System performance paper

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MICE CM #54
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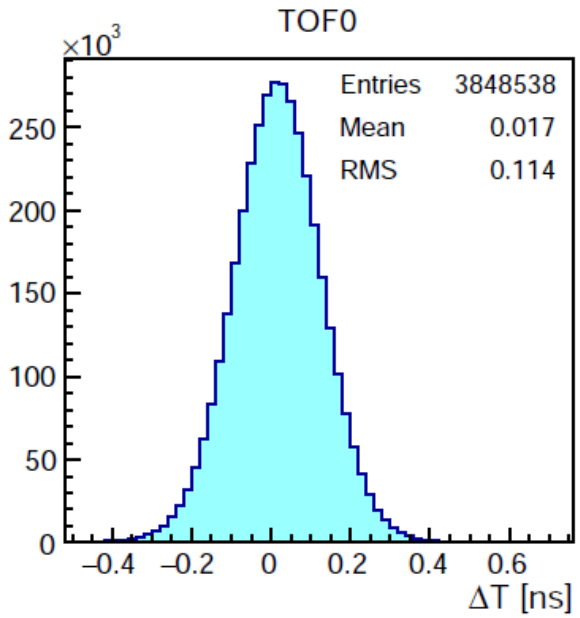
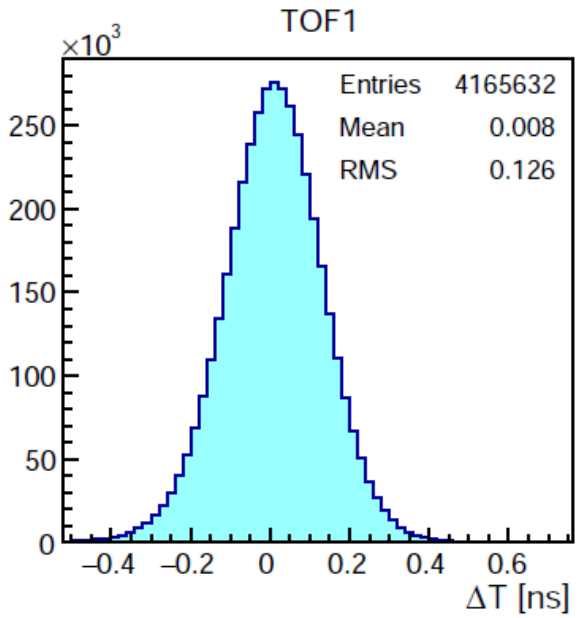
Introduction

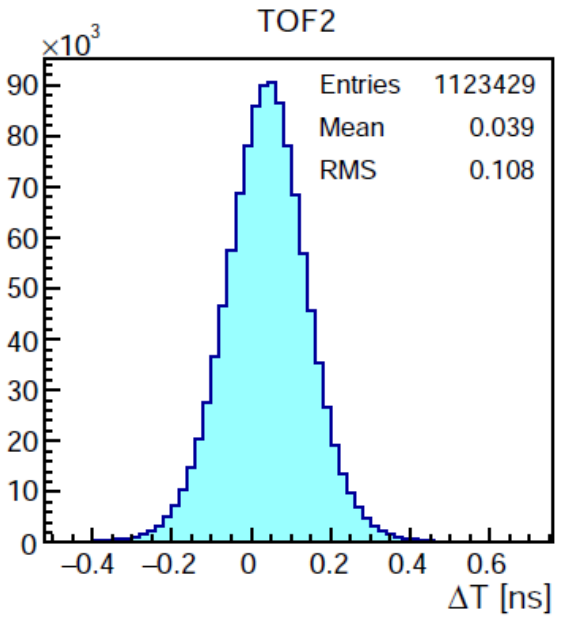
- Reduced the document down to 26 pages + conclusions + references
- Presenting here only plots included in the paper
- Cut out all the low level plots/details

