

MINISTERUL CERCETĂRII, INOVĂRII ȘI DIGITALIZĂRII



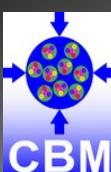
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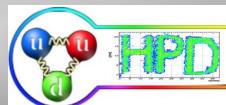
TRD contribution for Tracking and Vertexing @ mCBM22 [2391]

Alex Bercuci

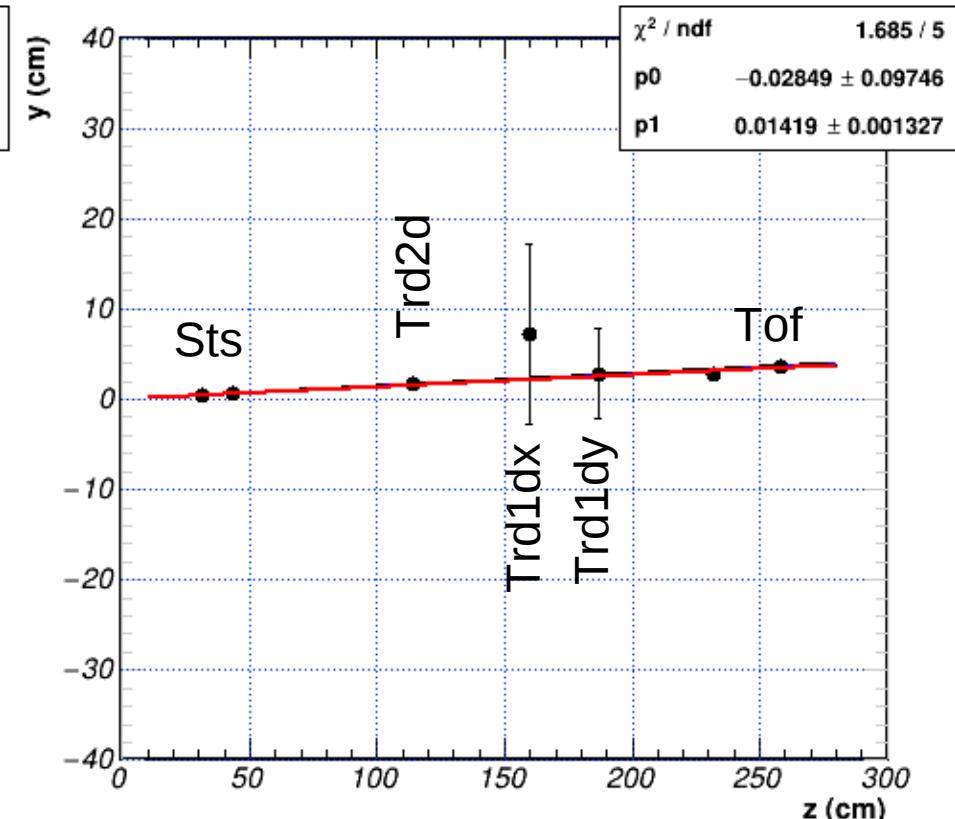
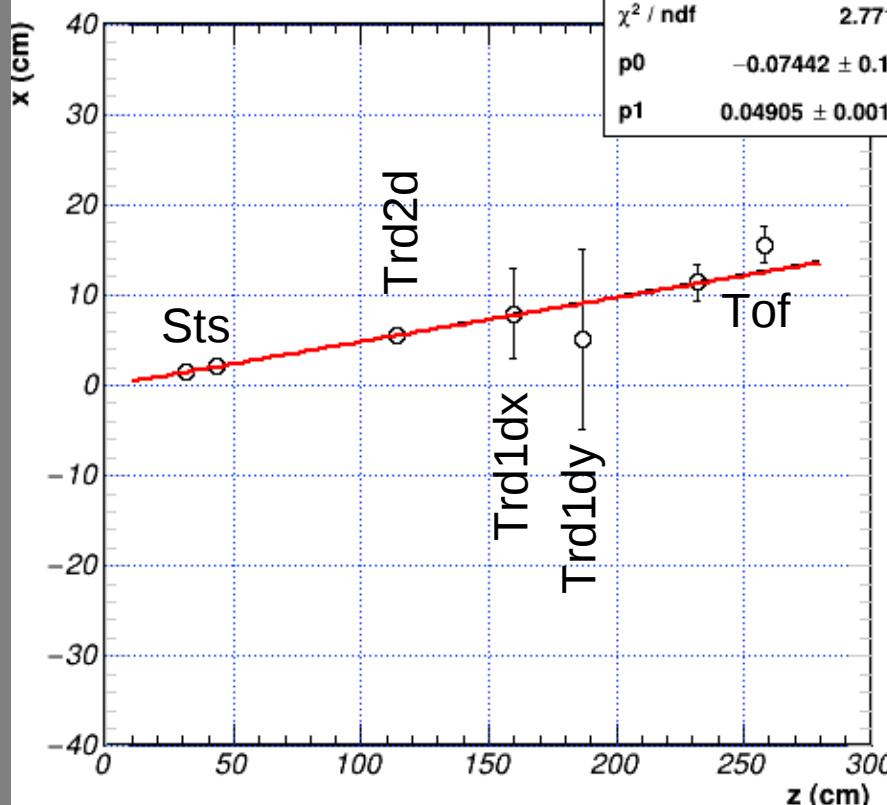
*TRD Meeting
14th February 2024*



