



Science & Technology
Facilities Council

Report on WP6: MICE Transnational Access (TA)

Norman McCubbin

Director, Particle Physics Department, STFC

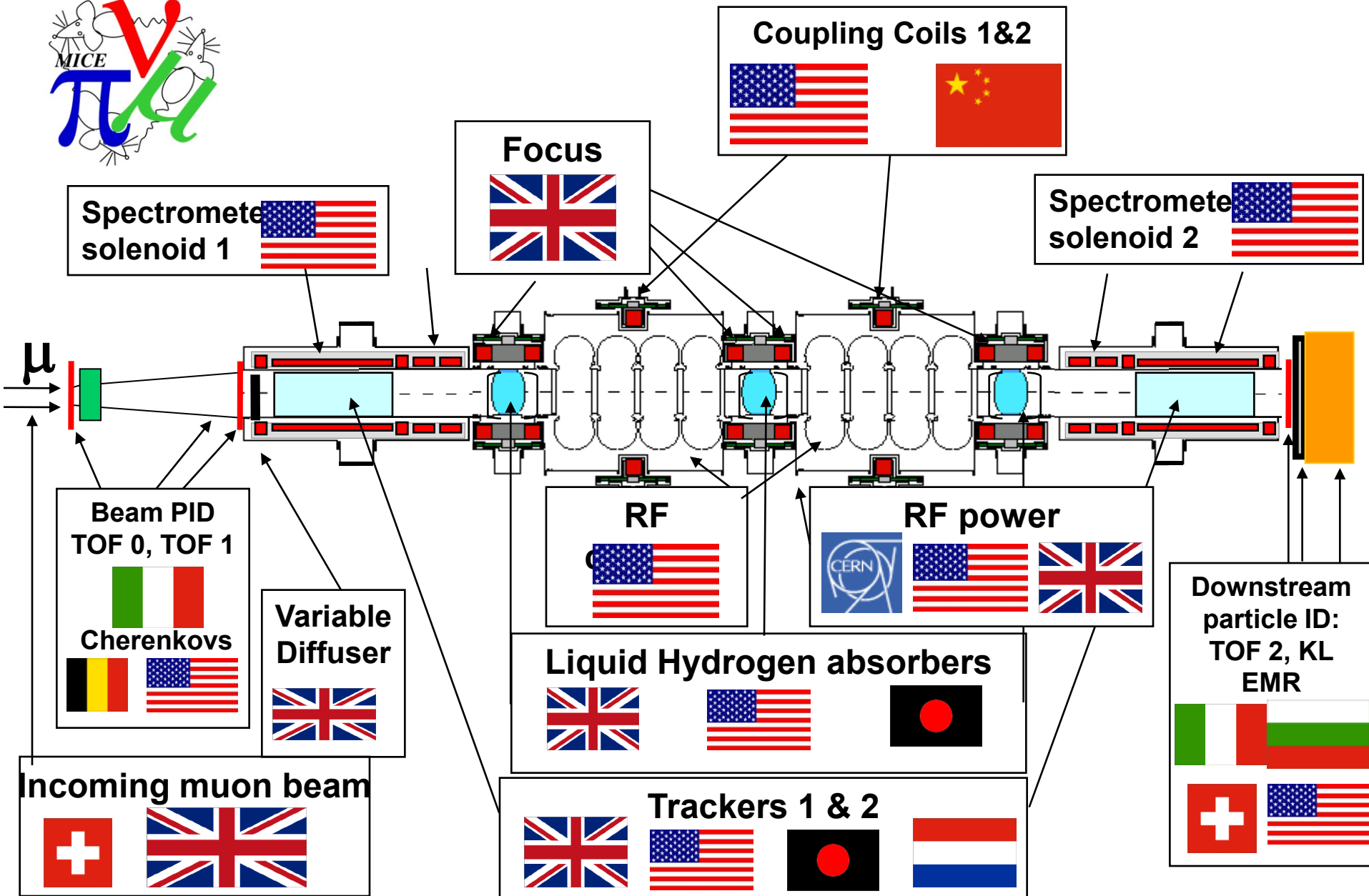
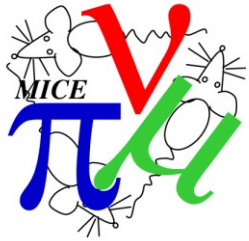
EuCARD Annual Meeting, Paris, May 10-13, 2011



