

Meeting Minute (by Chandra Bhat)

Subject: Booster Physics/Operations Group Telework Report-20200702

Date/Time: 20200702, 9:00 am

Attendee: D.E. Johnson, J. Johnston, V. Kapin, C. Bhat, C.Y. Tan

Speakers: C. Bhat, D.E. Johnson, J. Johnstone, V. Kapin

Report: Each one of the group members reported on their work during COVID-19 Telework period starting from 3/16-7/2, 2020.

C. Bhat: (CB-Report.pptx)

Majority of the work carried out during this period are

1. analysis of Booster beam data taken for the past ~2 -3 years, which include, WCM, BPM, IPM and BLM etc.,
2. developed multiple MATLAB codes to analyze the data,
3. longitudinal beam dynamics simulations for PIP (900kW) and PIP2 scenarios,
4. literature survey/study.

He also presented some results on beam loss and loss mitigation at injection and transition crossing. Many interesting results came about as a result of this study

This will continue for next month

D. Johnson: (DEJ-Telework Status -07-02-2020.pptx)

Dave's work was focused on

1. Booster PIP2 lattice tracking,
2. Booster injection absorber,
3. matching PIP-II linac beam to Booster injection,
4. loss control at injection,
5. laser activities
6. many management issues related to a)Booster 2SC b) Booster damper issues (these were taking majority of his time)

CTan confirmed and concerned about the fact that not much thought was given for linac to Booster matching when the injection line was designed. Tan asked about the neutron spectrum at the foil. Dave told it is high energy neutrons. They penetrate quite a bit – so one really has to worry about radiological impact in the occupancy areas in the building above the injection region. Tan also made suggestions that **J. Johnstone should do calculations/simulations** about the injection foil.

J. Johnstone: (JJ-Summer Vacation.pdf)

John's work was focused on

1. GammaT reduction in MI
2. Resonant extraction from the delivery ring at low energy (0.8-2 GeV)
3. 1-2 hrs every day working with summer student.

Tan and CB commented that gammaT reduction project is a good work for the future. CB asked if John was able to continue Booster ½ integer correction activities. John told that he will contact Jeff and

pursue on that. Tan and CB believe that the Booster  $\frac{1}{2}$  integer correction improvement is one of the important topic for the Booster operation.

V. Kapin: (20200702\_Kapin\_telework\_summary\_16Mar-30Jun2020.pptx\_20200701.pdf)

Valery's work was on

1. Daily IPM measurements on Booster beam – collaborated with Brian Hendricks to write an ACL script to automatically collect the data and analysis. (he is waiting for beam to test the program)
2. MADX simulations for the new D magnet at extraction.
3. Booster 2SC collimator design and related calculations, discussions with Mokhov's group and V. Sidorov
4. Also working on a new problem (self driven) of understanding how the new collimator would affect the closed orbit in the Booster during its operation.

Valery has discussed with Kiyomi to work on linac simulations with new collimators that Kiyomi would like to add in LEBT. He also would like to do new simulations on IPM to verify VShiltsev's formula.

Tan suggested Valery to reproduce the current operational loss scenario at Dmagnet at extraction by simulations.