TOF

- Overall slab ΔT distributions

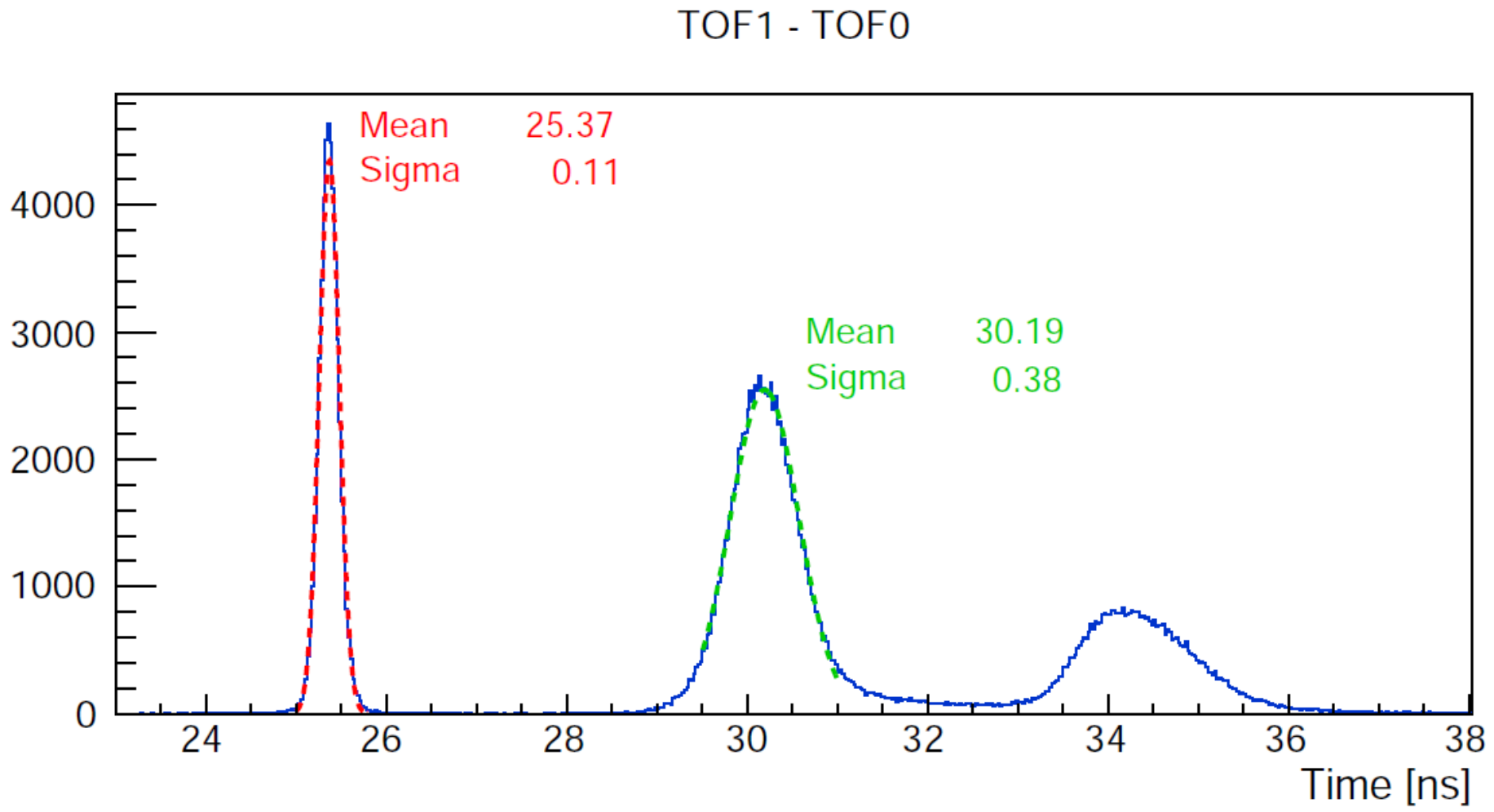






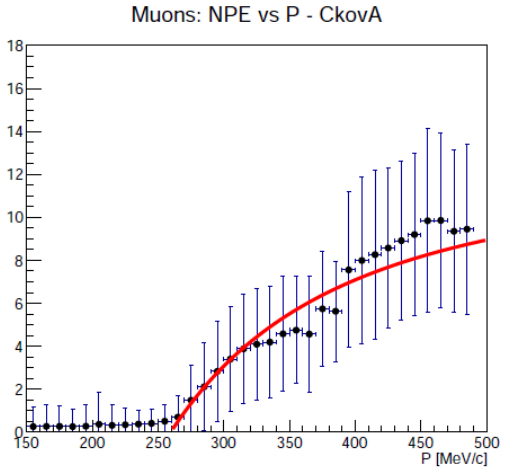
TOFs

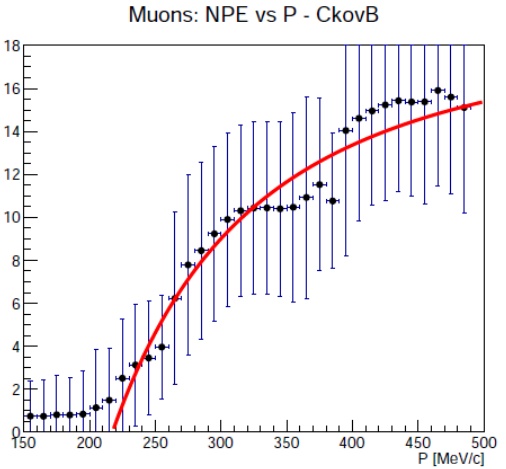
- TOF10 for a pion beam

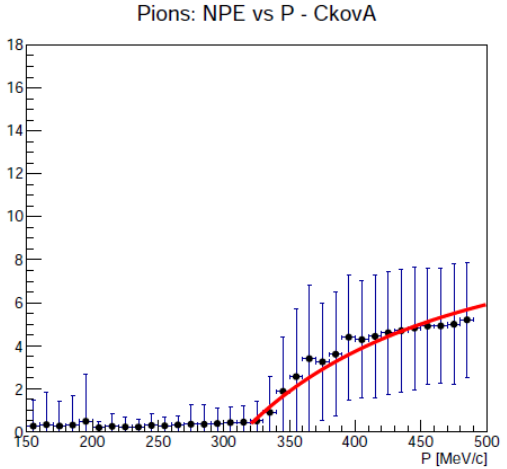


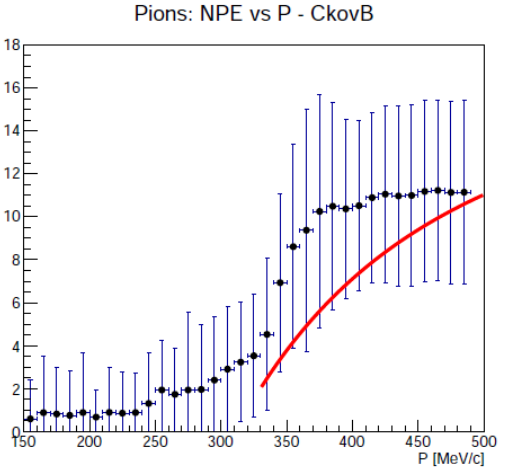
CKOVs

- NPEs vs P



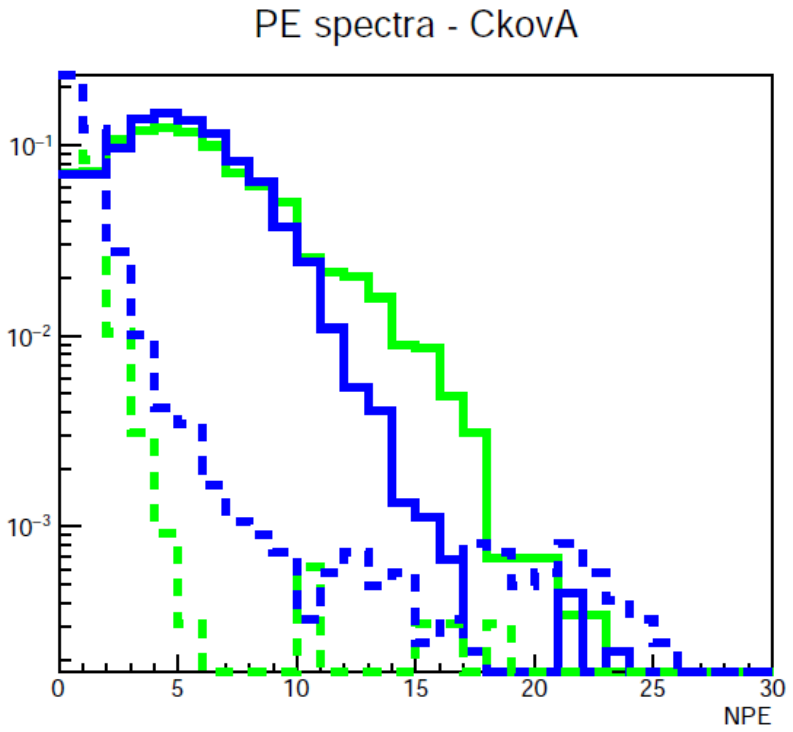


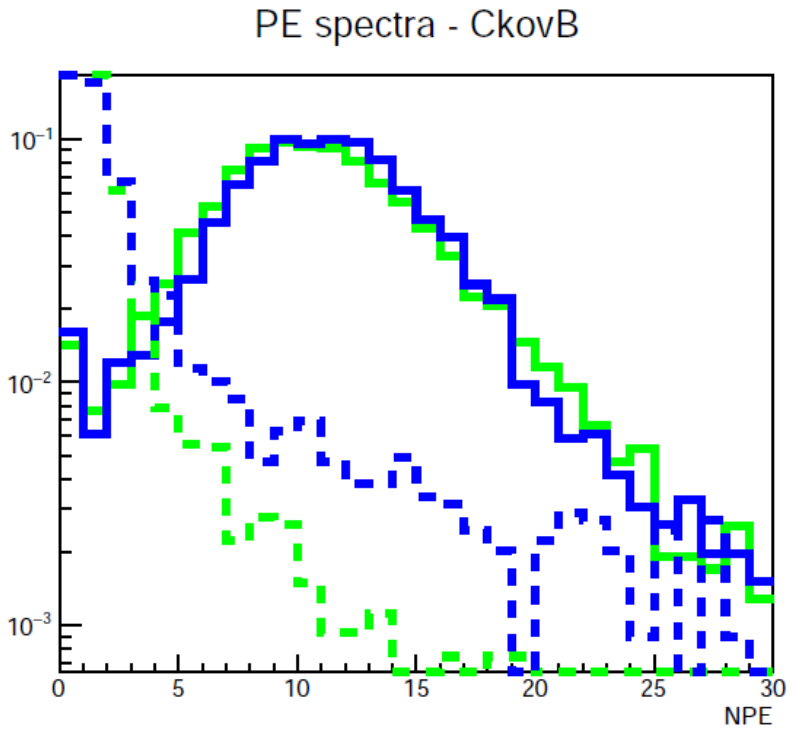




CKOVs

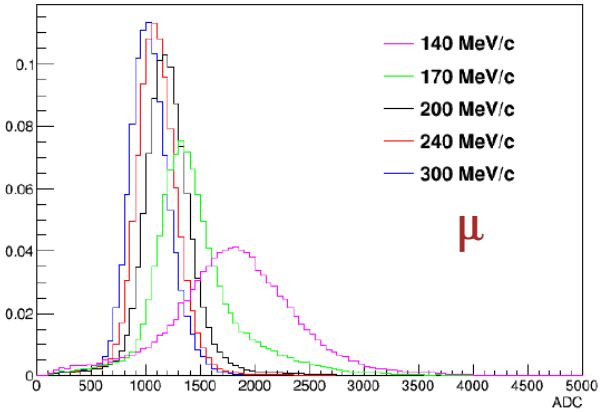
- PE spectra for **muon** and **pion** above and below the threshold