Brief introduction to MICE

- MICE = Muon Ionisation Cooling Experiment
- Key step for feasibility of neutrino factory and muon collider.
- MICE is sited at STFC's Rutherford Appleton Laboratory, and uses a specially developed secondary beam from the ISIS proton synchrotron (800 MeV).
- MICE is both a FACILITY:
 - Beam line plus basic infrastructure of monitoring and tracking
- and an EXPERIMENT:
 - Test of a particular cooling technique using ionisation loss and acceleration.
- MICE is an international collaboration of ~150 physicists and engineers from Bulgaria, China, Italy, Japan, Netherlands, Russia, Switzerland, UK, USA.
(<http://mice.iit.edu>)

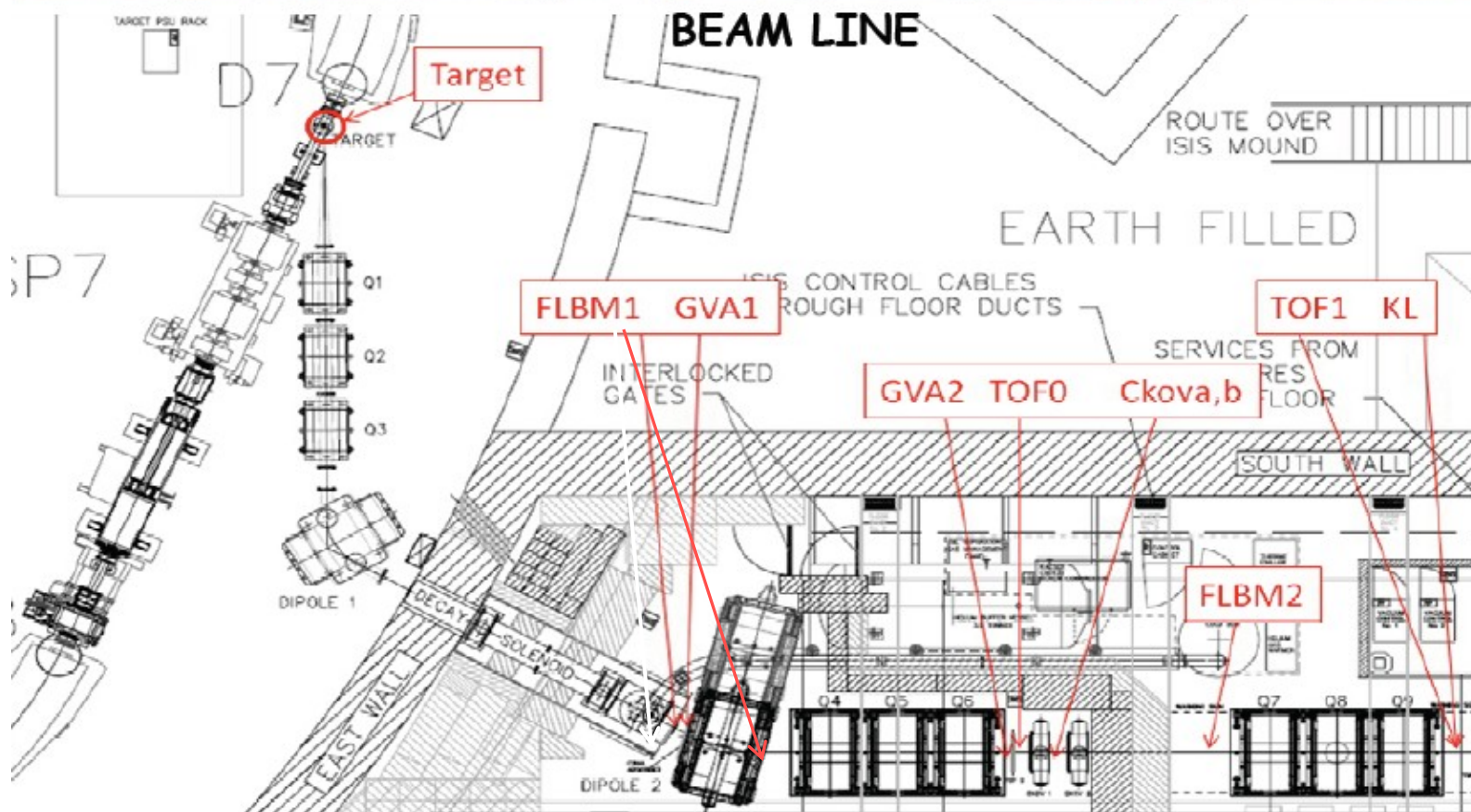
MICE Collaboration across the planet

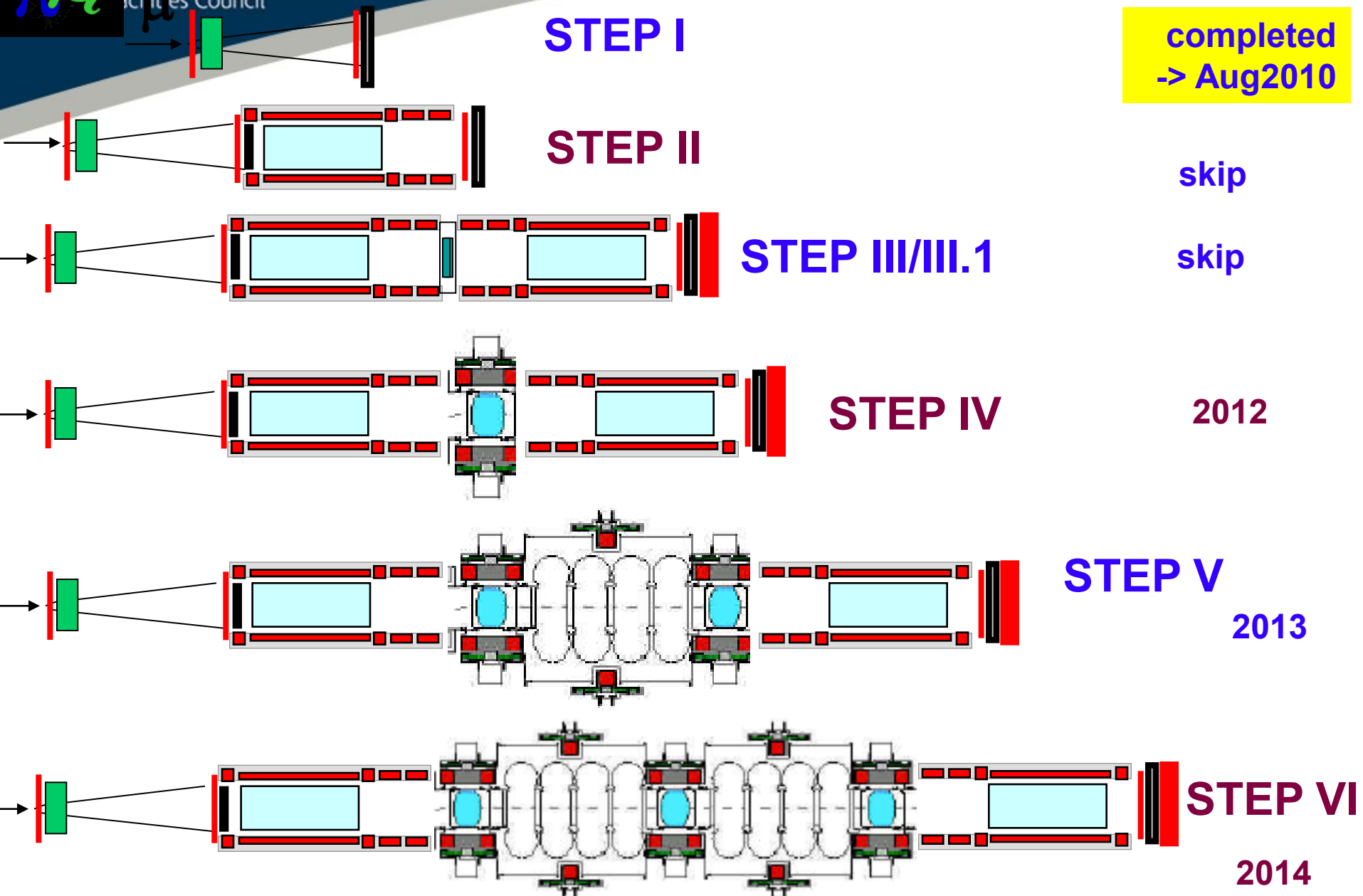




ISIS

**MICE Hall
R5.2**

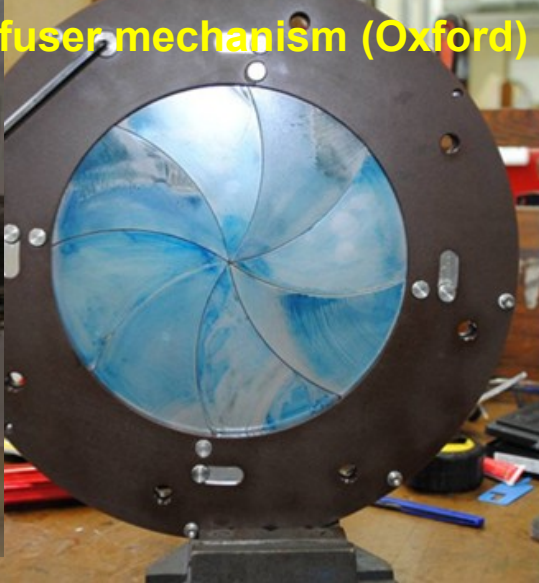




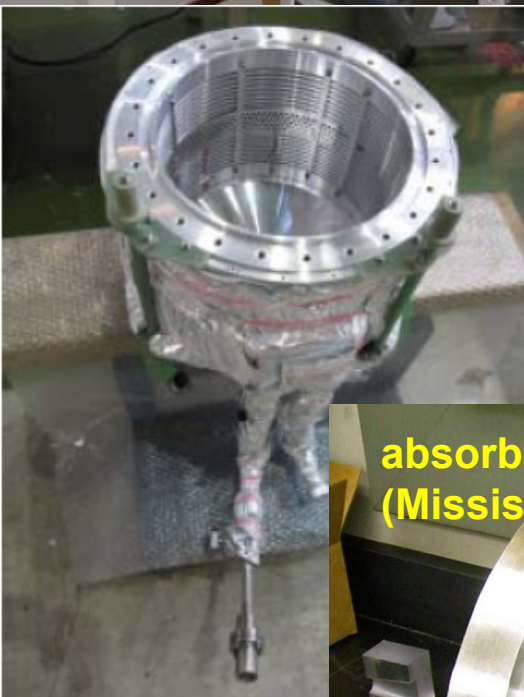
EMR plane (Geneva)



Diffuser mechanism (Oxford)



