

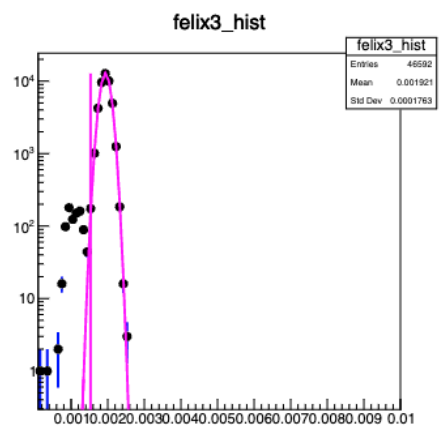
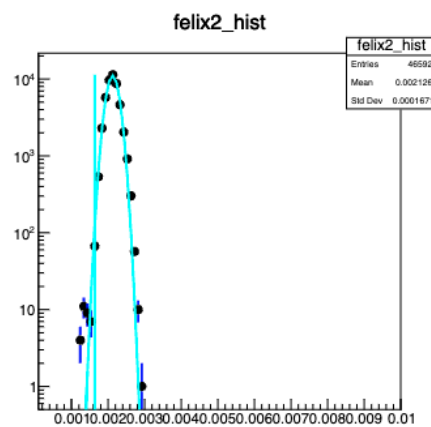
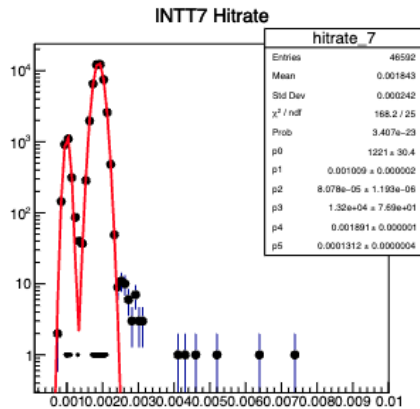
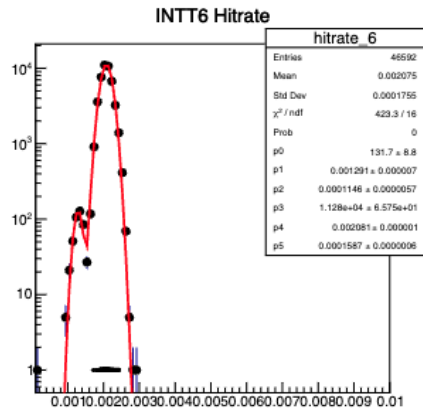
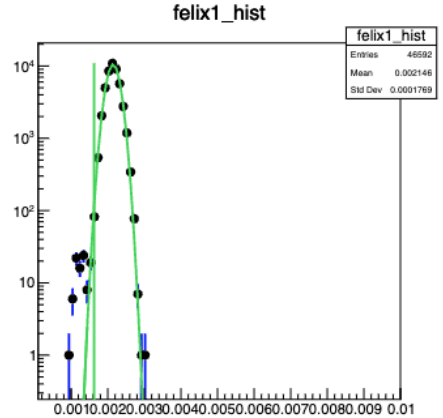
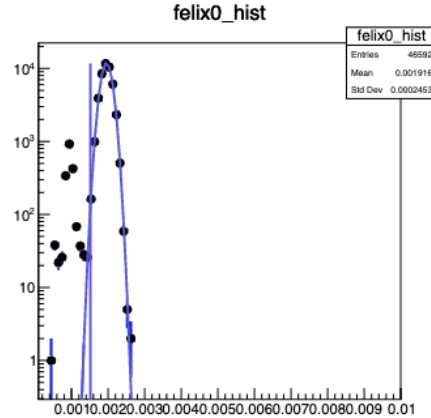
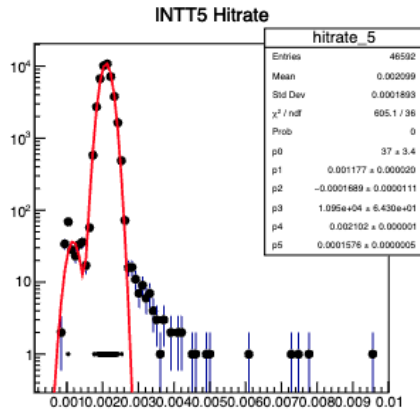
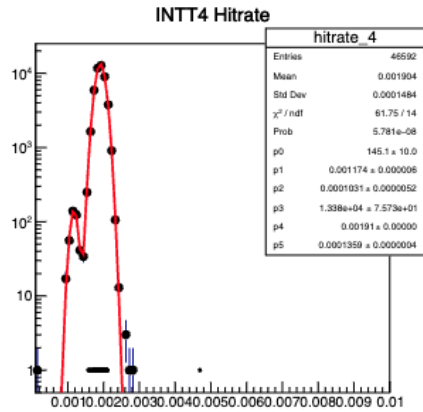
INTT Weekly Meeting

