

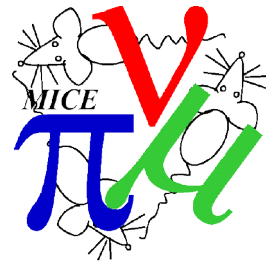


Physics Coordinators Report



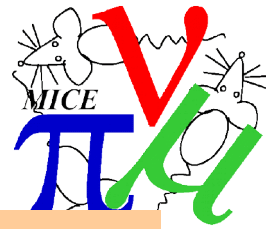
C. Rogers, ISIS Intense Beams Group
Rutherford Appleton Laboratory

Physics Report



- Many analysis talks in the plenary sessions
- Here is only a very brief pointer to the different talks
 - Summary/reminder of data taken
 - Review of the papers

Data taking to End of MICE

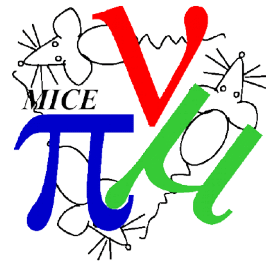


Date	Subject
June/July 2015	Tracker Commissioning
September/October 2015	Magnet commissioning
December 2015	Scattering in Xenon
February/March 2016	Straight tracks scattering programme (LiH)
July 2016	Single Magnet Powering Studies
September/October 2016	Field-on material physics studies
November/December 2016	Field-on emittance evolution studies
February/March 2017	Flip-mode LiH emittance evolution studies
May 2017	Straight tracks scattering programme (INe)
September/October 2017	IH2 full; IH2 empty; flip/solenoid mode
November/December 2017	IH2 empty; LiH; no absorber; wedge; flip/solenoid

- Thanks as always to MOMs (Oct-Dec 2017)
 - Melissa Uchida
 - Victoria Blackmore
 - Paolo Franchini
 - Durga Rajaram
- And system experts, shifters, operations team

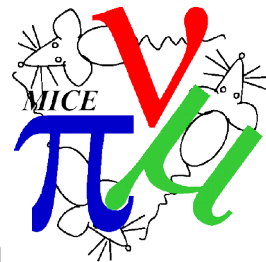


Decision to Finish data taking

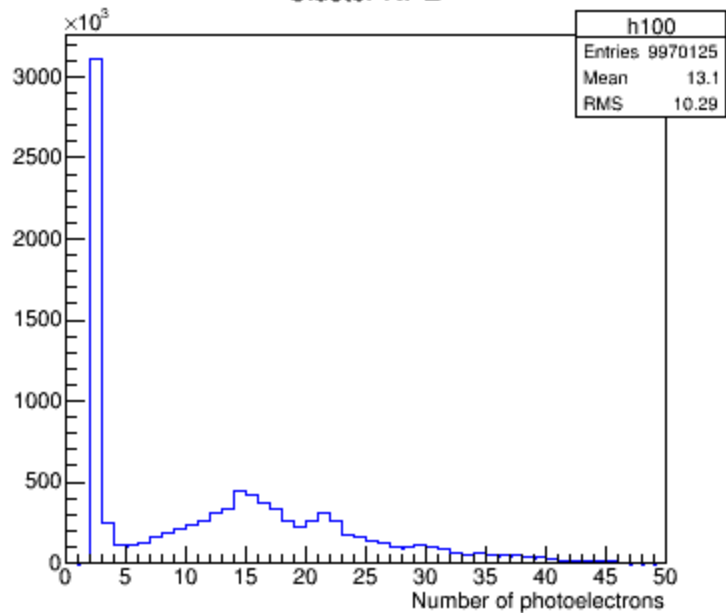


- Decision taken end of January not to take more data
 - No features in detector performance beyond known issues
 - Good agreement between upstream and downstream measurement of the beam
 - No features in energy loss etc distributions in the absorber
 - Don't expect much improvement in analysis by taking more data
 - Beyond more stats/settings

