

# Operations

- ▶ Running periods
- ▶ System performance and data-taking stability
- ▶ Shifts and shift allocation system
- ▶ Operations Management

# Since the previous review

ISIS Cycle	Date From	Date To	1 Jun 15	1 Jul 15	1 Aug 15	1 Sep 15	1 Oct 15	1 Nov 15	1 Dec 15	1 Jan 16	1 Feb 16	1 Mar 16	1 Apr 16	1 May 16	1 Jun 16	1 Jul 16
2015/01a	2 Jun 15	6 Jul 15														
2015/01b	14 Jul 15	24 Jul 15														
2015/02	8 Aug 15	16 Oct 15														
2015/03	3 Nov 15	18 Dec 15														
2015/04	14 Feb 16	1 Apr 16														
2016/01	12 Apr 16	20 May 16														
2016/02	28 Jun 16	29 Jul 16														

- ▶ Cycle 2015/03 (Nov 2015 – Dec 2015): Absorber and LH2 system work; Decay solenoid PSU repair; SS power supply and vacuum work; Focus coil commissioning; Xe/He absorber running.
- ▶ Cycle 2015/04 (Feb 2016 – March 2016) : Calibration and alignment; Decay solenoid PSU re-commissioning; Empty and LiH absorber running.

# Cycle 2015/03

User cycle 2015/03 (Nov/Dec 2015) was focussed on QP/QD system work, focus coil magnet commissioning, further development and testing of controls, online reconstruction and online monitoring

Decay solenoid PSU was being repaired during this cycle.

Data-taking opportunities were limited, but utilised when they arose. Most data was used to:

- ▶ commission the focus coil at 50 A, 100A and -100A, and take data to measure the magnetic field alignment
- ▶ take scattering data on gaseous Xe and He with no magnetic field

# Cycle 2015/04

User cycle 2015/04 (Feb/Mar 2016) was focussed on taking material scattering data on empty and LiH absorbers.

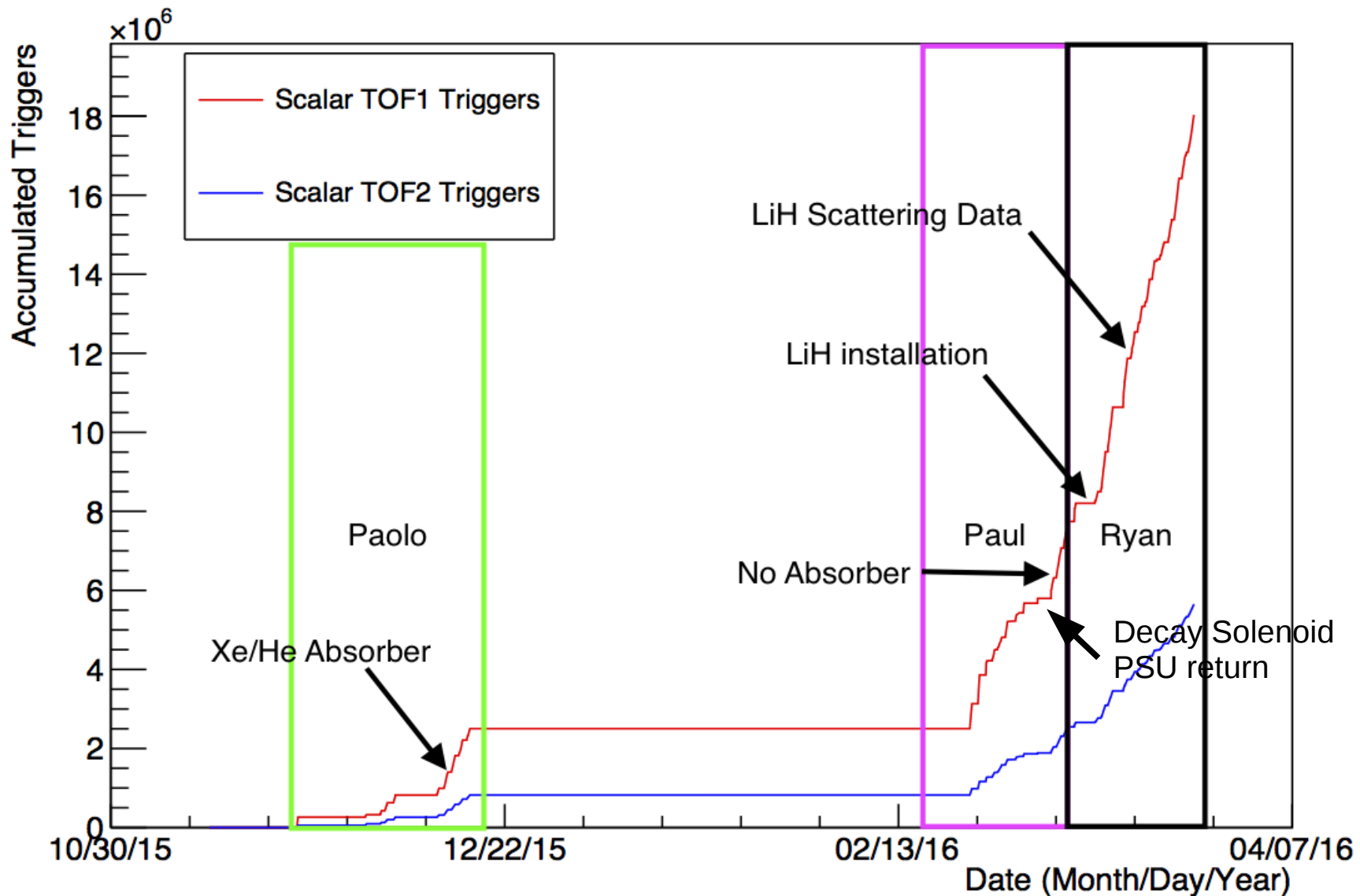
- ▶ calibration and alignment
- ▶ Rate enhancement studies
- ▶ 50k empty target scattering data at 172, 200 and 240 MeV/c
- ▶ 100k “good” muons were recorded for LiH scattering studies at 172, 200 and 240 MeV/c

