KU LEUVEN

Update muX meeting 13/01

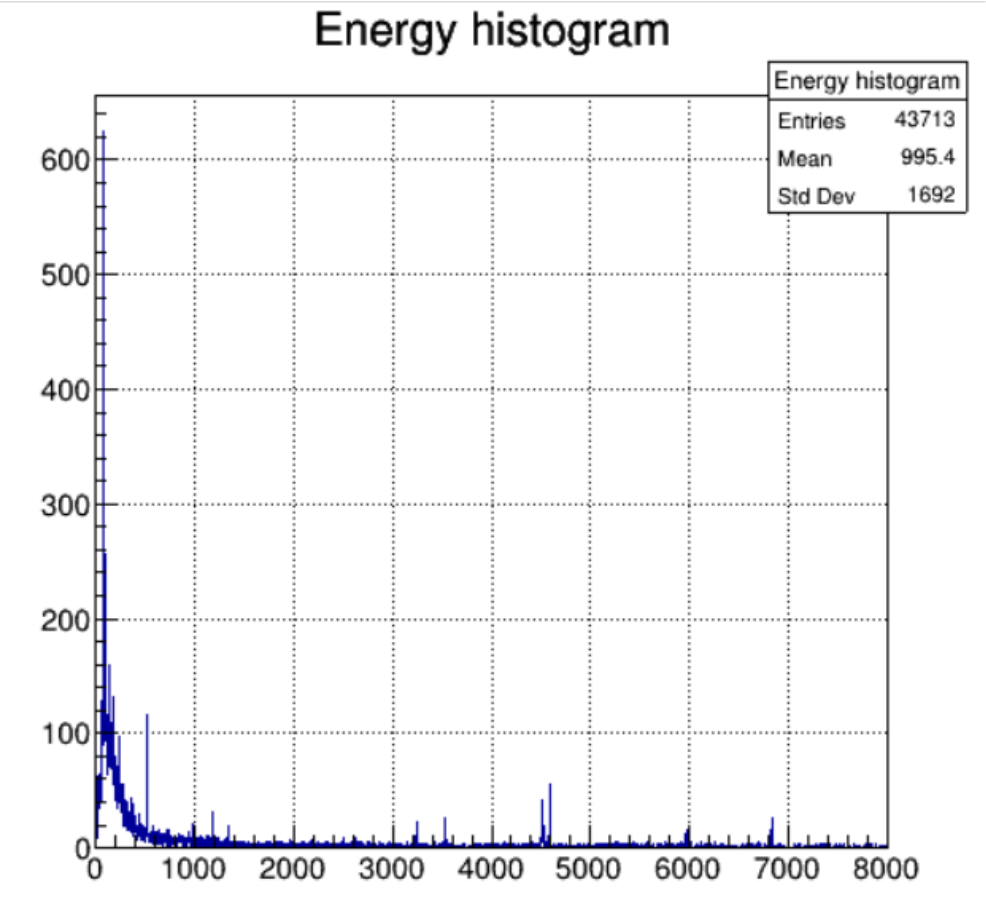
Michael Heines

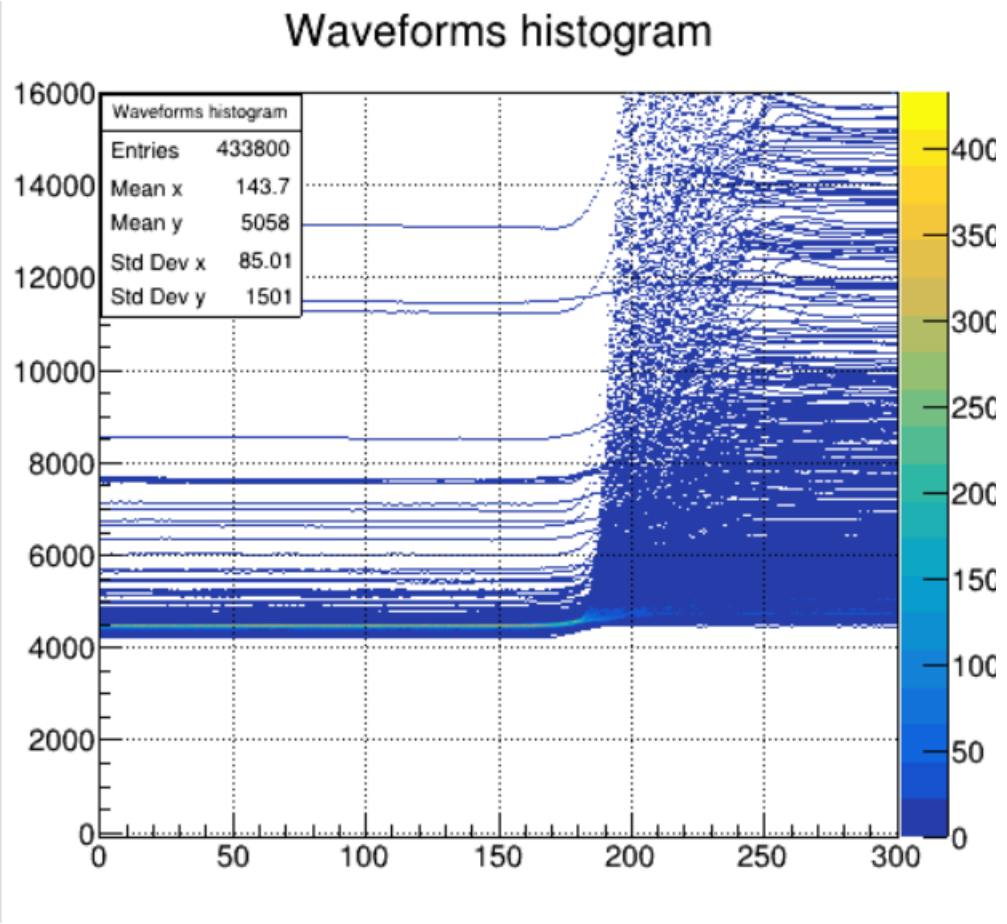
Treewriter

- Pushed to the master branch → Update your local version for use
- Muon events can be written out to trees
- For use:
  - read `MuonEventForTree_t` structure