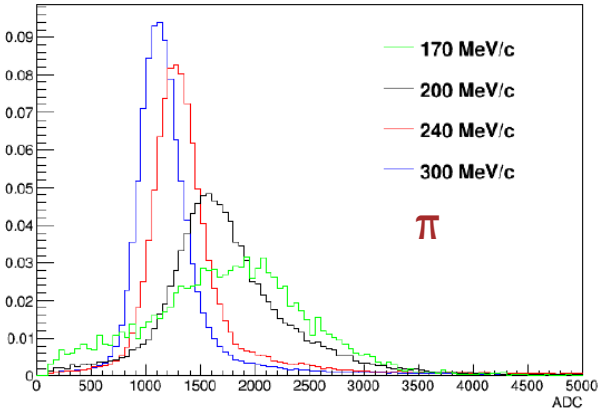


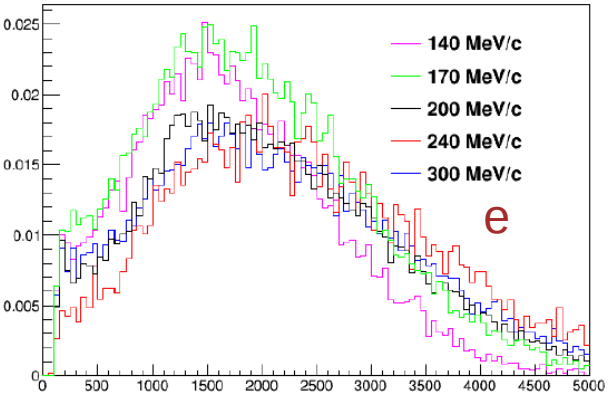


KL

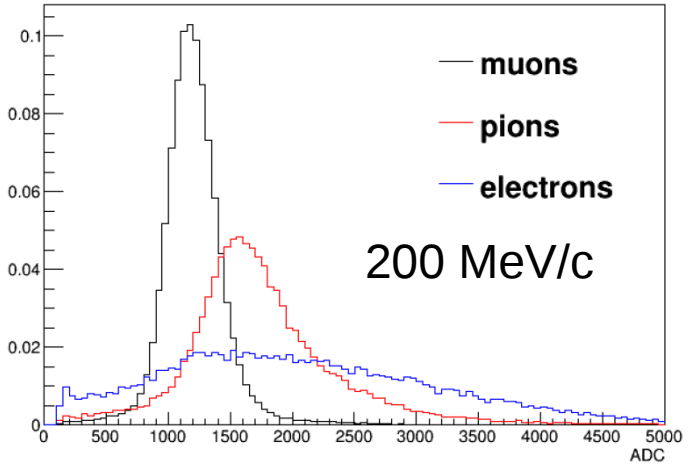
- Response for different beamlines

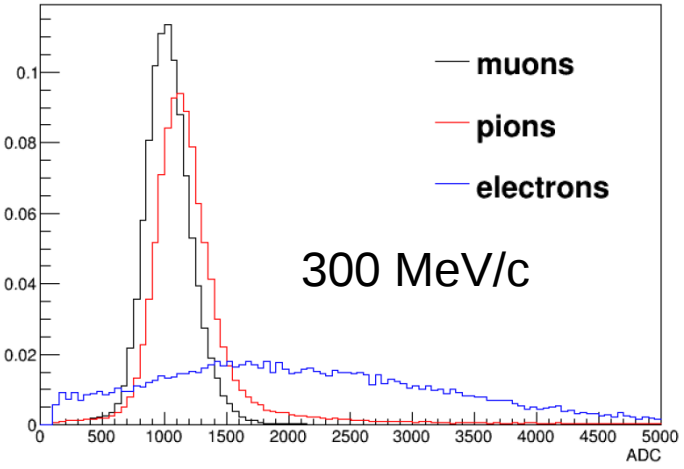






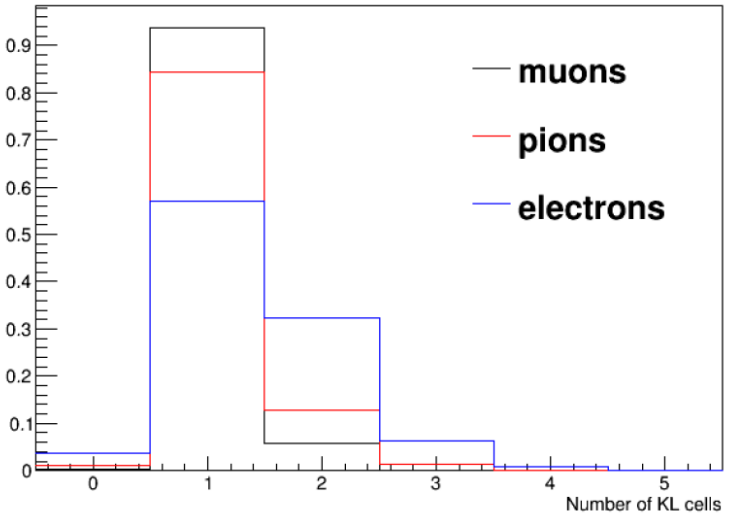
- Response for different species



