

S7 operation update

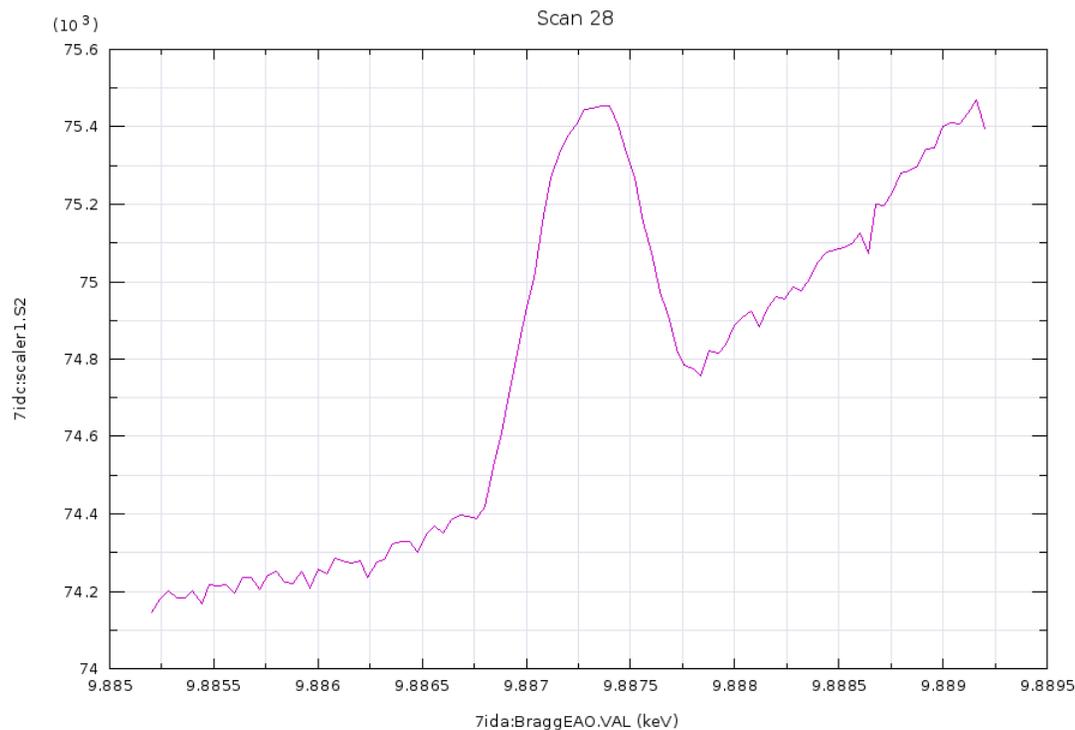
Eric Dufresne, TRR group meeting, Mar. 30, 2007

- Following the last group meeting, the 7ID Personnel Safety System was revalidated to include the new 7ID-C laser Porthole. EL and HG designed and installed the 7ID-C laser interlock system. It was reviewed and the laser SOP was approved by the ANL Laser Safety Officer. The laser has since been delivered to 7ID-C. More details from EL slides.
- New Solaris workstations for 7ID have been ordered by Dave Wallis from the IT group to replace our aging ones.
- During staff time, ED made a lot of progress in 7ID-B so that a quick imaging experiment can be done. He rotated the UofM optical table by 90 degrees so that the length of the table is along the beam, and tested the fast SI1280 CMOS camera. ED tested a new design of Be lenses with Ali Khounsary and Cameron Hewish from OFM.
- JW and partners are developing a plan to complete the 7BM beamline for imaging of fuel sprays. ED, JW, and Mark Erdmann (AES) are working on a draft design and equipment needs for the beamline.

S7 May shutdown (draft)

