



Science & Technology  
Facilities Council



# Ionisation Cooling Test Facility @ RAL (ICTF@RAL)

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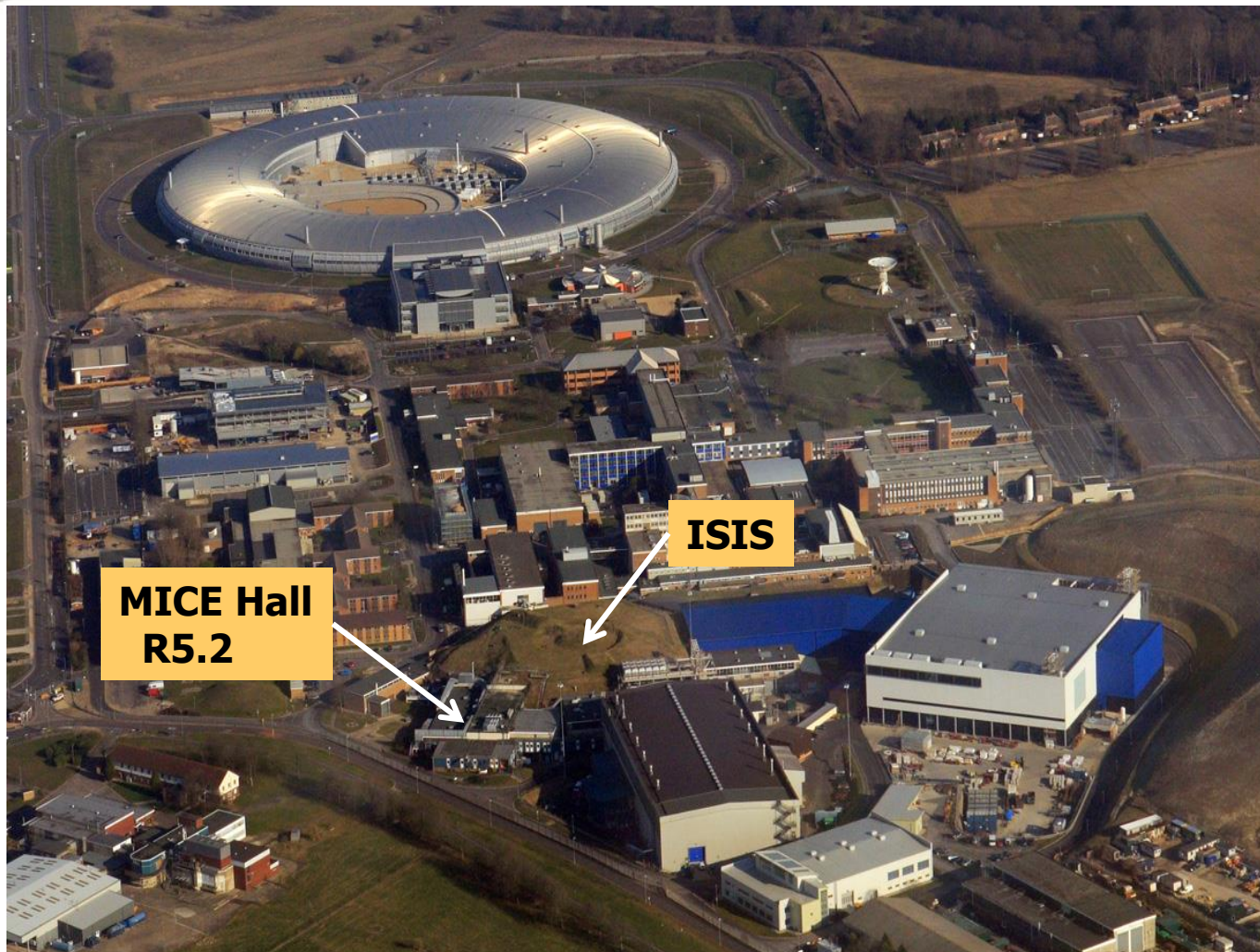
EuCARD2 Kick off meeting, CERN, June 10<sup>th</sup>-14<sup>th</sup>, 2013



