

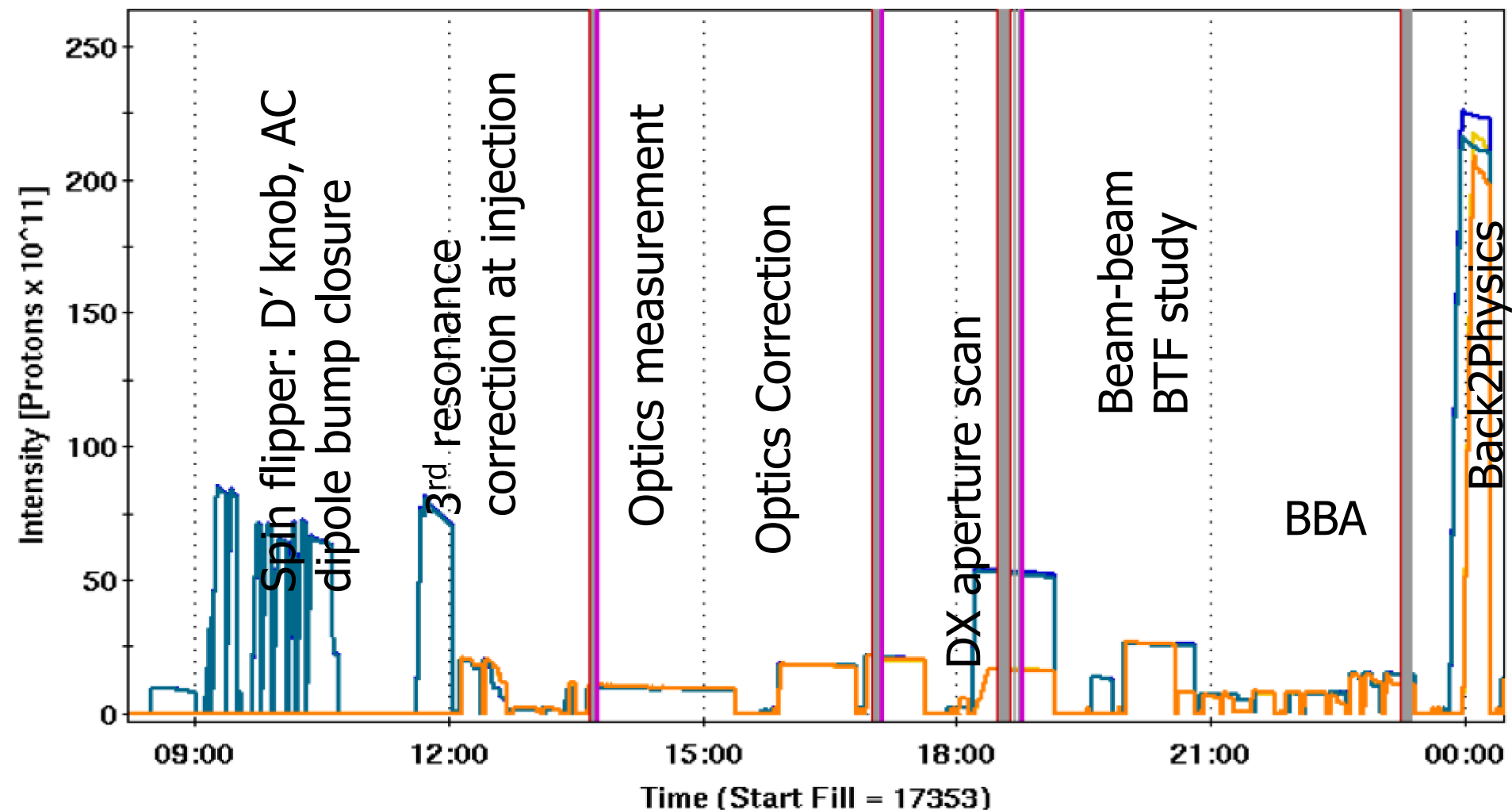
APEX Schedule

April 10, 2013

8:00am	BBQ chromaticity Vahid	Spin flipper setup Bai, Jorg, Oddo, ...	Injection
11:00am	3Qx measurement + correction Luo, Bai, ...		Injection
1:00pm	Optics measurements		store
4:00pm	Ramp optics, Phase measurement+correction Chuyu, Minty		Ramp, Store
6:00pm	DX aperture scan Luo		Injection
6:30pm	Beam-Beam study Luo, Simon		Injection
9:00pm	BBA • Blue and Yellow Joanne		
11:00pm	Back2Physics		
12:00am			