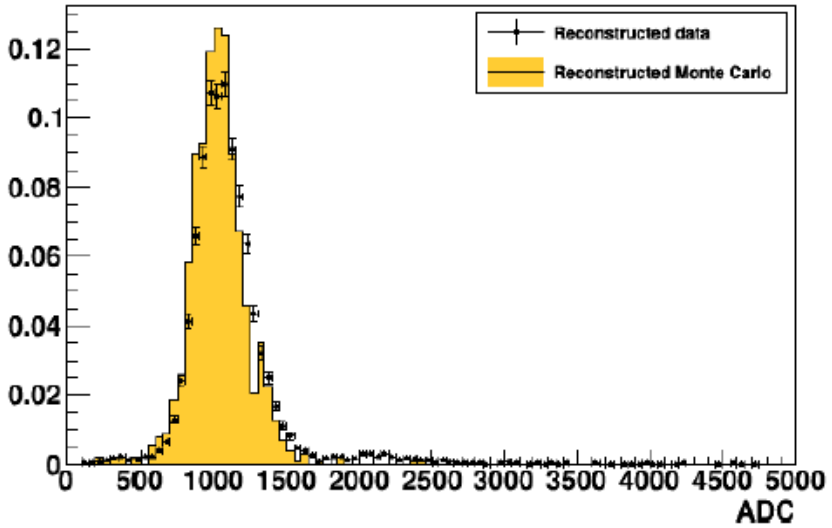


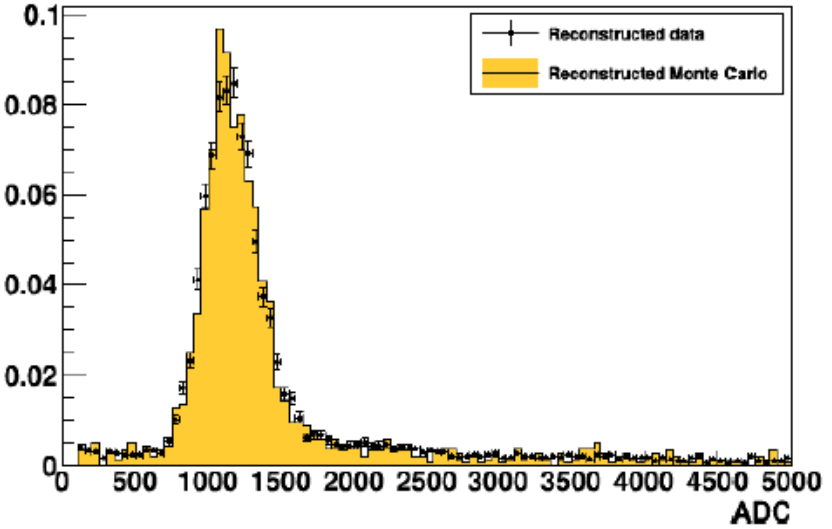
KL

- Multiplicity



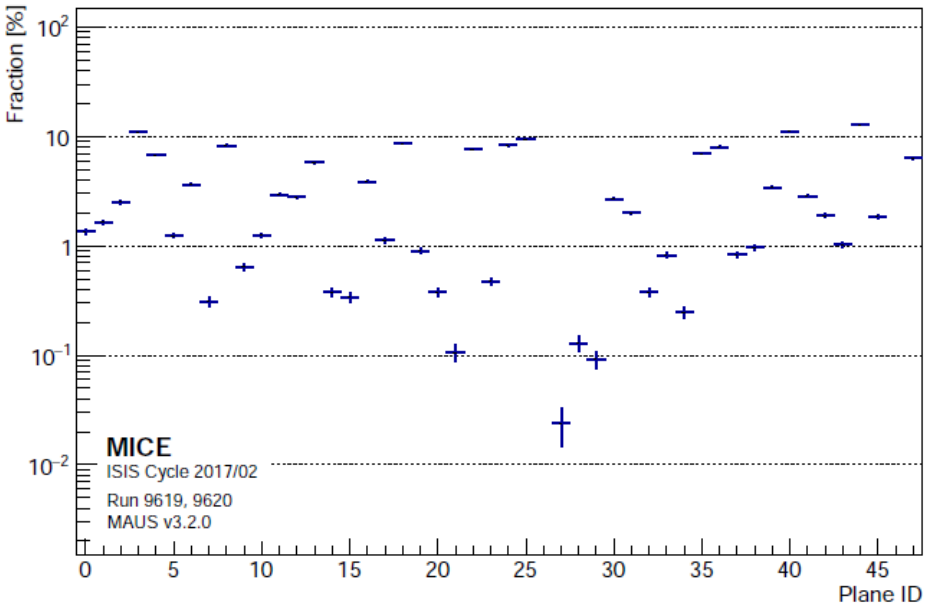
- Data vs MC

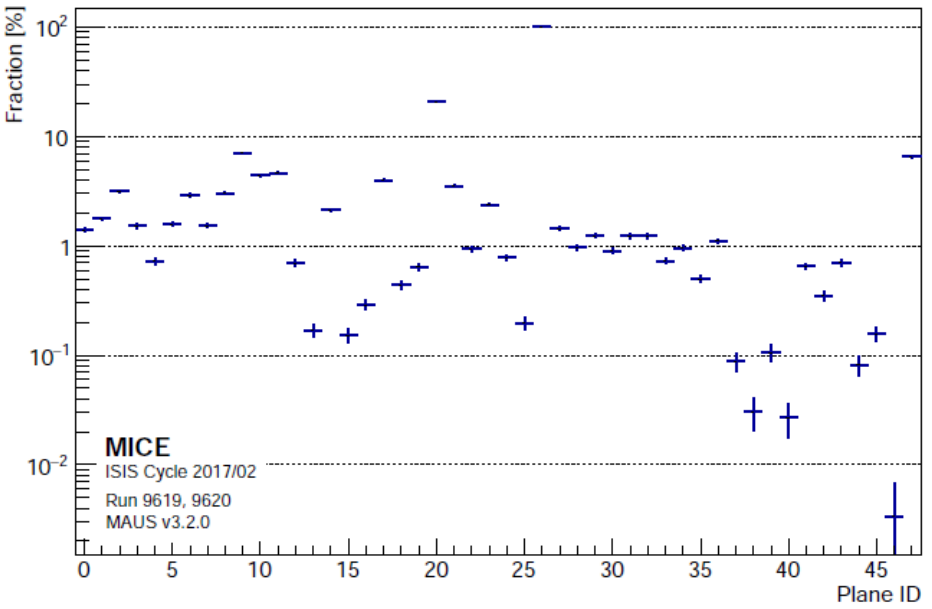




EMR

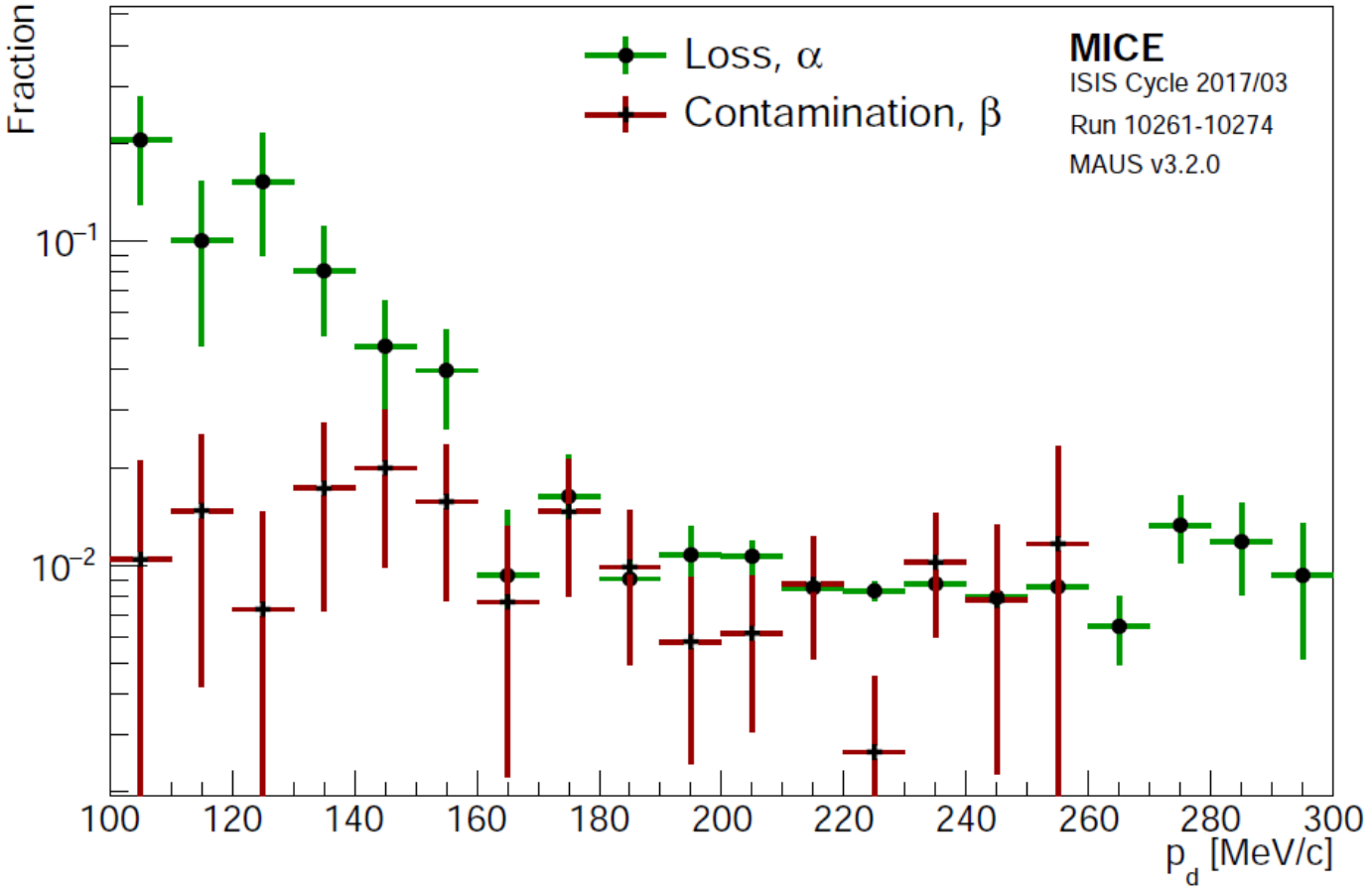
- Probability of not producing a single hit / zero charge for each single independent readout chain





