Imperial College London

Science & Technology Facilities Council

Introduction

K. Long, 31 March, 2016

Contents

- Commissioning to Running
- Papers
- Optics review
- Step IV
- Cooling demonstration
- MICE collaboration
- International perspective
- International reviews
- CM44

Introduction

COMMISSIONING TO RUNNING

Progress since CM43

- CM43; in the midst of commissioning:
  - Decay solenoid, intermittent issues;
  - LH2 cool-down slow;
  - Downstream solenoid; loss of M1;
  - Support and coordination issues

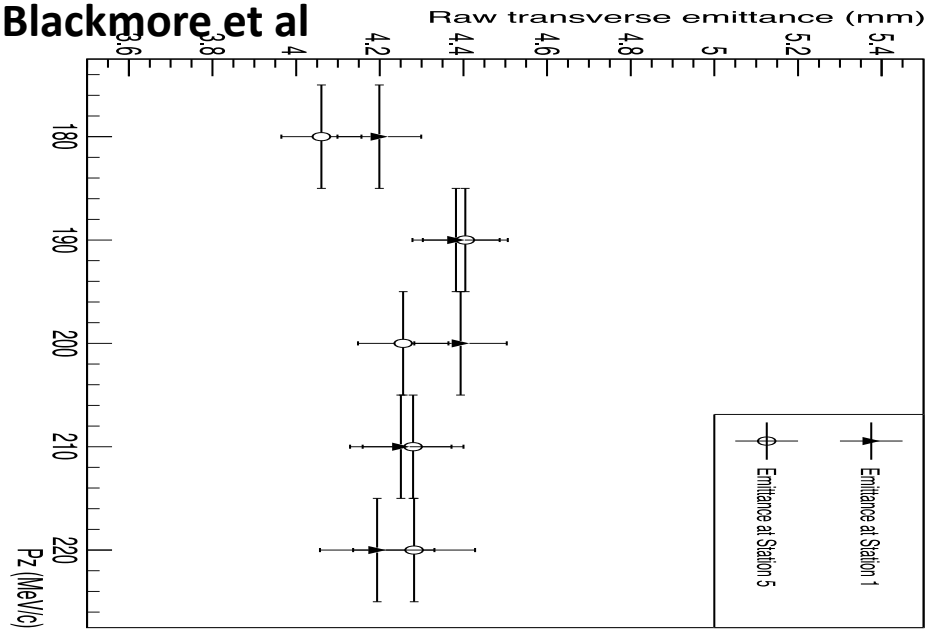
- At CM44:
  - Routine running: Step IV physics programme underway
    - Executed field-off, LiH scattering programme
  - Decay solenoid power supply refurbished:
    - On schedule! Daresbury Electrical Group (Griffiths et al)
  - LH2 absorber:
    - Plan in place to address thermal issues (Bayliss, Boehm et al)
  - Downstream spectrometer solenoid:
    - BNL magnet group (P. Wanderer et al) retained by M. Palmer;
      - Excellent progress in detailed understanding of magnet and training

Software and computing

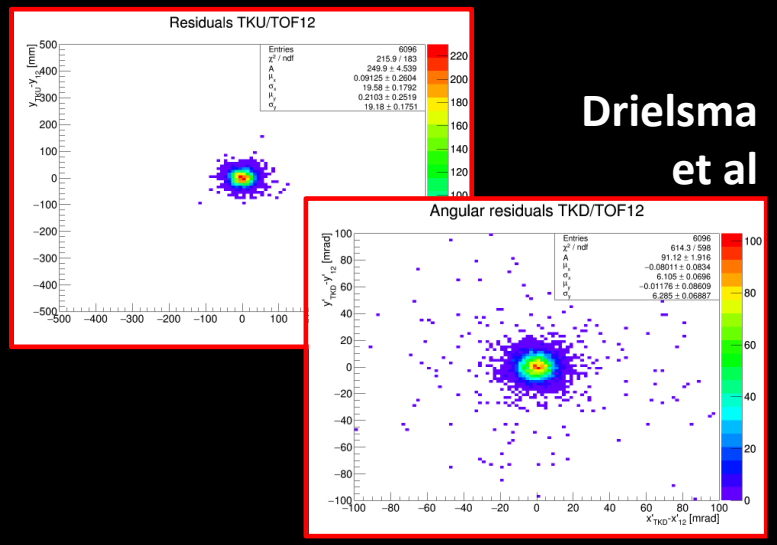
- Enormous progress in S/w&C:
  - Geometry (particularly tracker); alignment
  - Calibration
- Data:
  - Routine processing
    - Firm basis for analysis
  - Routine monitoring:
    - OnMon; Online reconstruction:
      - Routine reporting to Ops meeting:
        - » Firm basis for quality control during data taking
- Simulation:
  - Production manager: Dimitrije Maletic (Belgrade)
  - Getting ready for routine production on the GRID
  - Speed/efficiency:
    - Generation of beam distributions @ TOF1 (Drielsma)
    - Execution speed of the simulation (Rajaram)

