

# Minutes of the MICE Collaboration Board held on 23<sup>rd</sup> October 2005 at RAL

## Present

**CB Chair** – D. Kaplan  
**Spokesman** – A. Blondel  
**Deputy** – M. Zisman  
**Technical Coordinator** – P. Drumm  
Brunel – P. Kyberd  
FNAL – A. Bross  
Glasgow – P. Soler  
Illinois Inst. Tech. – Y. Torun  
Imperial College London – K. Long  
INFN Milano – M. Bonesini  
INFN Napoli – V. Palladino  
KEK – S. Ishimoto  
LBNL – D. Li

Liverpool – R. Gamet  
Mississippi – D. Summers  
Osaka – M. Yoshida  
Oxford – J. Cobb  
RAL – T. Bradshaw  
Sheffield – C. Booth  
Sofia – R. Tsenov  
UC Riverside – G. Hanson

## Guests

J. Womersley  
A. Taylor

## 1) Approval of Minutes of 27<sup>th</sup> June 2005

The minutes of the previous meeting were approved.

## 2) Spokesman's Remarks (Alain Blondel)

Alain started with several items of news. Sofia has joined MICE. Italian funding has been approved in principle, for construction of ToF and MuCal. The DAQ group has started with a successful workshop at Daresbury. The Analysis Forum has started. Design & Safety reviews are in progress. The KEK Tracker test was successful. The purchase of large items has begun – PSI solenoid, shielding etc. The first Funding Agency Committee meeting took place in September.

The challenges of MICE include operating RF cavities at low frequency and high gradient in highly inhomogeneous magnetic fields; hydrogen safety; high precision emittance measurement in an environment with r.f. background and obtaining funding for R&D towards a facility which is not yet on the roadmap of a major lab.

The timetable for steps I to VI was presented, spanning April '07 to 2009. 2010 will be a major decision time for particle physics, when decisions must be made for the future of neutrino physics. The organisational structure of MICE was outlined. Financial responsibilities imply that collaborators pay for what they provide, with some items (e.g. the tracker) funded jointly by several institutions. There is no common fund as yet – this will be needed for operational expenses later.

The KEK Tracker test went well. Analysis of results will determine whether there is a need for further beam tests. Milestones had been presented for TOF0 & TOF1, which will be needed by mid-'07; the requirement for TOF2 and its performance specification will be major items for the next collaboration meeting. For the DAQ, 600 muons in a 1  $\mu$ s spill will be very difficult, and is a point for further discussion. D&S reviews are in progress or scheduled for H<sub>2</sub> system, fibre tracker and target. A target test is planned for early '06 – an important proof of principle that we can collect enough particles without tripping ISIS.

Concern was expressed at the low attendance at video conferences, while working group meetings are active and well attended. The MICE constitution is due to be revised following comments from PPARC, and a procurement strategy for large items must be formalised.

The status of some items remains unclear. These include the range of emittance possible with the beam, the design of Cherenkov(s) and MuCal, and the trigger. Funding for phase I is essentially complete (with some question over Cherenkov II), and we have proposals for phase II. Work is needed to ensure step VI can be completed before 2010.

### **3) Address from John Womersley, Director of Particle Physics, RAL**

John had received questions from MICE which he addressed. RAL Management requires a consortium agreement with MICE-UK. There will also be a CCLRC-Fermilab agreement which will include MICE. RAL will provide resources for installation and operation of MICE, certainly as specified in the definition of phase I. RAL is keen to cooperate with us to make MICE a success; this could include extra approaches to funding agencies, with a different emphasis from ours, looking at the strategic development of the neutrino programme within particle physics, and leading to the possible choice of RAL as a logical site for the Neutrino Factory. His worries concerned MICE finding, where there is little if any contingency for phase I and uncertainty for phase II, and how a bandwagon effect could be created leading to a Neutrino Factory sooner rather than later.

### **4) Technical Coordinator's Report (Paul Drumm)**

Paul outlined progress since the Frascati meeting. Significant progress had been made on the target, beam optics (though information is needed on good muons) and detectors. The decay solenoid would be delivered in November. He listed key milestones, including the hydrogen review and the ISIS long shutdown. Risks being considered included the financing of spare RF tubes, the specification of detectors & electronics for the rates required and the schedule, including funding for phase II. We were reminded of the need to maintain the Oxford document registry of infrastructure and integration details. A decision is needed on procurement strategy.

### **5) Funding Status – Italy (Vittorio Palladino)**

Funding for prototypes of TOF and MuCal has been approved. Subject to test beam results from Frascati in May/June, further funding should follow.

### **6) Funding Status – Bulgaria (Roumen Tsenov)**

A total of SFr. 70K over 3 years has been allocated through a joint Switzerland/East European project. SFr. 10.9K of this is for equipment, the rest for travel, consumables etc. Work will concentrate on TOF0 construction, beam profile measurement and front-end electronics.

### **7) MICE Phase II Schedule (Ken Long)**

Phase I includes only stages I and II. With the present funding schedule, we will not reach stage V until 2011, which is clearly unacceptable; the desired schedule is to complete stage VI by 2009. We need to raise resources for the *timely* completion of phase II. \$317K is needed to bring forward funding of the second solenoid. This should be a joint Japan-UK-US project. Japan will put in a request in November; UK is making request and US have a possible mechanism through NSF/FNAL (with some resources freed through electronics “loan” from D0). For the focus coils, UK will put in a bid for phase II in summer 2006. We will seek funds for the absorbers through the Japanese 5-year bid in November and MICE-US programme. For the liquid H<sub>2</sub> system, UK phase I resources will be used for an R&D programme which should provide the first system for phase II; second and third systems will be the subject of the UK phase II bid. For the cavity/coupling coil module, support is sought from the MICE-US

programme together with bids in both Switzerland and the UK for new initiatives. For RF power, LBNL power amps are being refurbished under the UK Phase I programme, and the UK phase II bid will include implementation in the MICE hall.

#### **8) Proposal for Future Collaboration Meetings**

CM14	28 <sup>th</sup> Feb – 3 <sup>rd</sup> Mar. 06	Osaka
CM15	21 <sup>st</sup> – 24 <sup>th</sup> June 06	Fermilab
CM16	9 <sup>th</sup> – 12 <sup>th</sup> Oct. 06	RAL
CM17	Spring 07	RAL? (or CERN?)
CM18	Summer 07	Okayama (before NuFact07?)

CNB 14<sup>th</sup> February 2006