



Update on TW calibration

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FOOT physics meeting

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Where were we?

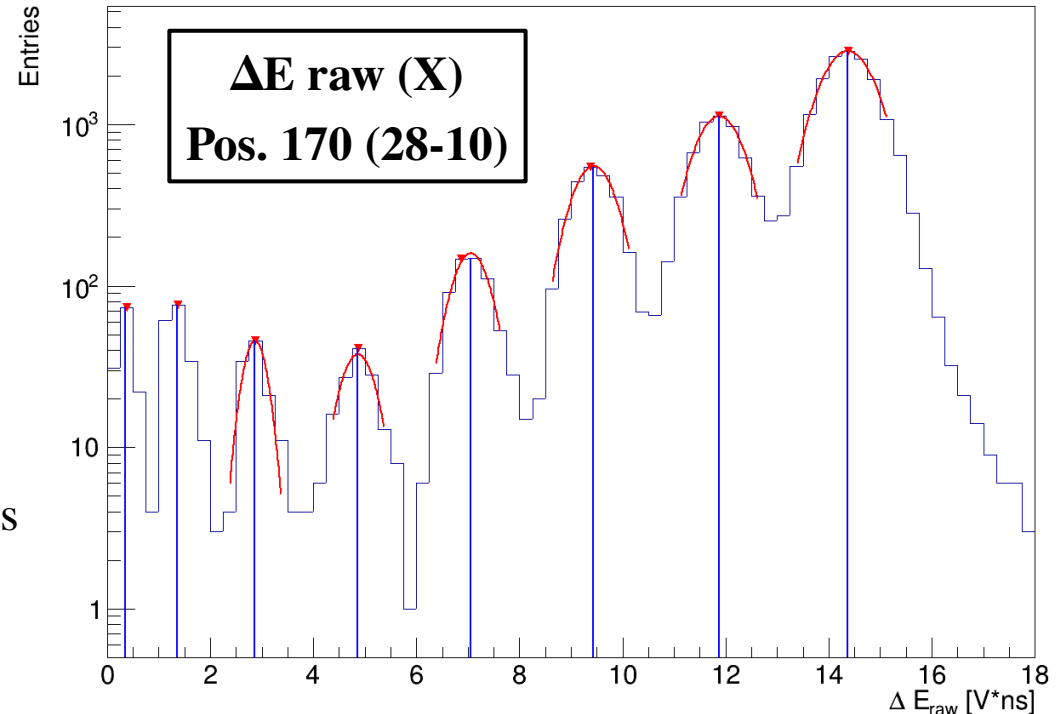
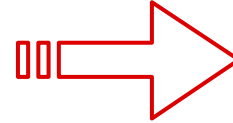
Problem

TW scan w/ only one energy (O400)

- Sample: O @ 400 MeV/u
 - TW scan
 - 5mm C (MB + frag.)
 - 10mm PE (MB + frag.)
- Calculate raw ΔE for each bar
- Associate to TW position w/ crossing
- Find all raw ΔE peaks for each position (**fit**)
- Associate to ΔE_{MC} of corresponding fragments
(*many thanks to Giacomo*)
- Fit w/ Birks curve