Tasters

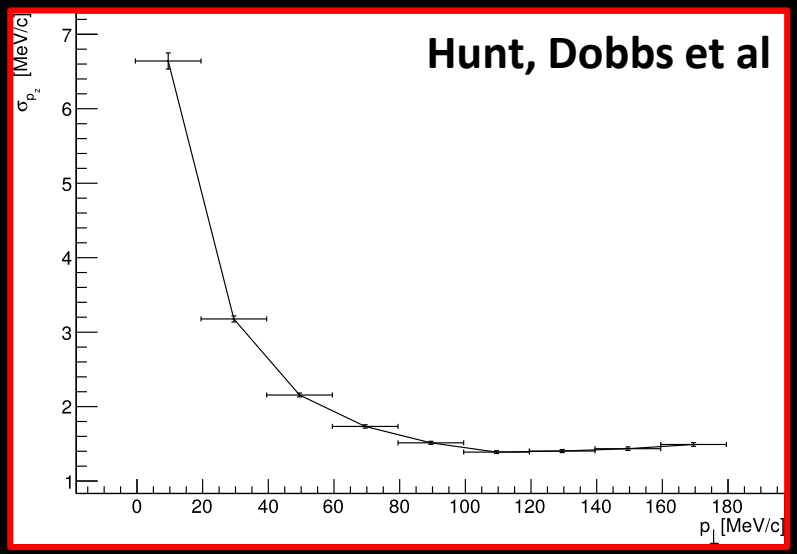
Blackmore et al



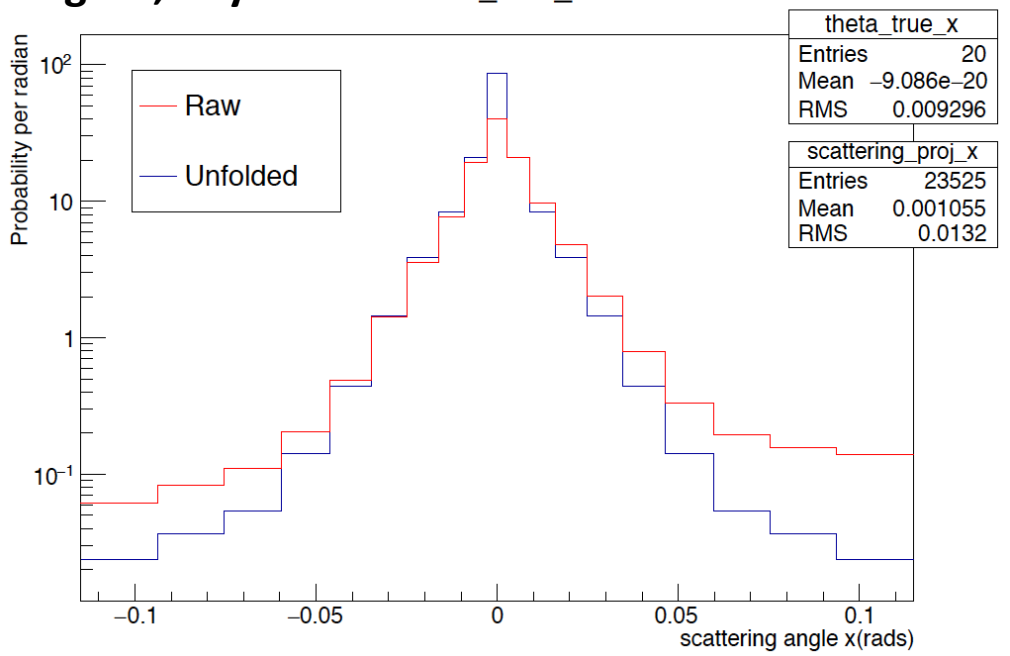
Drielsma et al



Hunt, Dobbs et al



Nugent, Bayes et al



Introduction

PAPERS

CM43 …

Title	Lead authors
Step I physics	
Electron Muon Ranger: performance in the MICE Muon Beam **EMR paper submitted!** **Pion contam: being prepared for submission** Measurement of the pion contamination in the MICE Muon Beam	A. Blondel, F. Drielsma, R. Asfandiyarov D. Orestano, D. Nugent, P. Soler
Step IV physics	
Commissioning of the MICE experiment in the Step IV configuration **Work organised; perhaps based on 07Oct15 data taking?**	C. Rogers
Ionization cooling demonstration	
Design and expected performance of the MICE demonstration of ionization cooling **Draft in preparation; Wise people: Ronald, Ryne**	V. Blackmore, J. Pasternak, C. Rogers
Technical	
The MICE target upgrade **Draft assembled!**	C. Booth
The design construction of the MICE Electron Muon Ranger **Draft under review in the EMR group??**	R. Asfandiyarov, A. Blondel, F. Drielsma
The Reconstruction Software for the MICE Scintillating Fibre Trackers **Draft at advanced stage: issue in track-fit being debugged**	S. Dobbs
The MICE Analysis and User Software framework	D. Rajaram **Draft being assembled.**

Step I documentation almost complete! Pressure! Cooling demo paper … first Step IV paper?

