

Minutes for New Main Injector Group 10 September 2015 NEXT Meeting: 24 Sept 2015

Attendees: A Freyberger, M Poelker, R Sulieman, R Kazimi, J Benesch, M Spata

Scribe: R Legg

Meeting notes.

Introduction:

This meeting was to talk about what the AIP charter for the Full Energy Injector is and then have Reza talk about the design from the machine side and Jay to talk about what's needed from the User side.

Charter:

We showed the 2 page AIP charter from 2010 for the full energy injector and went through that. It includes:

- C100-0 (R100) fabrication, installation and commissioning (DONE)
- 200keV Gun fabrication, installation and commission (DONE, up to 130keV)
- Design, fabricate, commission and install new 1/4 cryomodule (designed complete, fabrication to be completed FY16Q3)
- Design an injector warm region that supports 200keV gun operation and the new 1/4 cryomodule (FY16)
- Implement the warm region upgrade (FY18)

It was clear that the new Wien filters, although necessary, were beyond the original charter. It was left as an action item for the meeting members to review and mark up the original AIP document to reflect items needed now (like 200 keV Wien filters) and return the mark-ups for inclusion in an updated document. Mike Spata suggested the User's should be involved through the Parity Quality Beam group's input. Riad said they would be starting to talk about this issue today.

Kazimi:

Reza talked about what we need to support the higher voltage gun in the warm section.

He also mentioned that we still need the digital controls for the quarter and zone 3 in the injector.

He said the reason that 200 keV was selected was that 200 keV is the maximum voltage the present choppers can support.

He said that although the modeling has problems, they would like to reoptimize the injector using the GPT genetic simulator.

Arne asked about how the model handled the choppers and Reza said neither they nor the Weins were included except for the focusing solenoids.

Reza was left with an action item to determine the transmission through the apertures for the max current case in the simulation since halo is a major issue for the parity experiments and we need to start to determine what elements are important in halo production and transmission.

Benesch:

Jay talked about the sensitivity of the QWEAK experiment to halo as typifying the sensitivity of parity violation experiments to charge asymmetry and halo. See his slides for details on injector rf sensitivities. He was asked to tabulate some of the helicity issues to specific causes so we could try to correlate it to a specification for the bits of the warm injector.

Jay also presented some of the requests from the Users about what they perceive as needed from the injector to support future experiments. See his slides for the full note, but at a bullet level they wanted:

- Better Transmission to minimize charge asymmetry.
- Eliminate noise and jitter in the beam charge and position
- Make the injector adiabatic damp from 200 keV to 10 MeV
- Reduce halo
- Improve spin manipulation by moving the pre-buncher from between the Wien filters

ACTION ITEMS

Reza: determine the transmission through the apertures for the max current case in the simulation.

Jay: Try to tabulate the helicity issues to specific causes in some way we can relate it to specifications of warm region components (hard).

All: Go through and mark-up the existing AIP charge to better reflect the necessary upgrade parts and return the mark-ups for inclusion in an update to the AIP document.

Next Meeting:

Sept 24th