

BTOF Calibration for Run 19 19.6GeV with new TPC alignment

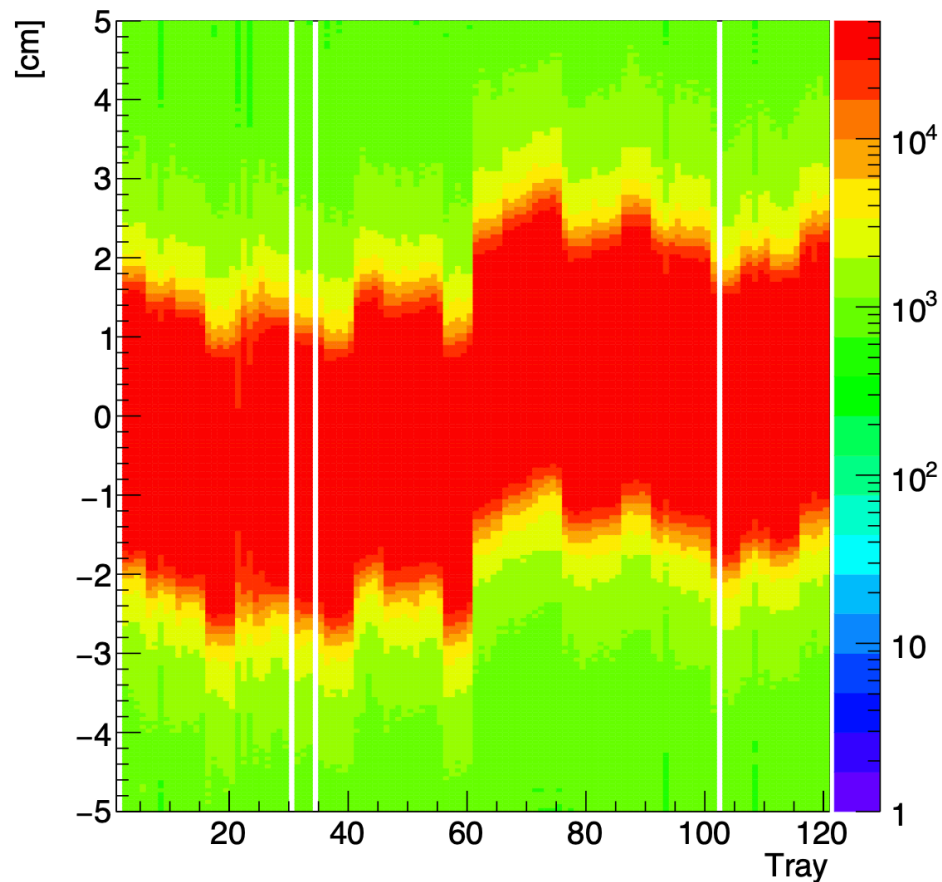
Chenliang Jin

11/27/2024

BTOF geometry alignment

- Geometry alignment of BTOF need to be calibrated since the data is new TPC aligned. It is well aligned after calibration now.