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Received: October 29, 2015
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Published: December 16, 2015

Electron-muon ranger: performance in the MICE muon beam

MICE collaboration

D. Adams,[l] A. Alekou,[o] M. Apollonio,[o] R. Asfandiyarov,[j] G. Barber,[o] P. Barclay,[l] A. de Bari,[d] R. Bayes,[m] V. Bayliss,[l] P. Bene,[j] R. Bertoni,[b] V.J. Blackmore,[p,1] A. Blondel,[j] S. Blot,[y] M. Bogomilov,[a] M. Bonesini,[b] C.N. Booth,[q] D. Bowring,[w] S. Boyd,[s] T.W. Bradshaw,[l] U. Bravar,[z] A.D. Bross,[u] F. Cadoux,[j] M. Capponi,[e] T. Carlisle,[p] G. Cecchet,[d] C. Charnley,[k] F. Chignoli,[b] D. Cline,[ac,2] J.H. Cobb,[p] G. Colling,[o] N. Collomb,[k] L. Coney,[ad] P. Cooke,[n] M. Courthold,[l] L.M. Cremaldi,[ab] S. Debieux,[j] A. DeMello,[w] A. Dick,[r] A. Dobbs,[o] P. Dornan,[o] F. Drielsma,[j,3] F. Filthaut,[h,4] T. Fitzpatrick,[u,2] P. Franchini,[s] V. Francis,[l] L. Fry,[l] A. Gallagher,[k] R. Gamet,[n] R. Gardener,[t] S. Gourlay,[w] A. Grant,[k] J.S. Graulich,[j] J. Greis,[s] S. Griffiths,[k] P. Hanlet,[x] O.M. Hansen,[i] G.G. Hanson,[ad] T.L. Hart,[ab] T. Hartnett,[k] T. Hayler,[l] C. Heidt,[ad] M. Hills,[l] P. Hodgson,[q] C. Hunt,[o] C. Husi,[j] A. Iaciofano,[e] S. Ishimoto,[g] G. Kafka,[x] D.M. Kaplan,[x] Y. Karadzhov,[j] Y.K. Kim,[y] Y. Kuno,[f] P. Kyberd,[t] J.-B. Lagrange,[o] J. Langlands,[q] W. Lau,[p] M. Leonova,[u] D. Li,[w] A. Lintern,[l] M. Littlefield,[t] K. Long,[o] T. Luo,[ab] C. Macwaters,[l] B. Martlew,[k] J. Martyniak,[o] F. Masciocchi,[j] R. Mazza,[b] S. Middleton,[o] A. Moretti,[u] A. Moss,[k] A. Muir,[k] I. Mullacrane,[k] J.J. Nebrensky,[t] D. Neuffer,[u] A. Nichols,[l] R. Nicholson,[q] L. Nicola,[j] E. Noah Messomo,[j] J.C. Nugent,[m] A. Oates,[k] Y. Onel,[aa] D. Orestano,[e] E. Overton,[q] P. Owens,[k] V. Palladino,[c] J. Pasternak,[o] F. Pastore,[e,2] C. Pidcott,[s] M. Popovic,[u] R. Preece,[l] S. Prestemon,[w] D. Rajaram,[x] S. Ramberger,[i] M.A. Rayner,[p] S. Ricciardi,[l] T.J. Roberts,[v] M. Robinson,[q] C. Rogers,[l] K. Ronald,[r] K. Rothenfusser,[j] P. Rubinov,[u] P. Rucinski,[u] H. Sakamato,[f] D.A. Sanders,[ab] R. Sandström,[j] E. Santos,[o] T. Savidge,[o] P.J. Smith,[q] P. Snopok,[x] F.J.P. Soler,[m] D. Speirs,[r] T. Stanley,[l] G. Stokes,[k] D.J. Summers,[ab] J. Tarrant,[l] I. Taylor,[s] L. Tortora,[e] Y. Torun,[x] R. Tsenov,[a] C.D. Tunnell,[p] M.A. Uchida,[o] G. Vankova-Kirilova,[a] S. Virostek,[w] M. Vretenar,[i] P. Warburton,[k] S. Watson,[l] C. White,[k] C.G. Whyte,[r] A. Wilson,[l] H. Wisting,[j] X. Yang,[ac] A. Young[r] and M. Zisman[w,2]

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Pion contamination in the MICE muon beam

MICE collaboration

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Preprint typeset in JINST style - HYPER VERSION

MICE-PUB-BEAM-480

The design and performance of an improved target for MICE

C.N. Booth[*], **P. Hodgson, J. Langlands, E. Overton, M. Robinson, P.J. Smith**

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ABSTRACT: The linear motor driving the target for the Muon Ionisation Cooling Experiment has been redesigned to improve its reliability and performance. A new coil-winding technique is described which produces better magnetic alignment and improves heat transport out of the windings. Improved field-mapping has allowed the more precise construction to be demonstrated, and an enhanced controller exploits the full features of the hardware, enabling increased acceleration and precision. The new user interface is described and analysis of performance data to monitor friction is shown to allow quality control of bearings and a measure of the ageing of targets during use.