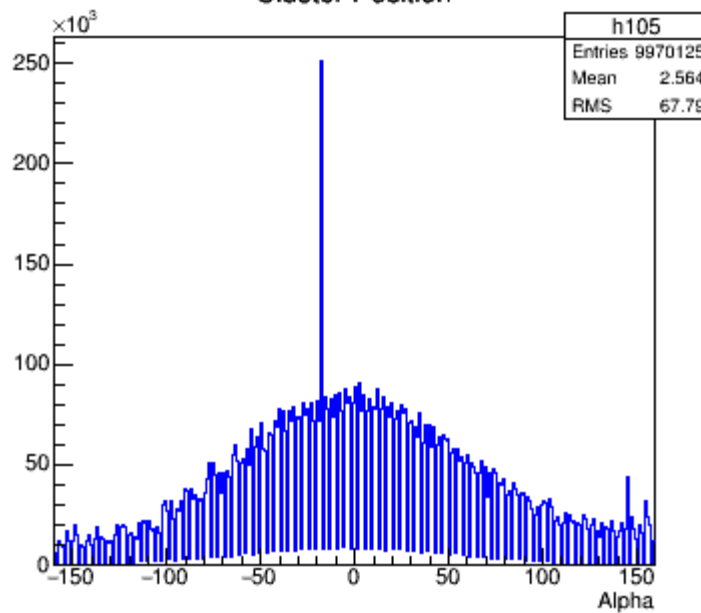
Tracker NPE and cluster position (M Uchida)



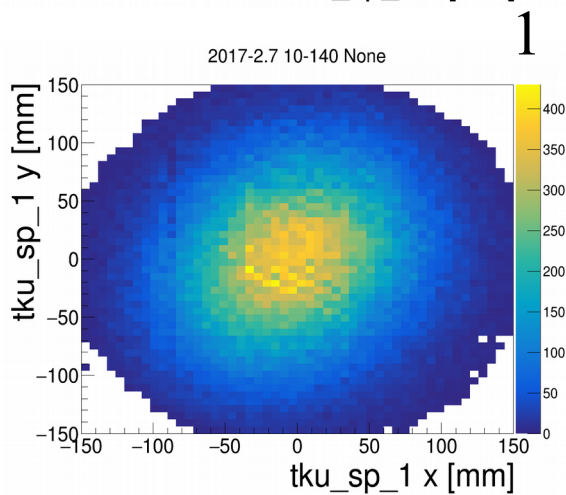
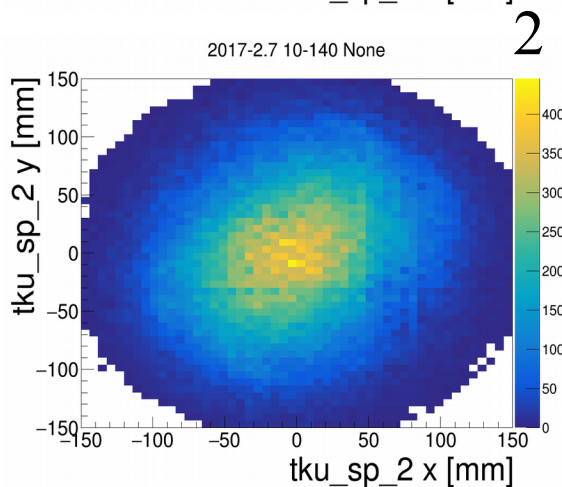
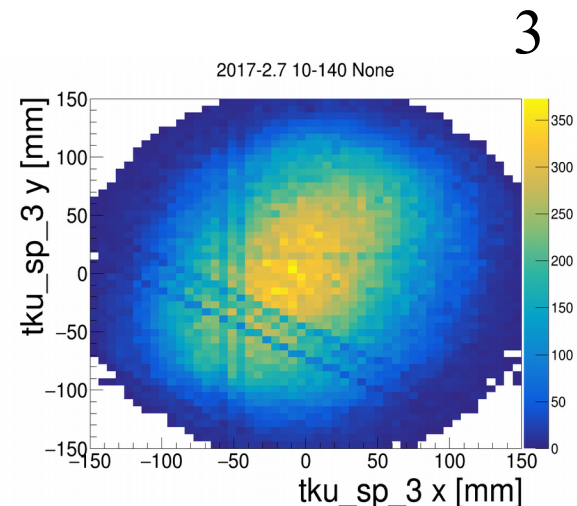
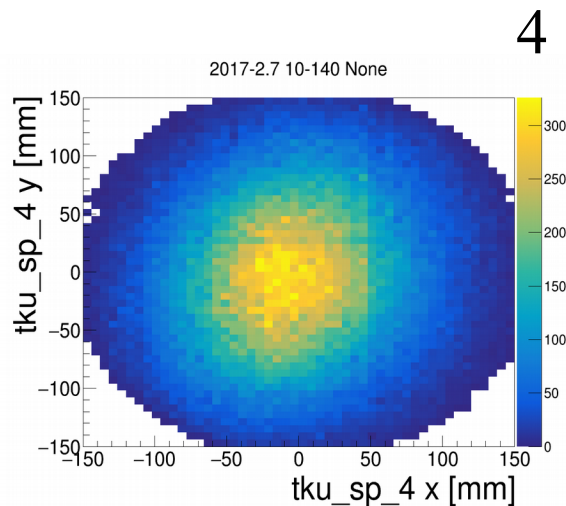
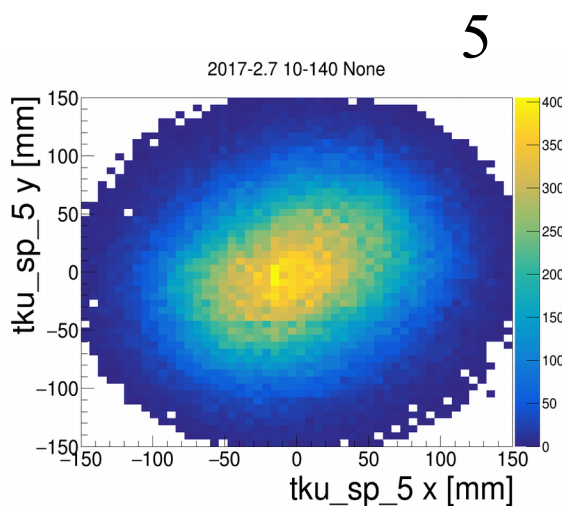
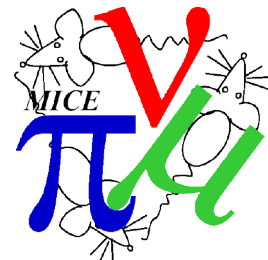
Cluster NPE



