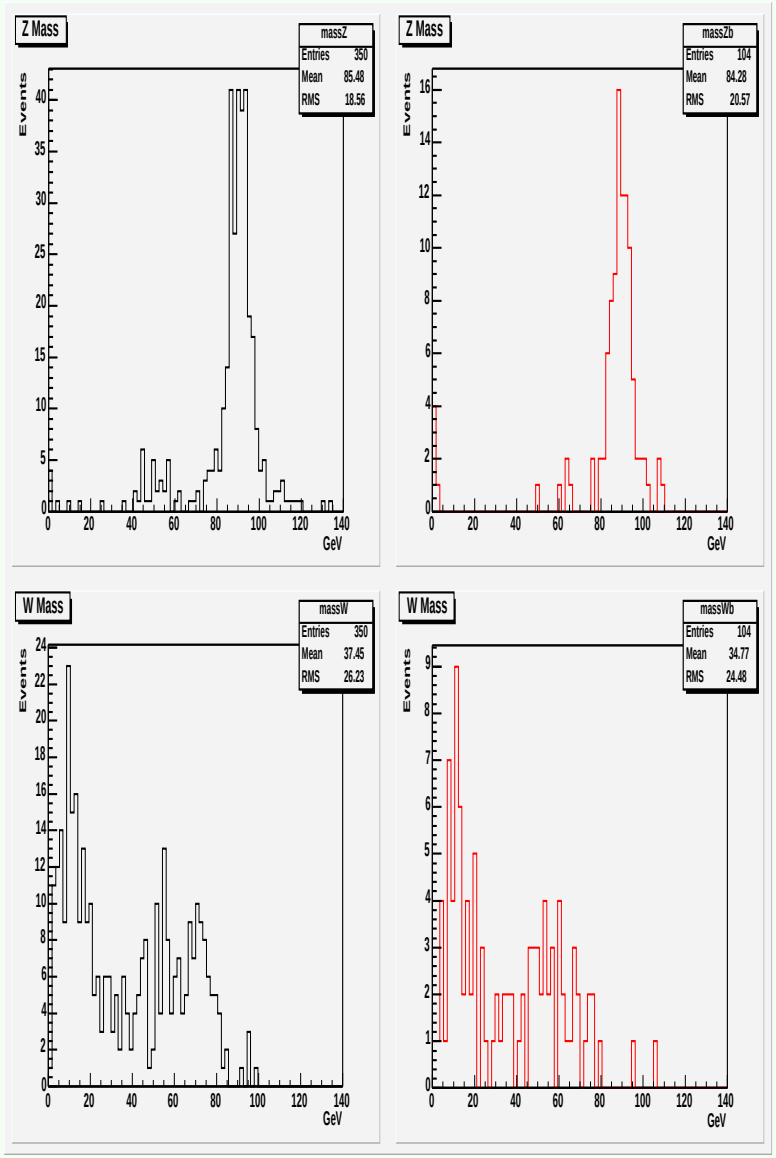
Predicted: 1.00039 +/- 0.180086

Observed: 0 +/- -0

== Negative Tag Rate ==

Predicted: 0.209003 +/- 0.146136

Observed: 0 +/- -0



Z+jets, muons (2)

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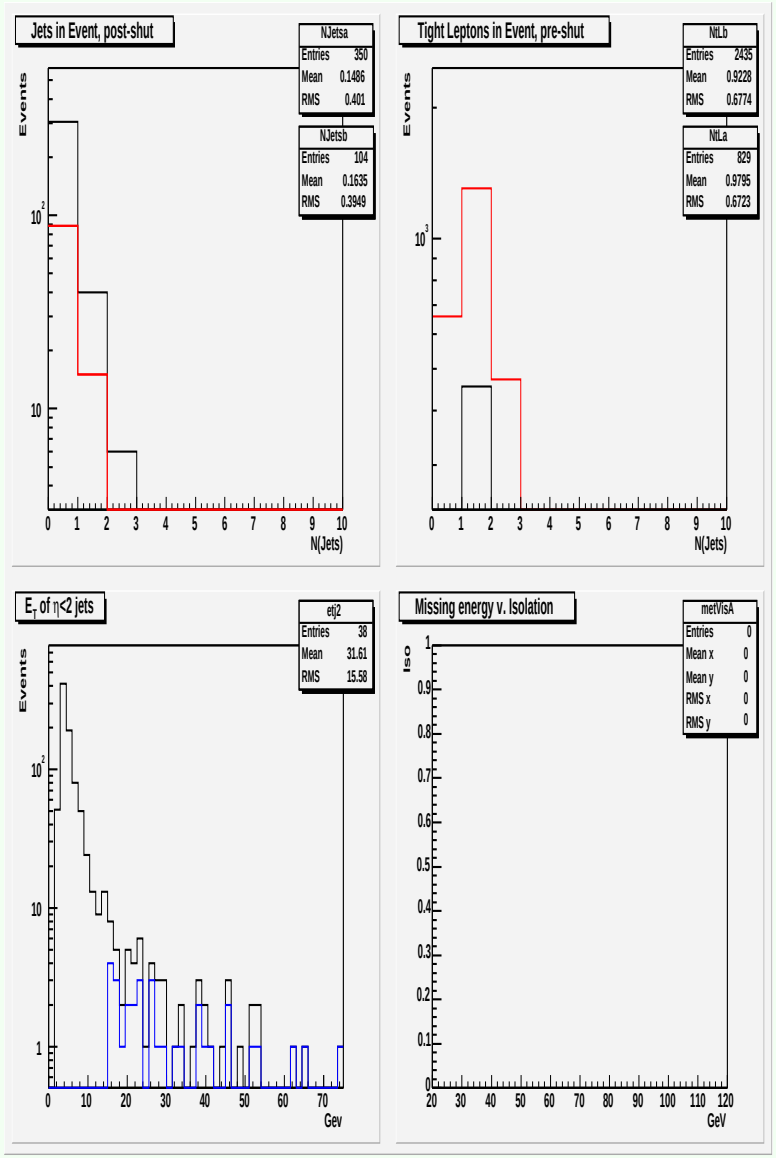
```
*** Z + Jets (0 jet) ***
== Positive Tag Rate ==
Predicted: 0 +/- 0
Observed: 0 +/- -0
== Negative Tag Rate ==
Predicted: 0 +/- 0
Observed: 0 +/- -0
*** Z + Jets (1 jet) ***
== Positive Tag Rate ==
Predicted: 0.781805 +/- 0.16195
Observed: 0 +/- -0
== Negative Tag Rate ==
Predicted: 0.155936 +/- 0.12796
Observed: 0 +/- -0
*** Z + Jets (2 jet) ***
== Positive Tag Rate ==
Predicted: 0.0967301 +/- 0.00399365
Observed: 0 +/- -0
== Negative Tag Rate ==
Predicted: 0.00921588 +/- 0.00149637
Observed: 0 +/- -0
*** Z + Jets (3 jet) ***
== Positive Tag Rate ==
Predicted: 0 +/- 0
Observed: 0 +/- -0
== Negative Tag Rate ==
Predicted: 0 +/- 0

Observed: 0 +/- -0
```