KEYWORDS: Accelerator applications; Targets; Instrumentation for particle accelerators and storage rings; Control and monitor systems online; Overall mechanics designs.

[*]Corresponding author

Papers in progress

Title	Contact	Comment
Step IV physics		
First measurement of emittance in Step IV	V. Blackmore	Analysis underway
Measurement of scattering distributions in MICE	D. Nugent	Analysis underway
Ionization cooling demonstration		
Design and expected performance of the MICE demonstration of ionization cooling	J.B. Lagrange	MICE Note draft in praparation

Title	Contact	Comment
Technical		
The MICE target upgrade	C. Booth	arXiv:1603.07143; submitted to JINST
The design construction of the MICE Electron Muon Ranger	F. Drielsma	Under consideration
The Reconstruction Software for the MICE Scintillating Fibre Trackers	A. Dobbs	Awaiting final track-fit results
The MICE Analysis and User Software framework	D. Rajaram	Not sure

Introduction

OPTICS REVIEW:
14/15 JANUARY 2016

Optics review 14/15 January 2016

MICE » Governance

Overview | Activity | Issues | Documents | Wiki

Review of the MICE beam-dynamics analysis, January 2016

History

Back

Review committee

Present for the review:

- M. Syphers (NIU, Chair)
- R. Barlow (Huddersfield)
- R. Bartolini (Diamond/JAI)
- J. Byrd (LBNL)
- A. Latina (CERN)
- G. Rumolo (CERN)
- A. Seryi (JAI)
- N. Solyak (FNAL)

Two members of the committee, D. Newbo

Documentation

Report: Status of the MICE Optics and A
Feedback from the review panel: Repor

Recent reviews:

- MICE Project Board and Resource
- MAP Directors review of the spectr
  - Draft report from the review

Terms of reference: Review of the MICE

Venue:

The Hamilton Room, The Coseners Hou

- Directions to the Coseners House

Back

14 January 2016

09:00-09:30	**Executive session**		
09:30-11:00	**Context and orientation**		
09:30-09:50	Ionization cooling for muon accelerators (01-2016-01-14-Delahaye.pptx)	J.P. Delahaye	
09:50-10:10	MICE: the Muon Ionization Cooling Experiment (02-2016-02-14-Bross.pptx)	A. Bross	
10:10-10:45	The MICE measurement programme; concepts and practicalities (03-2016-01-14-Rogers.pdf)	C. Rogers	
10:45-11:00	Discussion/contingency		
11:00-11:30	**Coffee**		
11:30-13:00	**Diagnostics and data handling**		
11:30-12:00	Reconstruction and performance of the MICE instrumentation (04-2016-01-14-Dobbs.pdf)	A. Dobbs	
12:00-12:30	Measurement of emittance and other optics quantities; precision (05-2016-01-14-Blackmore.pptx)	V. Blackmore	
12:30-13:00	Discussion/contingency		
13:00-14:00	**Lunch and executive session**		
14:00-15:30	**Accelerator simulation and optics**		
14:00-14:20	The MICE computing framework (06-2016-01-14-Rajaram.pdf)	D. Rajaram	
14:20-14:50	MICE Step IV lattice design (07-2016-01-14-Liu.pptx)	A. Liu	
14:50-15:20	MICE Demonstration of Ionisation Cooling (08-2016-01-14-Lagrange.pdf)	J.B. Lagrange	
15:20-15:30	Discussion/contingency		
15:30-16:00	**Tea**		
16:00-17:30	**Executive session**		
16:00-17:00	Committee in camera		
17:00-17:45	Discussion with MICE		
17:45-18:00	Discussion/contingency		
18:00	**Adjourn**		

15 January 2016

09:00-10:30	**Beam-based alignment**		
09:00-09:30	Detector alignment (09-2016-01-15-Drielsma.pdf)	F. Drielsma	25' + 5'
09:30-10:00	Measurement and beam-based alignment of the MICE magnetic fields (10-2016-02-15-Cobb.ppt)	J. Cobb	25' + 5'
10:00-10:30	Responses to questions from 14Jan16		30'
	blackmore_optics_review_plots.zip Measured correlations of longitudinal and transverse phase space from data		
	blackmore_cut_selected_beam.zip Measured correlations of phase space from selected data, and description of selection procedures		
	beam_parameters_plane1_plane5_with_10MeV_pz_selection.pdf Comparison of beam parameters at either end of the tracker (plane/station 5 and ref. plane)		
	Blackmore_23Feb12.pptx - Propagation of measured MICE beam into Step VI lattice after a selection cut		
	MICE0460.pdf - MICE Note describing statistical weighting algorithms and propagation of simulated beamline beam through MICE Step VI		
	Ao_beta_vs_momentum.png - Momentum dependence of optical beta as a function of momentum at Step IV		
	MICE0475.pdf - Linear optics-based approach to Step IV reoptimisation - technical note (372.9 kB)		
	derated_magnets_m1_ssd.pdf - Linear optics-based approach to Step IV reoptimisation - slides		
10:30-11:00	**Coffee**		
11:00-11:30	**Simulation and validation of material properties**		
11:00-11:30	Simulation of the MICE lattice (11-2016-01-15-Rogers-rev1.pdf)	C. Rogers	25' + 5'
11:30-12:00	Material-physics measurements (12-2016-02-15-Soler.pdf)	P. Soler	25' + 5'
12:00-12:30	Discussion/contingency		30'
12:30-14:00	**Lunch and executive session**		
14:00-15:30	**Measurement programme**		
14:00-14:20	Measurement of muon phase in the cooling demonstration (13-2016-01-15-Ronald.pdf)	K. Ronald	15' + 5'
14:20-14:45	Run plan to deliver the MICE Step IV and cooling demonstration programmes (14-2016-01-15-Boyd.pdf)	S. Boyd	20' + 5'
14:20-15:30	Discussion/contingency		45'
15:30-16:00	**Tea**		
16:00-17:00	**Executive session**		
17:00-17:30	**Close-out with MICE**		