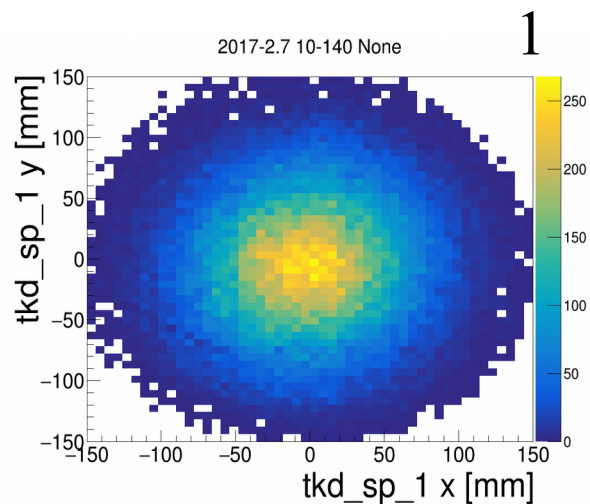
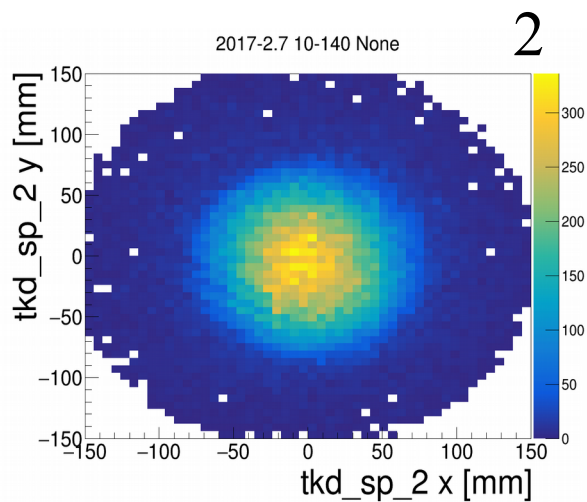
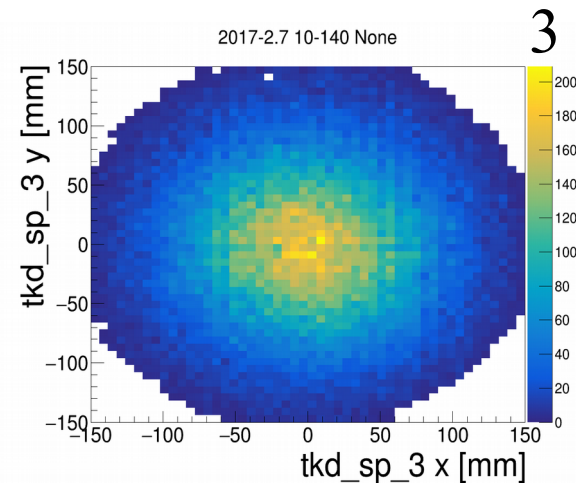
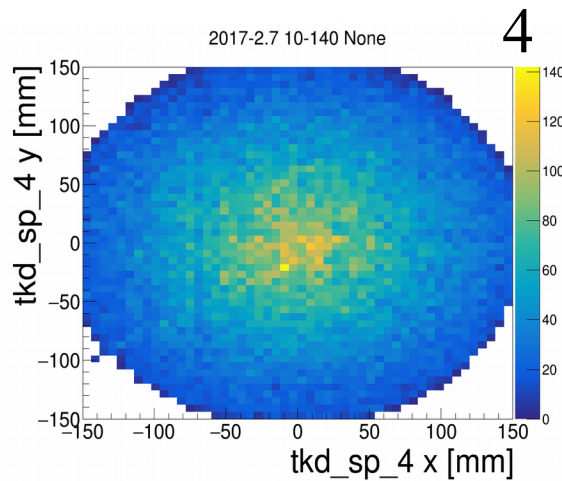
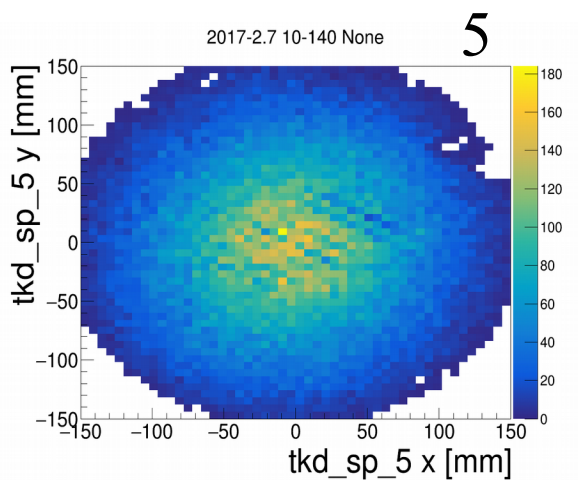
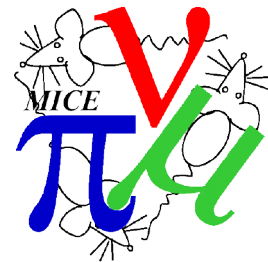
Cluster Position