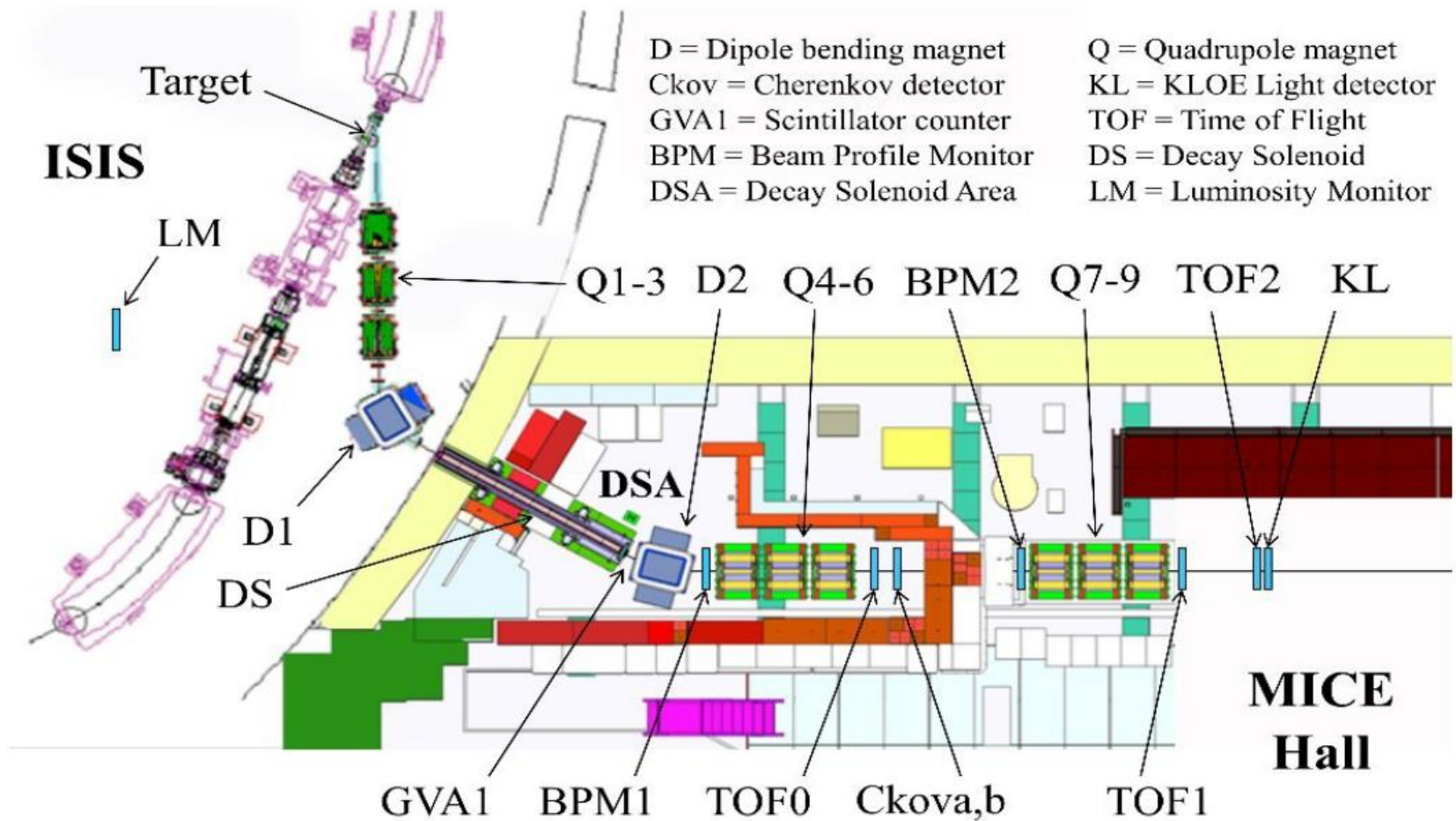
EuCARD-2 is co-funded by the partners and the European Commission under Capacities 7th Framework Programme, Grant Agreement 312453

