

# Weekly Report for 10/26/2015

## APS Renewal and Upgrade

- Started Touschek beam loss simulation with a new collimator configurations. Summarized results and gave a presentation on the MBA working group meeting (Aimin Xiao)
- Completed the simulation and ordering of HV feedthrough with COSMOTEC. (Chih-Yuan Yao)
- Worked on modification and simulation of COSMOTEC HV connector to the feedthrough. (Chih-Yuan Yao)
- Reviewed radiation survey data with J. Vacca, M. Borland etc. and proposed further test with IP100. (Chih-Yuan Yao)
- Successfully measured beam power loss of the S35 stripline and the results are in good agreement with Xiang Sun's simulation results to within 1-2 watts. (Chih-Yuan Yao)
- Reviewed and provided suggestions to HV feedthrough test chamber designed by F. Westferro. (Chih-Yuan Yao)
- Attended MBA accelerator physics meeting. (Jeff Dooling)
- Corresponded with B. Micklich (APS-U) on question regarding TB-54. (Jeff Dooling)

## MCR Operations

### Storage Ring Operations

- Investigated RF4 fault during machine studies with K. Schroeder and operators. (Chih-Yuan Yao)

### PAR Operations

- Discovered and corrected a shift-by-1 of bunch cleaning waveform after a firmware upgrade by N. DiMonte. (Chih-Yuan Yao)

### Linac Operations

- On Monday, conducted radiation measurements in the Laser Room and Gun Test Stand while varying the pc gun bend magnet current, rf power level, and rep rate. (Jeff Dooling)
- Found mainly background levels (<10 microRem/hr) with just a few measurements at 15 microRem/hr in penetrations between the linac tunnel and gun room. (Jeff Dooling)
- Ran further shower/EGS simulations, this time with lower maximum energy; (Jeff Dooling)
- also allowing beam to propagate further DS in the tunnel to the HD concrete wall between the linac and gun test stand. (Jeff Dooling)
- Quantifying possible radiation levels in the LR with pc gun beam. (Jeff Dooling)

## APS Machine Studies

### Storage Ring Studies

- Looked at the 6 BM orbit motion (Aimin Xiao)
- Measured S35 stripline power loss to the drive side and attenuator side ports for MBA kicker design bench marking with R. Keane and Adam and Xiang Sun. (Chih-Yuan Yao)
- Worked with R. Keane, H. Shang on restoring storage HP scope for machine study and operations.

(Chih-Yuan Yao)

- Participated in an abort kicker study with L. Emery, K. Harkay, and V. Sajaev. (Jeff Dooling)
- With kicker at maximum strength (10 kV), examining where specific bunches are lost around the ring. (Jeff Dooling)
- Sampling 12 out of 24 bunch locations (relative to P0) as done last week. (Jeff Dooling)
- Completed script for applying calibration to loss signals based on a quartic fit. (Jeff Dooling)
- Analyzed data for studies meeting Thursday. (Jeff Dooling)

### Linac Studies

- Conducted PC Gun study with Y.-E. Sun on Friday measuring beam energy in the bend line; running the laser and gun in Asynch mode. (Jeff Dooling)
- Found we could not de-Gauss beamline magnets. (Jeff Dooling)
- We were able to achieve maximum charge per pulse of 420 pC and quantum efficiency of 4e-5. (Jeff Dooling)

## APS Machine Research and Development

### Booster Research and Development

- Researched and proposed alternative RF5 ramps for the booster in light of recent RF related beam instability in the booster. (Chih-Yuan Yao)

### ITS Research and Development

- Attended the High-Gradient Structure meeting Monday, organized by A. Goel (ASD-RF). (Jeff Dooling)

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

- Presented injector study report at injector meetings. (Chih-Yuan Yao)
- Presented results at MBA kicker meetings. (Chih-Yuan Yao)

### Safety and Required Training

- Completed ASD-102 (ACIS) and ASD-125 (LOTO) on-line training. (Jeff Dooling)

### Miscellaneous

- Made machine study schedule (Aimin Xiao)
- Read articles on injection/extraction (Aimin Xiao)
- Took 1 day vacation off (Aimin Xiao)