

# Weekly Report for 09/07/2015

## APS Renewal and Upgrade

- Worked on BTS line design with twist layout matching for on-axis injection. Also looked at the possible emittance exchange solution. (Aimin Xiao)
- Showed that CERN ion code does predict a charge dependent beam size blowup in the PAR. (Joe Calvey)
- Simulated ion instability at high pressure in the APS-U with SLAC ion code. (Joe Calvey)
- Calculated theoretical instability threshold and growth rates for the PAR and APS-U, using both ion trapping and fast ion theory. (Joe Calvey)
- Began work on modeling the PAR RF system in elegant, starting from bunch purity simulations from N. Sereno. (Joe Calvey)

## MCR Operations

### MCR Operations administrative/misc.

- Reviewed and approved non-RSS storage-ring work requests. (Karen Schroeder)
- Generated the new sign-off sheets for MPS, tunnel closures and top-up. (Karen Schroeder)

## APS Machine Research and Development

### Linac Research and Development

- Presented pgun laser status at the PIP meeting Wednesday. (Jeff Dooling)
- Continued to work on spot size control at the doubling crystals using the new L2 lens. Took additional spot size measurements at the doubling crystals. (Jeff Dooling)
- Found the new IR AR-coated lens produce roughly the same size beam. Was previously using a +15 cm focal length lens specified for uv operation ( $n=1.501$ ); therefore, a lens of nominally the same focal length spec'ed in the IR ( $n=1.450$ ) should be slightly stronger because of index dispersion in the glass. (Jeff Dooling)
- Arranged for meeting between Yine Sun and Sasha Gilevich (SLAC) while Yine is attending the FACET review Sept. 21-23. The meeting will be to discuss the cathode cleaning system of the LCLS laser system. (Jeff Dooling)

## Other Research and Development

- Received a message from S. Kramer at NSLS-II saying that a high-purity fused-silica fiber optic cable bundle I had sent them was being installed in the NSLS-II storage ring. The detector will be designated CBLM6. (Jeff Dooling)

## APS Machine Software

### Storage Ring

- worked on single gap scan pem, to fix the problem that all the steering going on at the beamline next door at 23-ID was screwing him up, even without changing anything, Glenn decker suggests avoiding the changeover from XRDP to DP, i.e running XRDP during single gap scan. To do this, I modified the pem a) run XRDP without the corresponding Xray BPMs for that sector and restore the XRDP config after gan scan is done, b) remove the scanning gap from the gap feedbackforward, and keep ID gap feedforward running when doing gap scans; no need to restore gap feedforward table because a new table with updated FF table for the scanned ID will be installed at the end of the scan.

(Hairong Shang)

## Injectors

- Corrected beam size calculation in script used for modeling harmonic generation. (Jeff Dooling)
- installed booster corrector control for new AFGs. Added New AFG menu to OAGapps application menu and gnome men. (Hairong Shang)
- tested booster rampload for new AFGs with Shifu for his new AFG board testing. ramploadnew worked fine. (Hairong Shang)
- checked booster ramp control and correction software for voltage ramp to be able switch between VRamp and IRamp, reviewed and improved switch to VRamp pem and switch to IRamp pem. (Hairong Shang)

## General

- studied how to kill background running jobs when log out from gnome (to kill sddscasr server after logout), need working with IT to set it up. (need to check OAGapp gnome menu for sr, booster account, it did not show up in August.) (Hairong Shang)
- study and tested python 2dfft, comparing result with sdds2dfft and matlab. Will do the speed test later. (Hairong Shang)

## Simulation Software

- attended RTFB (feedback) meeting, prepare software for 4x4 feedback. (Hairong Shang)

## Safety and Required Training

- Completed rad worker training, received radiation badge. (Joe Calvey)

## Miscellaneous

- Took 2 days vacation off (Aimin Xiao)