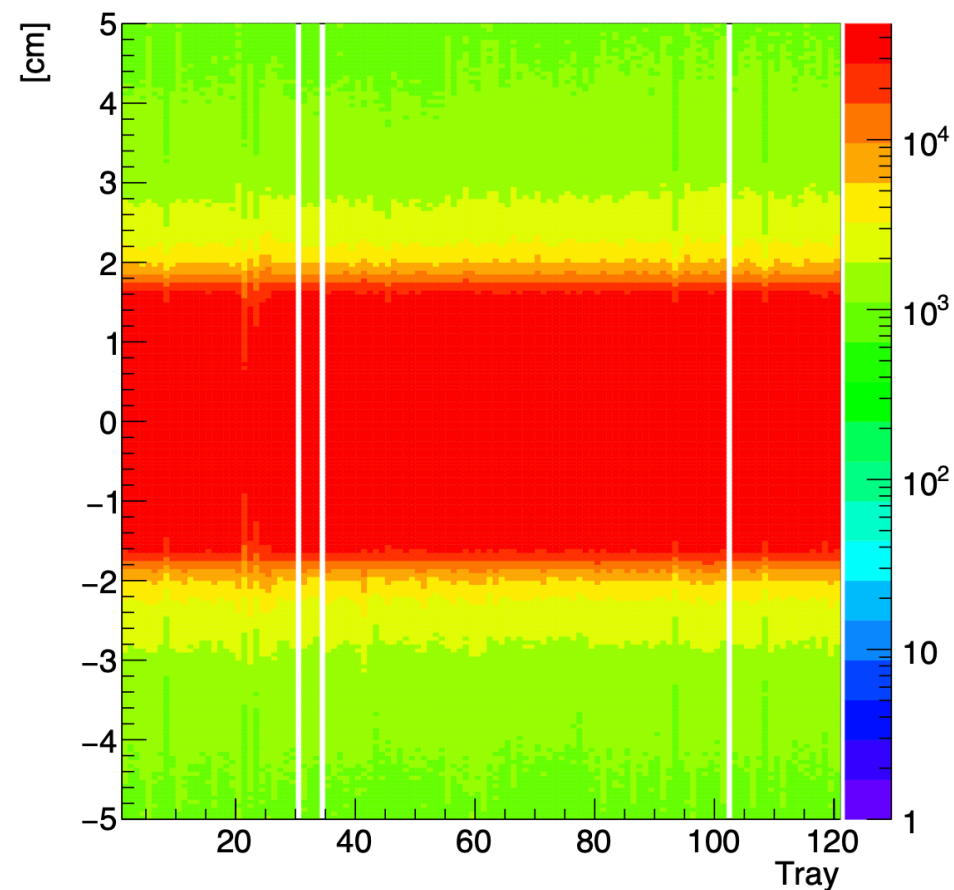
yLocal vs. Tray



Raw data with new alignment

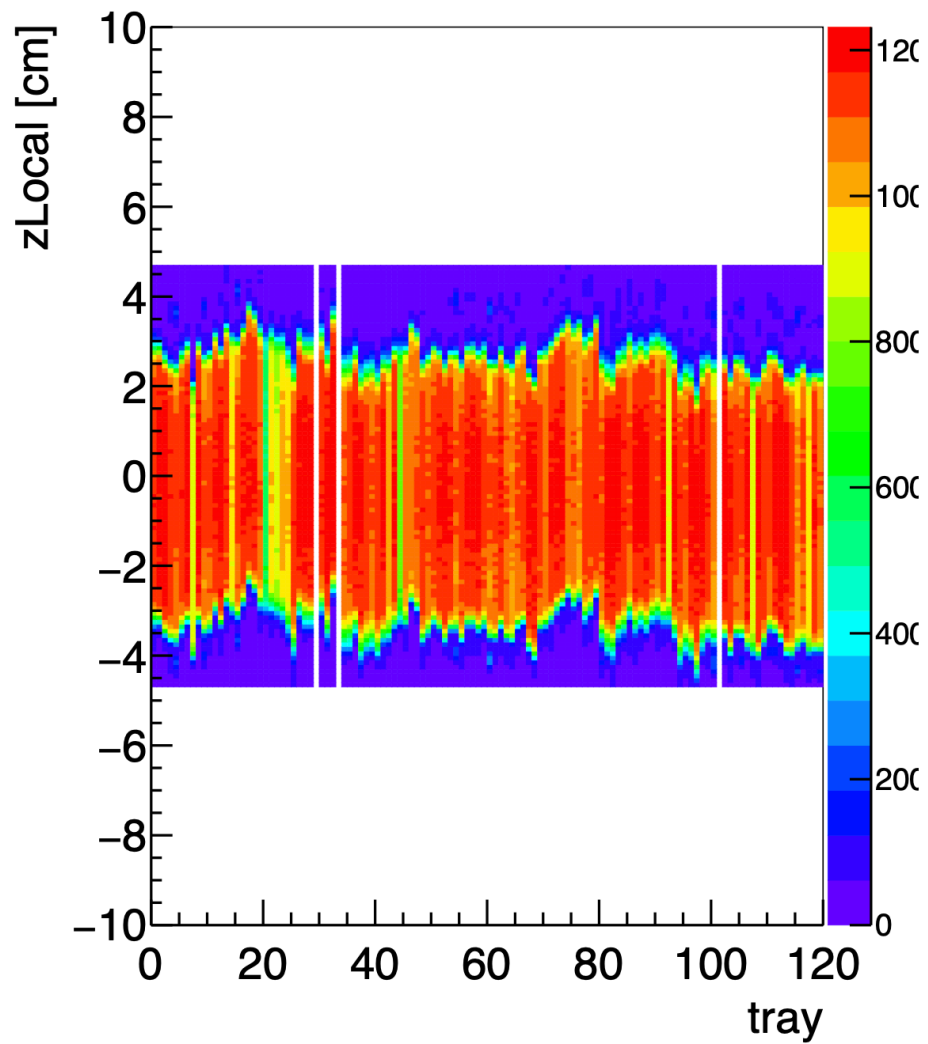
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yLocal vs. Tray