APEX Overview

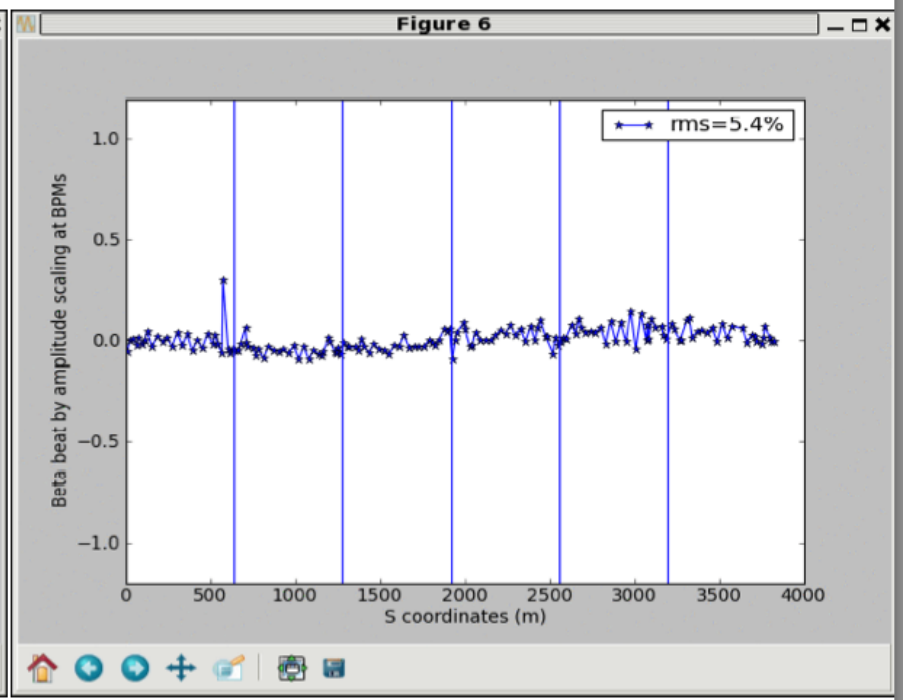
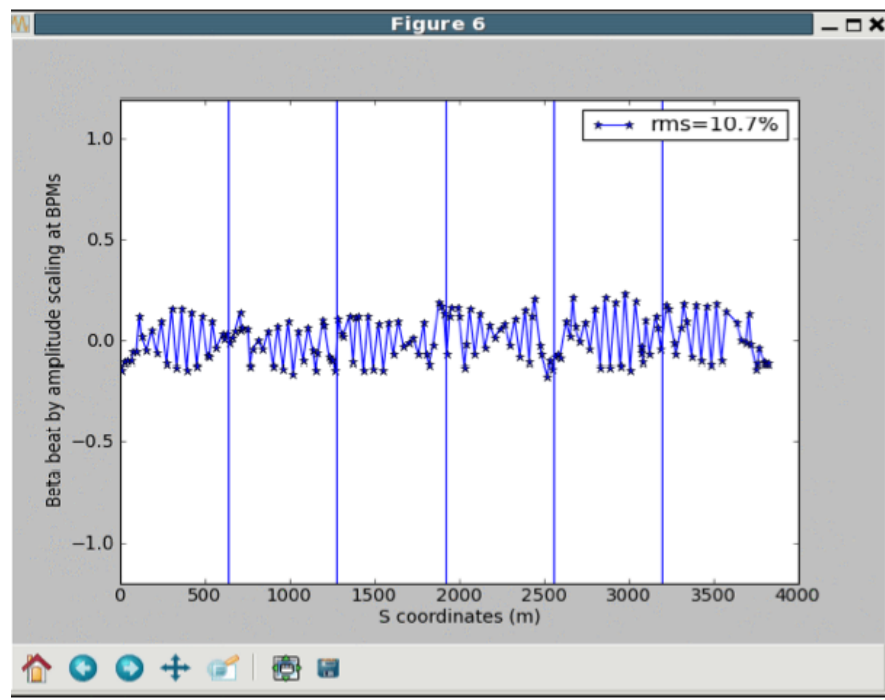
Coordinated by Y. Luo