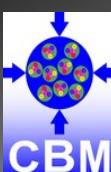
Attached hits and the track model



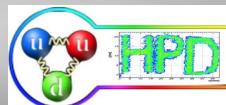
2391_node9_5_0027_TS18923_EV15872



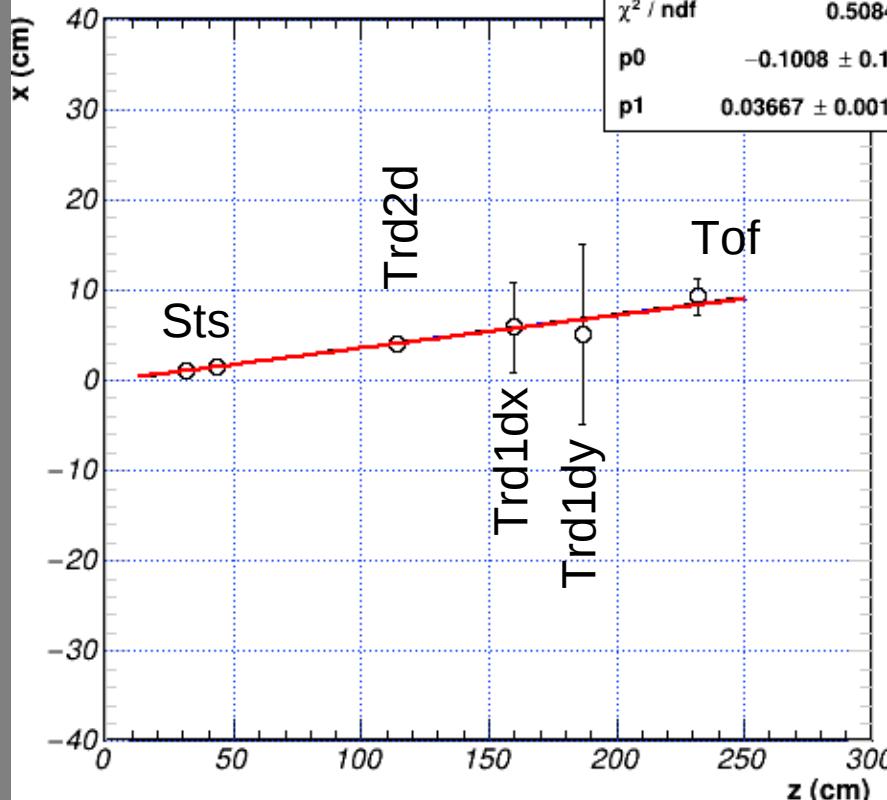
- Hits are defined by position and errors
- Errors should account for : reco uncertainties, [incomplete] calibration, [incomplete] alignment, [fake attachment], track definition, multiple-scattering, etc
- The track model is pol1 and can be used to iteratively determine errors !
 - STS $\text{dxy} = 1 \times 1 \text{ mm}$
 - TRD2D $\text{dxy} = 1 \times 5 \text{ mm}$
 - TRD1D $\text{dxy} = 3 \times 100 \text{ mm}$
 - ToF $\text{dxy} = 20 \times 5 \text{ mm}$ (due to time calibration uncertainty)