See **Ryan Bayes'** talk on Initial Step-IV scattering study

▶ Return of DS PSU in late February allowed us to take the required amount data in this user cycle. DS operated well from re-installation to the end of the user cycle.

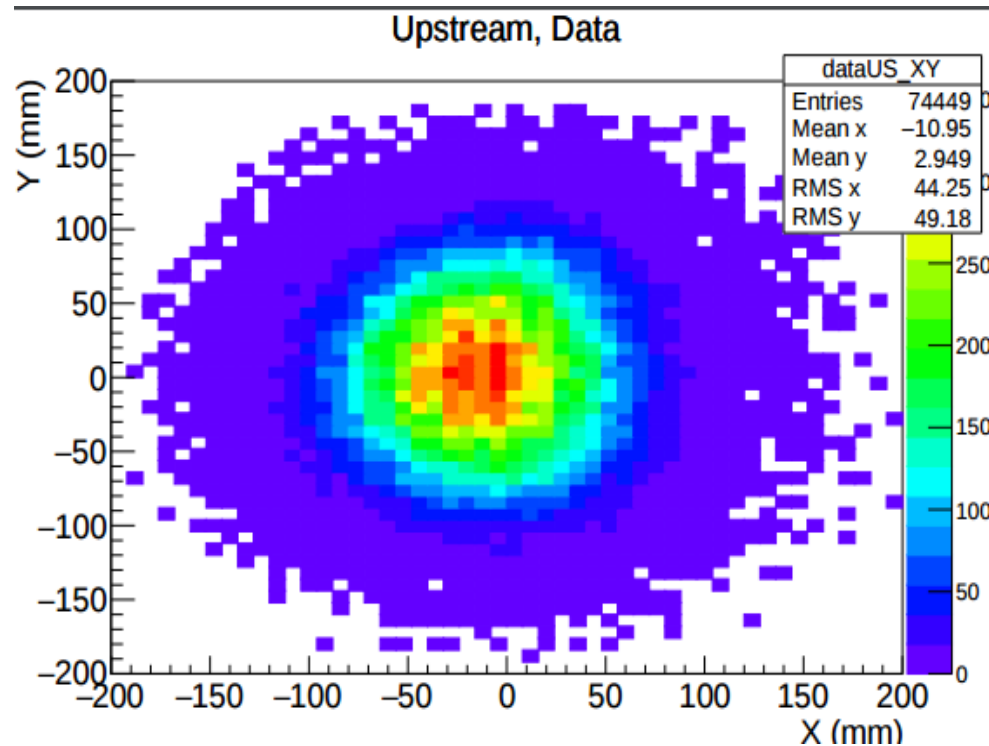
▶ Production data-taking for Step-IV has started