Phase measurement/Correction

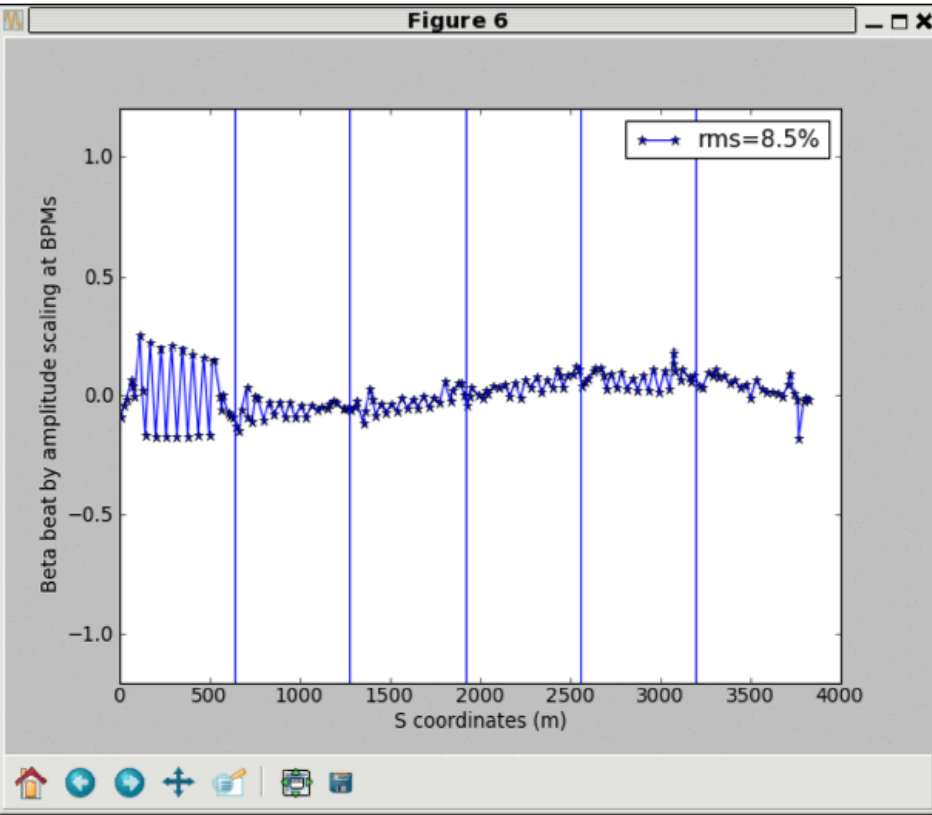
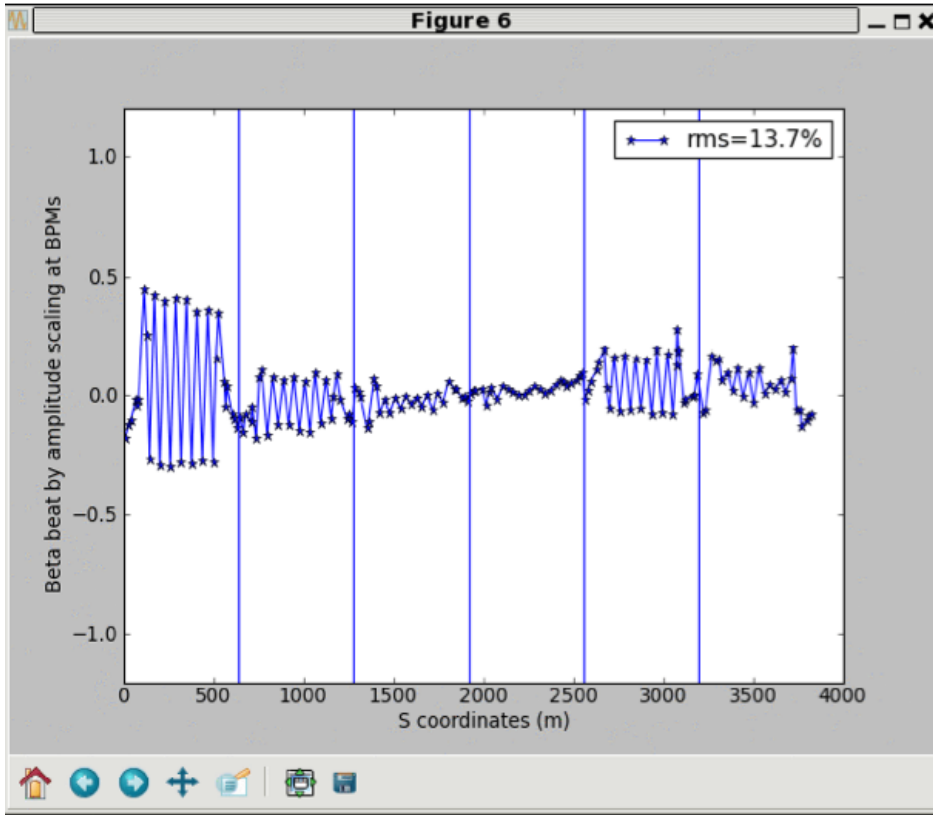
PI: C. Liu, M. Minty

