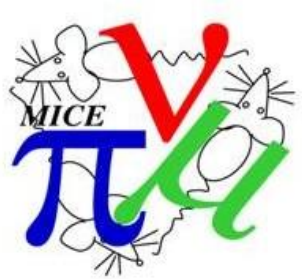

Status of STEPI papers

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Status of papers

- The drafts of the two papers are available on the MICE website, under the entry for the 4/7 meeting of the Editorial Board
- Proposal is to read the BL paper (2 weeks grace period, up to 21/7) and **address comments to Paul Soler + MB**
- The emittance paper needs some more work and what is on the web is **very preliminary**

Beamline paper [draft to be read]

- All paper has been drafted and includes:
  - Introduction
  - The Mice concept
  - The beam concept
  - The beamline description
  - The beam detectors
  - The DAQ and front-end
  - Controls and Monitoring
  - Results
  - Conclusions

Main issues

- Description of BL hardware (beam issues, detectors, …) as a reference for future papers [as a “classical technical paper” of a HEP experiment]
- Show performances of BL + detectors
- Do not care about emittance measurement in STEPI [item left to the other paper]

Some plots/figures shown

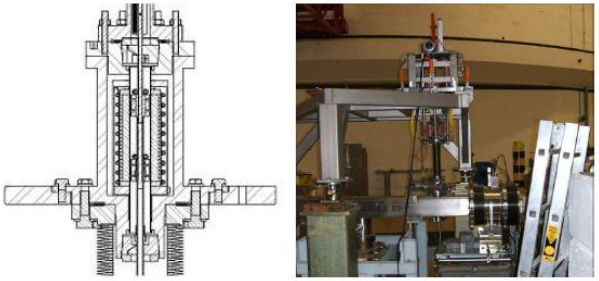
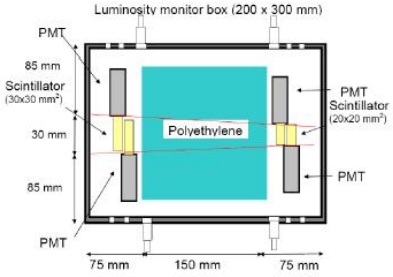


Figure 7. Left: MICE target actuation schematic. Right: Photograph of MICE replica target.



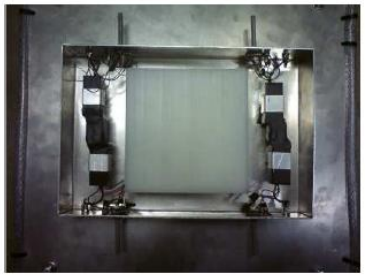


Figure 9. The design of the luminosity monitor features four low noise photo multiplier tubes in sets of two. We measure counts from coincidences of each pair of PMTs, and all four together. A block of polyethylene provides a filter for protons below 500 MeV/c and pions below 150 MeV/c.

Hardware description

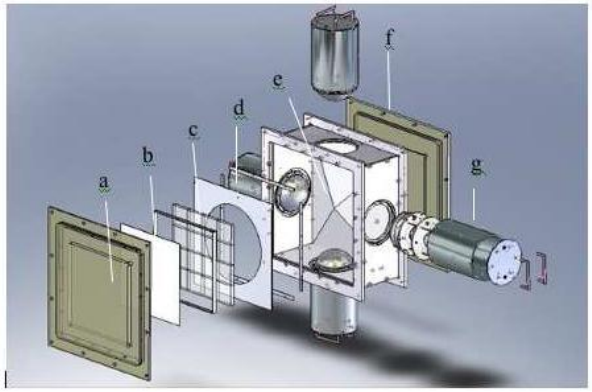


Figure 18. Aerogel Cherenkov counters blowup: a) entrance window, b) mirror, c) aerogel mosaic, d) acetate window, e) GORE reflector panel, f) exit window and g) 8 inch PMT in iron shield.

Some plots/figures shown

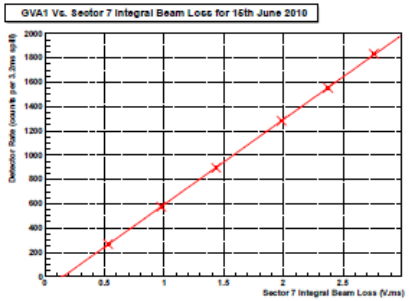


Figure 15. Average GVA1 rate per spill as a function of induced ISIS beam loss, for the positive $\pi \rightarrow \mu$ transport beam with 6 mm rad emittance, with a 1 ms spill gate. Linear fits are also shown giving good agreement with data.

