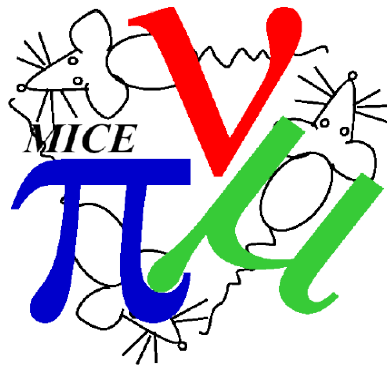




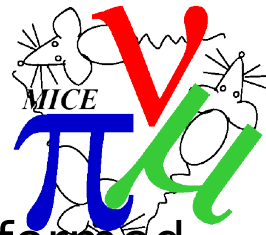
Report on trigger meeting



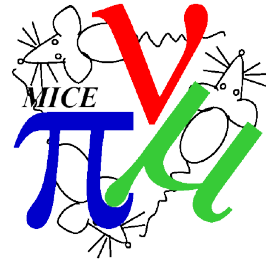
Chris Rogers,
ASTeC,
Rutherford Appleton Laboratory



Report on trigger meeting

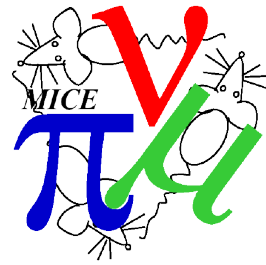


- Victoria presented the data rate analysis which she performed
 - Study done using old settings, from G4MICE day
 - Sought to answer how long would we need to run for to get 100k muons at TRP?
 - Use MR analysis, amalgamation of data sets, look at number of muons at TOF1 and Mark Rayner reconstructed tracks
 - 800k total TOF1 triggers
 - 40 triggers per spill on average
 - PID -> 564000 muons based on TOF1 timing cut 26.5 - 40 ns; all same beamline settings, "200 MeV/c", table 8.3 in Rayner thesis
 - On average 1 V ms from spreadsheet, 50/128 Hz, guess limit was 2 V ms, we are at 4 MV ms at 50/64
 - Expect we get a factor 2 more per dip, factor 2 more for double dip
 - Take a Gaussian selection in p_z of 10,000 muons, mean 200 MeV/c, rms 10 MeV/c = 27% of beam; rms 20 MeV/c = 51 % of beam
 - Made Iris 1.4 radiation lengths; tracked the 10,000 muons through TRP, took a 4*6 mm amplitude matched ellipse, gives 9209 -> 4258 muons



- Set the desired number of good muons/what are the aims/scope?
- Generate (re)optimised beamlines
- Redo analysis with optimised beamline
 - Consider collimation scheme somewhere before TOF1
- Redo analysis with softer transverse cut
- Redo analysis with softer momentum cut
- Look at TOF2 trigger effect on analysis i.e. downstream cut

Trigger with RF



- Use 0.5 ns of spill for in-phase muons $\sim 10\%$
- RF pulse is 1 ms not 2 ms $\sim 70\%$
 - Assume we use the “best” 1 ms of the spill
- An extra factor 0.07
 - We must do better!