

Weekly Report for 01/19/2015

APS Renewal and Upgrade

- Prepared / amended talk for APSU MAC review. (Aimin Xiao)
- Started detailed Touschek beam loss simulation. Fixed some small issues inside the code. Updated user manual. (Aimin Xiao)

MCR Operations

Storage Ring Operations

- Worked with A. Brill (ASD-DIA) to install fast FO BLMs in ID1; installed one each on the US and DS IDs. (Jeff Dooling)

Linac Operations

- requested MOM group to torque cathode with 0.6 inch lbs to 3G3. completed LLRF measurements of thermionic gun 3G3. Analyzed data and concluded that at 2856MHz, gun body temperature needs to be at 41.2C (106.2 F) for cathode heater power at 16W. 0.189" shim installed, with 0.6 inch lbs torque. Discussed with Rob Wright to have 3G3 Citraflushed prior to its installation in APS linac. (Yin-e Sun)
- Worked with Mike Douell in RG1 tuning after the gun is installed in APS linac. After 3G3 hooked up with water, RG1:HeaterTemperatureAl.VAL set point =106.50F, RG1 water return at 106.3F, water supply at 105.9F. Measured rf frequency is 2856.004MHz. Perfect agreement with vacuum lab measurements. (Yin-e Sun)
- attended gun meeting to discuss about the generation II gun that had insufficient water flow issue during machine start-up. (Yin-e Sun)
- Noticed that gun water supply and return temperature has 20F difference, requested water group to have it fixed. (Yin-e Sun)
- Talked with colleagues to find time in the machine study schedule to allow RG1 gun switch. (Yin-e Sun)
- Conducted Annual LACIS validation with G. Markovich on Wednesday. (Jeff Dooling)

APS Machine Studies

Linac Studies

- Measured IR profiles using the LaserCam HR as a function of rep rate. (Jeff Dooling)
- Varied rep rate from 2-30 Hz (cw) and observed profiles change. Noticeable astigmatism is observed at higher rep rates. (Jeff Dooling)
- Using the SSA, measured the temporally compressed pulsewidth of the IR laser; found the rms pw to be 735 fs. (Jeff Dooling)

APS Machine Research and Development

Storage Ring Research and Development

- Email exchange on what IEX operation mode should be allowed during the user operation, i.e. no arbitrary Quasi ratio variation. (Aimin Xiao)
- Began looking at a MARS model for the thin septum to determine the effects of beam loss. (Jeff Dooling)

Linac Research and Development

- studied publications on APS thermionic gun and its kickers. (Yin-e Sun)
- worked with Bill Jansma to get the locations of essential elements in the PC gun beamline as installed. Created drawing with z-locations of the PC gun beam line upstream of L1:AS1. (APS_1677441). (Yin-e Sun)
- discussed with Xiang to compare his numerical modelling of the thermionic rf gun with our Ilrf measurements at the vacuum lab. (Yin-e Sun)
- Went through gun exchange history in the linac and answered related questions from Bob Wright. (Yin-e Sun)
- Modeled the effects of a thin lens in a hemispherical resonator cavity using parameters of the regen. (Jeff Dooling)

APS Machine Software

Storage Ring

- finished setup config files for P0Feedback scan and the GUI for P0Feedback scan to obtain the appropriate mixer delays, sample pattern and attenuation. ready for test. Next will add post-processing to the scanned data files to obtain these parameters. (Hairong Shang)
- wrote getSRtune script for getting x/y tunes and print it to stdout so that ExperimentDesigner can get its value and set to a variable. And helped Yipeng Sun setup the experiment files for his tune lifetime scan experiment. will test it during machine study. (Hairong Shang)

Injectors

- discussed with Yine on PC gun cathode laser cleaning, decide to use ExperimentDesigner to do it, will help her setup the experiment files. (Hairong Shang)

General

- had IT installed PyEPICS on EPICS, and the python PV panel applet on tulip. Setup the related environment variable, and tested with SR current PV and it works fine, and had IT install PyEPICS on control room workstations. IT will install the pv panel applet on control room workstations too. (Hairong Shang)

IOC/EPICS/Controls/Linux/Solaris/Linux Clusters/Data Loggers/Simulation software

- attend EPICS training course. (Hairong Shang)

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

- worked on a PC gun commissioning presentation and gave an division seminar. (Yin-e Sun)
- attended BA seminar. (Yin-e Sun)
- Attended physics dry run sessions. (Aimin Xiao)

Safety and Required Training

- took HR498 training. (Yin-e Sun)

Miscellaneous

- Prepared machine study schedule for APS startup. (Aimin Xiao)