

Weekly Report for 11/10/2014

Highlights

- Chaired SCU1 physics review. Summarized comments from reviewers to a report. (Aimin Xiao)

APS Renewal and Upgrade

- Continued collecting and revising impedance simulations for APSU. Used updated layout of Version 6 lattice to include the elements in elegant tracking, and have begun analyzing the effects of the in-line synchrotron radiation absorbers. (Ryan Lindberg)
- Continue simulation on injection performance. (Aimin Xiao)
- Set up IBS simulation with BLC. Observed interesting beam profile modulation, need to be further investigated. (Aimin Xiao)
- Discussed with Melike on the Lambertson issues. We would like to try not rectangular injection beam chamber. (Aimin Xiao)
- Reviewed old CDR and determine on what to do next. (Aimin Xiao)

MCR Operations

Linac Operations

- Collected additional low-level rf data on thermionic gun 3G3 in the vacuum lab. (Jeff Dooling)
- continued work on the LLRF measurement of 3G3. measurements completed at 0.4 lb inch torque to tighten the cathode assembly to gun back plate; in process of the 0.6 lb inch torque tightened case. (Yin-e Sun)

APS Machine Studies

Storage Ring Studies

- Worked on orbit switch from 324 to RHB. Worked with Vadim on fixing the tenSingularMatrix issues. (Aimin Xiao)
- Recorded ID1 BLM injection data from the downstream location. (Jeff Dooling)
- Presented results of total charge loss from the upstream ID1 location at the Thursday Studies meeting. (Jeff Dooling)
- Found 3 October losses were approximately 30 pC per injection (0.2 J); losses dropped by 10 October. (Jeff Dooling)
- Will check losses in RHB. (Jeff Dooling)

Linac Studies

- Updated L3 machine protection for PCGun operations. Testing/Validation will take place during the Injector Studies period Dec. 3rd - 15th. (Stan Pasky)
- worked with Dooling in the linac in controlled access for PC gun drive-laser alignment from the laser room through the ceiling to the linac tunnel; work yet to be completed pending available time for controlled access in the linac; helped to adjust camera to focus better on the UV light target on the optical table in linac. (Yin-e Sun)

ITS Studies

- Prepared the thermionic rf gun and control screens for the Radia Beam experiment. (Stan Pasky)
- Worked with Yine Sun and W. Berg on scheduling RadiaBeam THz experiment planned for next week. (Jeff Dooling)

APS Machine Research and Development

Storage Ring Research and Development

- Read CP/PRD and other reports/notes on SCU0/SCU1. Chaired the SCU1 physics review. Summarized comments from reviewers to a report. (Aimin Xiao)
- Continued work on BLM calibration analysis. (Jeff Dooling)

Linac Research and Development

- Successfully RF conditioned the PC gun in Linac. (Yin-e Sun)
- Gun conditioned with at 2.5us, up to 12MW, up to 15Hz, with any solenoid currents. (Yin-e Sun)
- Gun conditioned with at 2.5us, up to 6.75MW, at 20Hz, with any solenoid currents. (Yin-e Sun)
- We didn't condition at 30Hz due to the gun water system (gun return water temperature increases). (Yin-e Sun)

ITS Research and Development

- Participated in the control room for some of the commissioning of the RadiaBeam/THz experiment. Observed evidence of THz production. (Ryan Lindberg)
- worked on the THz radiation experiment in collaboration with Radiabeam, verified alpha-magnet and newly added steering magnet polarities (the latter for radiation survey measurement purpose); coordinated efforts on the experiment shifts. (Yin-e Sun)
- In the initial experiment commissioning, set up beam lattice with 3G1 at 3MeV energy going through the spectrometer, to ensure the energy is at the desired value as required by RadiaBeam experiment design. Tuned the beam trajectory and focusing to go through the alpha magnet and through the THz radiator by maximizing the signal of the Faraday cup downstream of the 90 deg permanent dipole magnet right behind the radiator. First signals indicating the THz signal was observed on an antenna. (Yin-e Sun)

APS Machine Software

Storage Ring

- continue implementing and testing SRGridXBPMCalibration with Bingxin, made more changes per Bingxin's request 1) added sector 7 2) added post-processing and plotting of orbit scan data. (Hairong Shang)
- tested and fixed bugs in updating FF adjust waveforms in SR unified ID steering. (Hairong Shang)
- added libear bpm type to SR bpm status management tool and SR orbit correction configuration tool. (Hairong Shang)

Injectors

- added ability of averaging booster current waveform in booster ramp correction for reducing random errors, tested and installed fixrampcurrent, boosterRamp.tcl. (Hairong Shang)

- tested collecting linac PC gun waveform script, data collection is fine, however, the mux setup and scope connection were messed up, need get them fixed by RF and control persons. (Hairong Shang)

General

- attended EPICS training course and continue studying python. (Hairong Shang)

Publications, papers and report

- Reviewed paper submitted to JINST. (Ryan Lindberg)

Meetings, workshops, conferences, committees, LMS related, and reviews

- Finished preparing and then presented simulation results regarding the affects of the SCU1 installation on single bunch current limit at the SCU1 physics review. (Ryan Lindberg)
- attended the seminar on APS RF system. (Yin-e Sun)
- Attended PC gun meeting; attended group meetings. (Yin-e Sun)
- attended injector study planning meeting. (Yin-e Sun)

Safety and Required Training

- Updated the Booster Requalification Test. (Stan Pasky)
- Completed EM 116 Emergency Management training. (Jeff Dooling)