**RF Amplifier
(Daresbury)**



**MICE is a fantastic
world-wide team effort!**

**absorber windows
(Mississippi)**



**Coupling coil
forged mandrel
(Harbin China)**



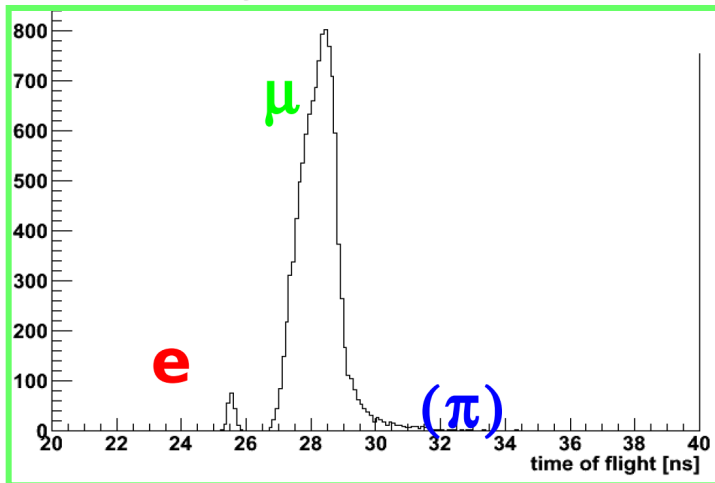
**RF cavities
(Berkeley)**

**LiqH2 absorber
(KEK)**