Attached hits and the track model

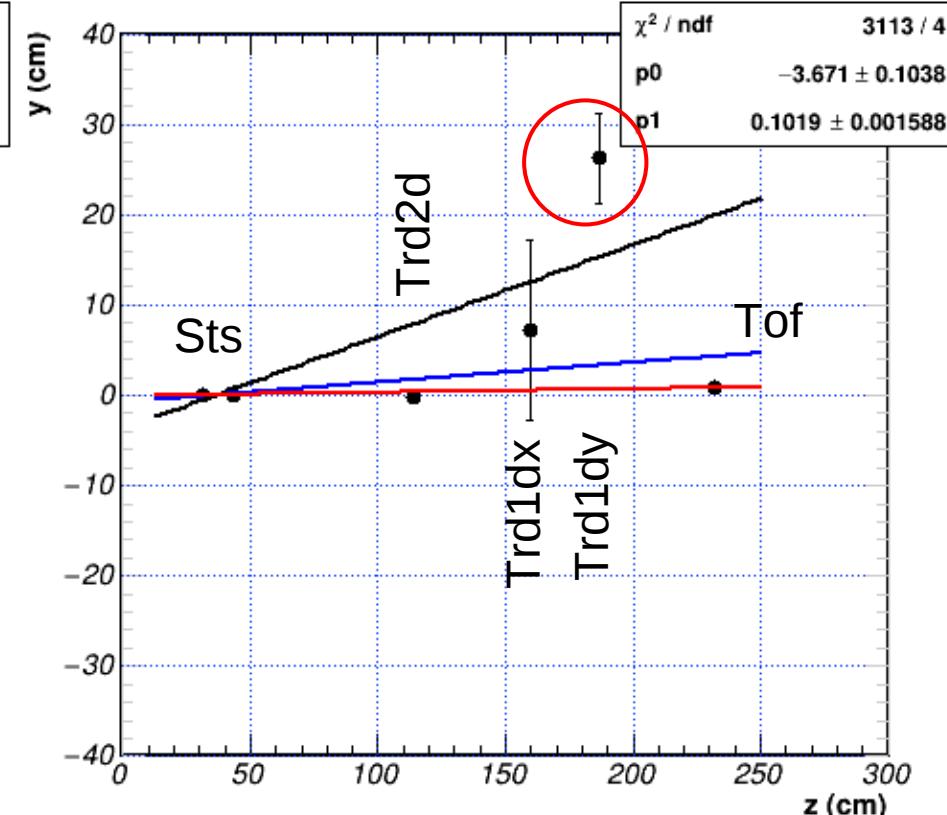


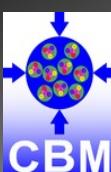
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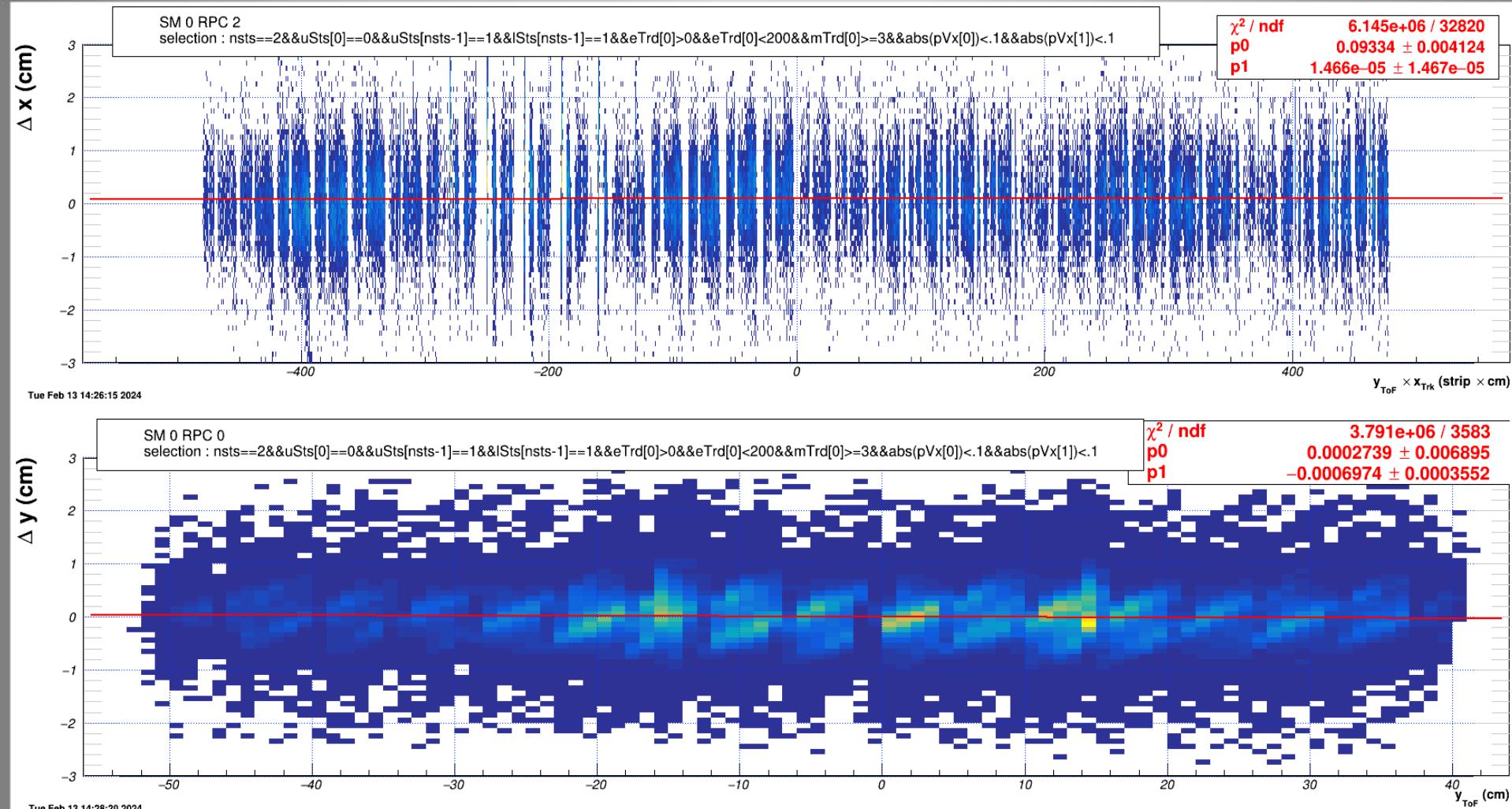
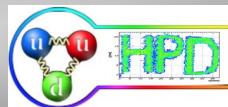
- Hits of TRD1D are often wrongly attached
- Errors should account for **fake attachment**

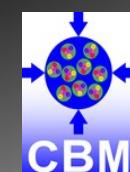
- TRD1D dxy = 3 x 100 mm (default)
- TRD1D dxy = 10 x 100 mm (intermediate but still pulls on ToF residuals)
- TRD1D dxy = 50 x 100 mm (irrelevant but conserve vertex and ToF residuals)