  - Transform into `MuonEvent_t` structure with `map_event_struct()` function

- Some options (via config):
  - “enable”
  - “dir”
  - “waveformGe”
  - “waveformNeutron”
  - “saveBoth”

Treewriter – checking output



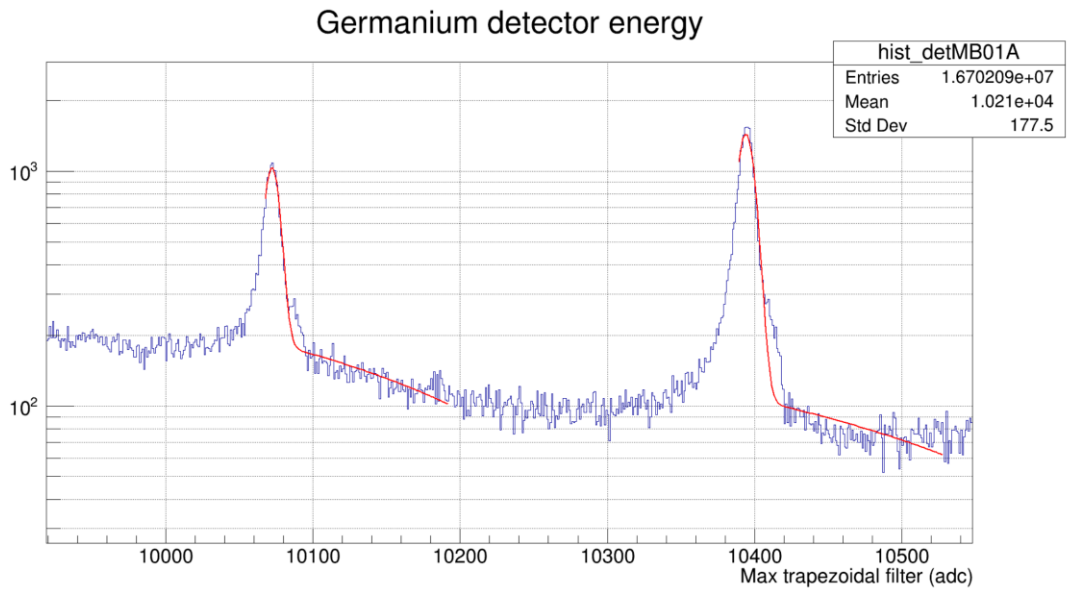


Subtracting histograms from those written in CorrelationAnalysis.cpp gives 0 entries → Identical → It works