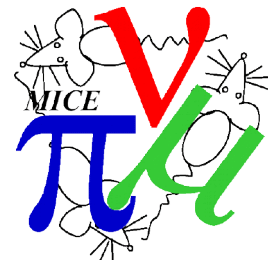
TKU Space Points



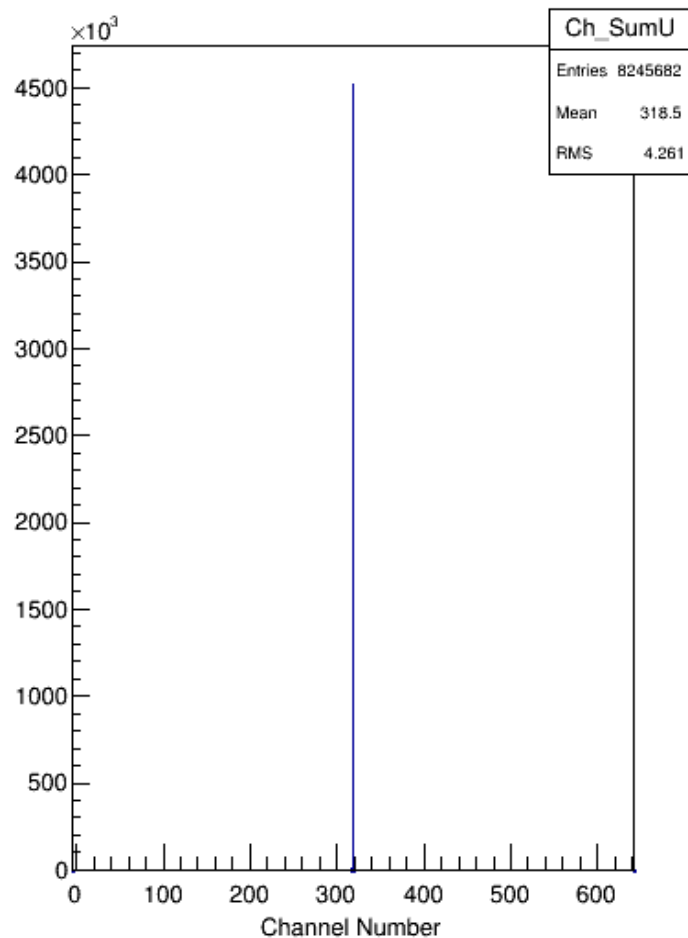
TKD Space Points



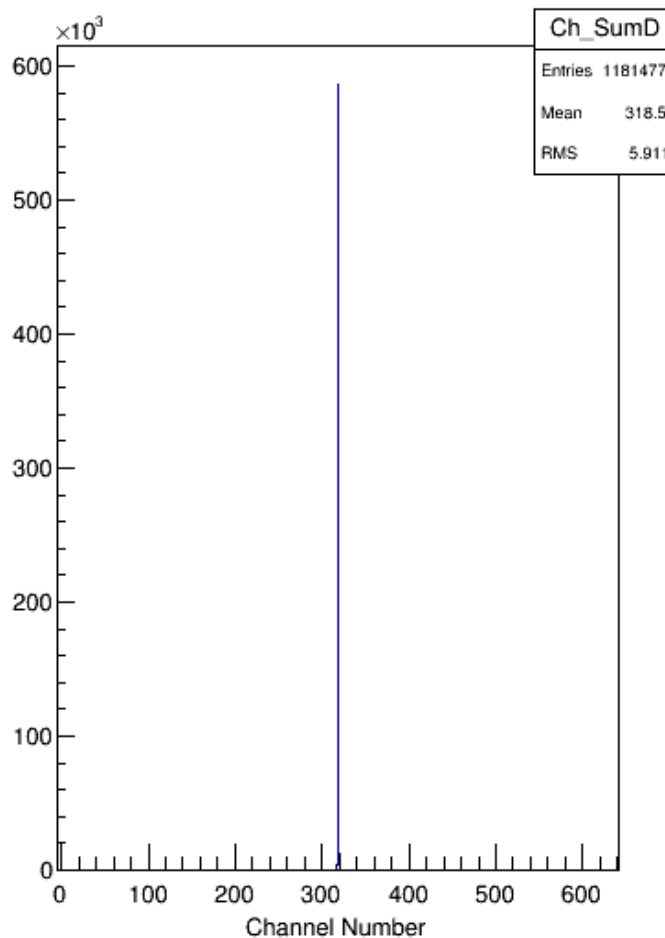
Tracker Kuno plot (M. Uchida)



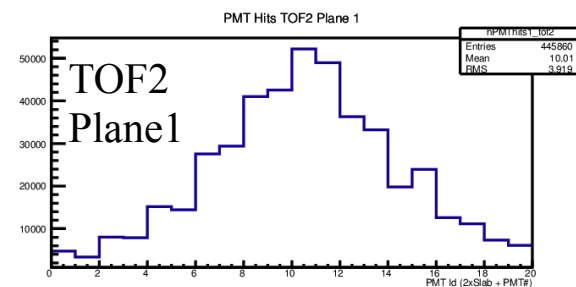