Solution

Calibrate w/ fragments





New developments

Inclusion of O200 data

- Find the raw ΔE peaks as before
- Fit the overall Birks curve

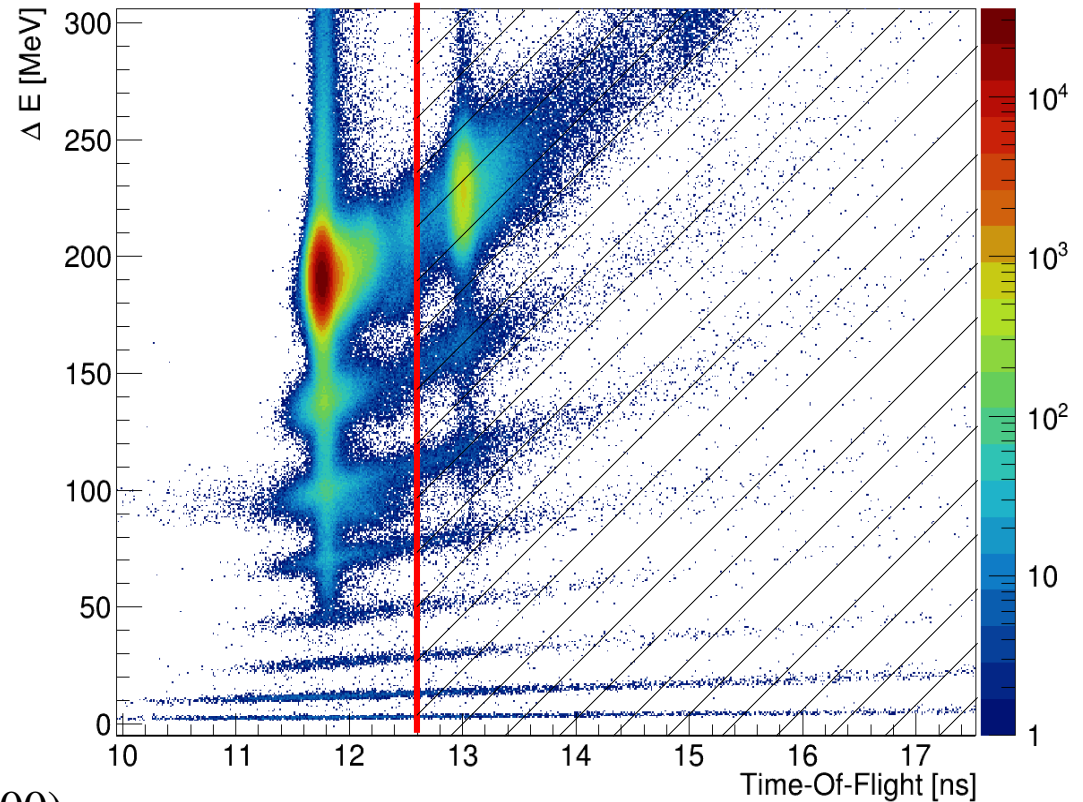
Problem