Data with calibration

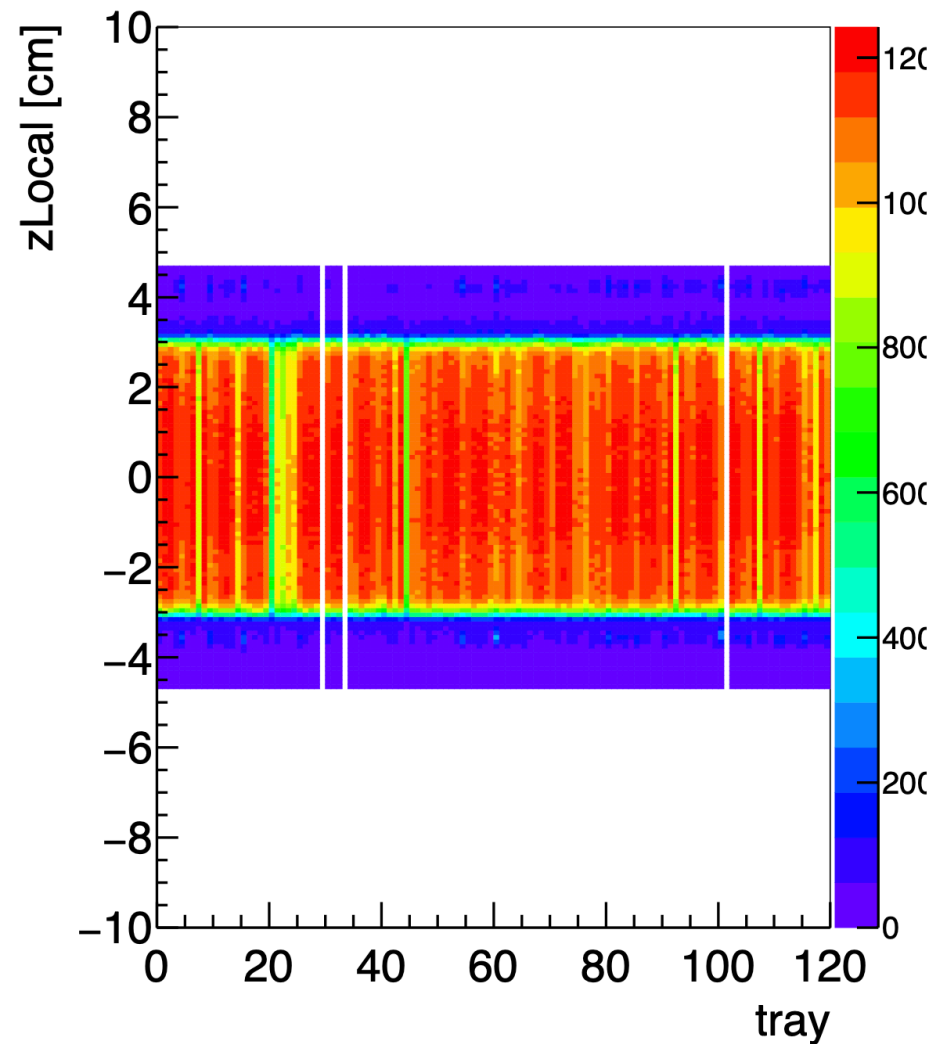
Z Local Position All Modules



Raw data with new alignment

