Level 3 Tau Tool

discrepancy offline-online, bugs in p12, L3Tau tracking

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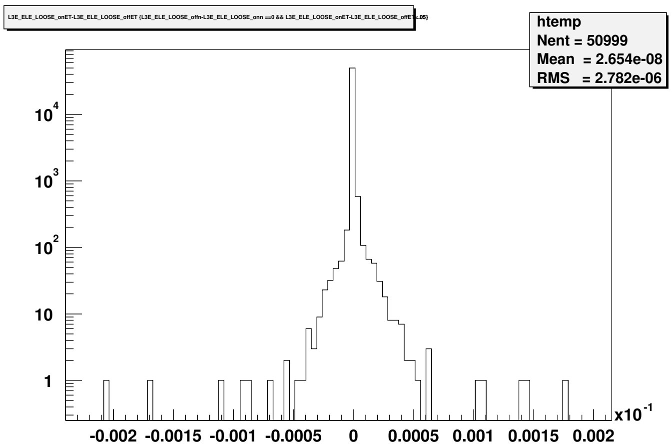
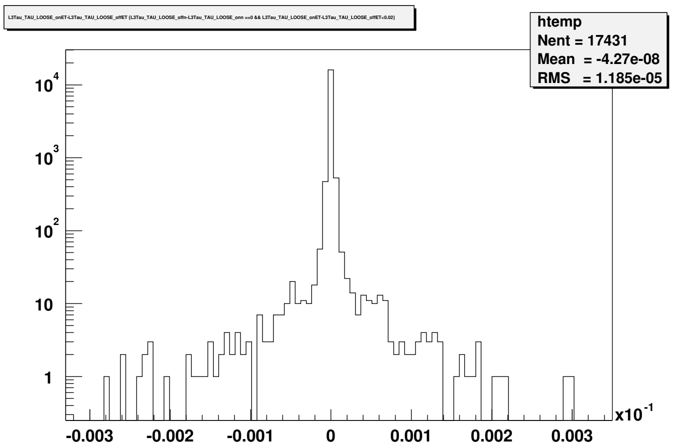
Discrepancy online-offline

- “old” problem: online results do not exactly agree with offline
- What I did:
  - take the special tracking run (p11.06)
  - run `tsim_l3` on it (p11.09) and keep both online and offline results in rootuple (thanks Jon!)