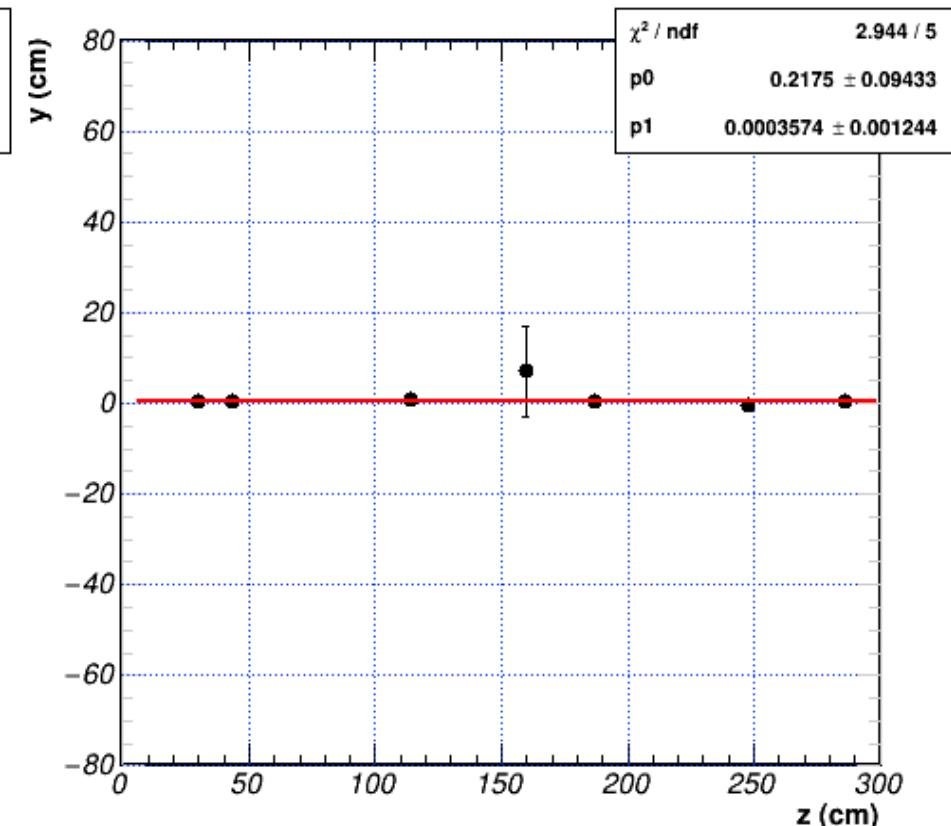
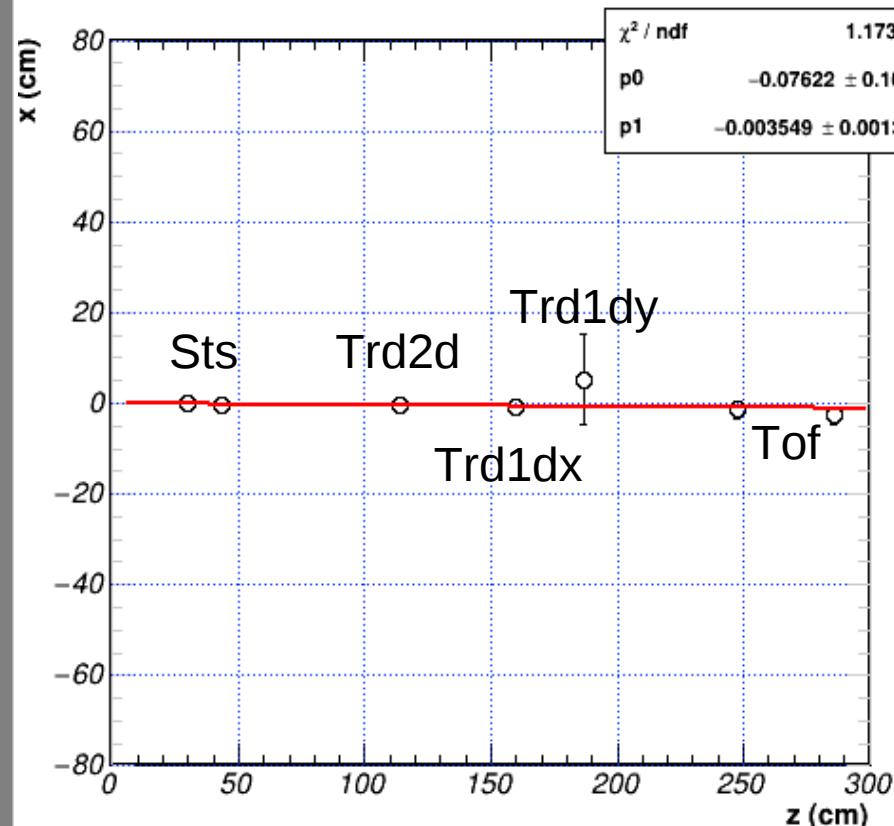
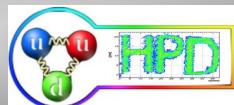