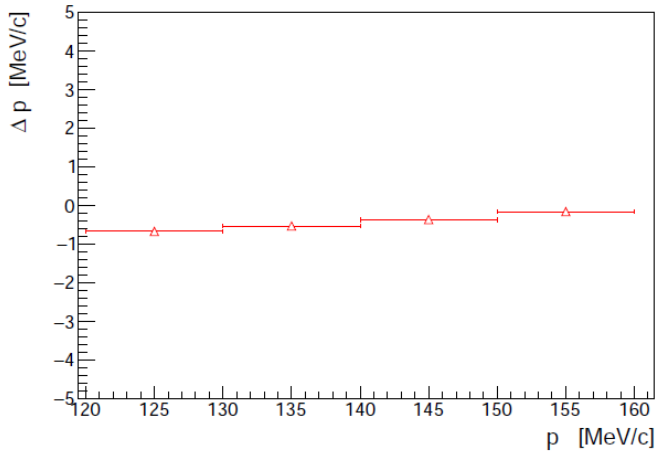
EMR

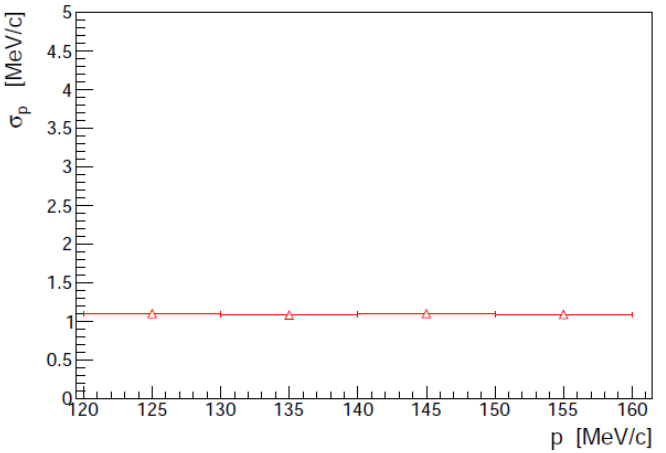
- PID: **Electron** contamination and **muon** loss

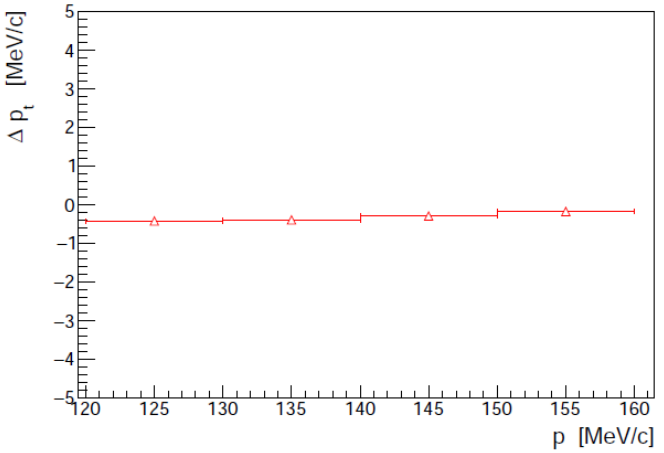


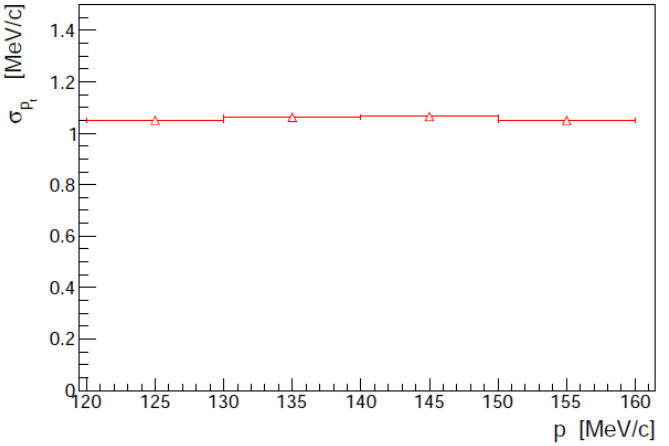
Trackers

- Momentum reconstruction bias and resolution (TKU)