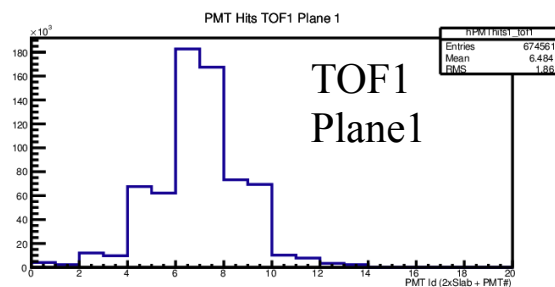
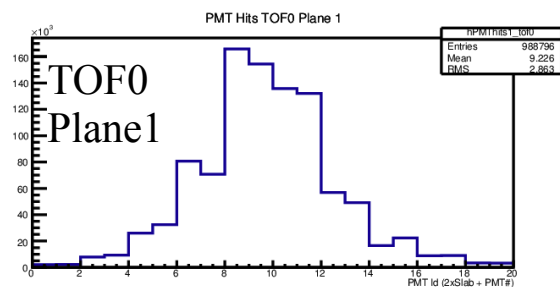
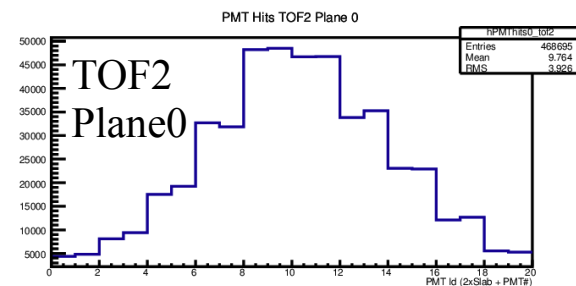
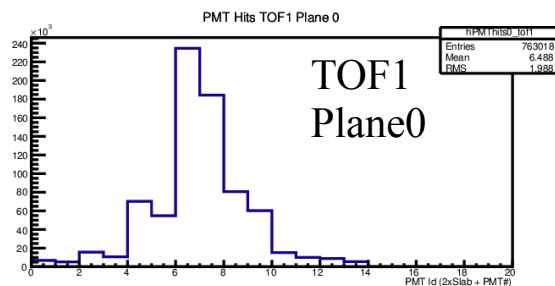
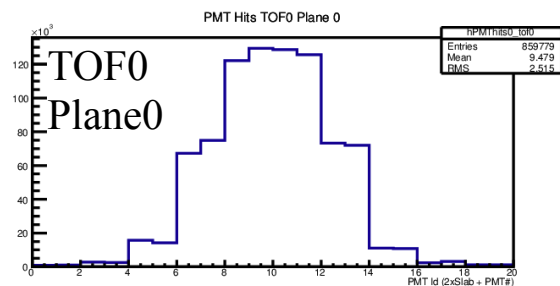
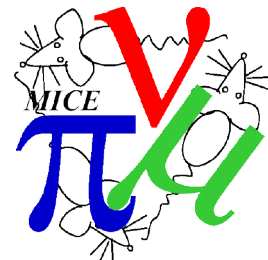
Digit Channel Sum TkU