BH before vs. after



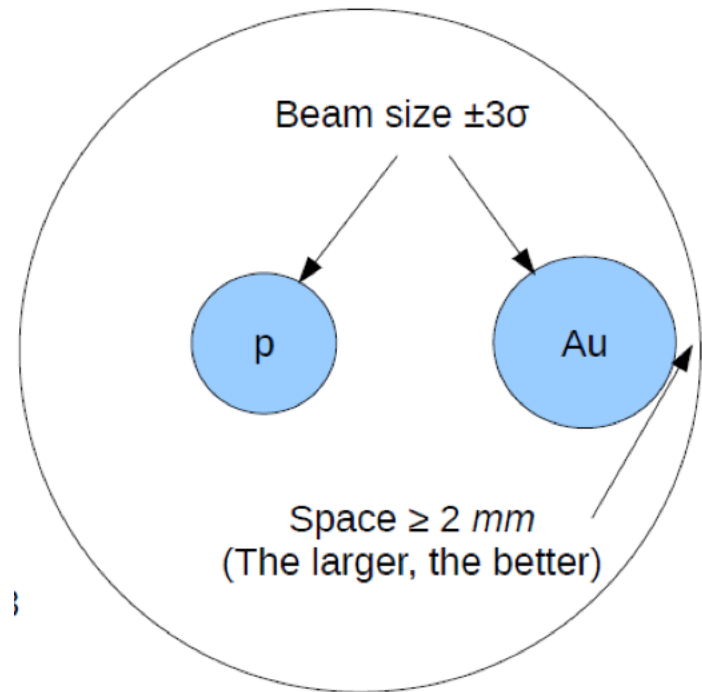
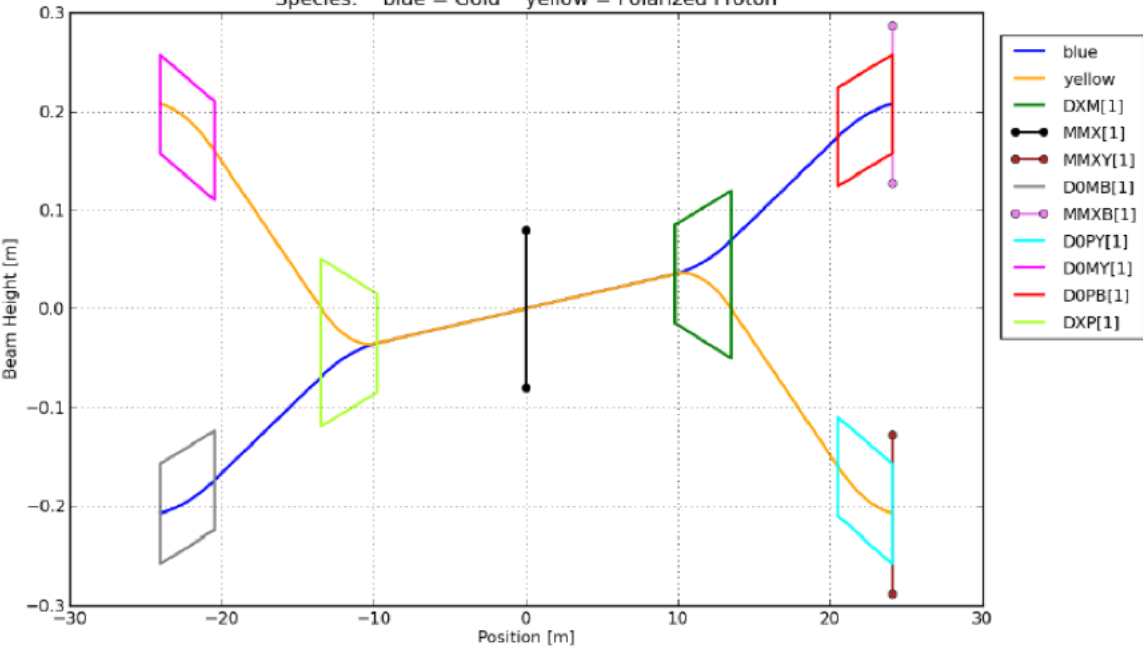
Phase measurement/Correction

