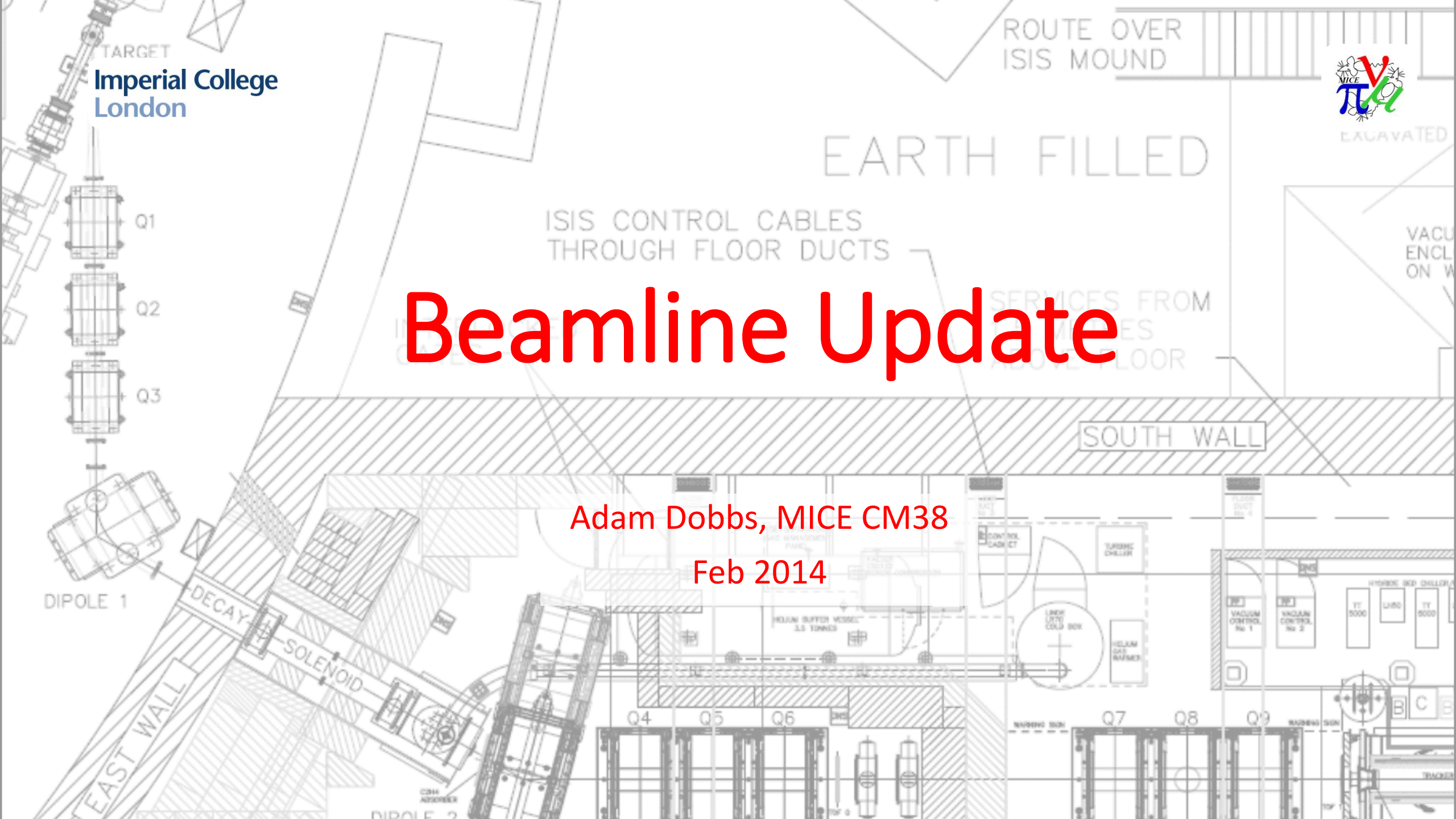

Beamline Update

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Recent Activity

2013 was relatively quiet for the beamline...

- 4V activation run – Feb 13
- Shifter training runs – July 13
- TOF calibration runs – Aug 13
- EMR commissioning runs and TOF calibration - Oct 13
- Target higher rate commissioning run - Jan 14

BPS tripped ISIS for 20mins in summer, and for 1 hr during autumn due to blown fuse

Upcoming Activity

- BLOC training - Easter shutdown 14
  - BLOC volunteers are always appreciated – please consider if you can serve the experiment in this way and contact Henry Nebrensky
- Activation run at higher target rate – June 14
- Pneumatic proton absorber installation - Easter 14
- Since last summer, have the requirement that target be exercised monthly to give us warning of issues

Target: Status and Increased Rate

- Target mechanism in ISIS continues to work fine, 2.5 years after installation – quite a triumph!
- Need to consider future however, new ‘S’ series stator
- Plan to double the actuation rate with current stator, to 0.8Hz in response to ISIS' request
- Jan commissioning run without beam was a success, no problems encountered. Need to test with beam and check activation in sync
- Need to test full beamline chain with increased dip rate before end of Summer 14
- See Paul Smith talk for details