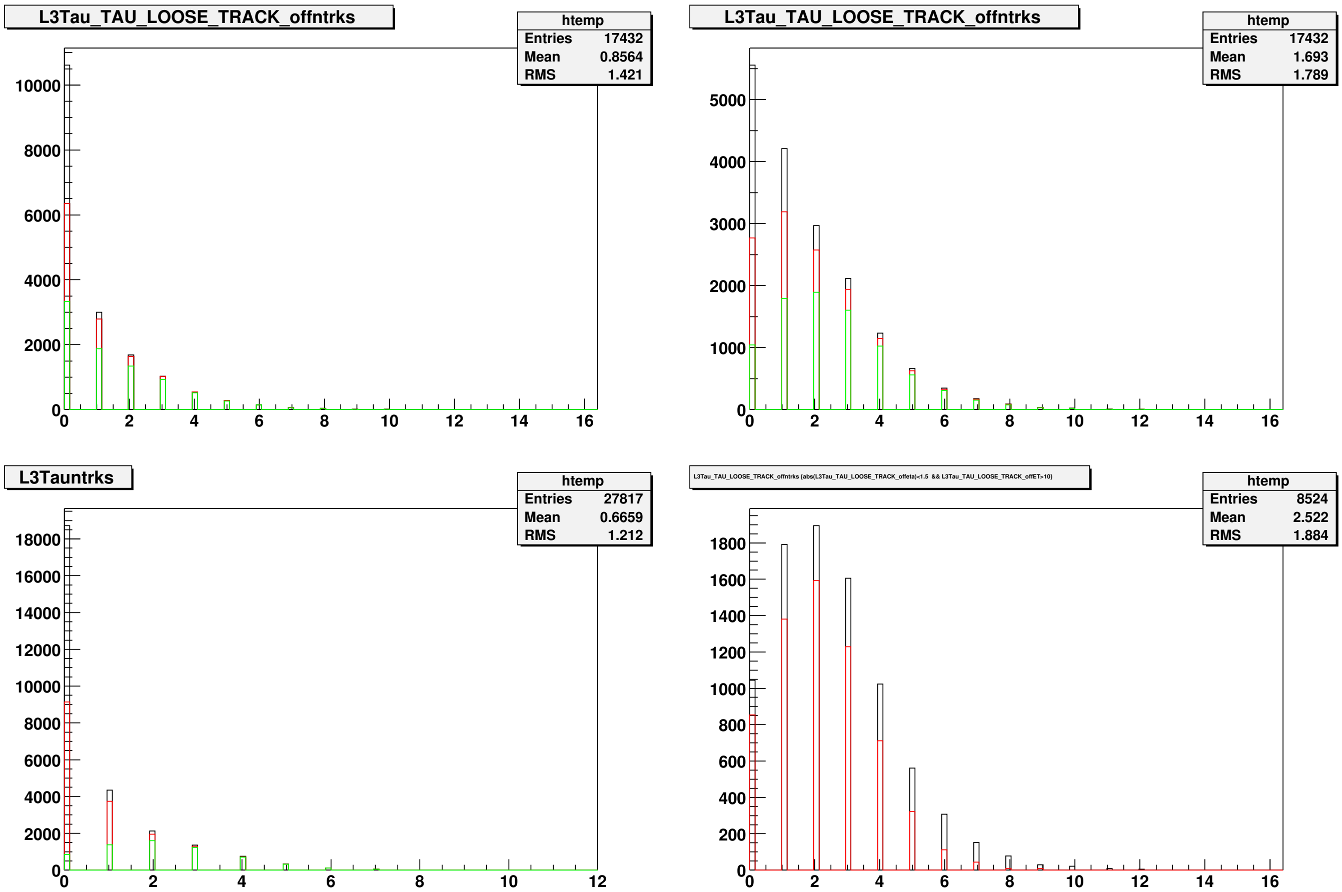


Bugs in production and test releases

- Crash with l3muon unpacker in p12 ⇒ Martijn and Christophe found it (“fixed-in-p11-but-not-propagated-to-test-release” strikes again...)
- l3fanalyze wouldn’t write toolstat.root when using the automated version ⇒ fixed by Jon.
- l3fanalyze couldn’t deal with toolstat.root when used twice ⇒ addressed by Jon.
- L3 tracking is a pain to use on MC or data. Exact list of what is required in both cases urgently needed!!

Tracking in Tau Tool

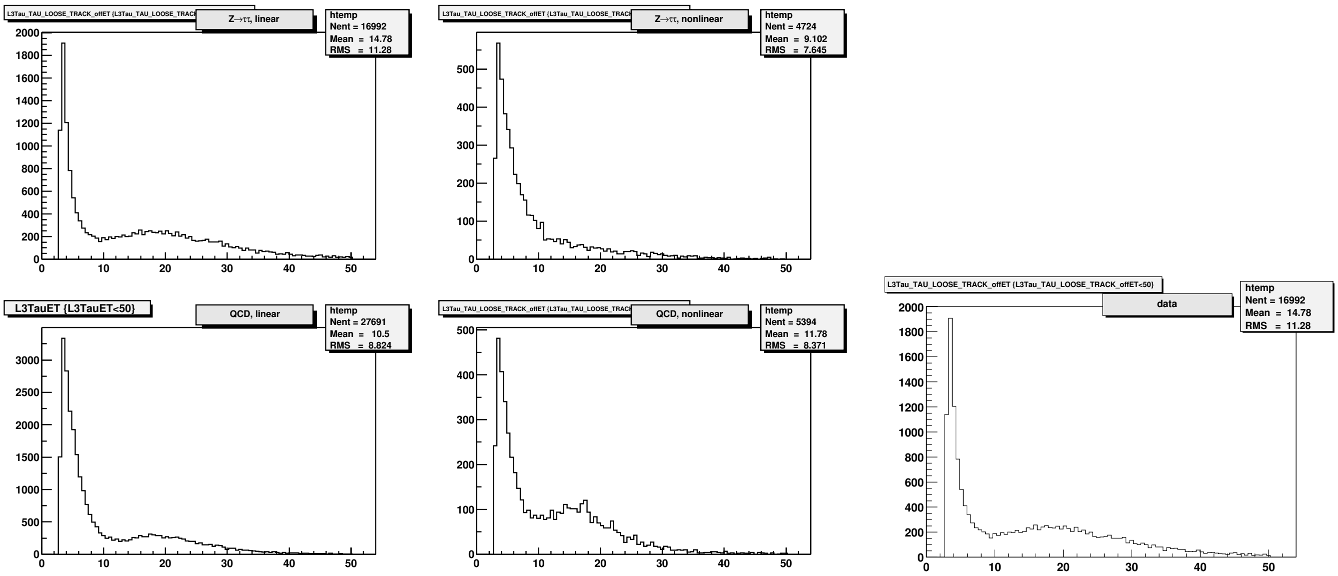
- Looking first at the special run
- Many clusters with no tracks associated. Why?
  - $|\eta| < 1.5$...
  - stereo info?