BV before vs. after



DX Aperture: Y. Luo, S. Tepikian

beam trajectory through Crossing Dipoles for IP6
 Species: blue = Gold yellow = Polarized Proton



DX magnet (radius = 68.326 mm)

Summary

- With run12 Blue ring lattice, we measured maximum beam center offsets are (-53mm,55mm) at IR12, (-53mm, 54mm) at IR2.
- The beta*s at IP12 and IP2 are 10.31m and 10.07m. The beta at the exit of DX is (28+/-0.2)m.
- One transverse rms beam size (1 sigma) was 1.66mm, with 15Pi mm.mrad 95% transverse emittance.
- The beam pipe radius at DX is 68.326mm. There were (68-54) = 14mm from the beam center to the wall, which corresponds ~8.5 sigmas.

Summary of Tune Scan

- Scan below diagonal:

From (0.695, 0.685) down to (2/3, 2/3)

When lower than: Blue(0.686, 0.677) , Yellow (0.691, 0.681),
Beam decay > 75 % /hour

From (0.685, 0.695) down to (2/3, 2/3)

When lower than: Blue(0.679,0.689), Yellow(0.675, 0.689)
Beam decay > 75 % /hour

- Scan to Q_x to 2/3 while keeping Q_y unchanged:

From (0.695, 0.685)

