

MOM missions for June and July

A. Blondel, Executive board v1 7Jun08

1. Target work

General situation: works well, almost turn key. Still a number of necessary improvements on the present target. Contact: Chris Booth

1.1 top priority: acquire the data from ISIS Beam loss monitors, beam position monitor and current loss data to improve study ability (contact Steve Griffith for the cabling, Paul Hodgson from the target group for the target)

1.2 provide *documentation* so that non-Sheffield people can operate the target safely. (Chris Booth+ Paul Smith, Paul Hodgson)

1.3 include the target related data in the MICE main data stream on a spill basis, so as to allow analysis in correlation with electron, pion, proton rates etc.. (coordination Jean-Sebastien Graulich, + Paul Hodgson for the target, Peter Owens for EPICS)

1.4 Clarify and document the target and beamline reference frames. Chris Booth (Target) , Kevin Tilley (Beam line), Andy McCarron (e.j.mccarron@rl.ac.uk, 01235 77 8195)

2. Detectors

Installation, cabling etc.. of the detectors (Willie Spensley, Steve Griffith)
KL and cables will be arriving in second week of June.

TOF0 shipping on 20/23 June.

Positions: TOF0 in front of Q7. KL behind Q9.

integration in the MICE system.

DAQ, Online monitoring, online reconstruction (Jean-Sebastien, Malcolm Ellis)

Some questions about alignment and storage of the alignment information, consult with Willie and Malcolm.

2.1 TOF1 is needed to measure input beam emittance fully, and complete step I.

Need at least one plane of TOF1 in addition to KL to measure emittance.

Keep pressure on Maurizio Bonesini to deliver TOF1 in early July!

Best way to help is to get TOF0 installed and operated asap.

3. DAQ:

-- need to be able to reproduce the online scalers with the online DAQ

-- connection of DAQ with the software,

-- production of on-line results (Jean-Sebastien, Malcolm)

-- archiving of results (Malcolm)

4. Beam line and Instrumentation

-- interchange GVA1 and GVA3. (Craig Mc Waters)

- unifying the conventions on the magnet controls (AMPS) and straighten the issues of entered/defined/stored configurations and alarms (relation with Pete Owens)
- enter the magnet setting information in the DAQ.
- running-in of the decay solenoid (Mike Courthold)
- for the moment the more segmented Beam counters (BC) from Imperial and Beam Monitors (BM) from Fermilab are not operational. In absence of TOF0/TOF1 they would provide information on the alignment of the beam.

5. Experimental program:

5.1 General

- MOM safety procedures to be followed (get hand out from Ken Long and Marco Apollonio or Paul Kyberd)
- Experiments are far more efficient if the expected results from simulation are available beforehand (Apollonio/Roberts/Tilley) Would be useful to have G4beamline running from the control room.
- Running the experiment should follow available hardware.
- ex: investigation of missing rate may require alignment sensitive devices which we do not necessarily have right now.
- Opening the beam stop requires closing the hall. Experiments requiring this will need to be performed after hall working hours or on week-ends, after removing the beam stop (coordinate with Willie Spensley to schedule crane driver; note that this has not been done yet).

5.2

- understanding of the particle production:
Study variation of rate with momentum, normalized to
D1-D2 beam line: vary D1, then scan D2 to find maximum.
Measure proton, pion, electron production.
Example: 200 MeV/c, (250) 300 MeV/c (350) 400 MeV/c, 480 MeV/c
Eventually switch to negatives to rid of protons (contact Tilley). Proton stop is not necessary until rate is too high. This requires the DAQ to record the TOF and Cherenkov information. (Jean Sebastien)

- when TOF0 and KL are available: provide beam for debugging the detectors.
- when TOF0 is available: measure beam size at TOF0 giving first idea of correctness at focusing.

- When the decay solenoid works: Check with proton beam (D1, D2 beam line) the rate as function of solenoid field.

- progressively pursue exploration of momentum/ emittance matrix

- 5.3 if we get dedicated time, we should press the issue of target dip/beam loss limit. This is high priority work but should be decided after discussions with ISIS

(Director David Findlay, contact Dean Adams on MICE side, Chris Rogers on MICE side)

6. Documentation

6.1 Pursue documentation of MICE subsystems

6.2 MAKE SURE THAT E-LOGBOOK IS USED AS A LOGBOOK! (for the moment there are issues of availability of electronic logbook in the control room.

6.3 results of MICE experiments should be summarized as MICE note including relevant plots/data.