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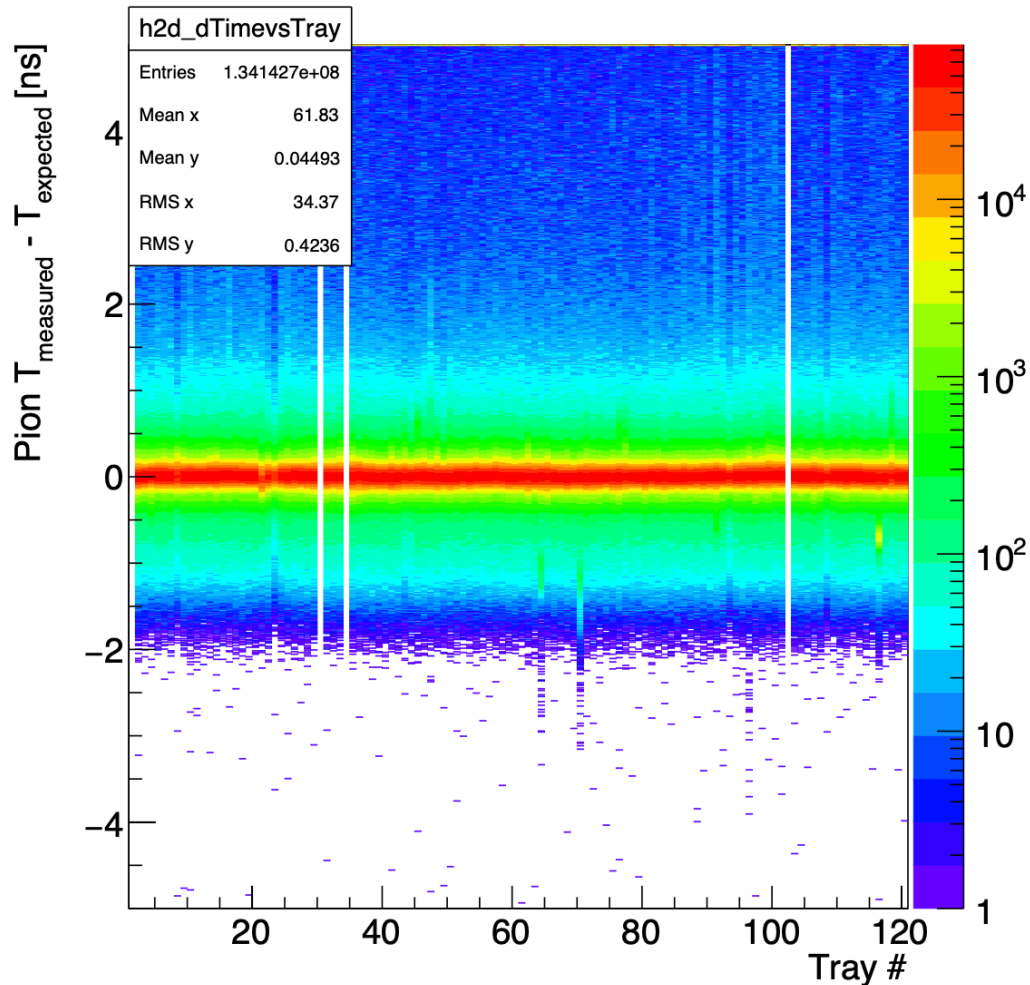
Z Local Position All Modules



