

Notes from MI/RR Meeting - 24 March 2003

by Bruce Brown

Notes on 25 March 2003

Dan Broemmelsiek - List of Tests on RR

In an effort to identify sources of the performance degradation of the Recycler Ring following the January 2003 shutdown, the following issues have been considered:

1. Linear Optics
 1. Energy Correction - done
 2. Chromaticity & Tunes - set & decoupled
 3. Orbit smoothed to working BPM's.
 4. Sextuple steering measured, not yet modeled.
 5. Still a disconnect between actual and expected lattice
 6. Aperture okay ~40 pi or greater either plane
2. Devices Turned Off
 1. BPM pre-amplifiers
 2. RF power amplifiers
 3. Stochastic cooling power amplifiers/TWTs
 4. Clearing Electrode power supplies
 5. 1.75GHz Schottky Detector amplifiers - on only for measurement
 6. ???
3. Beam Conditions
 1. Initial transverse emittances 4, 8, 14 pi mm-mrad
 2. Initial beam intensities .2, 1, 2, 3, 4 E11
 3. With & Without MI ramps
 4. Protons & Anti-protons
4. Notes:
 - o 12 to 16 pi mm-mrad growth transversely, both planes
 - o - $D_p(90\%)$ grows ~ 3MeV/c per hour
 - o - Scraping in one plane affects both planes equally.
 - o - ...

Bill Foster -- Main Injector Dampers

Bill provided both a tutorial on the damper plans and a status report on what is happening including lots of controls information. An Echotek card will provide ADC and DAC (via Fermilab daughter card) for initial implementation while a card with 212 MHz capability is being developed for the project. Tests will start this week using the 'Green Bomb' and the Echotek card but the three new broadband cavities have been welded up this week. The new broadband amplifiers will provide 1800 V at 50 Ohms. Bill also explained that the digital pipeline which is implemented in FPGA (field programmable gate array) technology has a very predictable 13 ticks from input to output -- none of the problems of variable time response associated with the usual digital computer implementations.

Bill's presentation is available as Beams-doc-530-v1, [Longitudinal Dampers for the Main Injector](#).