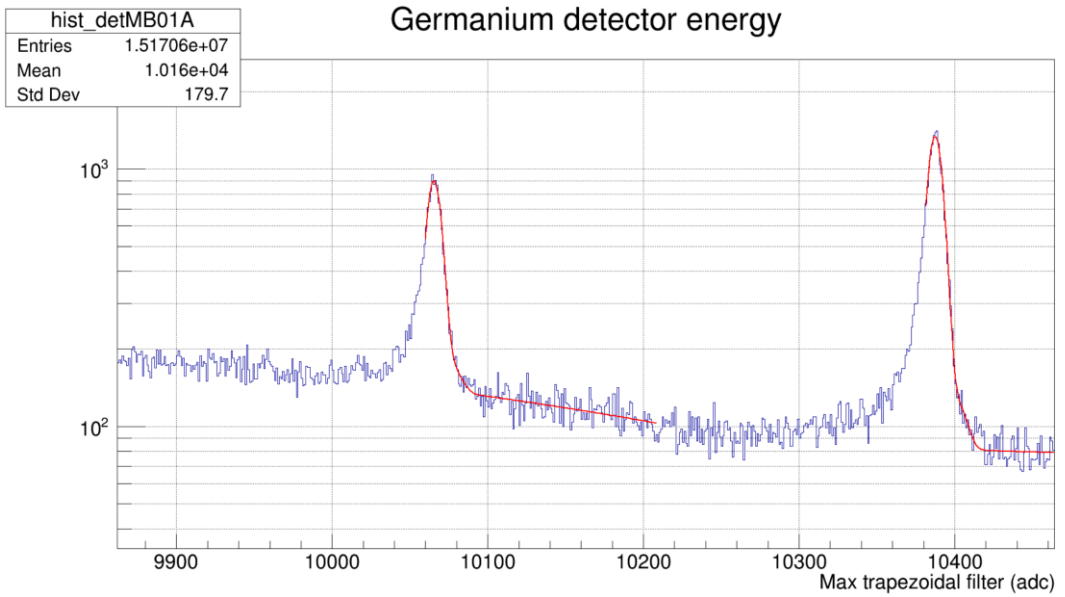
Energy calibration

- Efficiency calibration run (natural lead)

Thank you for finding my mistake, Stella



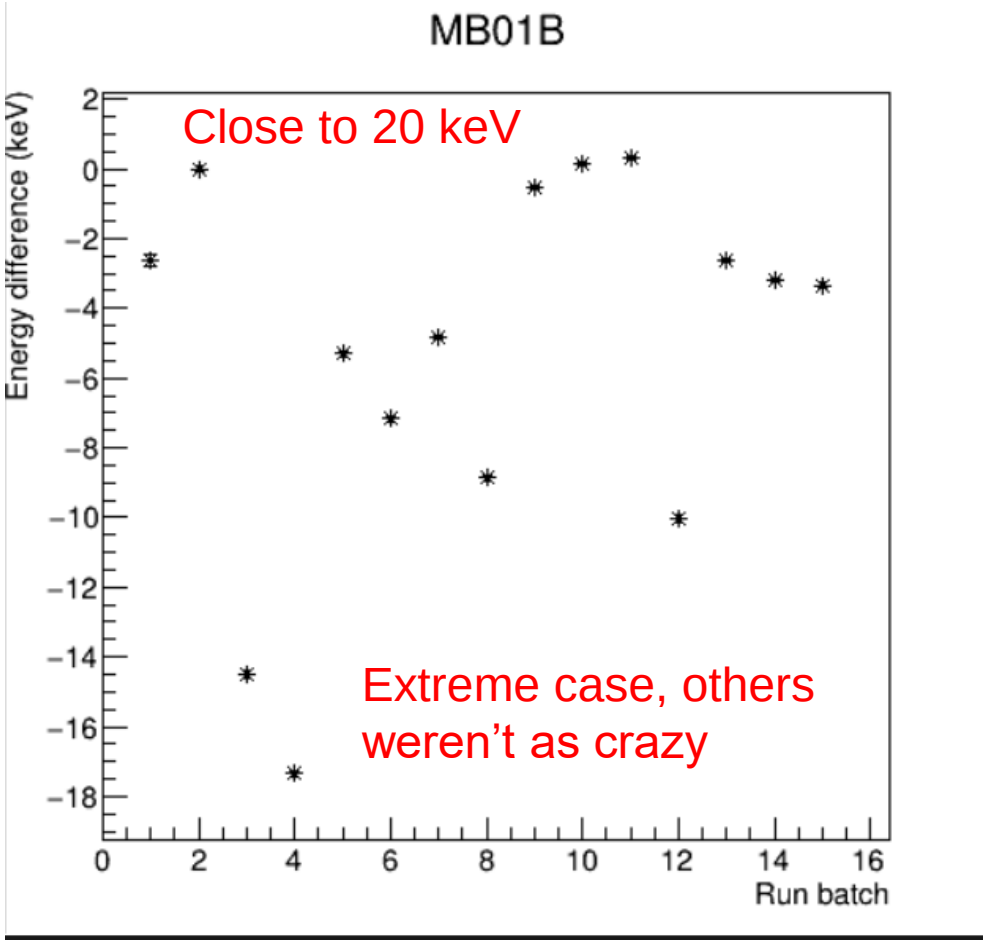
- Peaks for calibration during other runs