Slower primaries w/ higher ΔE



Solution

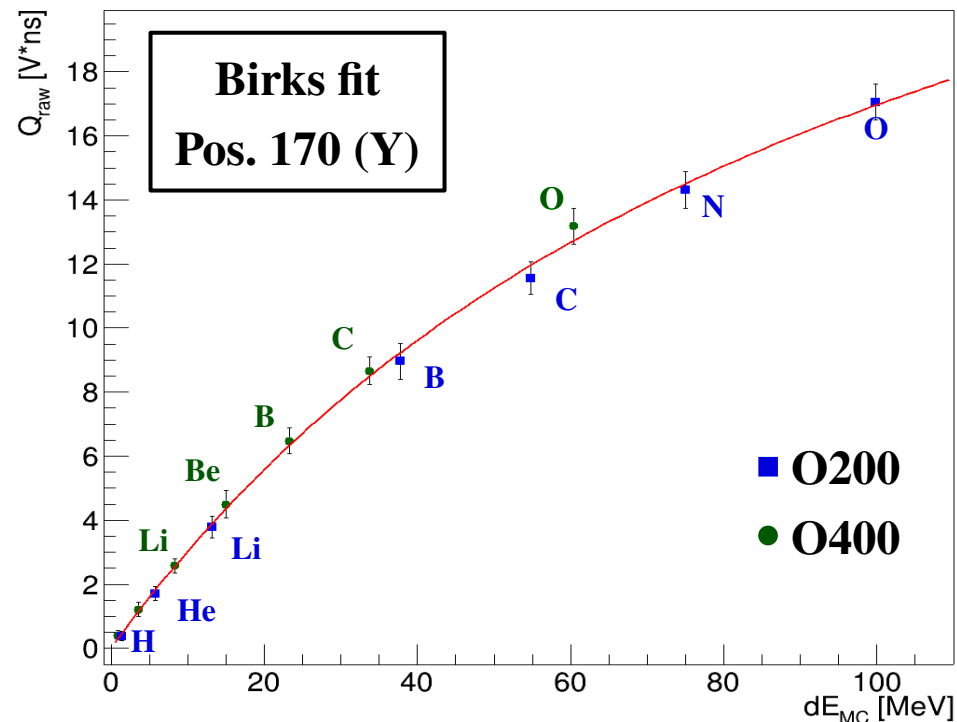
Sharp calibrated TOF cut



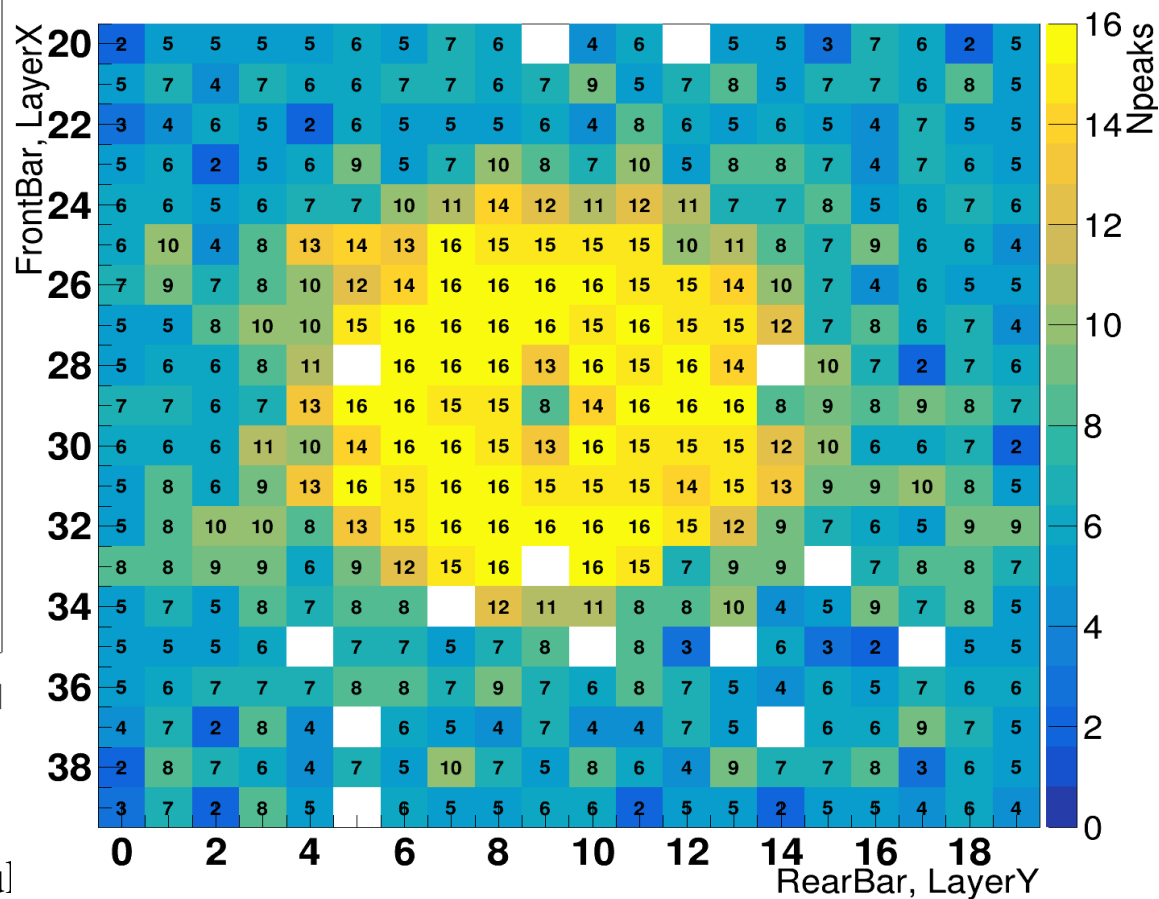
Final sample ~ 34M evts (23M @ 200, 11M @ 400)