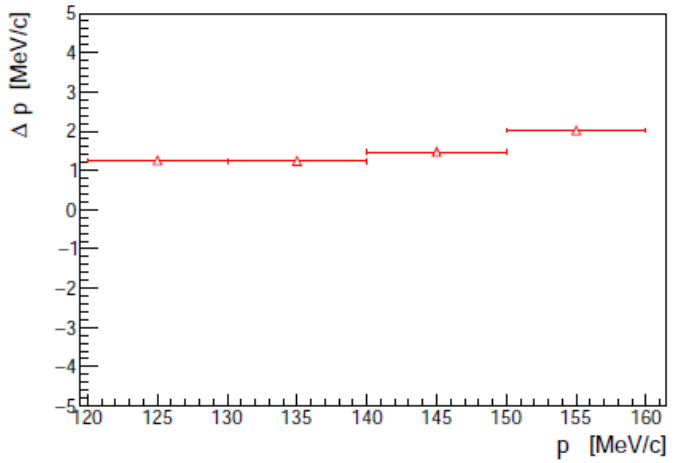


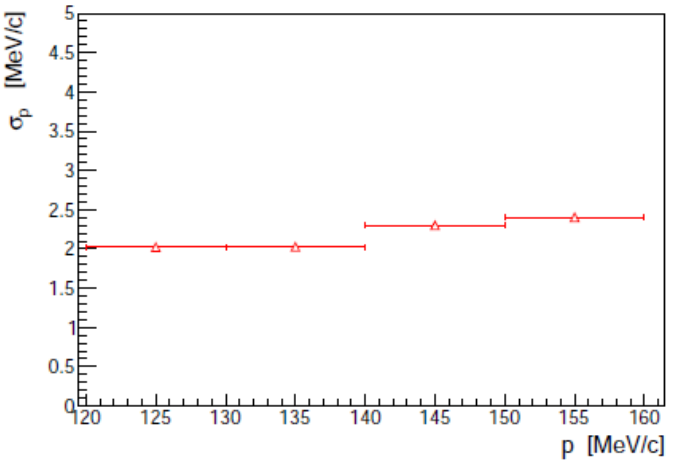


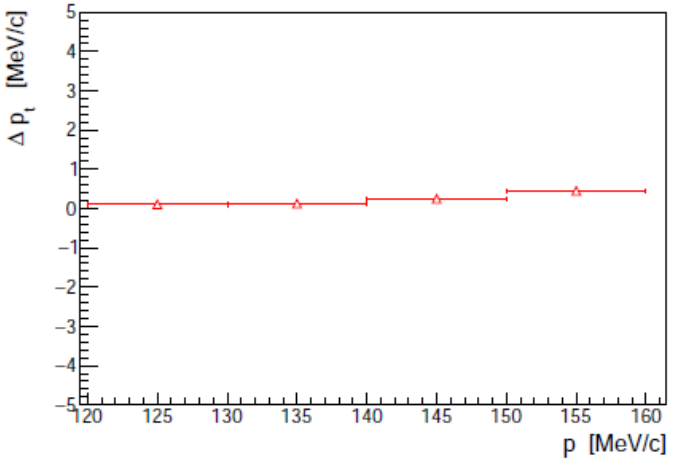


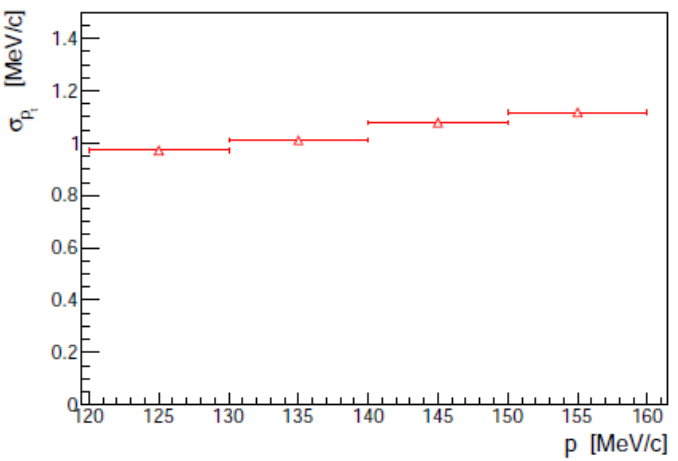
Trackers

- Momentum reconstruction bias and resolution (TKD)