## MICE and the ICTF

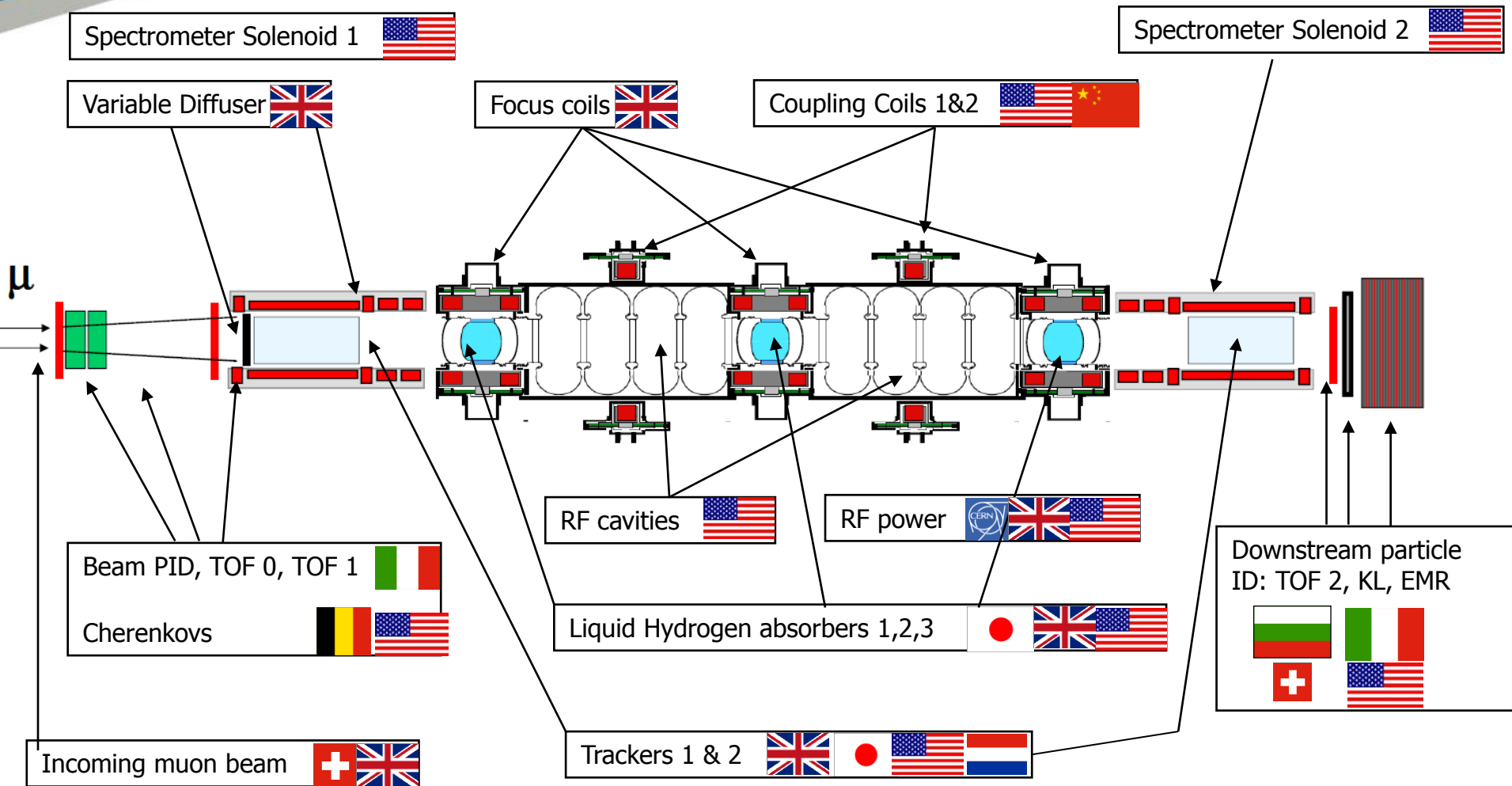
- MICE = Muon Ionisation Cooling Experiment
- Key step for feasibility of neutrino factory and  $\mu$ -collider.
- MICE is installed at the Ionisation Cooling Test Facility (ICTF) at STFC's Rutherford Appleton Laboratory.
- The ICTF comprises a specially developed target and beam-line at the ISIS proton synchrotron (800 MeV), and installations to supply radio-frequency (RF) and liquid hydrogen (LH<sub>2</sub>).
- The beam-line provides  $\mu$ ,  $p$ ,  $n$ ,  $e$  at 100 MeV/c to 400 MeV/c. It has been operational for several years, though intensity continues to increase.
- WP8 under EuCARD-2 supports access to the ICTF.