Energy calibration: results

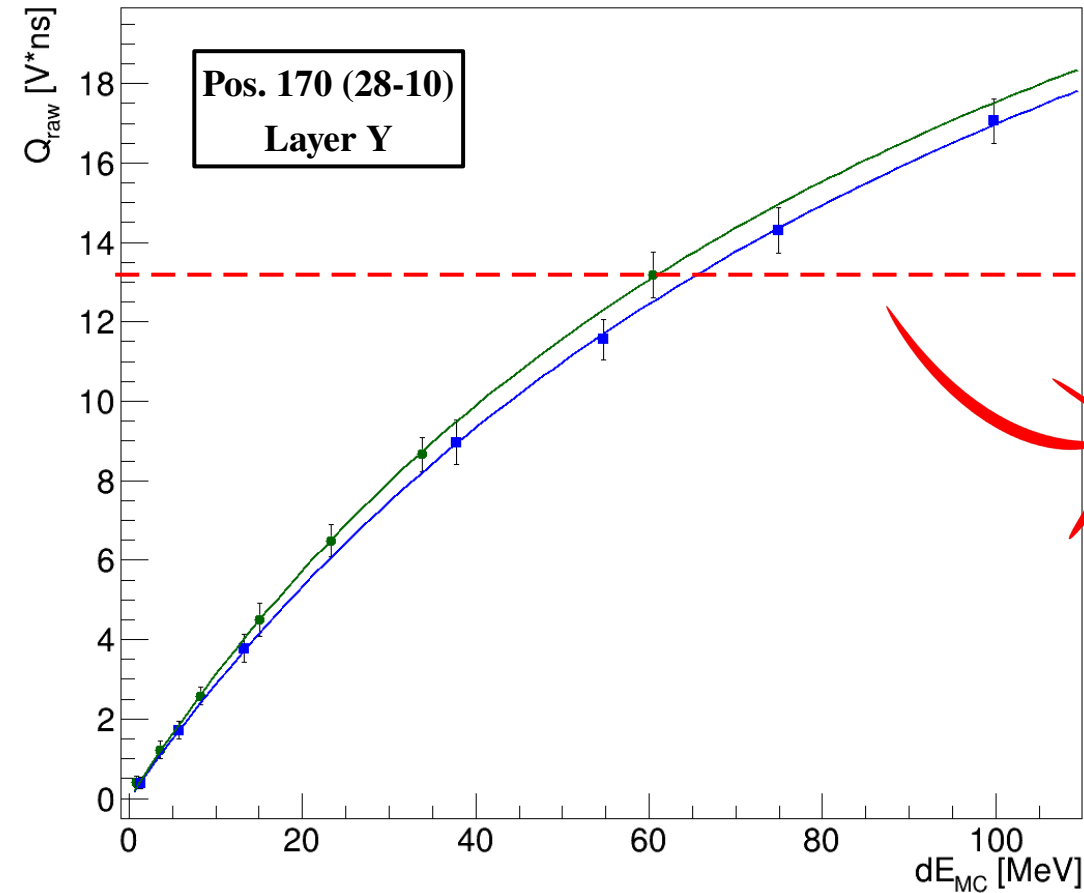


- Many fragment peaks identified for both 200 and 400 data
- Outer pos. w/ < 4 -5 peaks to be treated careful