# Data-taking Summary

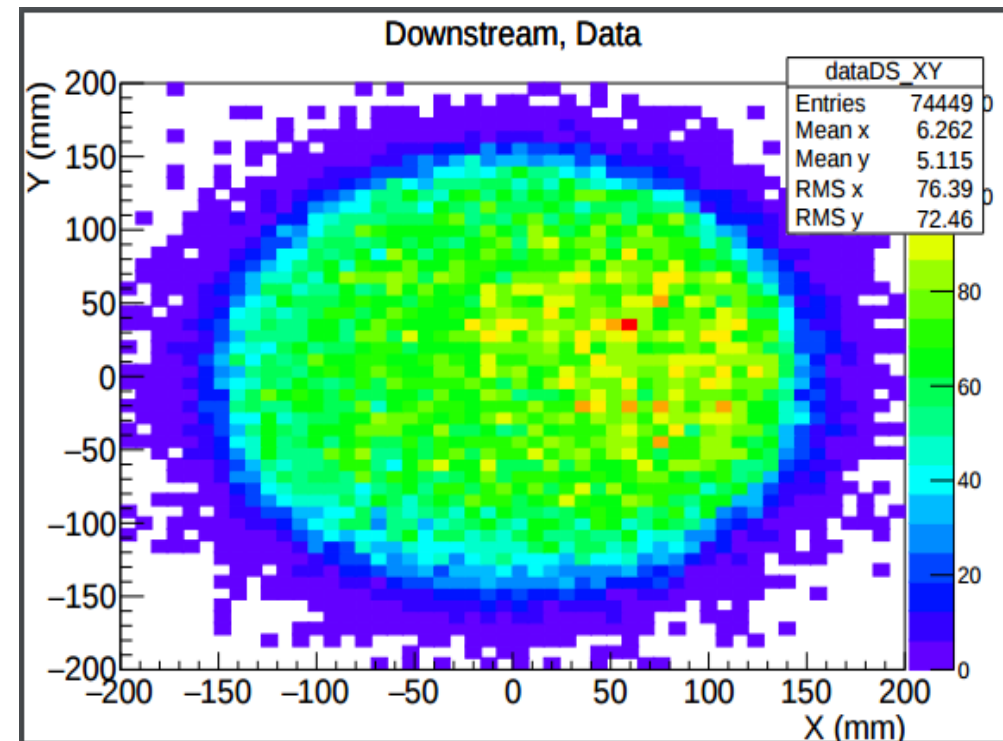


# Beam spot with LiH

At last tracker measurement plane  
before the absorber



At first tracker measurement plane  
after the absorber



R. Bayes will discuss this further

# Data-taking stability and monitoring

- ▶ All detectors, beamline, DAQ and C&M operated smoothly over the data-taking period.
- ▶ Data-taking shifts were typically very uneventful
- ▶ Operational up-time was 94% of available data-taking time
- ▶ During operations we have had continuous feed-back from the measurement co-ordinators. Typically data has gone through a first pass reconstruction and analysis within 24 hours of the data being taken and physics feedback given during daily run planning meetings
- ▶ Interaction between shifters, MOM and experts have been very good.

# Procedural changes

- ▶ New procedures:
  - ▶ There is an online shift check-list for shifters to fill out at least twice a shift
  - ▶ Version protocol for online code has been defined. Frozen releases are made specifically for production data-taking and the versions recorded run-by-run in the CDB.
  - ▶ Change control procedures have been implemented for online systems during production running.
  - ▶ MOM can lock-out remote access to controls machines during running.