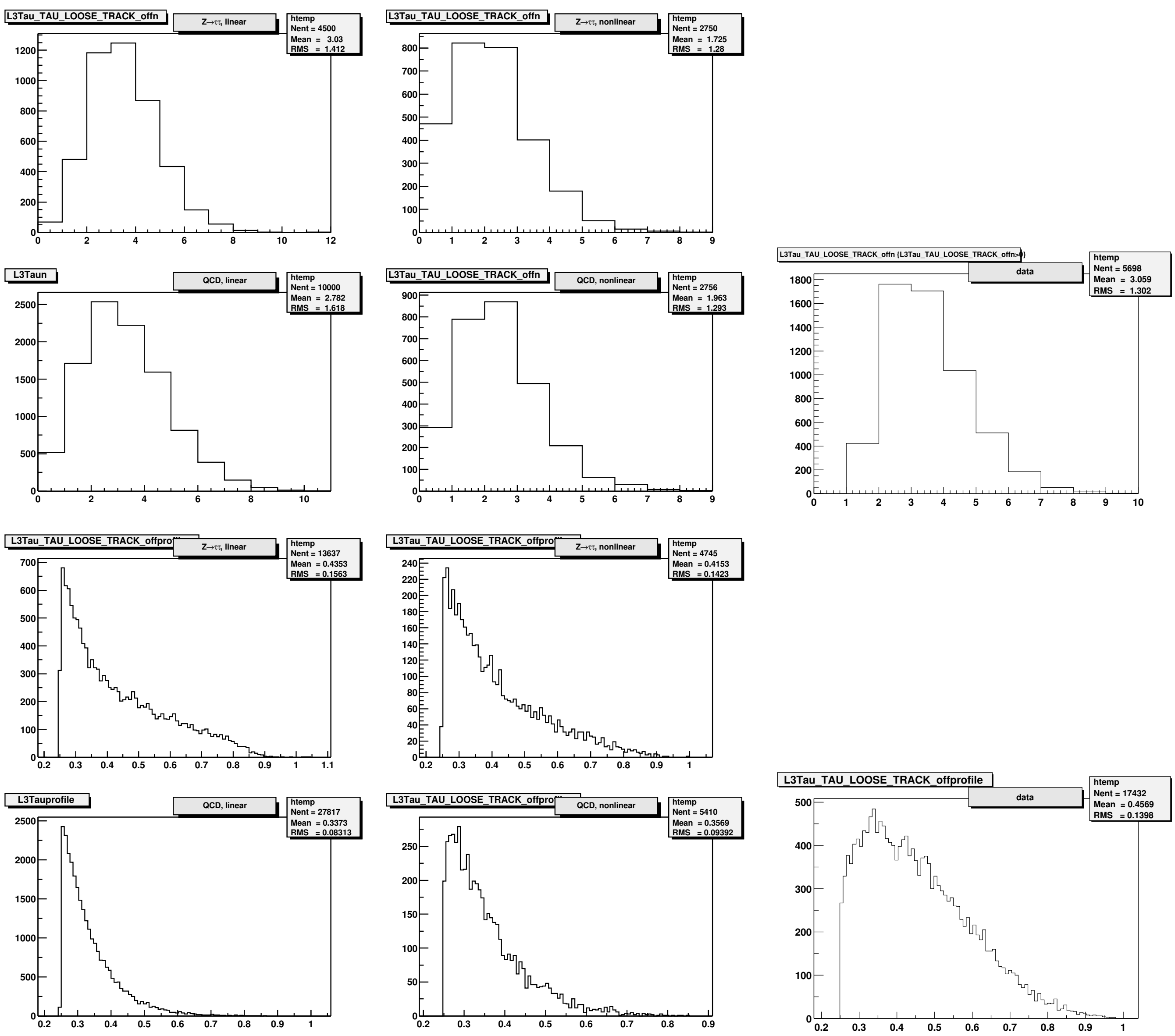


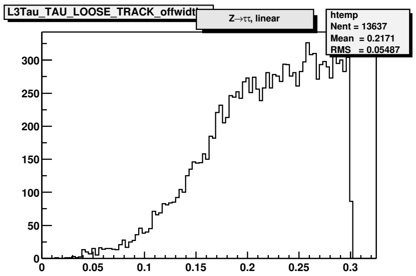
Not fully understood yet, but needs to be put in the code!

