

Weekly Report for 06/30/2014

Highlights

- Carried out studies using injector kicker configurations to kick out the beam, with the goal of protecting SCU0 from beam losses. Found two configurations that reduced the total losses by a factor of 10 and 100, respectively. Presented the case to ASD management for installing loss monitors in SCU1, with J. Dooling. (Kathy Harkay)

APS Renewal and Upgrade

- Worked with the vendors to specify the high voltage feedthroughs for the fast kicker of MBA upgrade. (Chih-Yuan Yao)
- Continue simulation work with injection errors. (Aimin Xiao)

MCR Operations

Storage Ring Operations

- Copied over essential executables and libraries from oxygen to ASDOP helios account to run accelerators during a disk outage. (Louis Emery)

Booster Operations

- Assisted in the recovery from file server failure. (Chih-Yuan Yao)
- Investigated booster RF insufficient power causing some beam loss and discussed with Doug Horan. (Chih-Yuan Yao)

APS Machine Studies

Storage Ring Studies

- Conducted studies using injector kicker configurations to kick out the beam and protect SCU0 from beam losses. Tested configurations simulated in advance using a simple elegant trajectory model by Vadim Sajaev. Tested other configurations simulated during the studies, and these turned out to be the most promising. A combination of IK1+IK4 reduced the SCU0 losses more than a factor of 10, and IK2+IK3 by about a factor of 100. (Kathy Harkay)
- Requested a trigger module that can be used to have MPS trigger the injection kickers. Scheduled an initial checkout of the module with F. Lenkszus and R. Laird. Tested the module in machine studies with J. Dooling and Lee Teng Intern Ashley Ernst. (Kathy Harkay)
- Prepared machine study schedule for the holiday weekend. (Aimin Xiao)
- Set up UBOP file for BPM offset measurement. Updated instructions for BPM offset measurement. (Aimin Xiao)
- Perform study on IEX run at 400 eV. (Aimin Xiao)

ITS Studies

- Remotely recorded PC Gun VC images in the ITS. (Jeff Dooling)

APS Machine Research and Development

Storage Ring Research and Development

- Prepared a presentation with J. Dooling on the case for installing a fast fiber-optic beam loss monitor at SCU1, and presented it to ASD management. Included results using the injection kickers. (Kathy Harkay)

- Completed evaluation of a MXA-EXG combination SR tune measurement system, which will replace the VSA and NASA tune measurement system. (Chih-Yuan Yao)
- Discussed S35 new stripline configurations with Nick, Leonard and Bill. (Chih-Yuan Yao)
- Performed P0feedback simulation with the current APS storage ring parameters. The purpose of the study is to provide a beam current limit baseline for analyzing MBA upgrade lattice with transverse feedback. (Chih-Yuan Yao)
- Studying complex SVD to see if this may have application to orbit noise investigations. (FFT's from bpm data are complex.) (Louis Emery)
- Discussed with carwardine tolerances for harmonic cavities. (Louis Emery)

Booster Research and Development

- Discussed with Bill Berg and Nick Sereno about the three screen BTS beam emittance measurement proposal. (Chih-Yuan Yao)
- Proposed and implemented a new BM delay processing based on linear fitting method, and implemented a new bcontrol configuration for the BM. (Chih-Yuan Yao)

Other Research and Development

- Electron cloud R&D: Followed up with L. Boon regarding progress on her paper and her thesis. Reviewed two draft chapters and provided feedback. (Kathy Harkay)
- Cathode R&D: Participated in a telephone conference with IIT team and T. Rao at BNL. Discussed the possibility of testing IIT SC photocathodes in BNL's SCRF gun. (Kathy Harkay)
- LDRD: Organized having the He leak test set up again for additional testing of graphene windows. (Kathy Harkay)

APS Machine Software

AOP Applications Software

- Summarized and updated IEX operation utility software base on recent PS and control system changes. (Aimin Xiao)
- Looked up oagData/sr/magnet. Contacted with Louis on missing skew quad measurement data. (Aimin Xiao)

Storage Ring

- tested MXA setup for HOM, longitudinal tune, and tune measurement. updated the setup parameters, collected data from MXA and VSA for comparison, they look almost the same. MXA is a good replacement of VSA for collecting RF spectrum, it is faster and has higher resolution. Will test CollectRFSpectrum with MXA with Kathy. (Hairong Shang)
- tested SR chromaticity measurement with MXA-VSA combination, successfully collected data at 24 singlets. Therefore, removed VSA selection for chromaticity measurement for we no longer need it, and changed some default values per CY's request. (Hairong Shang)
- added checking MXA mode before setting it to VSA for tune measurement in HPVSATunes.tcl, nothing will be done if it is already in VSA mode. (Hairong Shang)

Injectors

- improved and test booster sextupole bump scan with CY, the script worked successfully. (Hairong Shang)

General

- study complex SVD and prepare for writing complex sddspseudoinverse. (Hairong Shang)

Publications, papers and report

- wrote two techNotes on a new SR tune measurement configuration and the booster new IRamp correction. (Chih-Yuan Yao)

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

- Presented a talk on fast kicker simulation result at AOP group physics meeting. (Chih-Yuan Yao)
- Provided progress report at injector, fast kicker and physics meeting MBA upgrade. (Chih-Yuan Yao)

Miscellaneous

- Writing weekly reports for the last four weeks. (Louis Emery)
- Reading hamornic cavity review material for writing a report (Louis Emery)
- Read Berenc's note on LLRF at the LLRF2013 workshop, RF-TN-2013-020 (Louis Emery)
- Annual Leave. (Jeff Dooling)