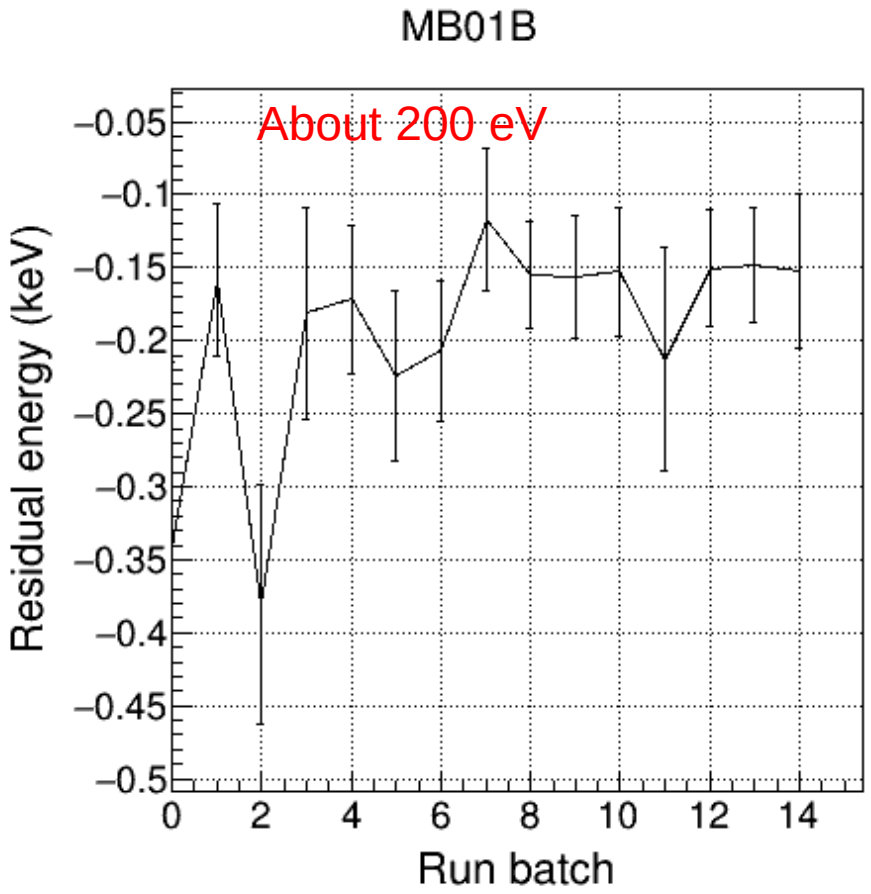


Gain drift correcting – general idea

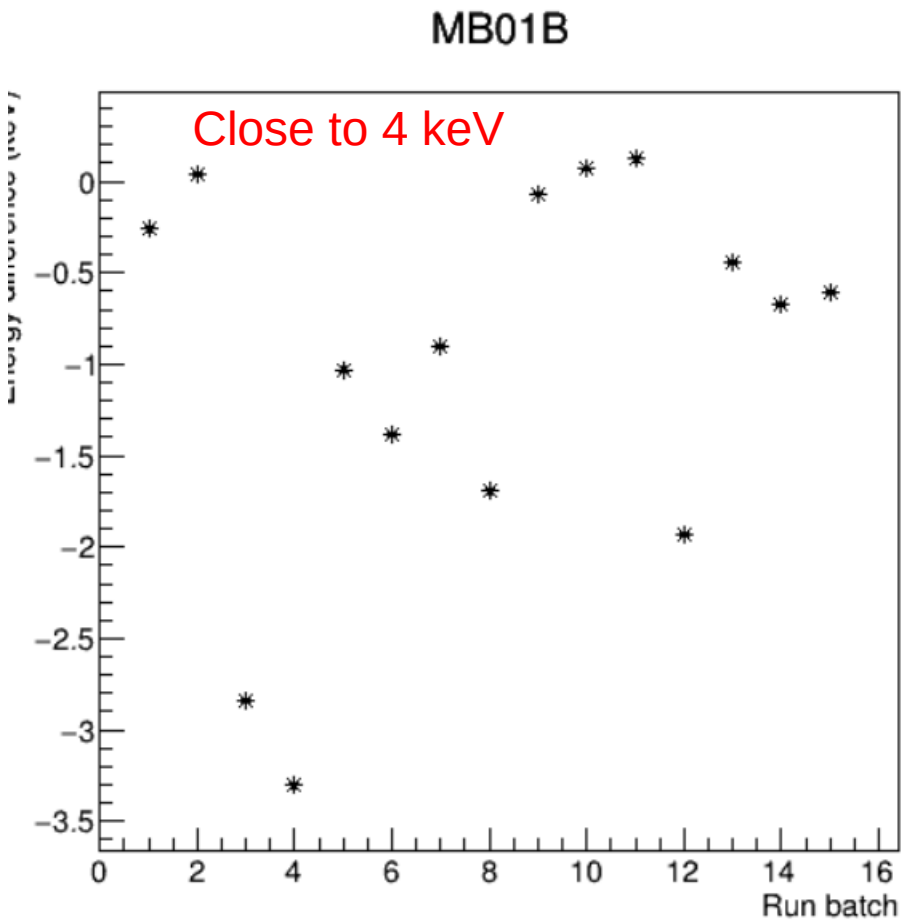
- Sum for every ~1 shift
- Fit peaks from calibration sources
- Fit again from $\mu - 1 \times \sigma$ to avoid low energy tail
- Make weighted quadratic fit
- Write calibration parameters to json file per shift
- Run analyzer, reading the calibration parameters from the json files
- Recalibrate once at the end with output secondary data (with hypermet)