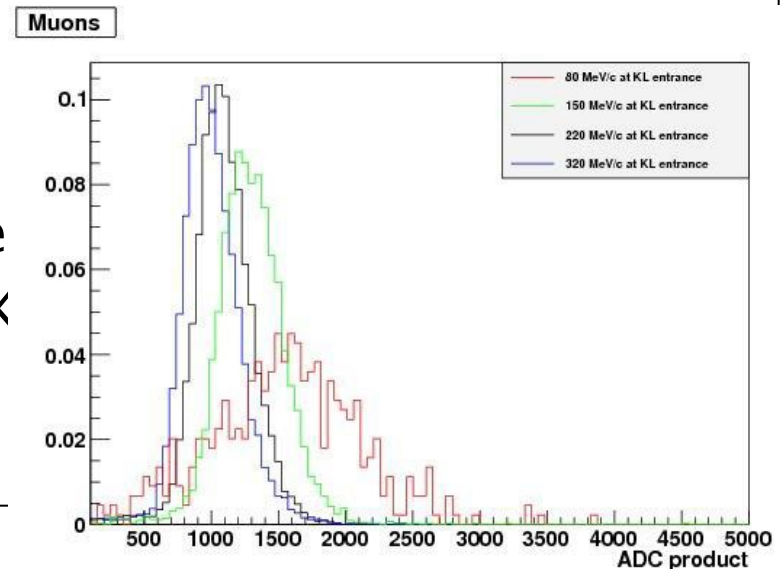


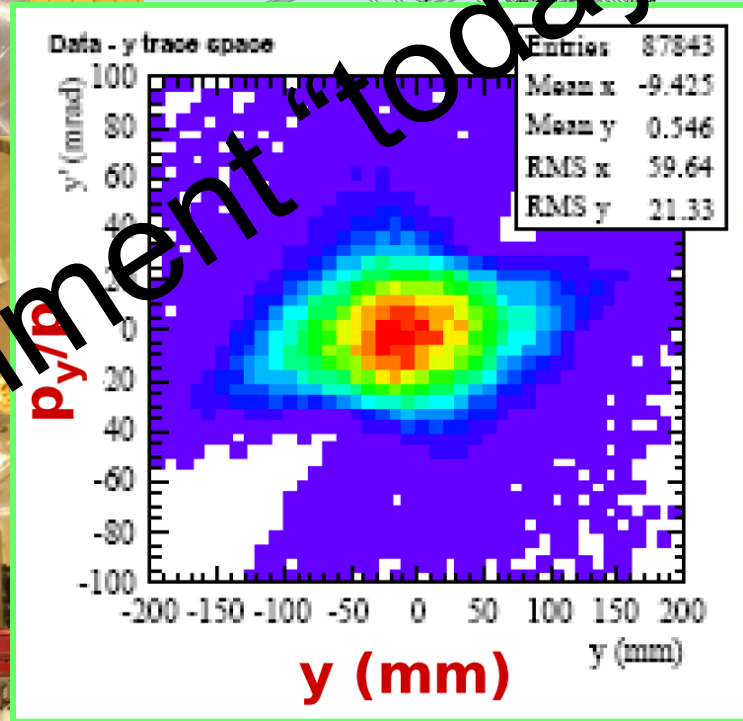
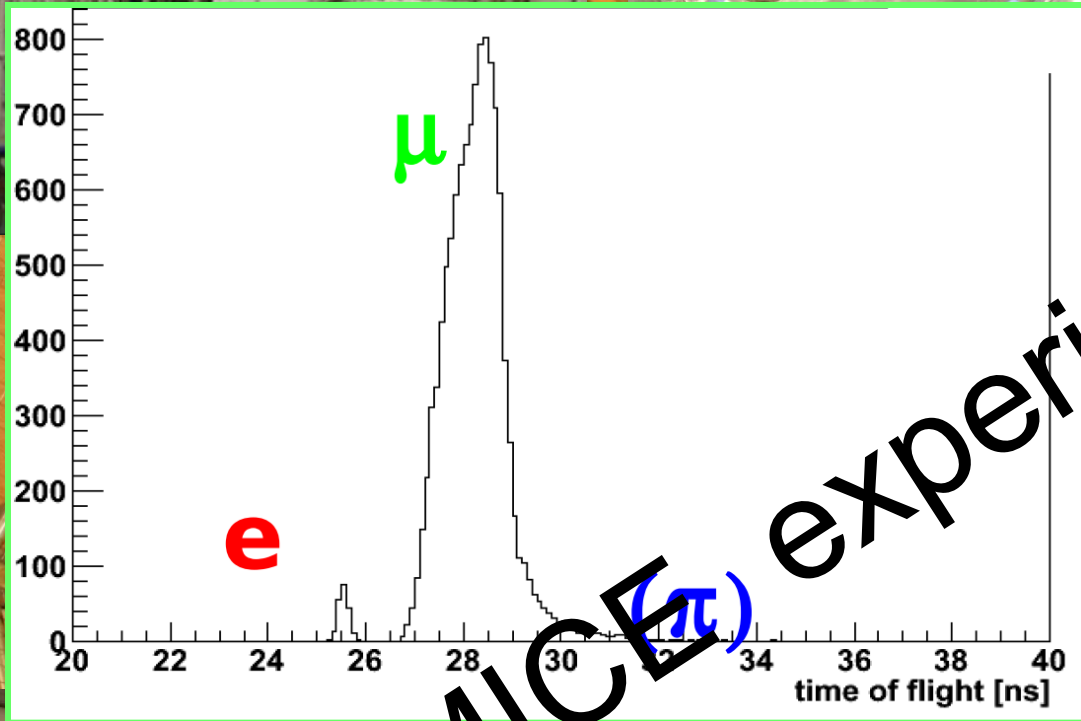
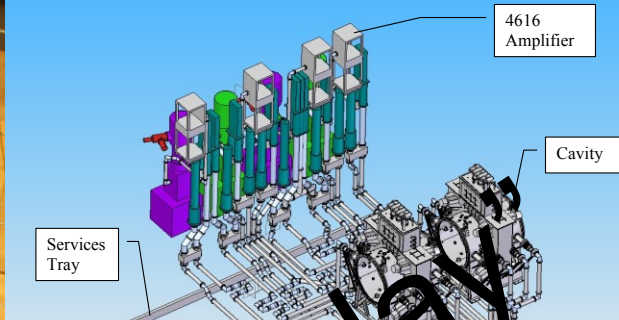
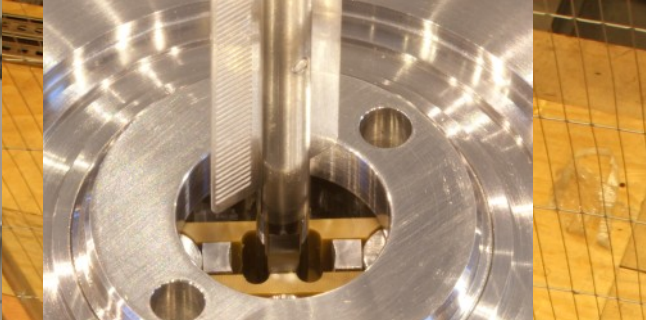
MICE TA (WP6): highlights so far..