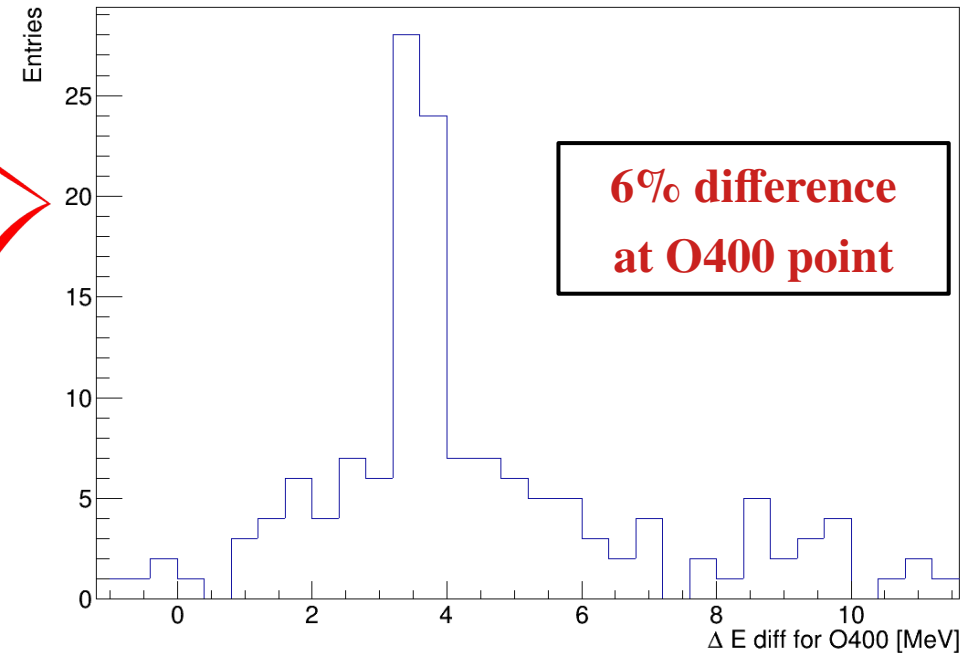


Energy calibration: results



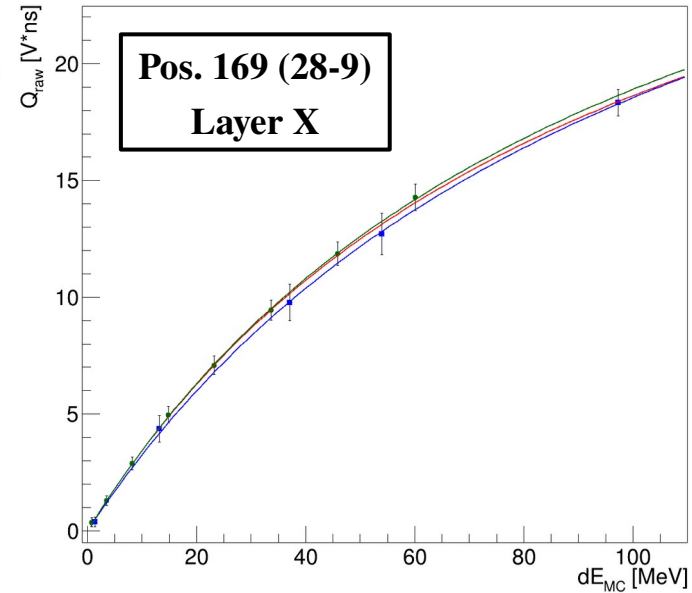
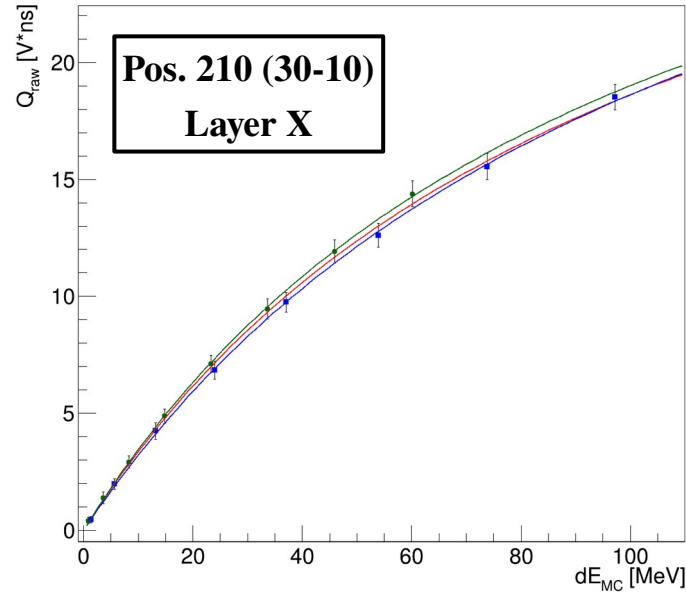
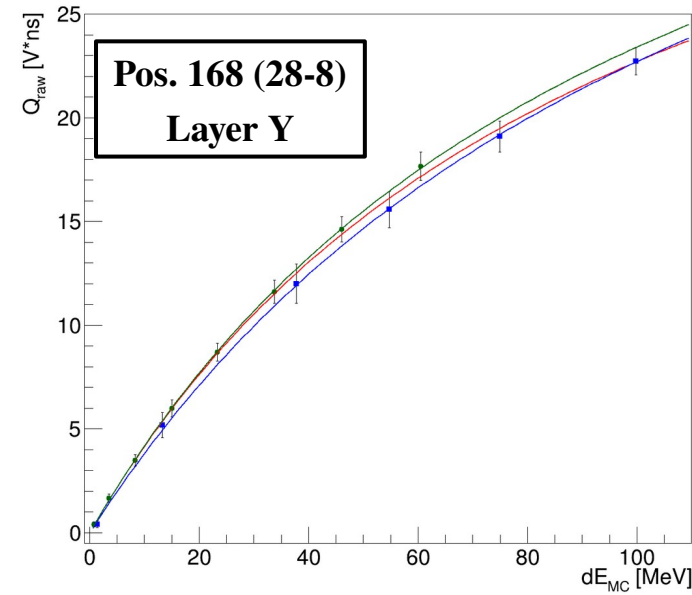
But what if we fit the samples separately?

The curves differ!!





Energy calibration: results



Behavior very similar in many TW positions!