Optics review 14/15 January 2016

- Excellent!
  - Preparation, talks, discussion, feedback

> *Overall, the committee appreciates the set of powerful simulation tools and advanced technical skills displayed by the collaboration. The team appears to have all the means to fully assess the physics outcome of Step IV, as well as fully exploit the potential of the MICE Step IV despite the failure of the M1D coil. And, with a fully functional system for the Cooling Demonstration expected, this yields confidence in the group's ability to succeed in the final goals of the demonstration.*

- Full feedback:
  - http://micewww.pp.rl.ac.uk/documents/171
  - Response in preparation (Rogers et al.)
- Principal advances:
  - Understanding of effect of chromatic aberration
    - Blackmore, Lagrange, Rogers, … et al
  - Consider trade:
    - Muon-beam purity for muon rate
      - Franchini et al

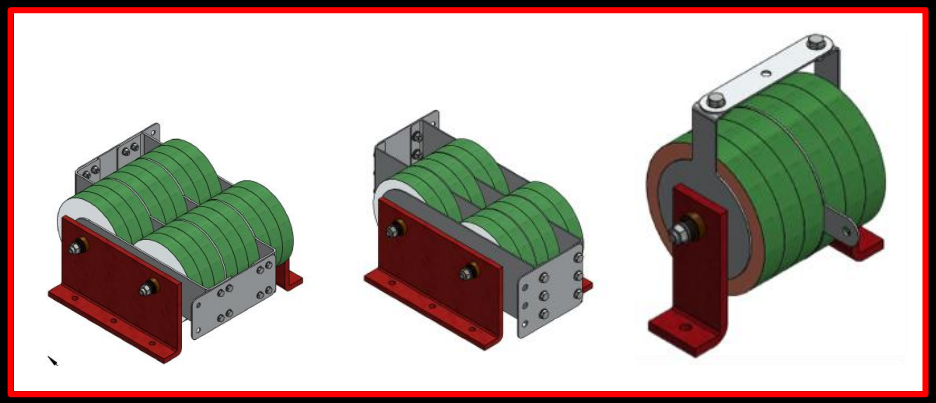
Introcuction

STEP IV

Magnets

- FC#1:
  - LiH holder;
  - Being prepared for cool-down and training

- Downstream spectrometer solenoid:
  - Refit of QD/QP system:
    - Design & procurement complete
    - Installation underway
  - External “dump” of energy



- Anticipate:
  - Installation of electronics (FNAL supply) late in April
  - Commissioning of DQ/QP system and then of SSs:
    - May to June

Water

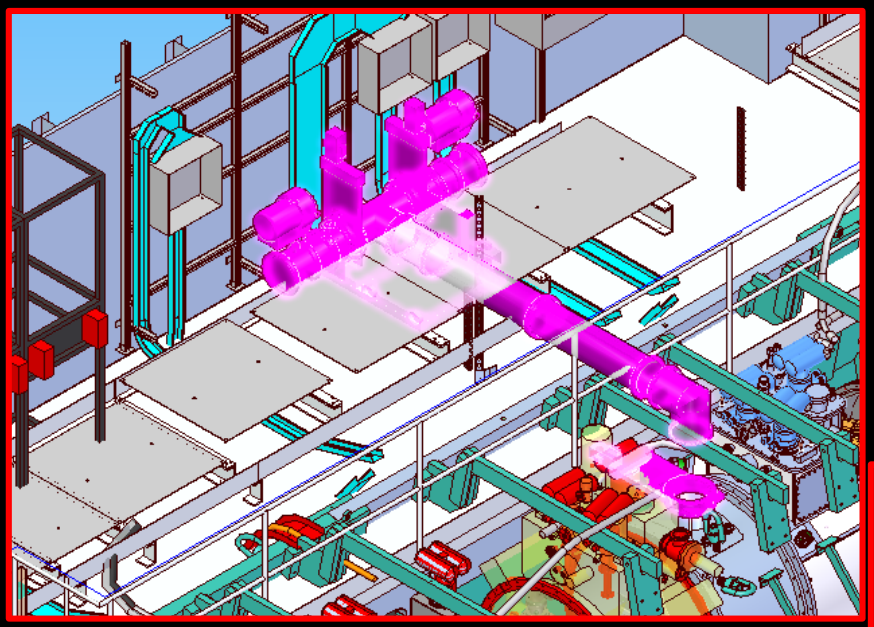
- Failure of compressor serving SS cryo-cooler:
  - Inspection of failure indicates weakness introduced in manufacture of module
  - However;
    - Use of de-ionized water on compressor-cooling circuit must be addressed