Joseph Bertaux
7/17/2024

Hot Channel Update

- I've been traveling since returning from BNL on the 29th
 - Should've communicated that I would be taking time off
 - Wasn't as productive as normal during this time
 - Back now
- Finished implementing Jaein/Yuka's algorithm for calibrations

Hot Channel Update (cont'd)



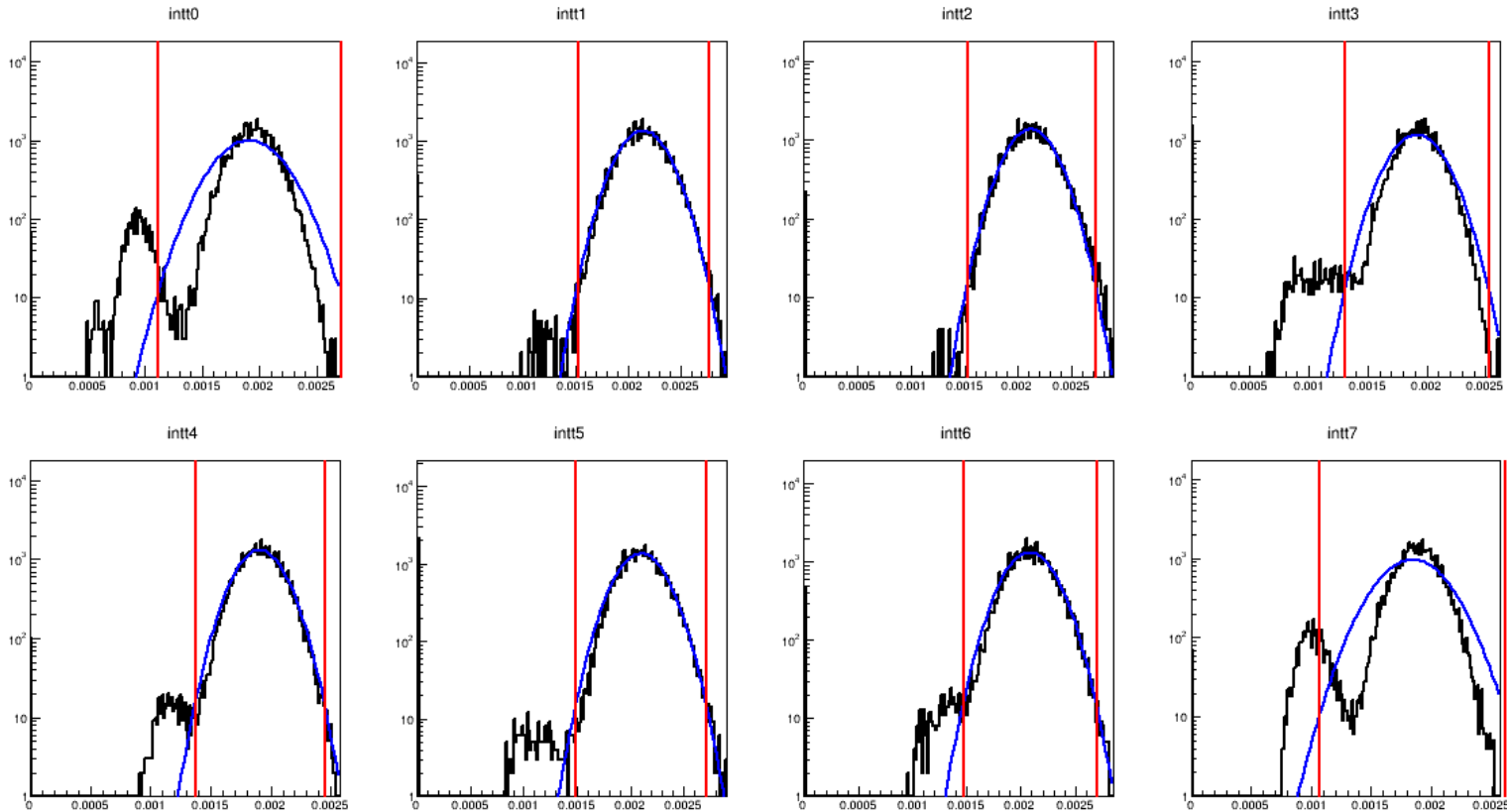
Current code in INTT repo

Output from check

Hot Channel Update (cont'd)

- Had to rewrite much of the source code, but the algorithm matches what is currently being done
- Jaein and I checked it last night/this morning
- You can see half-entry channels
- I ended up choosing a different binning scheme to avoid the existing hardcoded one
- Here is what the a plot looks like:

Hot Channel Update (cont'd)