Target: Laser Fibres

- Optical readout levels found to be decaying
- Believed due to radiation damage to plastic patch fibres local to target in ISIS
- Could not diagnose immediately in the summer because of higher activation in ISIS SP7 (no radiation surveys done between 2010 and 2013... point of concern, too long a gap)
- Changed fibres in Nov 13, which resolved problem
- All fibres now replaced, with armour cladding
- Remains an issue for the longer term

Target: New Stator

- Development of S-series target stator continues; has passed 10M actuations milestone!
- Intent is that ISIS will qualify the S-series target design to 10M actuations, but each assembly will be run-in in R78 to some level; rather than existing agreement of parallel running
- Again, see Paul Smith talk

Conventional Magnets

- Behaving themselves pretty well
- "Magnet-On" warning lamp system completed
- Mystery of Q4 Earth Leakage trips partly solved (see eLog entry 2552)
- All trips seen occurred while magnet overheating because of interruption to the chiller
- Chiller behaviour understood, not relevant to increased Step IV heat load
- Magnet performance a function of British weather...

Decay Solenoid: Damage report

- Damage suffered last summer to current lead
- Superconducting ‘tail’ between the helium vapour cooled copper current lead, and SC wire going to the magnet melted
- Control crate powered off before system expert had finished using it
- Has lead to a long off time for DS ~ 1 year

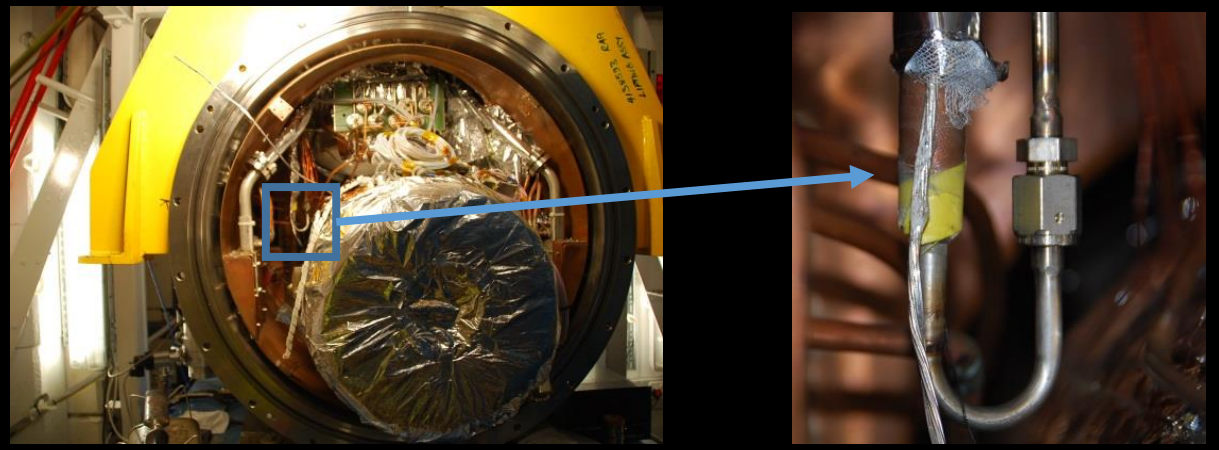
Decay Solenoid: Repairs undertaken

- SC wire replaced, involved removal of current led turret, solder new SC tail on, and replacement of copper lead
- Vapour cooled pipe had to be cut and new VCR joint welded in position to reattach. Joint has now been pressure tested
- Repair work also included removal and replacement of some voltage taps and MLI in the area.
- Crate replaced *(aside: need to watched cleanliness of hall!)*

Vapour cooled current lead removed from turret

Decay Solenoid: Status and Plans

- DS vacuumed out and cold
- Power up magnet in March to check repair job
- Install new quench detector
- Install the new power supply
- Some fridge maintenance and fridge control PC needed



New VCR Joint

Decay Solenoid: Update from last week

- Helium flow-meter on the DS radiation-shield circuit found to be faulty, requires repair or replacement
- Following cleaning of the helium within the Linde fridge via its cold-trap, a nitrogen leak into compressor circuit was also discovered.
- Leak is quite large, nitrogen content increasing from 4.5ppm to ~70ppm in the first 24 hour period following cold-trapping
- Bottom line is that the DS cool-down is further delayed from last Monday (17th Feb) by at least 3 weeks, with an earliest start date of 10th march

Proton Absorbers

- Pneumatic absorbers nearly complete
- EPICS-based control GUI
- Some modification to control box for connectors needed
- Testing
- Install during ISIS Easter shutdown

Summary

- Target looking in good shape, higher rate seems good but needs full testing, fibre decay issue needs a long term solution
- Conventional magnets are all well
- DS suffered damage, lessons to learn, but repairs well underway
- New proton absorber system almost ready
- Age-related fragility of the equipment is becoming a bigger issue
- Response includes increased organisation:
  - More detailed shifter training (two full days) introduced last year
  - Regular "practice runs" (not necessarily of the whole beamline together)
  - More organised BLOC training, with more coverage of non-target systems
  - Higher priority needed for maintenance activity e.g. cleaning the Hall
- See also Beamline Step IV readiness talk


Experiment
"YOUR COUNTRY NEEDS
YOU"

Questions