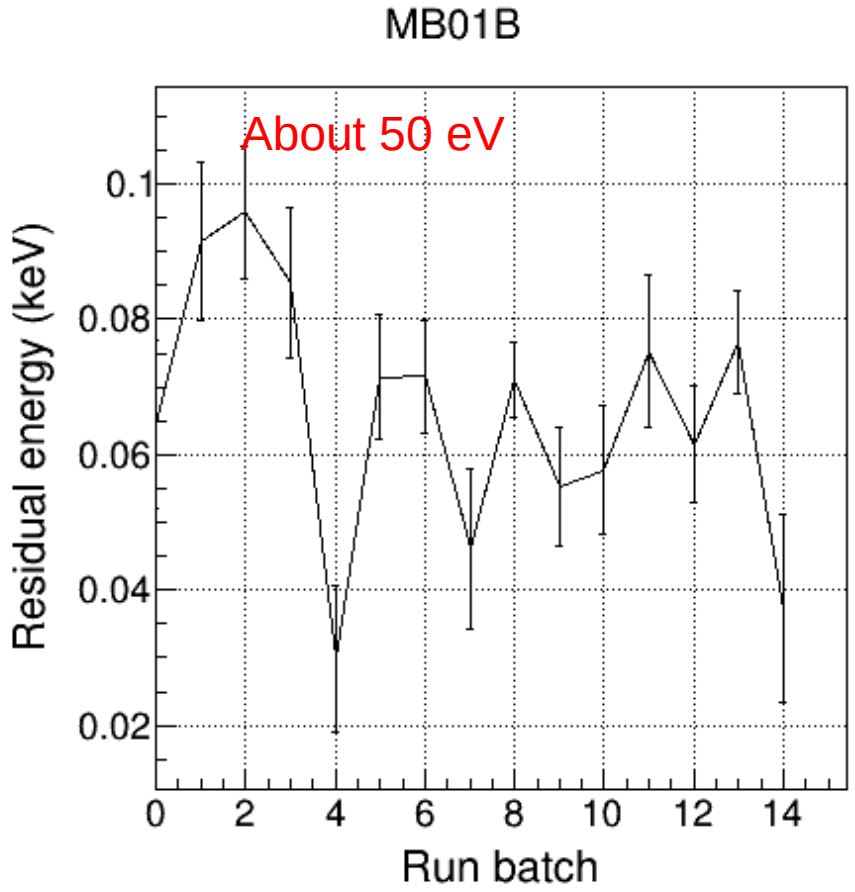
Gain drift correcting – Pb 2p-1s





Gain drift correcting – Co-60





Conclusion

- Tree writer is done
- First calibration works
- Gain drift correction: Great improvement
  - 100-300 eV at Pb 2p-1s
  - 20-60 eV at Co-60
- Submitted proposal for K, Ag, Al

- Question: Is the gain drift correction sufficient?

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