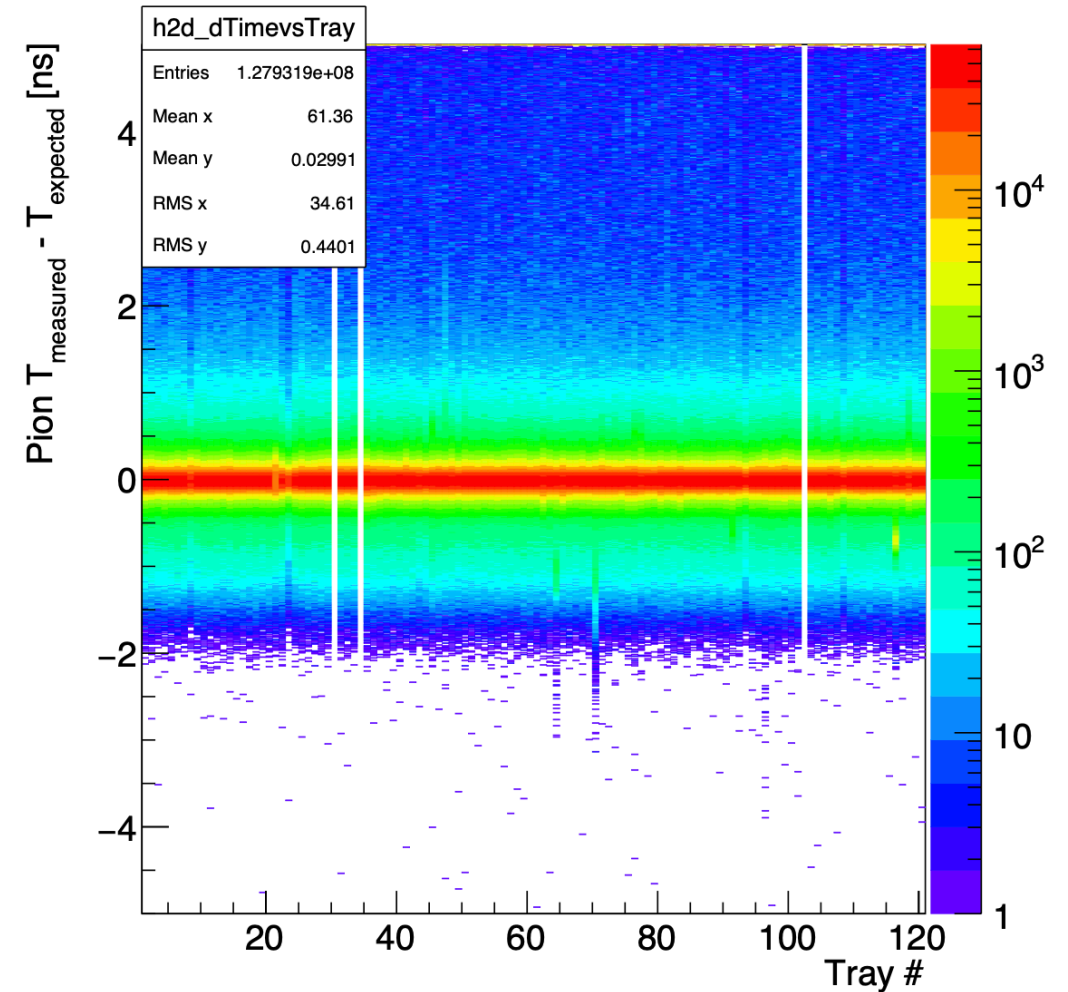
Data with calibration

BTOF T0 Calibration

- BTOF T0 has good behaviour. Now we include the tray 1.