# Shifts

- ▶ Shifters sit a 5-day block of 8-hour shifts in a team of 2
- ▶ **2015/03** : During data-taking at the end of the cycle 16 hour / 7 day a week shift staffing. 80 / 90 shifts offered and taken up.
- ▶ **2015/04** : 16-hour / 7-day a week shift staffing over the user cycle. Four 8-hour shifts per day. 110/110 shifts offered and assigned.

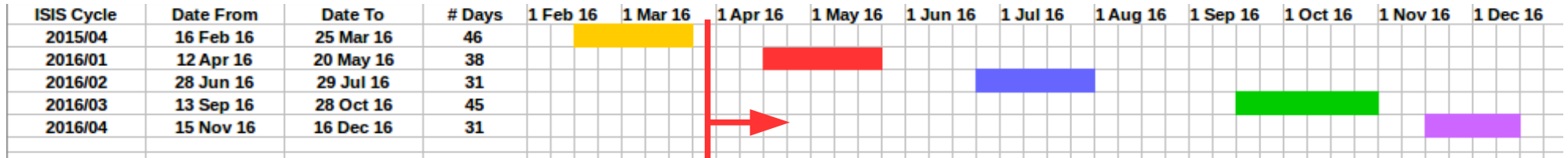
# Shift Training

- ▶ Integrated “on-the-fly” training for shifters offered at the start of each shift block
- ▶ Training status tracked on CHEESE and training slots defined in advance of the cycle
- ▶ Training is given in Safety, PPS, Beamline and Control room operations
- ▶ Two levels of training : Full (for new shifters, or those who haven't done a shift for more than a year) and more concise Refresh level for others to remind them of procedures and inform them of any new issues.
- ▶ Largely successful. Endeavouring to make training as concise as possible (whilst not losing the point of it)

# Operations Management

- ▶ The Duty Co-ordinator post introduced in the last meeting has proved very successful.
- ▶ 3 + 1 DC's : Victoria Blackmore (Imperial), Paul Hodgson (Sheffield), Craig MacWaters (RAL TD)
- ▶ All have received STFC Safety Training and been approved by Head of PPD.
- ▶ Communication and co-ordination between Operations and Engineering teams has become much more transparent
- ▶ MOMs now rostered only during user cycles : 2 MOMs per user cycle serving for 3 weeks (rather than the previous 4).
- ▶ **P. Hodgson** will discuss the details of the DC post.

# 2016 ISIS Run Schedule



ISIS Cycle	Date from	Date To	Length (days)
2016/01	12 <sup>th</sup> April	20 <sup>th</sup> May	38
2016/02	28 <sup>th</sup> June	29 <sup>th</sup> July	31
2016/03	15 <sup>th</sup> Sep	28 <sup>th</sup> Oct	45
2016/04	15 <sup>th</sup> Nov	16 <sup>th</sup> Dec	31

# Future Cycles

**Cycle 2016/01 (Apr 2016 – May 2016)** : Expected to be largely focussed on QP/QD and spectrometer work. Some data-taking to bolster zero-absorber data set in April.

**Cycle 2016/02 (June 2017 – July 2016)** : If SSU/FC/SSD are available then scattering and energy loss baseline measurements with empty absorber in a non-zero field can be done. Could also look into cooling measurement if M2 in SSD is powered (subject to Magnet Readiness Review)