Digit Channel Sum TkD



TOF PMT hits/channel (V. Pec)

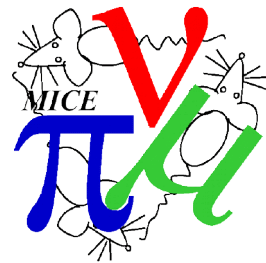


Channel

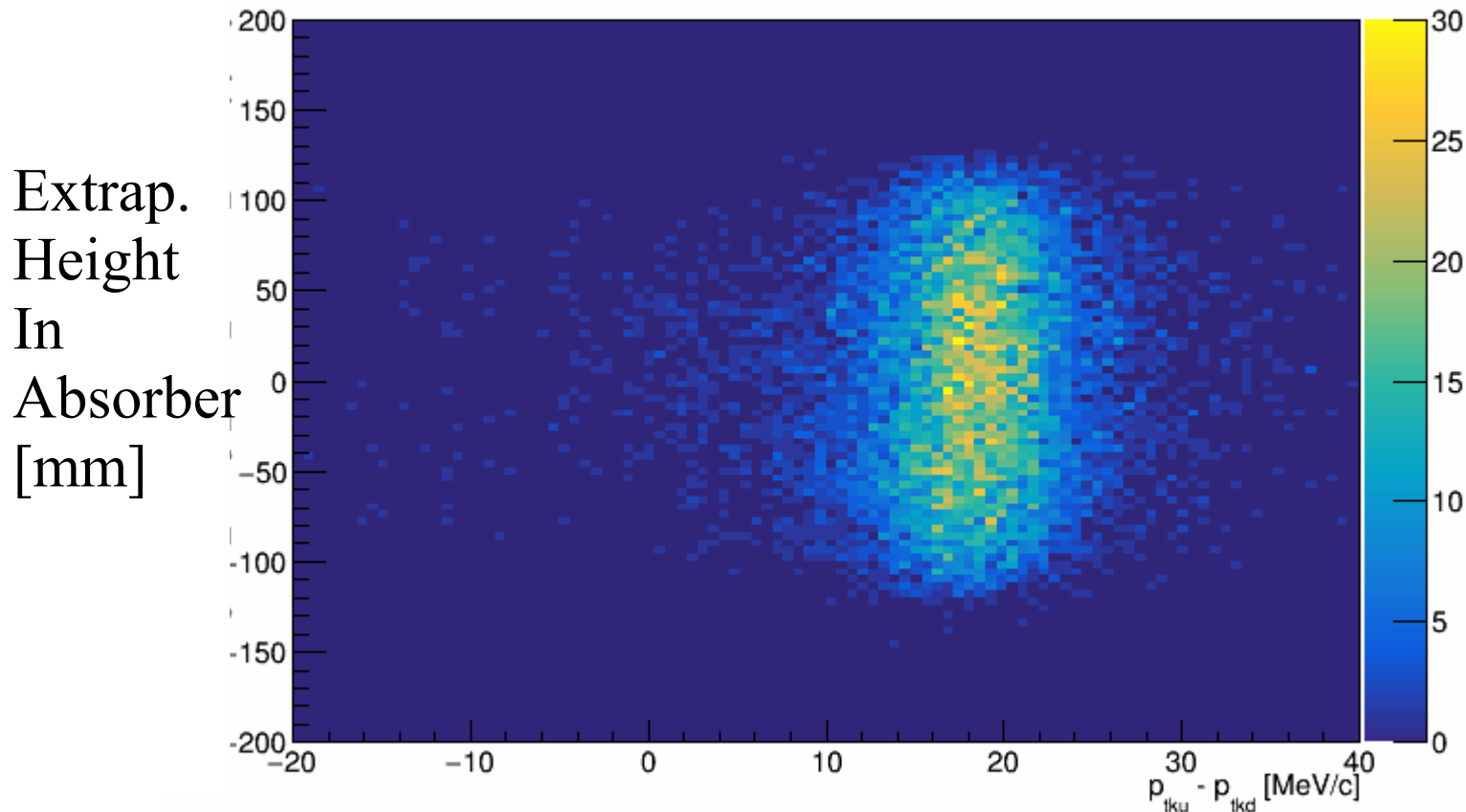