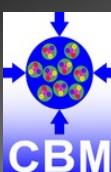
ToF alignment



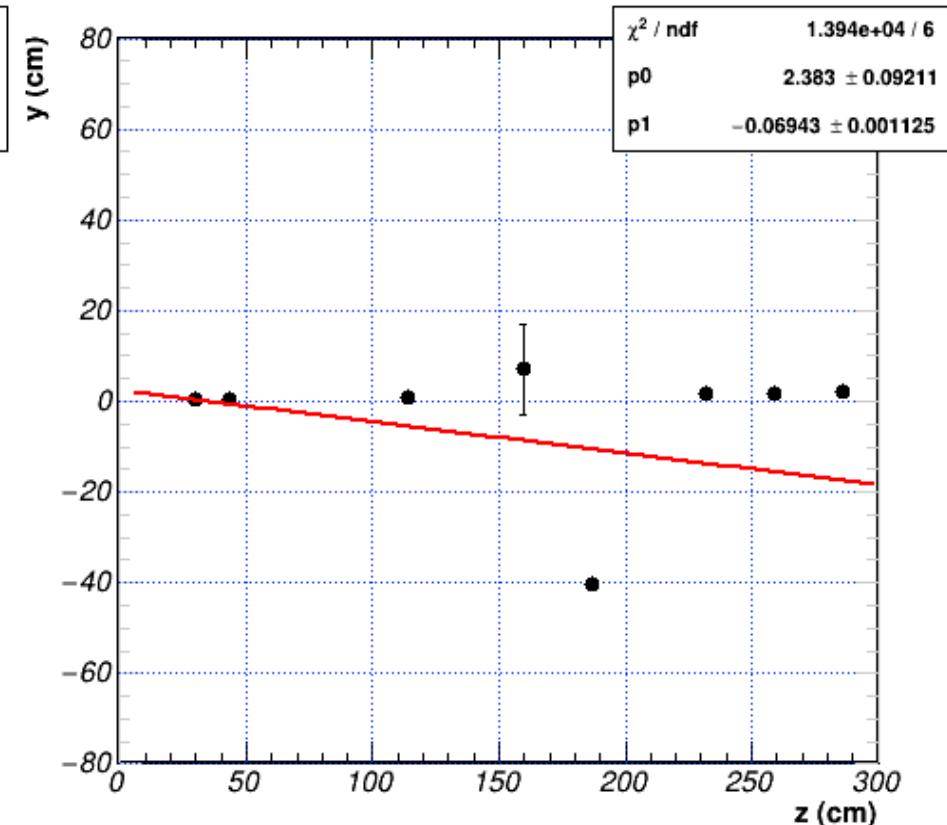
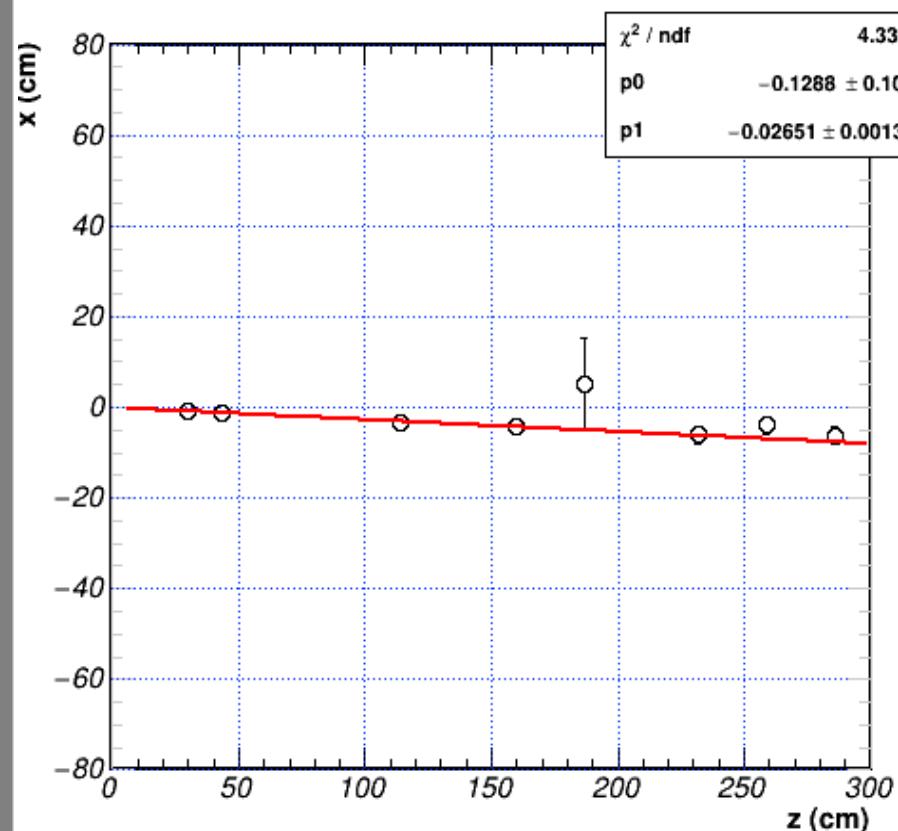
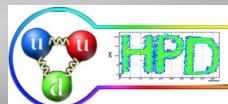


Track QA





Track QA



Once in a while Trd1dy get a wrong hit picked
- may be an error on the tracking