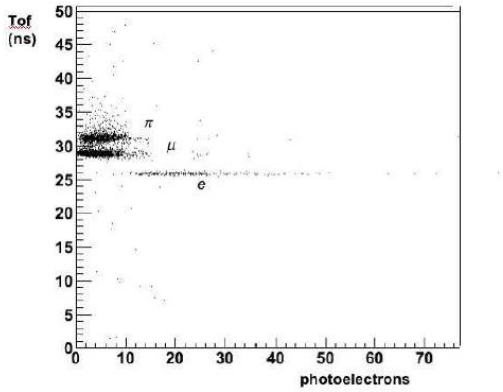


Figure 19. Aerogel Cherenkov counters light yield vs. time-of-flight.

Detector performances

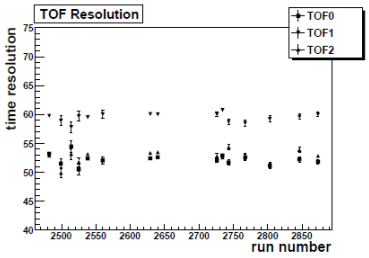


Figure 25. Stability of the time resolution of the TOF stations versus running time. Nominal muon beam data with trigger from TOF1. The covered period is about one month of data taking.

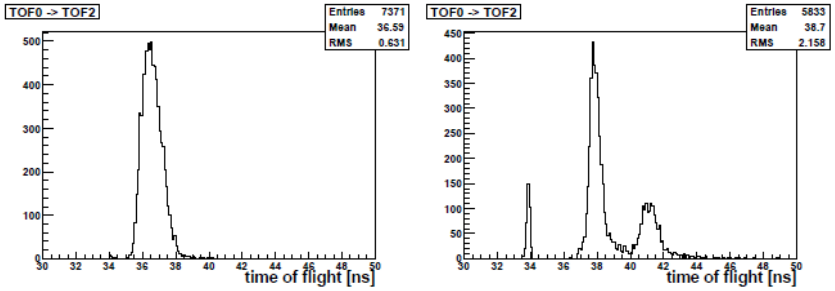


Figure 24. Time of flight between TOF0 and TOF2 for a **muon** beam (left) and an **electron** beam (right).

Some plots/figures shown

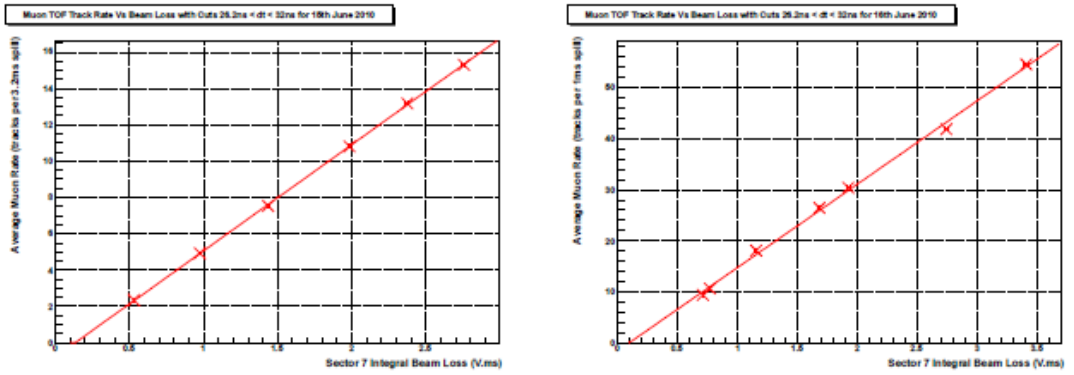


Figure 34. Average muon TOF track rate per spill as a function of induced ISIS beam loss for a negative $\pi \rightarrow \mu$ beam, with a 3.2 ms spill gate (left), and for a positive $\pi \rightarrow \mu$ beam, with a 1 ms spill gate (right). The tracks are reconstructed between the TOF0 and TOF1 detectors. The cuts applied to the TOF spectrum to isolate the muon tracks are 26.2 ns $< \Delta t <$ 32 ns. Linear fits are also shown giving good agreement with data.

Results: mainly on muon rates

Issues/problems

- Authorlist to be worked out
- All numbers must be checked [are from many sources]
- We have justify the 30 good muons obtained against the 600 good muons required in the proposal [DAQ overkill ?…]
- Results on PID are for single detectors (no global PID available yet)
- By the way: detectors are working well and BL is working

Emittance paper [to be finished]

- There are some problems:
  - Comparison data vs MC (10 MeV missing in p_z…)
  - A wrong conversion factor for TDC was spotted out
  - all has delayed the draft of the paper
  - It is very difficult to squeeze things in 4 pages for PRL (suggested to write things in a reasonable way, even if more lengthy ...)
  - We must quantify how well emittance is reconstructed with the TOFes only ….
  - See Mark's talk for details [still hard work is needed]

Conclusions

- Paper on BL ready as draft 0 for comments [up to 21/7 for next go]
- Paper on emittance needs some further work