**Cycle 2016/03 ( Sep 2016 – Oct 2016)** : LH2 absorber

**Cycle 2016/04 ( Nov 2016 – Dec 2016)** : LiH absorber

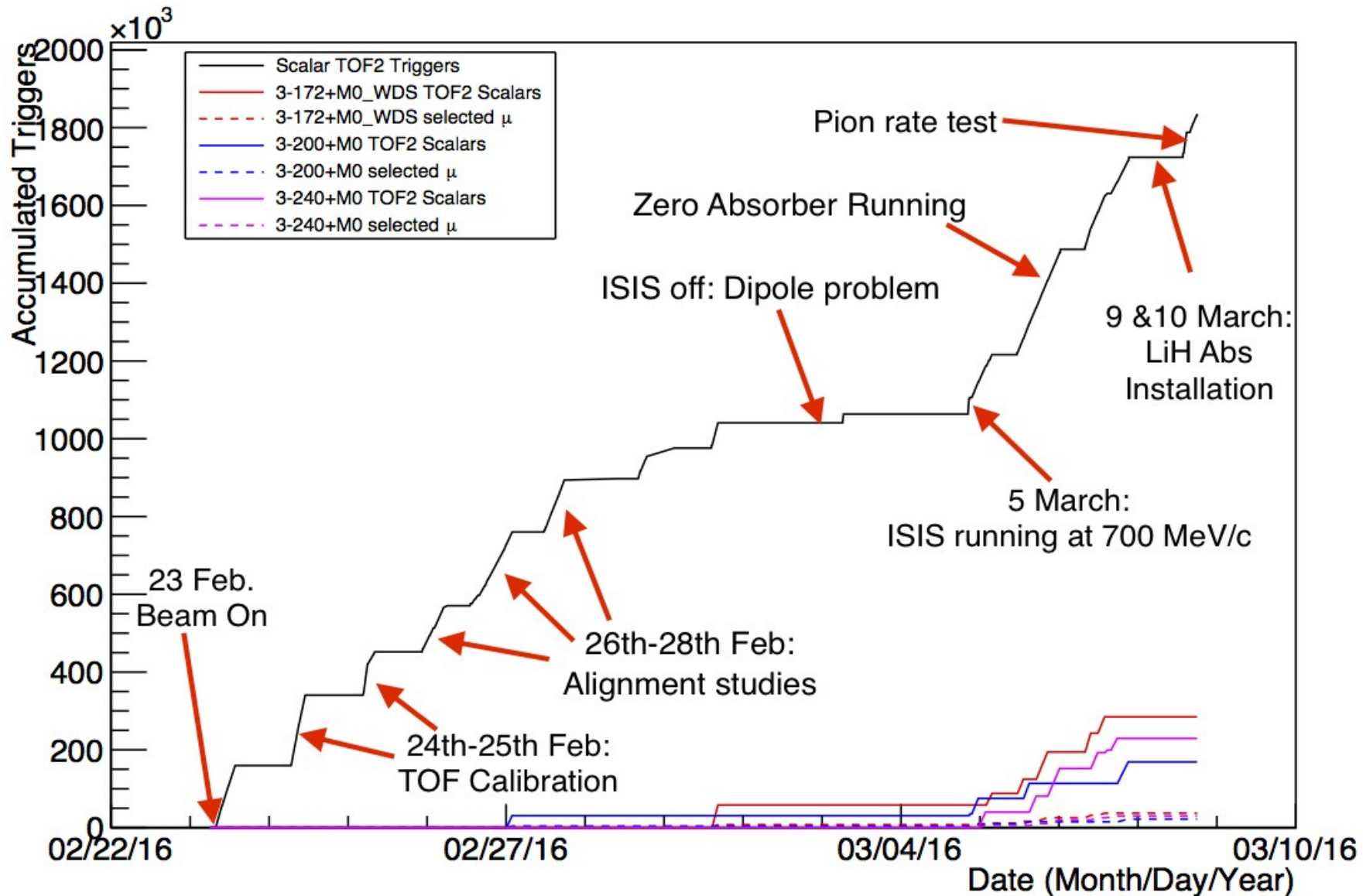
Run plan is kept under constant review. Ways to enhance the data rate are being studied.

Will be described further by **C. Rogers**.

# Summary

- ▶ Step IV physics data-taking has started with straight track gaseous Xe, He, empty and LiH scattering measurements.
- ▶ MICE data-taking is extremely smooth if systems are unchanged during the cycle.
- ▶ Changes to online systems during running must go through MOM first and follow change control process. The aim is to ensure that data-taking configuration is unchanged during user cycle.
- ▶ DC post working well and interaction with MOM is now understood.
- ▶ Last data-taking period has been very successful. Challenge is to ensure that this continues for the rest of Step IV.

# Cycle 2015/04



# Cycle 2015/04

