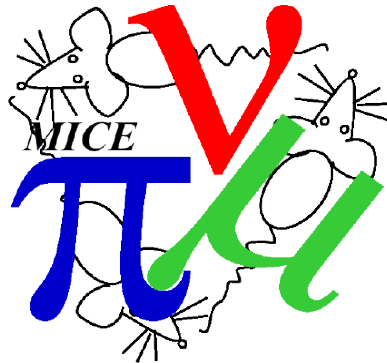


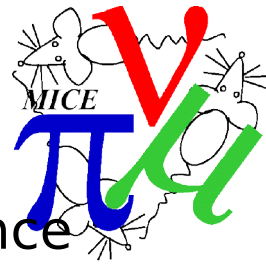


Overview of Issues



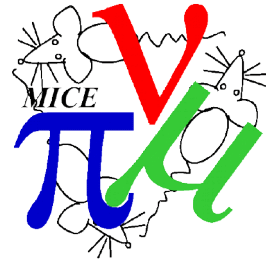
C. Rogers, ISIS Intense Beams Group
Rutherford Appleton Laboratory

Aim of the Data Taking



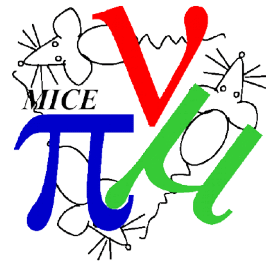
- Aim is to demonstrate that we understand the emittance change behaviour
 - Emittance reduction for high emittance beams – if possible
 - Emittance growth for low emittance beams
 - Effect of different momenta
 - Effect of different focussing

Sources of Bias



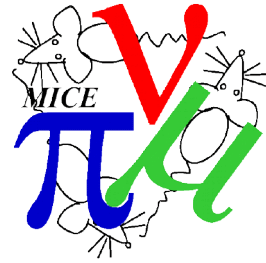
- Several sources of bias exist
- Emittance grows (and shrinks) due to optical distortion of the beam tails
- Scraping of the beam tails selectively removes those particles that scattered more
- Resolution and inefficiency of the detectors can introduce a bias

Different analysis approaches



- If the raw beam is used for analysis, optical emittance growth is probably dominant over the cooling effect
 - One way to remove this bias is to extrapolate tracks to the absorber
 - Calculate emittance change just upstream of the absorber and just downstream of the absorber
- Another way to approach the issue is to sample the input beam so that it looks like a “matched” beam
 - Under certain optical conditions, a “matched” beam experiences less optical emittance growth than an unmatched beam
 - Then we measure the emittance change between trackers
- We have to decide now on the approach
 - The magnet settings for the two approaches are fairly mutually exclusive
 - But we can run several different magnet settings during this user run

Figures of Merit



- We decided that the figures of merit for the various lattices should be
 - Emittance reduction of good muons just across the absorber
 - Transmission
 - Emittance change between TKU and TKD
 - Force between SSU and FC