

Tracker Update

C Hunt

MICE CM53

21-02-2019



Current Status

- Next release of MAUS will have the new MC Noise model,
- Noise rate is in and works, some tweaks to the NPE calculation still needed,
- Tom is looking at improving the MC bad channel's model,
- I made some changes to the pattern recognition algorithm - working on validating and investigating those,
- The tracker resin measurements have slipped due to other pressures.

This should become a priority!



Bad Channels Model

- We know that the calibrated bad channels correspond to channels in break down and those that were uncalibrate-able,
- Many channels exist that could be calibrated, but produce no signal - these are not masked!
- Tom is looking at producing a new file that includes the channels that don't produce any noise,
- This can be easily incorporated into the MC to improve the agreement with data.

Work is ongoing, but unfortunately no plots today.



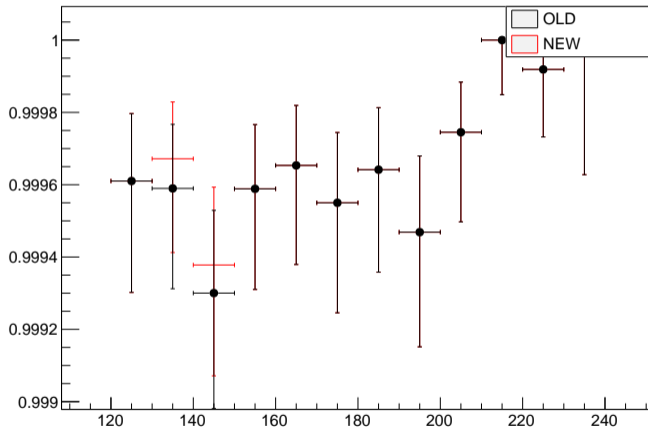
The Updates to MAUS

- Implemented a bounding circle routine to estimate track radius independently of a fit. Results are highly correlated with the fit results!
- Use the new algorithm as a seed for Pattern Recognition,
- Should help avoid low-pt tracks being mis-reconstructed.



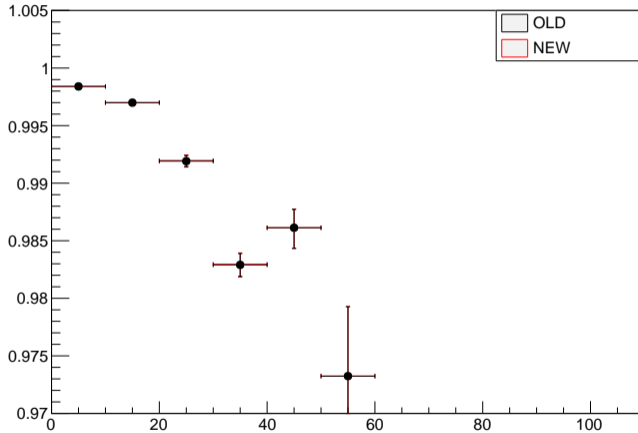
Efficiency ρ_z

Track Efficiency in P_z

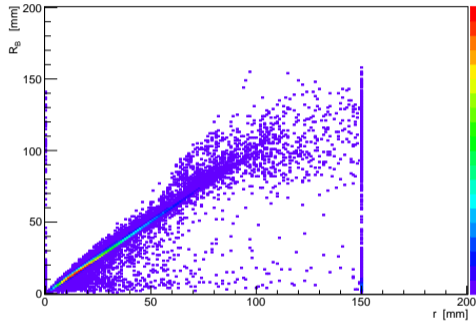


Efficiency ρ_t

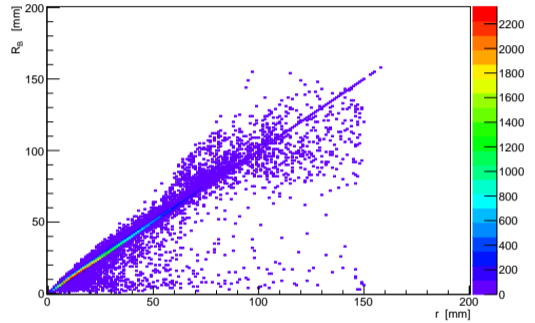
Track Efficiency in P_{\perp}



Bounding Radius



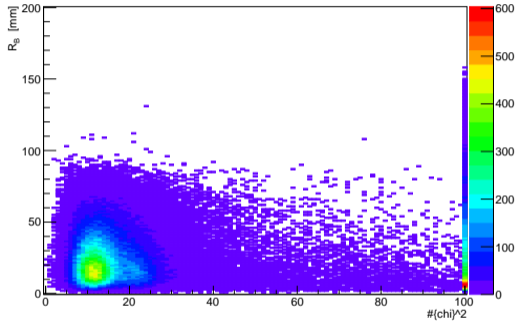
OLD



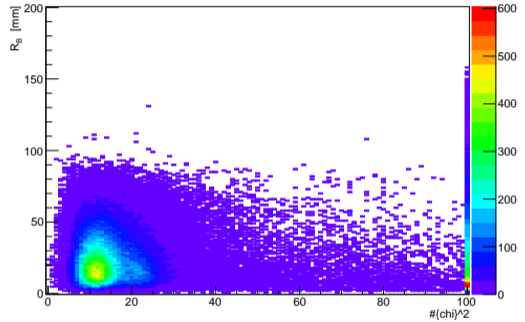
NEW



χ^2 Behaviour



OLD



NEW



Conclusions

- Events seem to be generated with better radii,
- This is not reflected in the efficiency calculation - I think I forgot the cuts!
- Need to double check the cuts and reproduce the efficiency plots,
- Bounding radius algorithm seems to do as expected.

This was quite rushed, but we're getting there. Will be resolved in the next week or so.