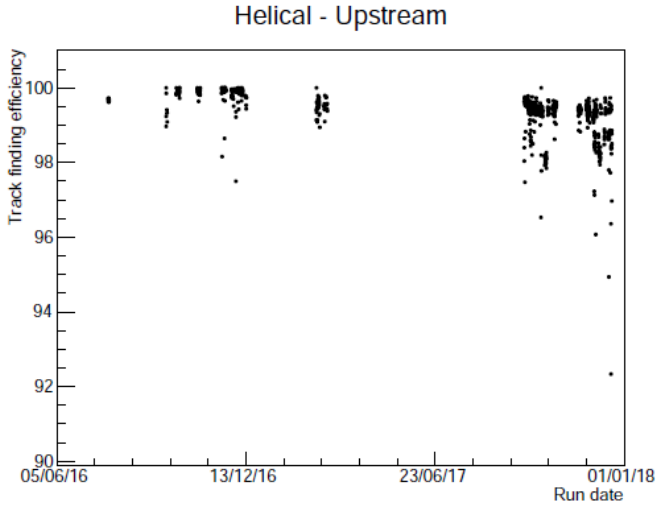


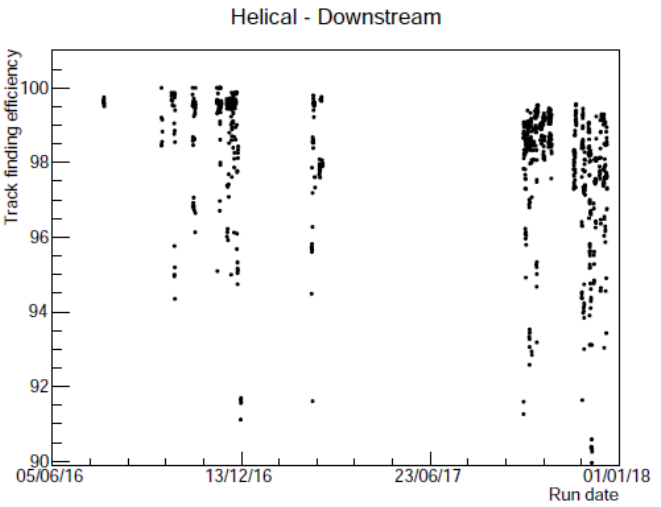


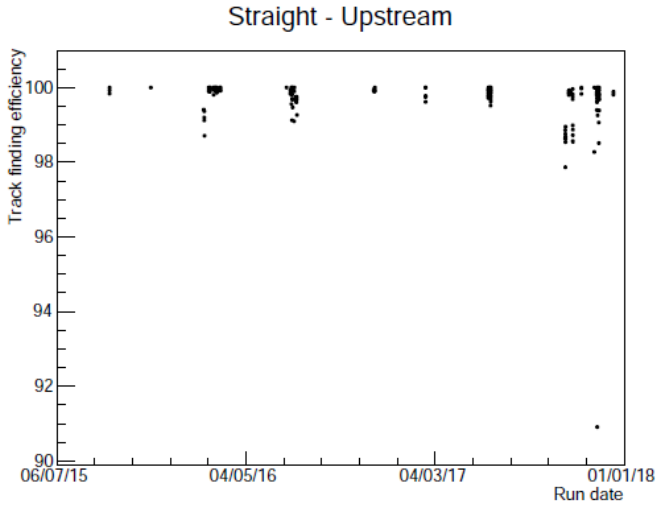


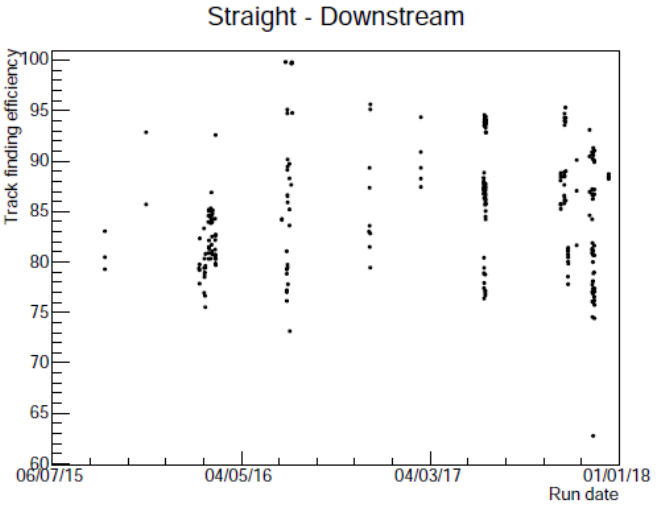
Trackers

- Track finding efficiency since 2015



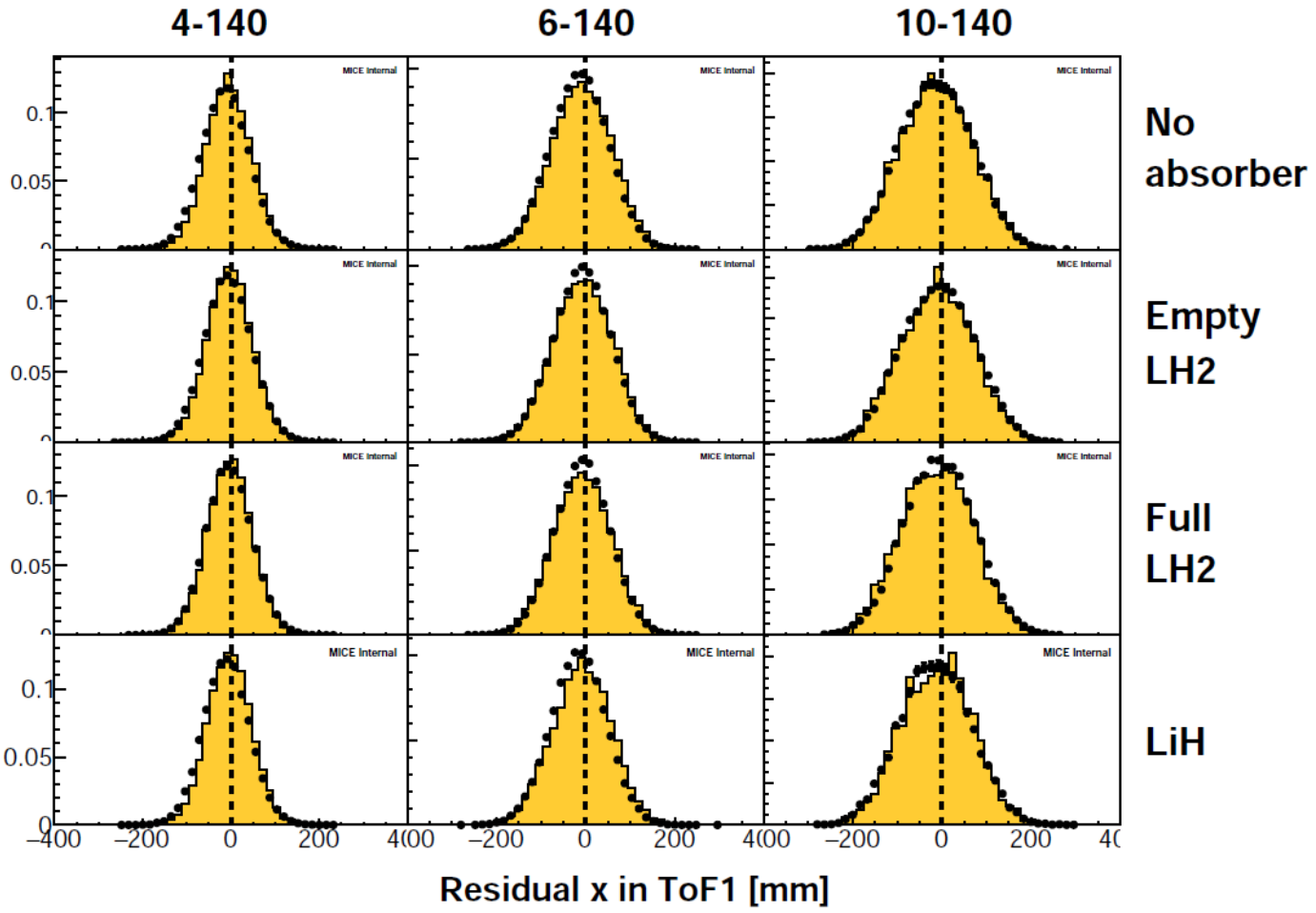






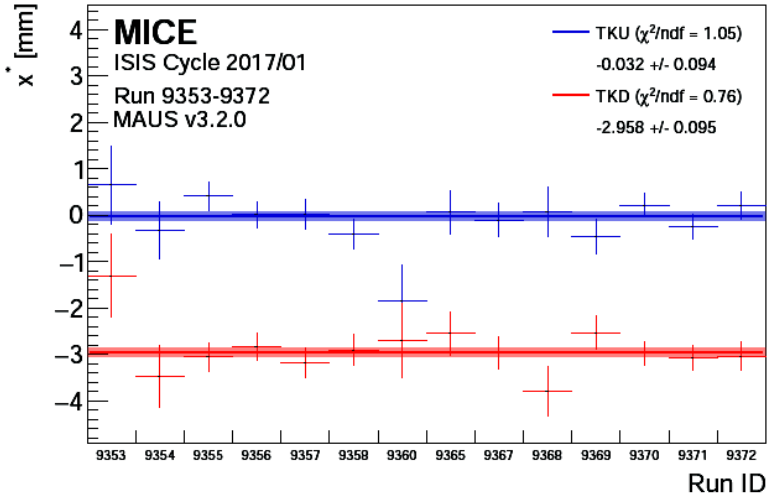
Track matching

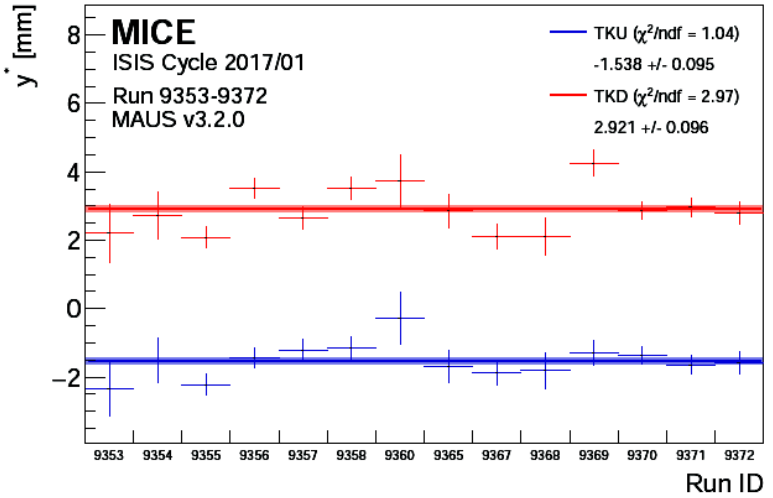
- Example of residual plot (from CR)