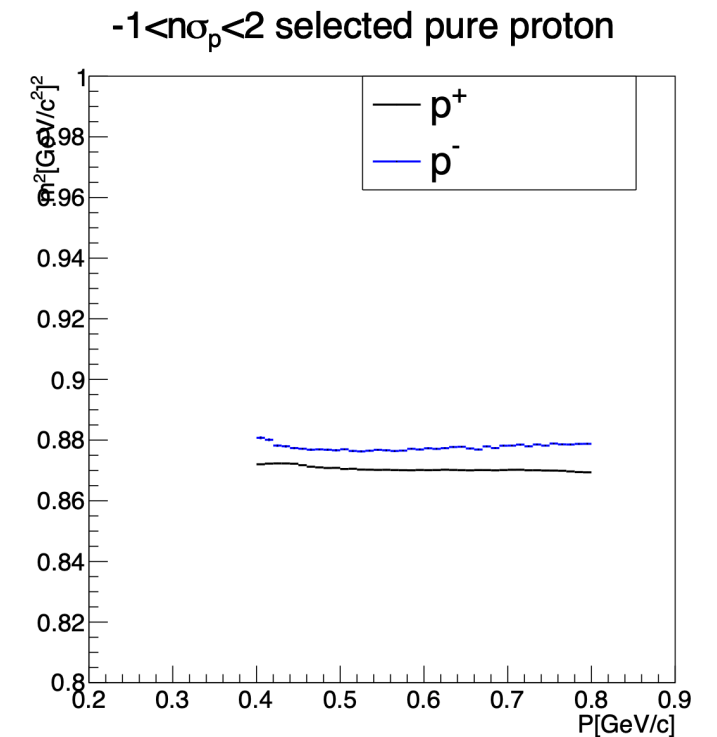
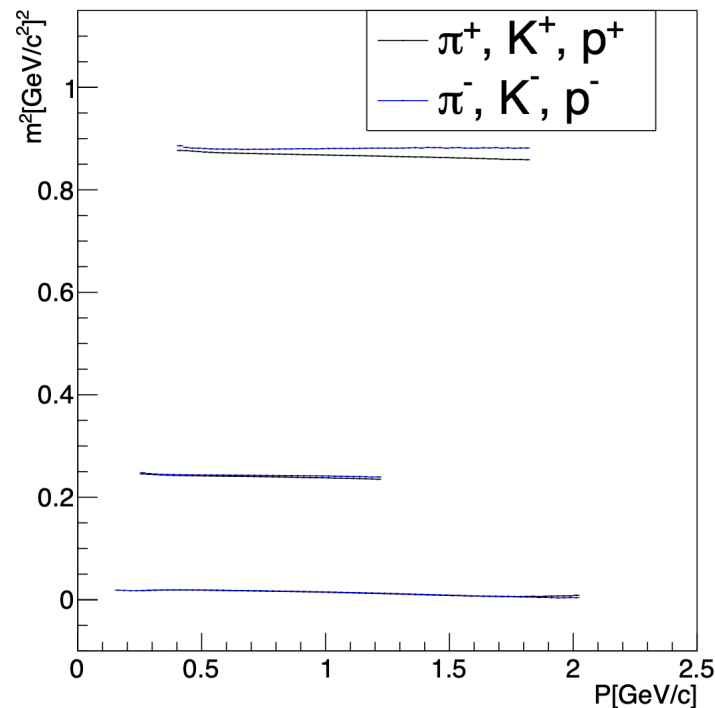
Raw data with new alignment



