

Weekly Report for 11/09/2015

APS Renewal and Upgrade

- Modified and simulated TDR with S. Xiang of the COSMOTEC connectors for HV feedthrough. It is part of the effort to (Chih-Yuan Yao)
- do a start-to-end simulation of the fast kicker. (Chih-Yuan Yao)
- Prepared a presentation for the APS-U BPM-bellows workshop. Attended the 2 day event here at APS. (Ryan Lindberg)
- Discussed modeling of collective effects for APS-U and NSLS-II with visiting Alexei Blednykh. Began analysis of longitudinal impedance to see if our requirements might be put into the popular "impedance budget" framework. (Ryan Lindberg)
- Tried to work out a semi-analytic model of multi-bunch instability with HHC. Discovered why this is so difficult. (Ryan Lindberg)
- Attended the MBA beam physics meeting Friday; contributed to K. Harkay's talk on Abort Kicker considerations. (Jeff Dooling)

MCR Operations

PAR Operations

- Investigated a PAR rf12 tuner problem that stops tuner current change on Oct 19 with Eddy goel. (Chih-Yuan Yao)

MCR Operations administrative/misc.

- Found a project for one of the operators to help occupy their back up time (Randy Flood)
- Approved operators' time cards (Randy Flood)
- Approved vacation requests, set up coverage and updated the online schedule (Randy Flood)
- Approve CTLs, IT and Other work requests (Randy Flood)

APS Machine Studies

Storage Ring Studies

- Wednesday morning, conducted ID6 BLM calibration study with K. Harkay recording detector output charge versus beam current (circulating charge). Presented results at the Studies meeting Thursday. (Jeff Dooling)
- Fit a saturation model to processed data to obtain the calibrated response; found a quartic polynomial provided the best fit. (Jeff Dooling)
- A.Zholents asked about using the SCU1 BLMs to do coincidence measurements of Touschek scattering events. (Jeff Dooling)

Booster Studies

- Performed booster 1Hz beam study. Established a beam with varied efficiency. Still not good enough for operations. (Chih-Yuan Yao)
- Investigated voltage regulation waveform of BM ramp with Ju and Tony. And proposed pulling out a jumper for voltage regulation reset for a test. (Chih-Yuan Yao)

- Investigated a problem of processing ramp error with Hairong Shang and proposed changes. (Chih-Yuan Yao)

Linac Studies

- worked with control group to have the PC gun front end magnets conditioning function added to the MEDM screen. (Yin-e Sun)

APS Machine Research and Development

Storage Ring Research and Development

- Worked on analysis of recent beam dumps to determine deposited charge. (Jeff Dooling)

Booster Research and Development

- Proposed a reconfiguration of booster B3C2P1 and B3C2P2 BPMs so upgrading of BSP-100 can move along even during user operations. (Chih-Yuan Yao)

Linac Research and Development

- worked on the interleaving operations between PAR and LEUTL -- prepared a talk on the PC gun beam in linac -- simulations, measurements and interleaving operation considerations. (Yin-e Sun)
- Discussed with RF group colleagues on possible solutions of powering the thermionic RF gun and L1:AS1 during interleaving operations. (Yin-e Sun)
- Worked on PC gun optimizations at 20pC, 100pC, 150pC and 300pC, prepared the beam distribution files to SLAC colleagues to study CSR effects on emittance growth, and possible improvement by using a 5-dipole compressor. (Yin-e Sun)
- Participated in the PIP/Interleaving meeting; provided slides for Y. Sun discussing interleaving magnets. (Jeff Dooling)
- C. Doose (ASD-MD) said he would be able to test the time response of linac window frame magnet potentially useful for interleaving. Doose also provided magnetic field and effective length data for the magnet. (Jeff Dooling)

ITS Research and Development

- Worked with Fermilab colleagues on the electron back bombardment effects on the thermionic cathode emission using our RF gun (3G2 installed at the ITS). Took data of the current emitted as a function RF power and rep rate at fixed cathode heater power (28W). While taking the planned data, we realized that during a LLRF trip, upon reset the LLRF, the emitted current higher. We then took very interesting data of the current variation as a function of the time when LLRF is off. (Yin-e Sun)

APS Machine Software

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

- Administer the EPICS CVS repository to ensure current versions are installed and conflicts are tracked down and eliminated. (Randy Flood)

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

- organized a meeting on interleaving operations for LEUTL/PAR. Called for separate meetings on RF and power supplies with relevant colleagues to discuss in depth possible interleaving solutions in each category. (Yin-e Sun)

- Attended linac structure replacement meeting. (Yin-e Sun)
- Attended high gradient structure RF testing in the ITS meeting. (Yin-e Sun)
- Reviewed paper for PRSTAB (Ryan Lindberg)
- Attended meeting on RF group LOTO (Randy Flood)
- Attended planning meeting FPGA BPM communications issues (Randy Flood)
- Presented stats and operational issues to Ops Directorate meeting (Randy Flood)

Education, Mentoring and outreach

- participated the emittance exchange experiment at AWA/ANL. (Yin-e Sun)
- Helped Medani Sangroula with his research proposal and related presentation. (Ryan Lindberg)

Miscellaneous

- Administer multiple mailing lists and the elegant forum (Randy Flood)