Channel

Channel

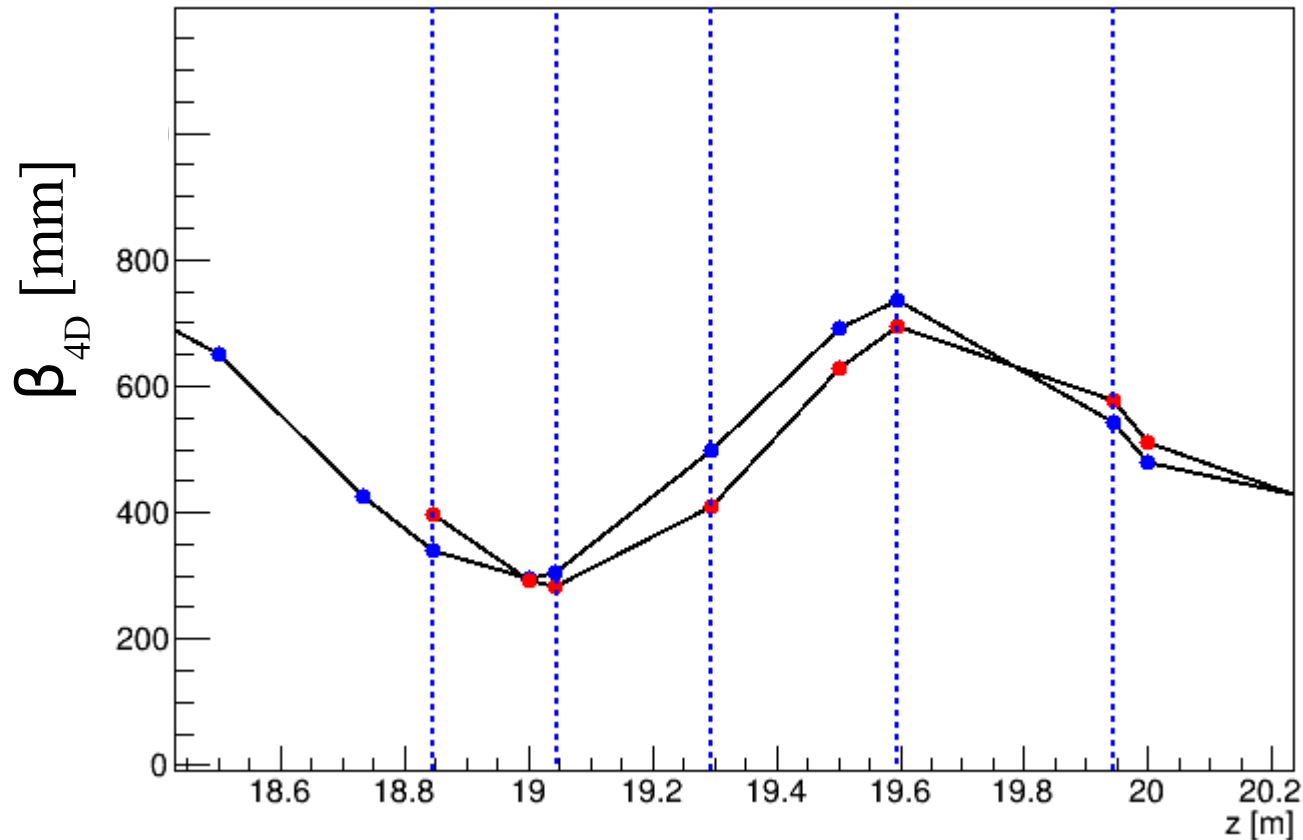
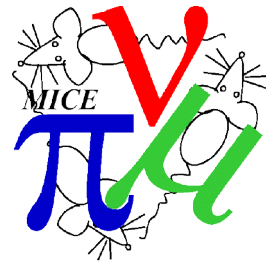
Energy Loss in absorber