Access to the MICE facility has enabled TA-supported users to develop the particle identification for the MICE experiment using the techniques of time-of-flight (TOF):



and calorime
KLOE Light (K







MICE TA (WP6) background

- Transnational Access (TA) to the MICE facility is a good fit to the EuCARD aim of supporting the development of a European Research Area in accelerator science and strengthening collaboration among European partners.
- TA provides financial support for travel and subsistence for “eligible researchers” (= at non-UK European institution)
- The MICE TA award to STFC is 222k€ (Euro), of which 180k€ is to be used for funding TA directly and the rest is a contribution to the management and associated costs of the scheme.
- Scheme runs for 48 months starting 1 April 2009.
- TA funding is to be used:
 - to support detector commissioning, data-taking and analysis of the MICE experiment itself;
 - testing detectors using the MICE low-energy beam; and
 - development of new ideas for particle cooling.
- Thus the scheme supports access to the **facility**, and hence includes support for work on the MICE cooling **experiment**.

MICE TA (WP6): application process

Applications are assessed by MICE TA Panel: *Steve Geer (FNAL), Ken Peach (Oxford, Chair), Francesco Terranova (INFN)*, plus technical (MICE) and administrative (FP7) input as needed.

Panel works on cycle of two calls per year, advertised on the web pages of:

EuCARD (<http://eucard.web.cern.ch/eucard/activities/access/WP6/>),

STFC (<http://www.scitech.ac.uk/ResFac/LargeFac/contents.aspx>)

MICE (<http://mice.iit.edu>)

and email to Neutrino community.

EU has urged widest possible advertising of TA. So, for the January 2011 call, the Research Directors (or equivalent) at KEK, PSI and TRIUMF were emailed, and asked to advertise MICE TA access to their user communities. (No applicants, but note restriction on “eligible researchers”.)



MICE TA (WP6): awards

TA Awards made so far to groups from:

INFN Milano Bicocca/Pavia /Roma Tre

University Insubria (not a member of MICE)
collaboration)

University of Sofia

University of Geneva

These awards have supported in particular work for the Electron Muon Ranger (EMR), Particle Identification and TOF systems for the MICE experiment.

Details have been given in the EuCARD Period 1 and Semester 4 reports, and will also be described in the next EuCARD newsletter.



MICE TA (WP6): summary

Awards have been, and will continue to be, extremely beneficial in supporting access to the MICE facility at RAL, furthering excellent pan-European collaboration.

Without the TA support the access to MICE at RAL would have been much more constrained, or, in some cases, not even possible.

Have so far allocated (to 30/Sep/2011) a total of 115 visits and 1090 “visitor-days”. Only ~40 visits and ~400 v-days used so far, primarily due to schedule delays.

Should be able to allocate finally ~1300 v-days, depending on trip details, and exchange rate.

This translates into >5000 “access units”, which is well in excess of the minimum of 3384 access units specified in the FP7/EuCARD Annex I. ☺