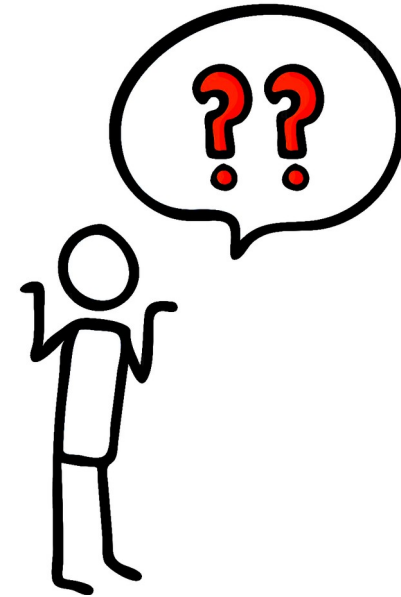


Conclusions



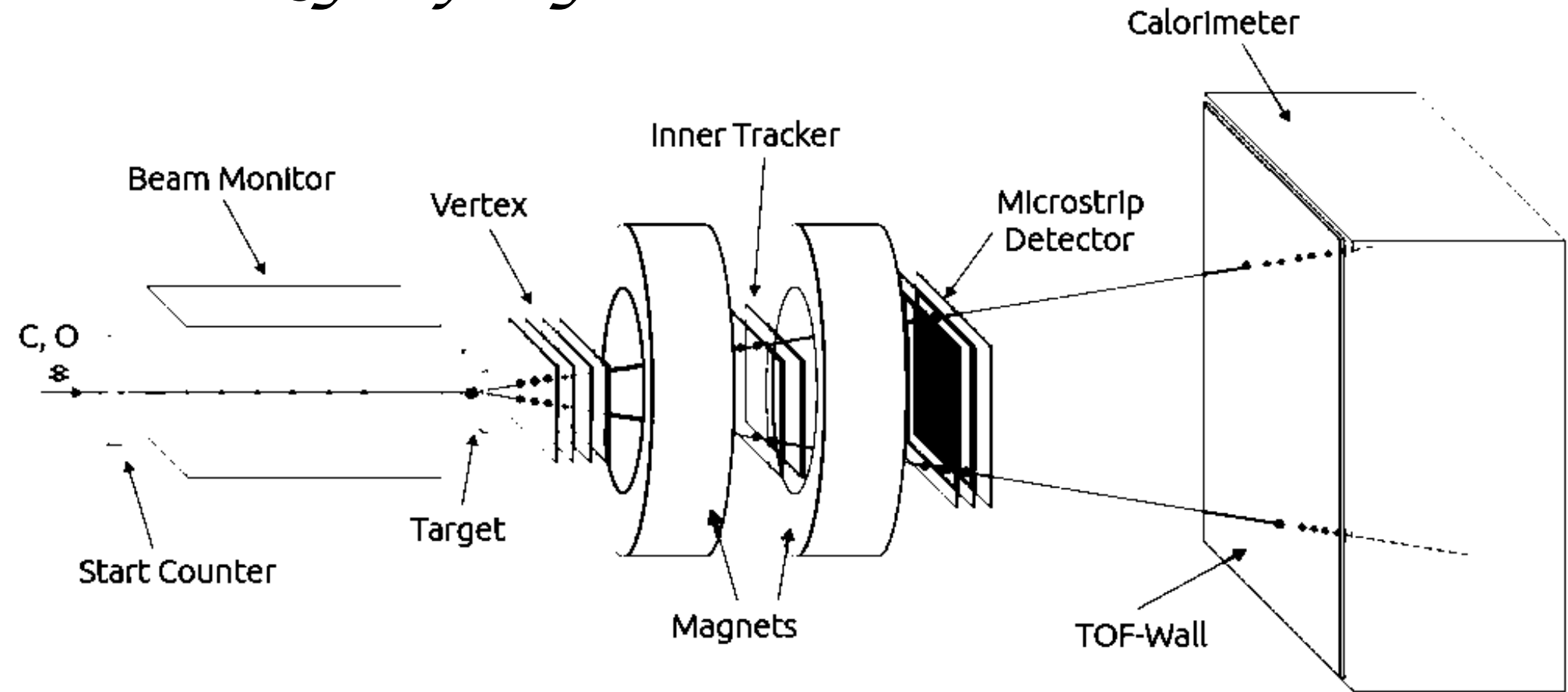
Calibration:

- Position and TOF calibration already performed
- Energy calibration now uses O200 data too
- Peak finding/fitting works properly
- Significant difference between the two samples in the saturation region
- Observed pattern is position-independent
- No significant drift in detector performance/response



any idea?

Thank you for your attention





Backup slides



In the meantime... TW stability