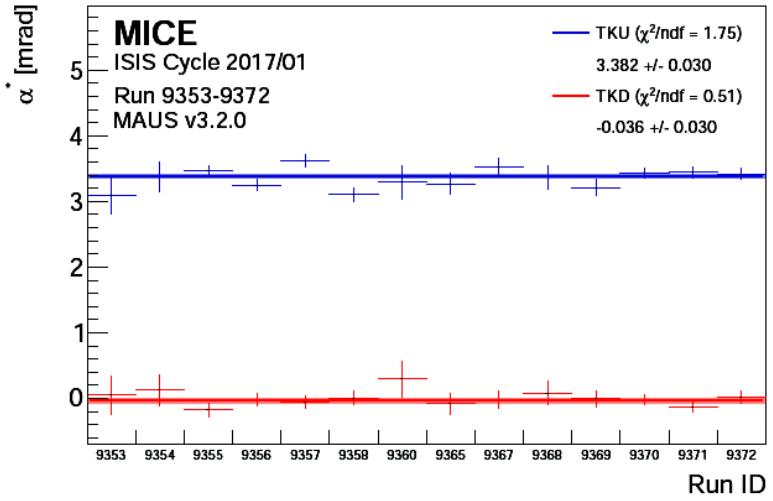


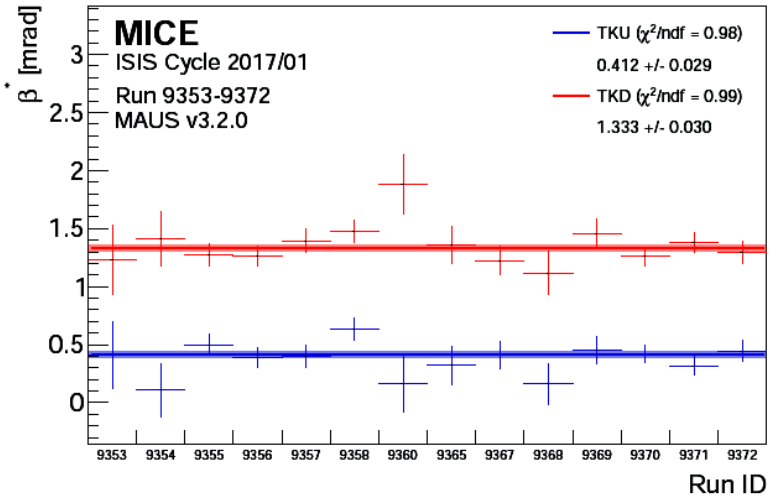
Detector alignment

- Alignment across runs

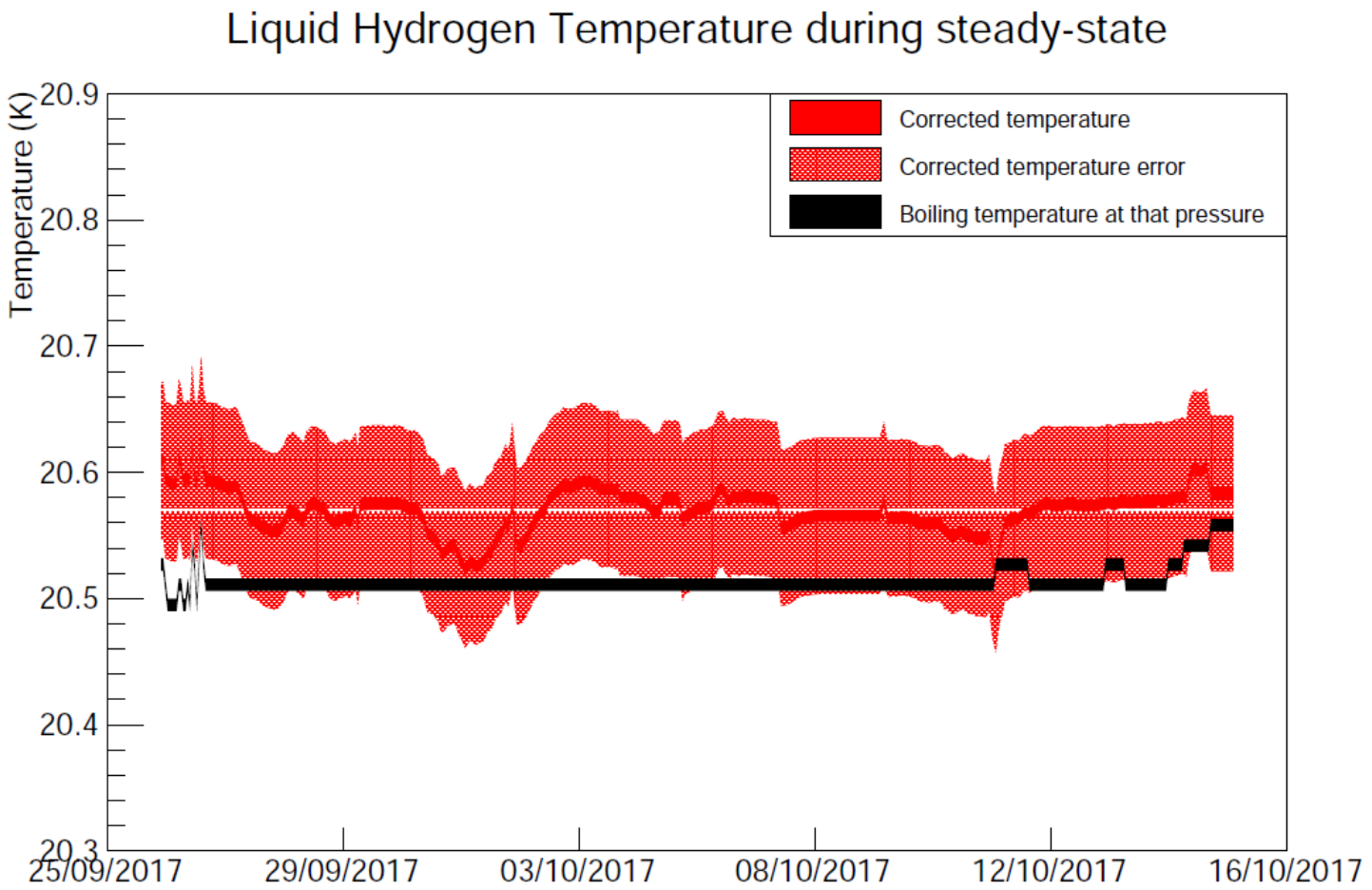








Liquid hydrogen absorber



Details

- Referees: Alan B., Ludovico T.
- Repository:
  https://github.com/pfranchini/MICE-systems-performance-paper
- Few more details:
  https://micewww.pp.rl.ac.uk/projects/analysis/wiki/2018-09-18_system_paper