System papers

S. Wilbur - P. Franchini

MICE Analysis Workshop
May, 15 2018

Introduction

- Two system papers in preparation

The MICE Analysis and User Software framework	D. Rajaram	Apr18 w/s		
Performance of the MICE diagnostic systems	S. Wylbur/P. Franchini		Apr18 w/s	
Muon Ionization Cooling Experiment (h/w)	C. Whyte/P. Franchini		Apr18 w/s	

K.L. - 12/4 VC

  - Performance of the MICE diagnostic systems
  - Muon Ionization Cooling Experiment

- Target journal: JINST?

Muon Ionization Cooling Experiment

- Description of the apparatus
- Hardware constructed for the cooling demo
- List of contributions:
  - Conceptual design (K. Long)
  - Magnetic channel (A. Bross)
  - Focus coils (J. Cobb)
  - Absorbers (C. Whyte, A. Bross)
  - Cavities and RF systems (K. Ronald)
  - Control and monitoring (A. Kurup)
  - Detector systems (various)
  - Data acquisition (D. Rajaram)
  - Operations (S. Boyd)

Performance of the MICE diagnostic systems

- Detectors
- PID
- Track matching
- Detector alignment
- Cooling channel magnets
- Target model
- Absorber model
- Beam optics

Analysis data

- Common data sample
  - 2017/02 and 2017/03
  - 2T and 3T in SSD
  - 140 – 240 MeV/c
  - 3, 6, 10 mm nominal beams
  - LiH, LH2 and wedge
- Official MC
- Common set of cuts (using the data structure)

Main contributors

Main author(s)	Contribution
Viktor, Scott	TOF
Tanaz	Ckov
Domizia, Ludovico, Mariyan	KL
Francois	EMR
Melissa	Tracker
Scott, Melissa	PID
Chris Rogers, Melissa	Track matching
Francois, Paul	Detector alignment
Chris Hunt, Joe	Magnets
Tom, Paolo	Target model
Ajit, Scott	Absorber model
Melissa	Diffuser study

- Most of the contributions are in the workshop talks…

Contributions

- *TOF*: agreed on the outline of the contribution, 3/4 pages
- Ckov: Tanaz has some code ready
- KL: first draft already in place
- EMR: low level efficiency and PID
- Tracker: agreed on 5 pages, got a draft from Paul K.
- *PID*: framework has been updated by Scott
- *Track matching*: residual plots by Chris R.
- Detector alignment: comments from Paul K.

Contributions

- *Magnets*: note in progress by Chris H.; Joe to implement the field maps in MAUS
- *Target model*: note in progress by Tom
- *Absorber model*: LH2 validation
- *Diffuser study*: probably a separate paper

Material

- Contributions updated on GitHub
- https://micewww.pp.rl.ac.uk/projects/analysis/wiki/Publications_WIP#System-Performance-Paper