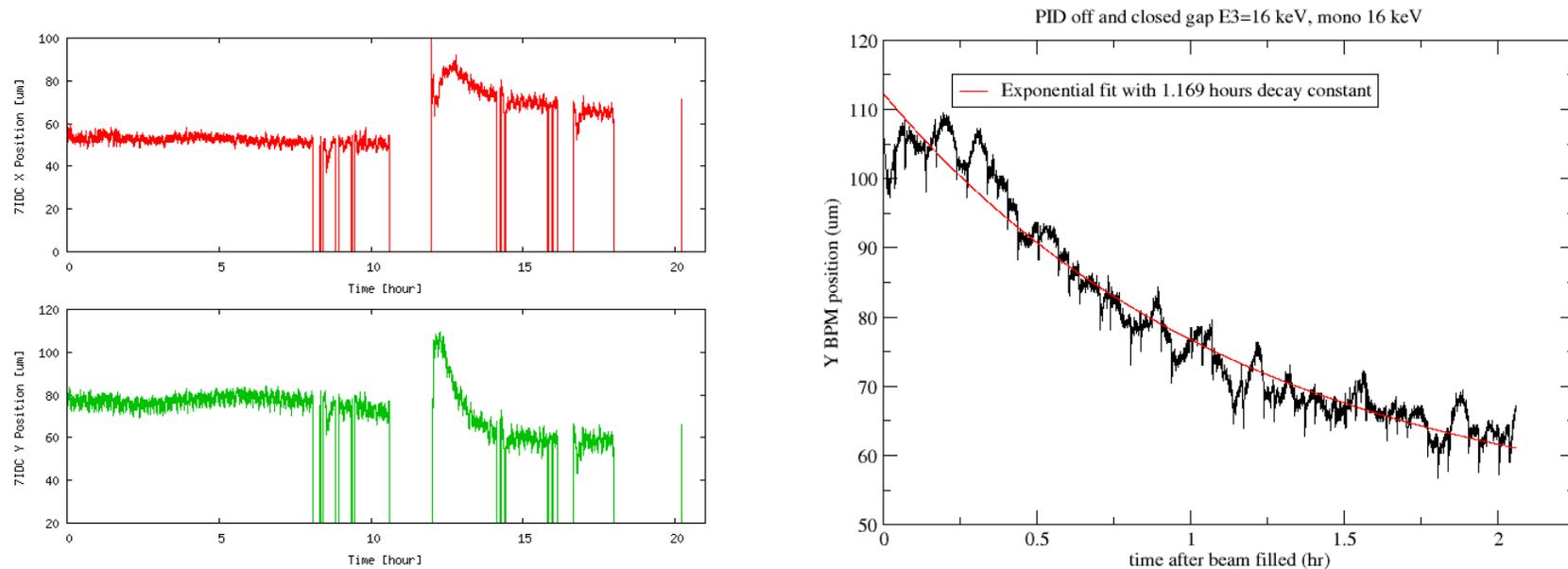
- The beamline controls and network will be integrated in the APS network during the May 2007 shutdown. The experimental floor network will be upgraded to 10 Gigabits/s wiring, and all computers on the network will be administered by the APS IT group. The EPICS IOCs will be upgraded to 3.14 by the APS BCDA group. The mhatt.aps.anl.gov domain will be phased out. The 10G cabling infrastructure is being installed at nights and during weekends. This is the highest priority activity this coming shutdown.
- The new IT supported network rack needs dedicated AC circuits. This work is scheduled in the early shutdown.
- On Jan. 26, we had an XOR Safety Inspection. Mitigation of deficiencies found is underway.
- DA and ED tried to integrate the 7ID-A monochromator encoder in EPICS during the start-up week but the new Heidenhain decoder box doesn't seem to read the monochromator encoder pulses. We will work with BCDA to integrate the encoder in EPICS.
- We will develop a plan to bring Air Conditioning in the 7ID-C hutch.
- We plan to install also a new cable tray near 7ID-D (awaiting funding).
- The new control station will be added for 7ID-C next to the new 7ID-D workstation on the Wrightline wall next shutdown.

Diamond monochromator resolution with back reflection



DW measured the diamond
(111) Monochromator
resolution $\Delta E=0.53$ eV with
Si (555) at 9.887 keV.
($\Delta E/E= 5e-5$)

Beam stability studies



(left) 7ID-C X-ray BPM data taken during a beam dump (near $t=11$ hr).
(right) Exponential fit of the vertical position with 1.17 hr decay constant.

First allocation to PUP-63: Picosecond Source Development

1. Only 2/3 of allocated beamtime was used (remainder postponed to later runs due to continuing resolution)
2. DW, and DA measured the monochromator resolution
3. BK measured and optimized the performance of high-efficiency fast point detectors (2" NaI PMTs)
4. BA continued streak camera measurements. He achieved a few ps resolution.
5. EL tested materials for cryogenic diffraction experiments to be commissioned next run
6. S7 chopper not delivered yet; S32 chopper delivered but does not work (can not synch.)

PUP-63: First laser experiments in 7ID-C

1. Doubles space for x-ray / laser experiments
2. Dedicated space for the streak camera
3. 6-circle has many advantages for ps-source:
 - a) Diffraction in horizontal plane for surfaces
 - b) Sample orientation can be fixed (e.g. kept at bunch tilt angle) while khl are scanned
 - c) 4-circle in 7ID-D can be developed for specialized experiments (low temperature, area detection)
4. Challenges include laser transport and duplication of timing detectors/electronics