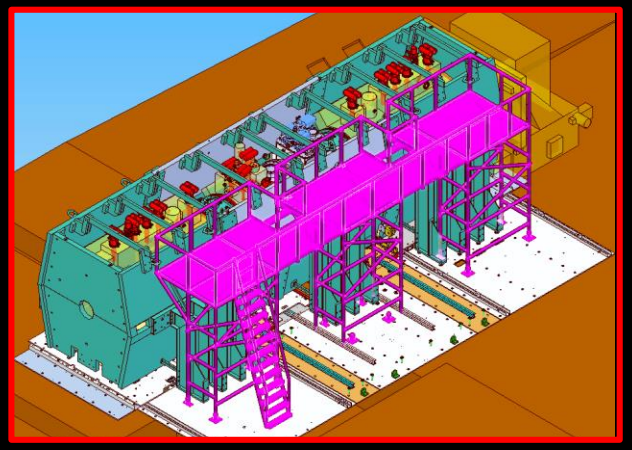
- C. Whyte with others:
  - Making a plan to reconfigure water supply to Hall
    - Separate supply for MMB and compressors
    - Redundancy
  - We need to give this some priority:
    - Otherwise risk of further failure(s)

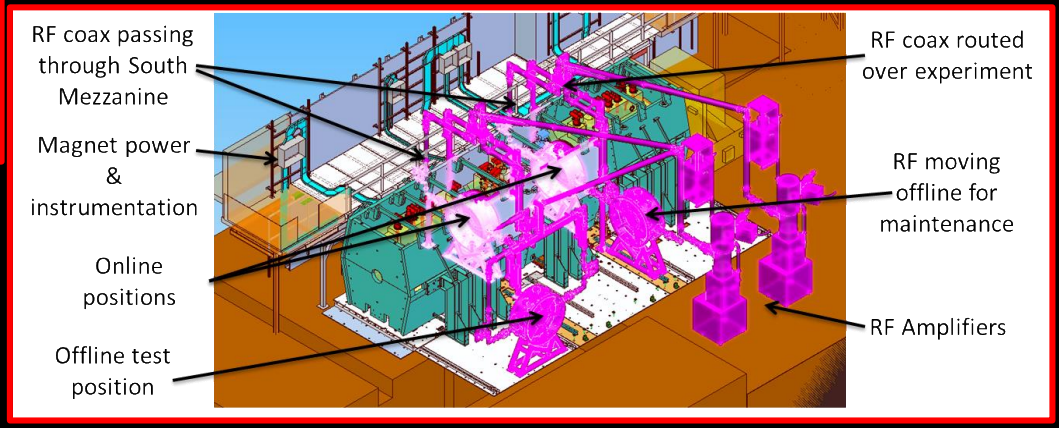
COOLING DEMONSTRATION

Cooling demonstration

- Excellent progress on RF power and resonators:
  - Presentations from Y.Torun, T.Stanley and in parallels
- Engineering:
  - PRY, vacuum, RF-power distribution (Tarrant)







Introduction

MICE COLLABORATION

MICE in Korea

- Interest in MICE from:
  - Moses Chung:
    - Ulsan National Institute of Science and Technology (Ulsan, South Korea)
  - Shin-Young Kim:
    - Centre for Axion and Precision Physics (Daejon, South Korea)
- Valuable expertise in RF systems/instrumentation

CERN Recognised Experiment

Sue Foffano 17 March 2016 at 17:23

To: Kenneth Long

Extension request for MICE

SF

Dear Ken,

Many thanks for your presentation at the REC meeting in January. It was very well received and resulted in a positive recommendation from the REC to the Research Board. I am pleased to confirm at it's meeting last week the Research Board approved the extension of MICE for 3 years.

I am preparing a draft MoU as a result which I will send, hopefully next week, for review and comments at your convenience.

Please don't hesitate to contact me should you have questions in the meantime.

Regards,

Sue.

Introduction

INTERNATIONAL PERSPECTIVE

Scientific potential of muon beams; CERN Nov16

- Discovery programme:
  - Requirement for novel techniques to go beyond
- Pedigree and provenance of muon beams
- R&D to date has shown potential of muon beams to:
  - Enhance performance of cLFV searches;
  - Revolutionise study of neutrino
  - Provide route to high-energy lepton-antilepton annihiliation
- Summary of presenations on 18Nov15

S. Bertolucci (CERN), K. Long (ICL/STFC) Final 11th December 2015

Muon-accelerator based facilities: opportunities for science

Scientific opportunities

The discovery of the Higgs boson has completed the Standard Model but left unanswered questions related to a deeper understanding of the origin of electroweak-symmetry breaking. Neutrino oscillations, which imply neutrino mass and mixing, show that the Standard Model is not the whole story. The LHC experiments seek evidence for new phenomena by which the patterns and features of the Standard Model may be explained. The mysteries associated with neutrino masses are being addressed by experiments around the world that exploit accelerator-based, solar, atmospheric, reactor, radioactive and cosmological sources of neutrinos. Together, the LHC and its upgrades, the DUNE and Hyper-K long-baseline neutrino experiments, the short-baseline neutrino programme and the study of extremely rare processes provide an exceptional discovery platform for the next decade.