2017-2.7 10-140 IH2 full



Extrapolate TKU tracks to the absorber
Compare height of extrapolated tracks with momentum change



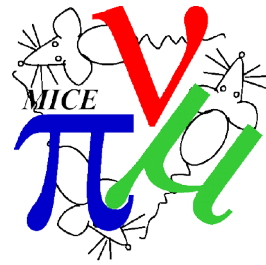
Blue: extrapolated TKU

Red: TKD

Vertical lines are TKD station positions

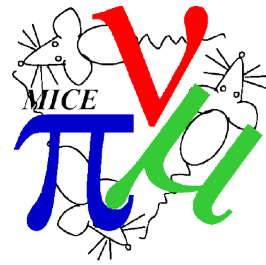
Points on each virtual or detector plane

Decommissioning Studies



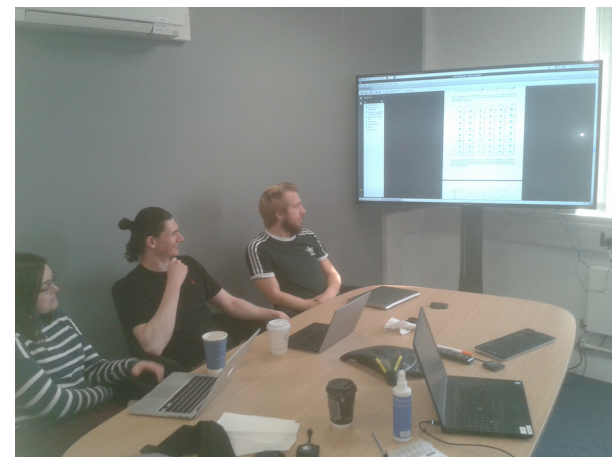
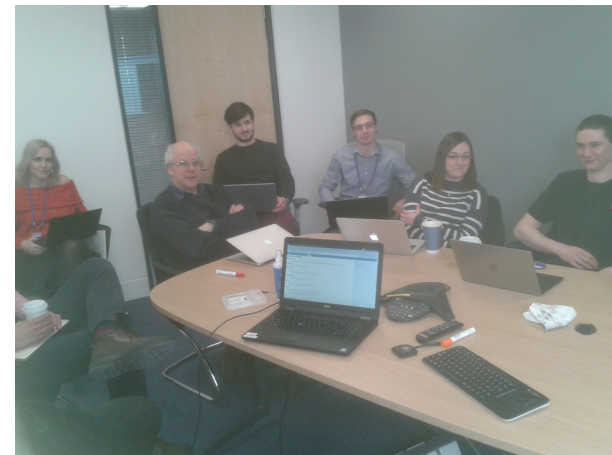
- Instead, prefer to make measurements that can reduce systematic uncertainties
 - Detailed survey of equipment, including things in the vacuum/Helium regions
 - Measure apertures
 - Measure Hall probe positions
 - Field mapping with PRY
- This can help us reach the unparalleled precision in emittance measurement that we seek

Data Analysis



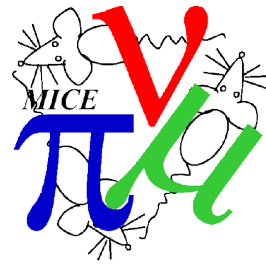
- Papers
 - Emittance measurement – *Friday am*
 - Straight track scattering – *Friday am*
- Other analyses
 - Transverse emittance evolution – *Thurs pm*
 - 6D emittance evolution (using KDE technique) – *Thurs pm*
 - System performance paper – *Friday am*
 - Beamline model
 - Tracker performance
 - Effects of diffuser
 - Combined PID performance
 - Energy Loss
 - Some analyses may become papers in their own right
 - Field-on scattering – *Thurs am*
- Discussion in next couple of days

- Running a series of analysis workshops
 - January 18th at RAL
 - CM50
 - 13:00 April 12th – 18:00 April 13th at Glasgow
 - May 15th - 16th at Warwick
 - CM51
 - ...
- Really useful to keep people focussed on pushing through the data analysis
- Please try to get travel bookings into this financial year





And on...



- Onto the analyses...