Data with calibration

Charged particle mass splitting

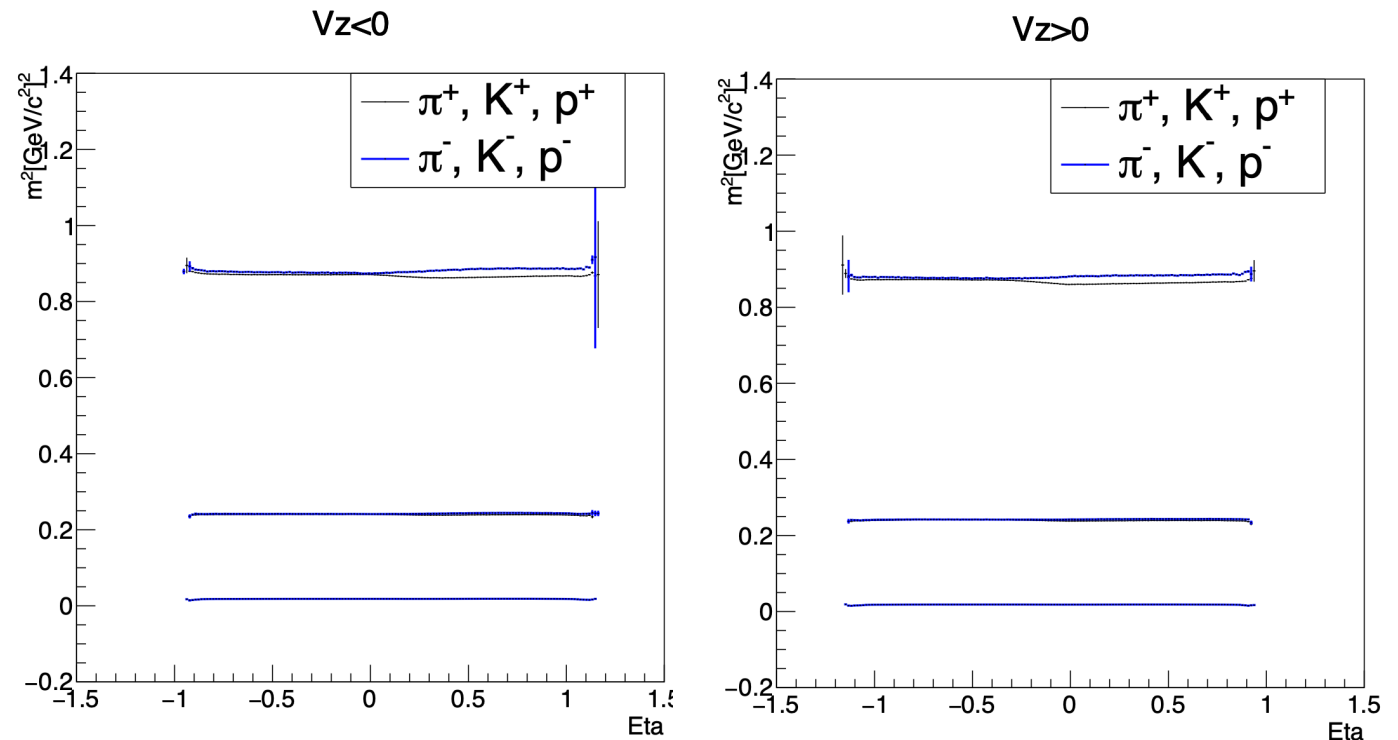
- We observed the charged particle mass splitting similar as previous Run21 00 200GeV dataset.
- The mass difference between positive and negative particles increases when the momentum goes larger.
- The splitting is much larger when eta has a positive value. And it is very small when eta is negative.



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It has no Vz or ZDC Rate dependence



Summary

- New BTOF Calibration for Run19 AuAu 19.6GeV data. BTOF T0 and geometry behaviour are already good now.
- We will use the new calibration parameters from 19.6GeV to check FXT datasets again.
- Charged particle mass splitting is observed again similar as Run2100 200GeV.