To go beyond the capability provided by the LHC, its upgrades and the next generation of accelerator-based neutrino experiments will require innovation in detectors and new particle-acceleration techniques.

Experiments served by muon beams have made, and continue to make, seminal contributions to the development of the electroweak Standard Model, the Quark Parton Model and QCD. Detailed study of the properties of the muon and its decay allow stringent constraints to be placed on phenomena beyond those described by the Standard Model. Muon beams are essential in the search for charged-lepton-flavour violation (cLFV). Advances in technique have led to the preparation of ground-breaking cLFV-search experiments at FNAL, J-PARC and PSI. Muon beams are also exploited in the study of the magnetic and dynamic properties of materials.

Over the past ten to fifteen years an extensive R&D programme encompassing detailed design studies, component development and system-level proof-of-principal experiments has demonstrated that high-brightness muon beams have the potential to:

- Offer a path towards improved experiments on cLFV with unprecedented sensitivity;
- Revolutionise the study of the neutrino by providing neutrino beams for which the flavour composition and energy spectrum are known precisely; and
- Provide a route to very high energy lepton-antilepton collisions.

Discussion of the scientific potential of muon beams; CERN 18th November 2015

A meeting to discuss the scientific potential of muon beams was held at CERN on the 18th November 2015 [1]. 95 people attended the meeting [2]. Invited presentations reviewed: the status of searches for cLFV and the plans for the next-generation experiments COMET, mu2e and g-2; the unique opportunities presented by neutrino beams derived from muon decay; and the benefits of muon accelerators for the energy-frontier lepton-antilepton-collider programme. The status of the technology R&D programme was also reviewed and the scientific programme that could be served by the incremental development of muon-accelerator capability was discussed. Additional contributions covered the advantages of neutrino beams generated from pion decay in a magnetic transport channel, cold muon beams produced through e^+e^- annihilation, the use of the ESS as a source of conventional, and muon-based neutrino beams, the Chinese muon-beam-development programme and the use of lasers to create cold muon beams. These presentations enriched and enhanced the discussion.

The consensus of the meeting was that the wealth of opportunity offered by facilities based on high-brightness muon beams is sufficient to justify an internationally-coherent programme to review and quantify the potential

Recommendations

Over the next two years, through an appropriate series of plenary and working-group meetings, determine the scope of the physics programme that can be addressed through the incremental development of current facilities and the staged implementation of specific capabilities. Further, determine the technology R&D programme that must be carried out in parallel to the physics programme to allow the subsequent increments in capability to be delivered.

When determining the incremental development of the programme consider:

1. Low-energy muon beams:
   (a) Improved and higher sensitivity experiments on cLFV through the golden channels $\mu \to e\gamma$, $\mu \to eee$ and $\mu N \to eN$;
   (b) Measurements of muon properties such as the anomalous magnetic moment a_μ or the electric dipole moment d_μ;
   (c) Muon cooling and phase rotation to achieve muon beams of unprecedented brightness for low energy muon physics;
   (d) High-intensity, high-brightness sources of muonium, revisiting of muonic atom spectroscopy and a measurement of atomic parity violation in muonic atoms;
2. Neutrinos from stored muon beams:
   (a) The precision with which $\overset{(-)}{\nu}_e N$ and $\overset{(-)}{\nu}_\mu$ scattering processes can be measured and the potential for these measurements to:
      - Enhance the reach of present and future accelerator-based neutrino experiments as well as experiments that exploit atmospheric or astrophysical sources of neutrinos; and
      - Calibrate the response of neutrino detectors using neutrinos by muons confined within a storage ring;
   (b) The technology development and prototyping programme necessary to achieve the neutrino-scattering programme; ; and
   (c) If appropriate, the development of a proposal for a facility able to perform an experimental program of significant interest to the neutrino-oscillation community ; and
3. Energy frontier $\mu^+\mu^-$ collider:
   (a) The physics potential and conceptual design of a Higgs Factory and the investigation of a possible demonstrator facility;
   (b) The physics potential, conceptual design and incremental development of a multi-TeV muon collider;
   (c) The specification and conceptual design of a 6D cooling demonstration to follow on from the MICE 4D ionization cooling proof of principle; and
   (d) If appropriate, the construction of system-demonstration experiments beyond MICE, MERIT, MuCool and the component development carried out by the US Muon Accelerator Programme;
4. Sources of resource to execute the development programme including Horizon 2020, national funding agencies and national laboratories.

The programme must be capable of incremental development and exploit the synergies that exist between its various aspects as is the case, for example, for the ionization-cooling and demonstrator programmes (1c, 2b, 2c, 3c and 3d).

