

# Weekly Report for 05/26/2014

## APS Renewal and Upgrade

- Wrote APS MBA upgrade CDR, chapter section 'Lattice Alternatives'. (Yipeng Sun)
- MOGA optimization of APS upgrade lattice. (Yipeng Sun)
- Update APSUCDR report. (Aimin Xiao)

## MCR Operations

### Linac Operations

- Conducted low-level rf testing thermionic gun 3G3 in the Vacuum Lab. Completed tests with 0.200 in. shim (5.08 mm). (Jeff Dooling)
- Found gun should operate at 2856 MHz between 35 C-40 C. (Jeff Dooling)

## APS Machine Studies

### Storage Ring Studies

- Read script on disp/chrom measurement. (Aimin Xiao)

### ITS Studies

- Re-aligned beam in the ITS using first the alignment laser, then the uv. This time was able to get the alignment beam centered on the injection mirror when viewed at the cathode inspection mirror. (Jeff Dooling)
- Was able to obtain beam sizes less than 0.2 mm, rms in both planes with uv energy on cathode (EM3) of 15 &#956;J. (Jeff Dooling)
- Resumed PC Gun commissioning on May 28th. Ran pcgun (rf and laser) continuously over the weekend. (Jeff Dooling)

## APS Machine Research and Development

### Storage Ring Research and Development

- Discuss with M. Smith on getting IEX circular mode to work on up to 400 eV. Make a plan on how to do it. (Aimin Xiao)
- Asked Soliday to add IEX polarity to the data logger. (Aimin Xiao)

### Linac Research and Development

- Discussed the idea of using the old buncher cavity with the long-pulse laser to support interleaving. Provided projected costs for this and other systems for the drive laser to T. Smith (ASD-RF). (Jeff Dooling)

### ITS Research and Development

- Participated in videoconference meeting with representatives from RadiaBeam (Santa Monica, CA) to discuss a proposed THz experiment in the ITS after the pc gun has been completed. (Jeff Dooling)
- Representatives from RadiaBeam will be on-site June 11th. (Jeff Dooling)

## APS Machine Software

## AOP Applications Software

- Updated oagwish and oagtcsh to use the latest version of Tcl/Tk 8.6 on linux. (Robert Soliday)
- Updated various Tcl/Tk programs to remove the lwidgets dependence and instead use standard Tcl/Tk widgets for comboboxes and tabs. (Robert Soliday)
- Removed a debugging statement in ScopeControl. (Robert Soliday)
- Installed various software scripts that were updated in SVN but not actually installed. (Robert Soliday)
- Updated various scripts because of PV name changes. (Robert Soliday)
- Working on making the Tcl pv umon command to be thread safe. (Robert Soliday)
- Fixed an issue in SaveCompareRestore related to the new pulldown combobox when switching systems. (Robert Soliday)

## Storage Ring

- added numbered directories to SRConfigCompare for config compare per Louis' request. (Hairong Shang)
- added span argument to APSSetupSRVSA\_Scope and added changing MXA mode to VSA for setup scope in HPVSA\_Tunes.tcl. (Hairong Shang)
- added restore MXA-TUNE.sta setup file to VSA for "Setup H VSA" and "Setup V VSA" button in SRDispChromMeas. (Hairong Shang)
- tested SR tune measurements with MXA-VSA, the VSA died several times during setup, working on finding out which command caused VSA die, will continue testing. (Hairong Shang)
- Updated PSSGlobalWatchdog to create log files when events occur. This will hopefully replace the existing PSS and EPS glitch loggers for the next run because those loggers were never adequate for the complexities of the PSS and EPS systems. (Robert Soliday)
- Updated the list of active correctors and sqew quads in the SRUpDownDoubleSector machine procedure. (Robert Soliday)
- Updated PSSGlobalWatchdog because of sector upgrades. (Robert Soliday)

## Injectors

- replace the PTB charge pv PTB:CM:qTotalAI.VAL by PAR:awg:rms:B:region9 due the changes made to PTB current monitor, installed APSMpPARBunchCleaning.tcl. (Hairong Shang)
- added logging some PVs into output file paramaters and added printing the solenois current and forward RF power in the plot to ITSPCGunPhaseScanAndSet, tested and installed. (Hairong Shang)
- updated ITS gun probe scope setup file for scope channel4 which is used for trigger, so that the data can be successfully collected without manually setup the trigger. (Hairong Shang)
- Updated APSMpPARTurnOn.tcl script so that when the RF1 phase loop unlocked condition is detected, it now first disables the PAR injection and enables the PAR extraction kickers for 5 seconds. Also added code to help resolve the loops from not locking in the first place and added code to reset the arc detectors for RF1. (Robert Soliday)

- Updated RFGUN\_Startup.tcl because resetting the kicker interlock now takes longer than 5 seconds to indicate that it is complete. (Robert Soliday)

## General

- revisited elog, download the source code, compiled and ran on tulip, the two problems that Yine had (1) the old figures disappear when editing the elog and inserting new figures (2) a new elog was created when edit an existing elog; these two problems no longer exist. But we need a "Save" button in order for people to use it. Contacted Randy Flood and IT group, obtained administration privilege on machine studies elog so that I can change the configuration and setup, and converting our old machine study logbooks into elogs. Added ITS system to machine studies elog and changed Yine's elog system to ITS, which was Linace before since we did not have ITS system when she created the elogs. And added Category expandable selection option so that user can create new categories. Helped Yine and Louis disabled the automatic email sent when an elog is submitted. Sent request to author for "save" button. (Hairong Shang)
- Added the -fillIn=<zero|last> option to csv2sdds to specify how to handle empty cells (Robert Soliday)
- Updated mpl\_motif by adding the 'i' interactive command to save the image to the daily directory and insert it into an emacs client running in server mode. Future emacs sessions can reload the images using the M-x turn-on-iimage-mode command. (Robert Soliday)
- Updated mpl\_motif and sddsplot to store the current working directory and the sddsplot command line to the metadata inside the PNG and postscript output files. (Robert Soliday)
- Updated the sddsIDL code so that it works on 64bit linux. (Robert Soliday)
- Updated so that editstring and replaceText don't unnecessarily link to hdf5. (Robert Soliday)

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

- Ordered and installed new hard drives in the linux cluster to replace failed ones. (Robert Soliday)
- Updated various data loggers. (Robert Soliday)
- Installed new version of GdfidL. (Robert Soliday)
- Fixed a problem with the cronjob that keeps our software upto date on the linux cluster. (Robert Soliday)

## Publications, papers and report

- Yipeng Sun, MOGA optimization without magnets errors and without physical aperture, AOP-TN-2014-026. (Yipeng Sun)
- Updated JSR paper based on reviewed comments (Aimin Xiao)

## Web Site

- Maintain Next-Generation Storage Ring Meetings wiki web site. (Yipeng Sun)

## Safety and Required Training

- Completed ESH 700 Radiation Worker Training. (Jeff Dooling)
- Training course: JHQ and other 2 courses. (Yipeng Sun)

## Miscellaneous

- Helped Dooling with some Tcl scripts. (Robert Soliday)
- Helped Mohan with an sddsprocess question. (Robert Soliday)
- Looked into the no sound issue in the controlroom. I temporarily fixed it but the problem comes back and now IT has been contacted. (Robert Soliday)
- Helped Yuantao Ding (SLAC) with a problem with elegantRingAnalysis. (Robert Soliday)
- Start reviewing PRSTAB paper on IBS calculation. (Aimin Xiao)