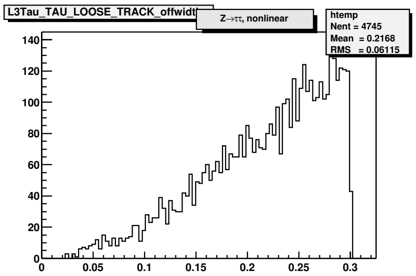
Impact of non linearities

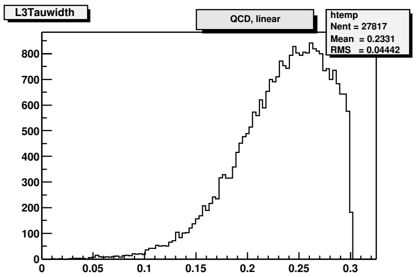
- VERY PRELIMINARY
- Took p11.09 reco cert files ($Z \to \tau\tau$ and QCD)
- Ran the same `tsim_l3` on those files and on earlier MC files
- BIG differences

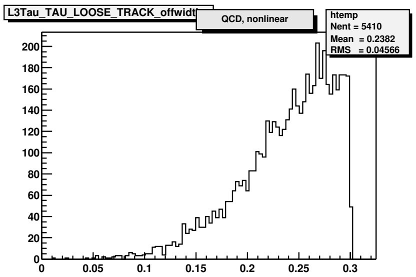


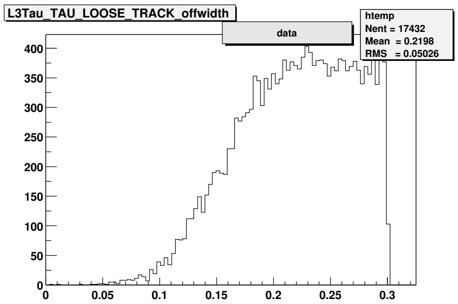

L3Tau_TAU_LOOSE_TRACK_offn
Z→ττ, linear
htemp
Nent = 4500
Mean = 3.03
RMS = 1.412
L3Tau_TAU_LOOSE_TRACK_offn
Z→ττ, nonlinear
htemp
Nent = 2750
Mean = 1.725
RMS = 1.28
L3Tau_TAU_LOOSE_TRACK_offn (L3Tau_TAU_LOOSE_TRACK_offn>0)
data
htemp
Nent = 5698
Mean = 3.059
RMS = 1.302
L3Taun
QCD, linear
htemp
Nent = 10000
Mean = 2.782
RMS = 1.618
L3Tau_TAU_LOOSE_TRACK_offn
QCD, nonlinear
htemp
Nent = 2756
Mean = 1.963
RMS = 1.293
L3Tau_TAU_LOOSE_TRACK_offpro
Z→ττ, linear
htemp
Nent = 13637
Mean = 0.4353
RMS = 0.1563
L3Tau_TAU_LOOSE_TRACK_offpro
Z→ττ, nonlinear
htemp
Nent = 4745
Mean = 0.4153
RMS = 0.1423
L3Tauprofile
QCD, linear
htemp
Nent = 27817
Mean = 0.3373
RMS = 0.08313
L3Tau_TAU_LOOSE_TRACK_offpro
QCD, nonlinear
htemp
Nent = 5410
Mean = 0.3569
RMS = 0.09392
L3Tau_TAU_LOOSE_TRACK_offprofile
data
htemp
Nent = 17432
Mean = 0.4569
RMS = 0.1398


L3Tau_TAU_LOOSE_TRACK_offwidt
Z→ττ, linear
htemp
Nent = 13637
Mean = 0.2171
RMS = 0.05487


L3Tau_TAU_LOOSE_TRACK_offwidt
Z→ττ, nonlinear
htemp
Nent = 4745
Mean = 0.2168
RMS = 0.06115


L3Tauwidth
QCD, linear
htemp
Nent = 27817
Mean = 0.2331
RMS = 0.04442


L3Tau_TAU_LOOSE_TRACK_offwidt
QCD, nonlinear
htemp
Nent = 5410
Mean = 0.2382
RMS = 0.04566


L3Tau_TAU_LOOSE_TRACK_offwidth
data
htemp
Nent = 17432
Mean = 0.2198
RMS = 0.05026

To do before Saturday...

- Check better (really) tracking performance
- Figure out what is going on with non-linearities
- Documentation: provide at least basic description of variables
- gcc: add a few bug fixes
- stereo information?