Run: 00047652 Events: 50000
Fraction Cold: 0.165%
Fraction Hot: 2.775%

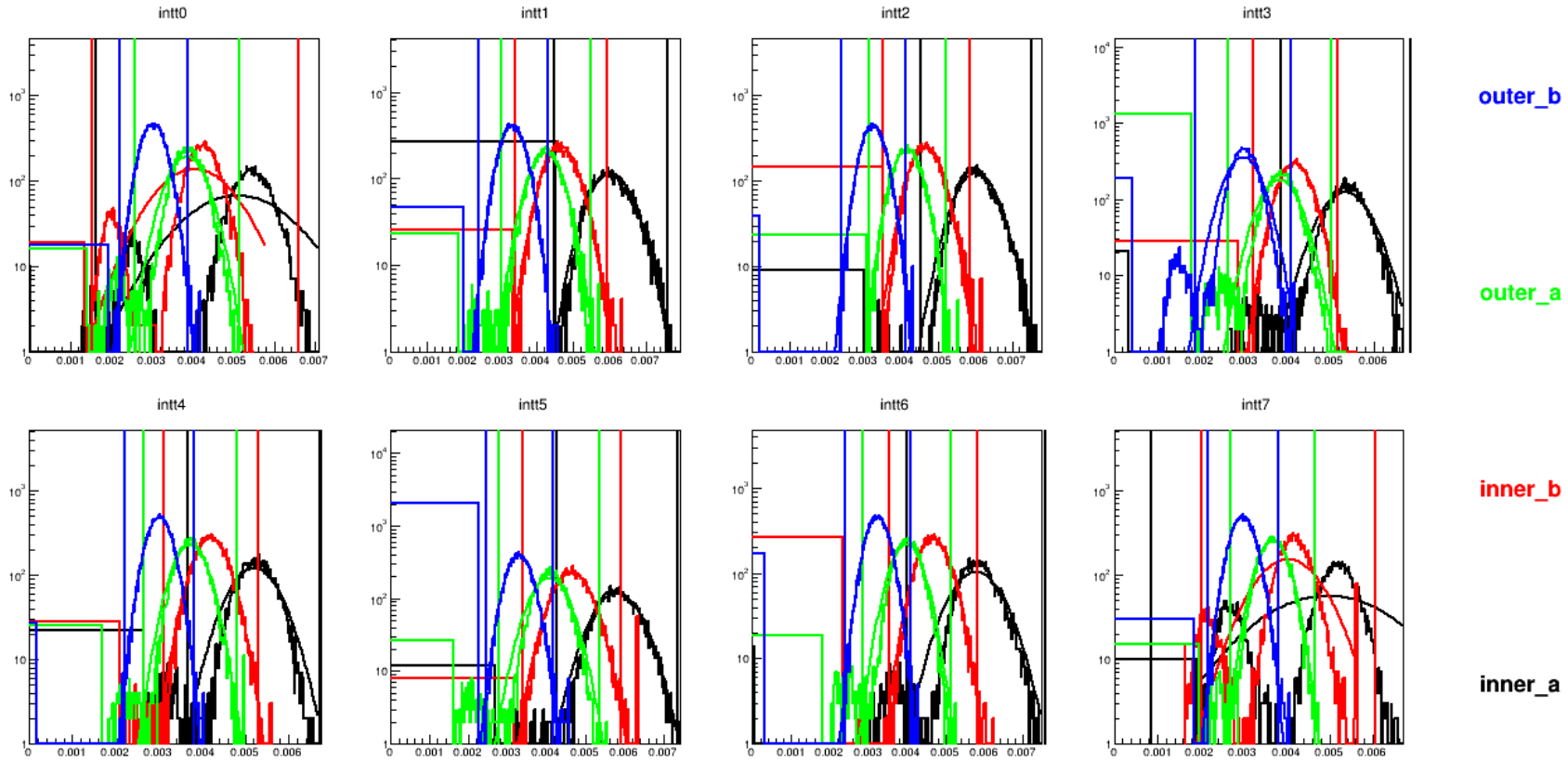
Hot Channel Update (cont'd)

- Red lines are cut values
 - Currently +/- 3 sigma
 - Can be changed
- Dead channels are excluded from the fit range
 - Can bias fit
 - Can be identified before fitting (0 hitrate)

Hot Channel Update (cont'd)

- Long tail from before was due to a normalization error
 - In general, to normalize you need to do an involved convolution of the original distribution
- In general I am wary of normalizations; we can move to a stratified version
 - Instead of modifying based on
 - barrel/sensor type/felix server
 - Do independent fits
 - Example on next slide

Hot Channel Update (cont'd)



Run: 00047652 Events: 50000
Fraction Cold: 0.166%
Fraction Hot: 2.009%

Hot Channel Update (cont'd)

- Still need to identify half entry channels in pp
 - Jaein and I have an idea of how to do this:
 - Compare 1 Gaussian vs 2 Gaussian fit
 - Choose based on χ^2 / ndof
- Current version is ready to be pushed
 - <https://github.com/josephbertaux/coresoftware/tree/calib/calibrations/intt/inttcalib>