From: **Antoine T Chapelain** atc93@cornell.edu
Subject: BMAD Fiber Harp Simulation
Date: July 20, 2017 at 2:52 PM
To: David L. Rubin david.rubin@cornell.edu

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Hi David,

here are all the information:

Goal: produce centroid and width VS time plots for the 4 harps using only the 5 inner fibers (discard fiber 1 and 7) using **protons**. The first 100 micro-sec in fill is enough.

Simulation configuration: full injection from M5, through the inflector etc... with all the scattering turn on. Using the latest B-field maps (azimuth and radial). We have to find out the absolute calibration of the azimuth scan.

twiss parameters 30 cm before the inflector (from https://gm2-docdb.fnal.gov/cgi-bin/private/RetrieveFile?docid=7253&filename=M5%20Quadscan%20Presentation.pdf&version=1 slide #15)

BetaX = 37.4 m
BetaY = 2.16 m

AlphaX = 9.57 m
AlphaY = 2.06 m

GammaX = 2.48 m^-1
GammaY = 2.43 m^-1

EpsilonX = 22.7 micro-m
EpsilonY = 16.6 micro-m

Longitudinal distribution: W-shape

Different run configurations:

6)
Timed in "on muon", i.e., kicker peak 60 ns before the proton peak.
Kicker voltages:
K1 32.8 kV
K2 50.7 kV
K3 34.8 kV
Quad voltage 19 kV
Scrapping with first step at 12 kV and second step at 19 kV

1)
Timed in "on muon", i.e., kicker peak 60 ns before the proton peak.
Kickers voltages:
K1 34.7 kV
K2 45.1 kV
K3 38.8 kV
Quad voltage 17 kV
No scrapping

2)
Timed in on the proton peak
Kicker voltages:
K1 28.5 kV
K2 48.6 kV
K3 39.6
Quad voltage 17 kV
No scrapping

3)
Timed in on the proton peak
Kicker voltages:
K1 28.5 kV
K2 48.6 kV
K3 39.6
Quad voltage 14 kV
No scrapping

4)

4)
Timed in on the proton peak
Kicker voltages:
K1 28.4 kV
K2 48.3 kV
K3 40.1 kV
Quad voltage 17 kV
Scrapping with first step at 10 kV and second step at 17 kV

5)
Timed in on the proton peak
Kicker voltages:
K1 28.4 kV
K2 48.3 kV
K3 40.1 kV
Quad voltage 17 kV
HALF-time scrapping with first step at 10 kV and second step at 17 kV

I hope I did not forget something... let me know if I did!

Thanks a lot!!!
Antoine.

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