Opportunity

- Opportunity to define innovative programme:
  - Based around demonstrator that:
    - Delivers critical measurement: ν_e/ν_μ *N* scattering;
    - Has discovery potential: sterile neutrinos;
    - Serves "cLFV" and energy frontier programmes through:
      - 6D ionization-cooling/phase rotation demonstrator
  - Seek to develop "distributed" R&D model:
    - European national labs and universities
    - Seek broader involvement from Asia and the Americas
- Incremental!
- Now taking initiative forward …

Introduction

INTERNATIONAL REVIEWS

MICE Project Board and Resource Loaded Schedule Review, April 2016

History

Back

Documentation

- ***Resource Loaded Schedule Review:***
  - Schedule, costs and risks for the completion of MICE
- ***MICE Project Board:***
  - MICE report to the MICE Project Board

05 April 2016			
09:00-09:20	**RLSR closed session – introduction**		
09:20-10:00	Project overview: attachment:01-2016-04-05-Long.pptx	K. Long	30' + 10'
10:00-10:15	Coffee		15'
10:15-12:45	**RLSR presentations & questions**		
10:15-11:15	Downstream spectrometer solenoid recovery plan: attachment:02-2016-04-05a-Palmer.pptx , attachment:02-2016-04-05b-Wanderer.pptx	M. Palmer / P. Wanderer	40' + 20'
11:15-11:50	Schedule to completion, project risks, overview of critical resources and interaces, magnet commissioning: 03-2016-04-05-Whyte.pdf	C. Whyte	25' + 10'
11:50-12:15	US project plan for MICE (including financial plan and risks): attachment:04-2016-04-05-Garbincius.pptx	P. Garbincius	20' + 5'
12:15-12:40	UK project plan (including financial plan and risks): attachment:05-2016-04-05-Grant.pptx	A. Grant	20' + 5'
12:45-13:15	**Lunch**		
13:15-14:30	**RLSR closed session session--critical findings**		
14:30-17:30	**MPB: Step IV commissioning, operations and control**		
14:30-14:55	Step IV commissioning and operation: attachment:06-2016-04-05-Boyd.pptx	S. Boyd	20' + 5'
14:55-15:15	Online environment and controls: attachment:07-2016-04-05-Hanlet.pptx	P. Hanlet	15' + 5'
15:15-15:30	Interleaving commissioning, maintenance and operations at Step IV: attachment:08-2016-04-05-Hodgson.pptx	P. Hodgson	15' + 5'
15:30-15:45	**Tea**		
15:45-16:05	Liquid-hydrogen absorber recovery: attachment:09-2016-04-05-Bayliss.pptx	V. Bayliss	15' + 5'
16:05-16:25	Spectrometer Solenoid operations in Step IV: attachment:10-2016-04-05-Bross.pptx	A. Bross	15' + 5'
16:25-16:45	Step IV highlight 1: initial study of action and emittance: attachment:11-2016-04-05-Blackmore.pptx	V. Blackmore	20' + 5'
16:45-17:05	Step IV highlight 2: initial scattering study: attachment:12-2016-04-05-Bayes.pptx	R. Bayes	20' + 5'
17:05-17:30	Physics programme and Step IV data taking plan: attachment:13-2016-04-05-Rogers.pptx	C. Rogers	20' + 5'
17:30-18:00	**Closed session, report writing**		
18:00	**Adjourn**		

06 April 2016			
08:30-09:30	**Reconstruction, simulation and data flow**		
	Status and performance of the MAUS reconstruction: attachment:14-2016-04-06-Dobbs.pdf	A. Dobbs	15' + 5'
	Status and performance of the MAUS simulation: attachment:15-2016-04-06-Maletic.pdf	F. Drielsma	15' + 5'
	MICE data processing and data flow: attachment:16-2016-04-06-Rajaram.pdf	D. Rajaram	15' + 5'
09:30-10:30	**Cooling demonstration integration, SC magnets and RF**		
	Cooling demonstration integration: attachment:17-2016-04-06-Tarrant.pdf	J. Tarrant	15' + 5'
	Super-conducting magnets at Step IV and for the cooling demonstration: attachment:18-2016-04-06-Boehm.pdf	J. Boehm	15' + 5'
	RF system: status of preparation and plans for commissioning and implementation for the cooling demo: attachment:19-2016-04-06-Ronald.pdf	K. Ronald	15' + 5'
10:30-10:45	**Closed session, report writing**		
10:45-12:00	**Close-out with MICE management**		
13:00	**Adjourn for report writing**		

MICE contributions to the FAC

06 April 2016			
14:30--	**MICE Funding Agency Committee**		
	Progress since the last FAC meeting Key Issues and Concerns: attachment:01-2016-04-06-Long.pptx	K. Long	20'
	Schedule & Milestones: attachment:02-2016-04-06-Whyte.pdf	C. Whyte	20'
	Common Fund: attachment:03-2016-04-06-Soler.pptx	P. Soler	20'

Introduction

CM44

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- **Very much looking forward to our meeting …**