WG3 – Accelerator Physics Plans and Questions

Conveners:

J. Pasternak, Imperial College London/RAL-STFC (presenter)

P. Snopok, Illinois Institute of Technology

J. Tang, IHEP

Outline

- Tour over the workshop's agenda
- Summary of questions for nufact'14

Monday

Parallel 1 (14:30-16:00): MICE, Chair: Alan Bross (FNAL)

- The Status of the Construction of MICE Step IV,
  Celeste Pidcott (University of Warwick) -17.5+5 min
- The Physics Programme of MICE Step IV,
  Ryan Bayes (University of Glasgow) -17.5+5 min
- Progress Towards Completion of the MICE Demonstration of Sustainable Muon Ionization Cooling,
  Pierrick Hanlet (FNAL) -17.5+5 min
- Optimization of Beam Line Settings for MICE Step IV,
  John C. Nugent (University of Glasgow) -17.5+5 min

Tuesday (I)

Parallel 2 (11:00-12:30): NuStorm, Chair: Alex Bogacz (J-LAB)

- NuStorm FODO solution,
  David Neuffer (FNAL) –17.5+5 min
- NuStorm RFFAG solution,
  Jean-Baptiste Lagrange (IC London/FNAL) -17.5+5 min
- nuSTORM at CERN, Scenarios and Plans,
  Elena Wildner (CERN) - 17.5+5 min
- Neutrino Flux from nuSTORM facility,
  David Adey (FNAL) -17.5+5 min

Tuesday (II)

Parallel 3 (14:00-15:30): Neutrino Factory and NuMAX, Chair: Kenneth Long (IC London)

- Final results from IDS-NF study, P. Paul Soler (University of Glasgow) -15+5 min
- NuMAX overview, David Neuffer (FNAL) -15+5 min
- Muon Acceleration: NuMAX and Beyond, Alex Bogacz (J-LAB)- 25+5 min
- Design of NuMAX decay ring, David Kelliher (STFC-ASTeC) -15+5 min

Wednesday

Parallel 4 (11:00-12:30): ESS and CSNS,
Chair: Marcos Dracos (IPHC-IN2P3/CNRS Strasbourg)

- ESS linac modifications,
  Dave McGinnis (ESS) -17.5+5 min
- Accumulator ring for the ESS neutrino Super Beam,
  Elena Wildner (CERN) -17.5+5 min
- ESSvSB: Update on secondary beam studies,
  Nikolaos Vassilopoulos (IPHC) -17.5+5 min
- An Experimental muon source for neutrino beam R&D at CSNS, Han-Tao Jing (IHEP)-17.5+5 min

Thursday (I)

Parallel 5 (11:00-12:30): J34,
Chair: Yoshitaka Kuno (Osaka University)

- Status of MuSIC facility,
  Yuki Matsumoto (Tohoku University) -17.5+5 min
- COMET Phase-I, Phillip Litchfield (UCL) -17.5+5 min
- Mu2e, Yury Kolomensky (UC Berkeley/LBNL)
  -17.5+5 min
- Design studies for PRISM,
  Jaroslaw Pasternak (IC London) -17.5+5 min

Thursday (II)

Parallel 6 (14:00-15:30): J34,
Chair: Ajit Kurup (IC London)

- Design Update for MOMENT,
  Jingyu Tang (IHEP) - 25+5 min
- Opportunities for Experiments Based on Stored Muon Beams at Fermilab,
  Milorad Popovic (FNAL)- 25+5 min
- Synergies between muon projects-
  discussion (all)- 30 min

Friday (I)

Parallel 7 (11:00-12:30): Targetry and Proton drivers, Chair: Jingyu Tang (FNAL)

- Targetry, Kirk McDonald (Princeton University) - 17.5+5 min
- Powder target, Chris Densham (STFC-RAL) - 17.5+5 min
- Proton driver at FNAL, Milorad Popovic (FNAL) - 17.5+5 min
- High-intensity muon sources for high energy physics experiments, Diktys Stratakis (BNL)- 17.5+5 min

Friday (II)

Parallel 8 (14:00-15:30): Muon Collider studies, Chair: Milorad Popovic (IHEP)

- Hybrid 6D cooling channel, Diktys Stratakis (BNL) - 17.5+5 min
- Bright muon sources, Pavel Snopok (IIT/FNAL) - 17.5+5 min
- Final cooling, David Neuffer (FNAL) - 17.5+5 min
- Discussion, all - 17.5+5 min

Friday (III)

Parallel 9 (16:00-17:30): Summary preparation/discussion

Summary of questions for nufact'14 (1)

- **What is the path to a multi-MW target/capture system?**
  - -What are the options to mitigate energy deposition and shielding problems for multi-MW solenoid capture systems?
  - -Are there outstanding target handling issues for multi-MW designs?
  - -How do material properties evolve with time (radiation, strain, stress and temperature)?
  - -Is our modeling of pion production sufficiently complete to address proposed accelerator projects?

Summary of questions for nufact'14 (2)

- What is the optimum muon acceleration scheme for the Neutrino Factory with respect to feasibility, performance and cost (FFAG, RLAs with FFAG arcs, linac)?

- What is the best solution/design for the nuSTORM facility (performance, cost)?

- What are the optimum beam designs for next generation muon experiments based on current and future proton beams?

- Is there a possible solution for an ESS driven proton driver for the SB and/or NF?

- What facilities are needed to demonstrate muon accelerator concepts (MuSIC, MICE, nuSTORM, FNAL-AP0, others)?

Have a nice workshop!
Thank You