## ICTF : Ionisation Cooling Test Facility Beamline

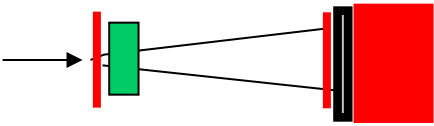


## MICE Collaboration across the planet



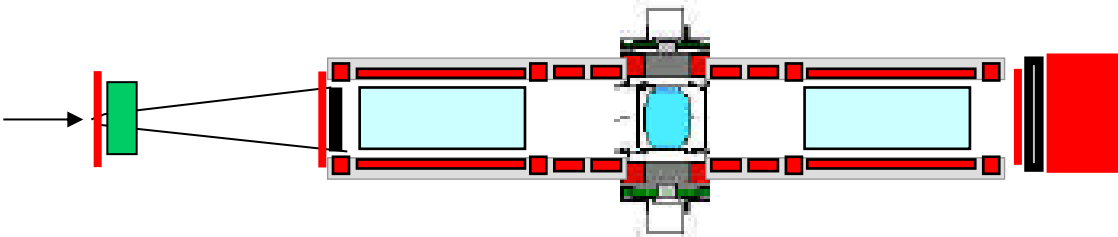
# MICE SCHEDULE update: May 2013

$\mu$



STEP I

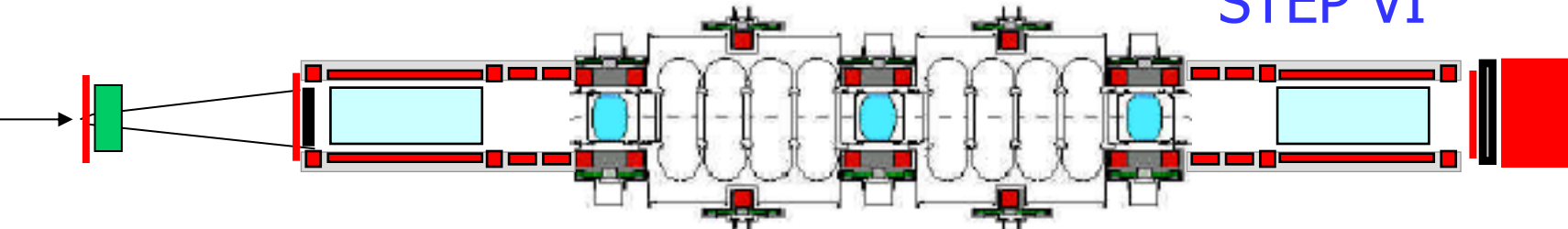
Planned EMR run October 2013



STEP IV

*(Q2 2014,  
no field)*  
**Q1 2015  
to Q1 2016**

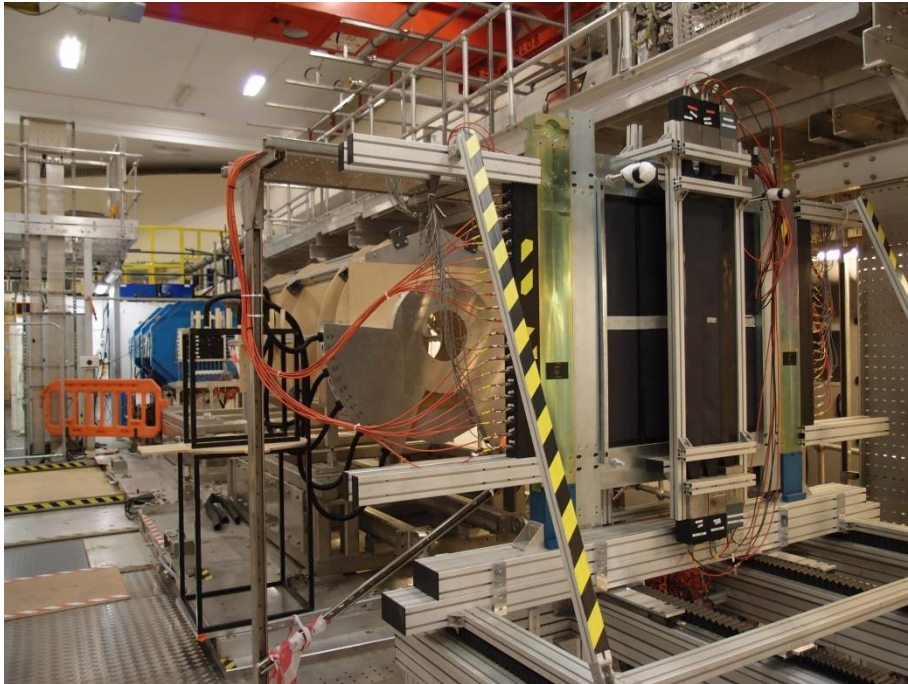
Under construction:



STEP VI

Possible Step V run Q4 2017  
Step VI 2019

## MICE Hall - June 2013



## Magnets – Spectrometer Solenoids



- First Magnet fully trained
- Magnetic mapping team from CERN setting up the mapping equipment
- Delivery to RAL end July 13
- Second in final stages of build.
- Delivery to RAL end of September 13



## Magnets – Focus Coil

- First Magnet at RAL and being trained
- Second magnet scheduled for delivery early August



## TA (WP8)

- Transnational Access (TA) to the ICTF is a good fit to the EuCARD-2 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 TA award to STFC is 199k€ (Euro), of which 154k€ 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 4 years starting 1 May 2013 ending March 2017.
- TA funding is to be used and will support:
  - *“The presence at RAL of external users for equipment delivery, data taking, analysis, in support of Muon cooling experiments, including the MICE experiment.”*
  - *“The presence at RAL of external users of the beam for tests of particle physics detectors in a low-energy beam.”*
  - *“The presence at RAL of proponents of new cooling experiments to undertake studies, installations and eventually data taking.”*

## TA (WP8): application process

- Applications are assessed by TA Panel: *Ken Peach (Oxford, Chair)*, *panel members Francesco Terranova (INFN) and Steve Geer (Fermilab)*, 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-2 (<http://cern.ch/eucard2>) – *To be updated*
  - STFC (*To be announced*)
  - MICE (<http://mice.iit.edu>) – *To be updated*and email to Neutrino community.
- EU has urged widest possible advertising of TA. So, for the “August” 2013 call, the Research Directors (or equivalent) at KEK, PSI and TRIUMF will be emailed, and asked to advertise TA access to their user communities.

## TA (WP8) in EuCARD-2

- The TA programme has been, and will continue to be, extremely beneficial in supporting access to the ICTF at RAL, furthering excellent pan-European collaboration.
- Without this TA support the access to ICTF would have been much more constrained, or, in some cases, not even possible.
- During the next phase of the EuCARD the ICTF will be providing beam to a major MICE experimental milestone.
- Exciting times with the first results of emittance reduction during the EuCARD-2 operational period.