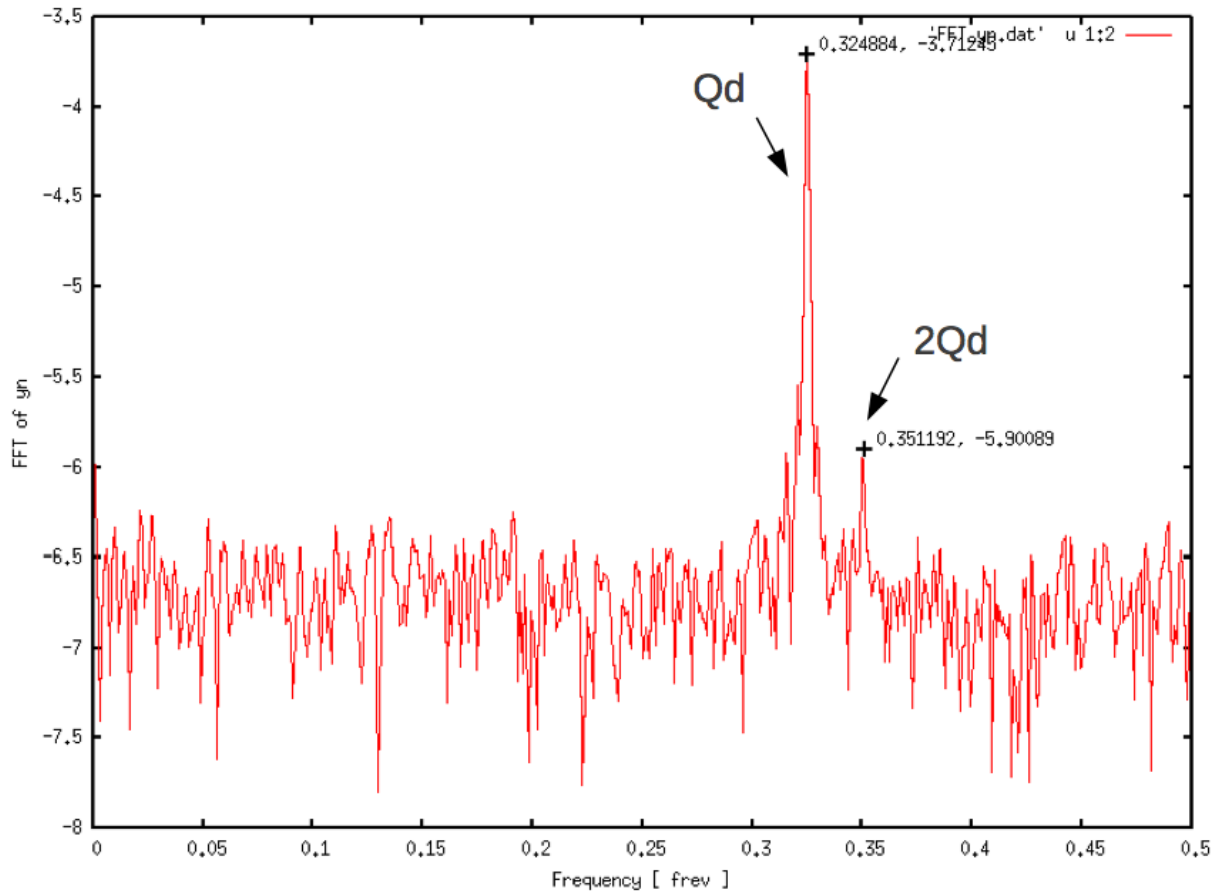
When Blue Q_x < 0.684, Yellow Q_x < 0.680, Beam decay > 40%/hour

- Scan to Q_y to 2/3 while keeping Q_x unchanged:

From (0.695, 0.685)

When Q_y < 0.679, beam decay > 40%/hour for both rings.

AC Dipole Vertical Excitation



If 3Q_y presents, a peak at 2Q_y in FFT of y_n

Goals of APEX 4/10/2013

Joanne, C. Zimmer

Making BBA operational

Use/test 3 codes:

- 1. The Python code**
- 2. The “Black Box”**
- 3. The application.**

Measurements of the magnet types that were never measured before.

Chose at least one from each type of magnet in both H & V planes:

tQ5, tQ6, Q7, Q8, Q9

BBA Results Obtained During 2013 APEX

APEX 3/27/2013

Quad Name	BPM Name	Result [μm]	Error [μm]
bi1-tq4	bi1-bv4	865	65
bo2-tq4	bo2-bh4	153	126
bo2-tq4	bo2-bv4	-980	191
bo3-tq4	bo3-bh4	516	69
bo3-tq4	bo3-bv4	-87	124
bi4-tq4	bi4-bh4	265	114
bi4-tq4	bi4-bv4	-748	118
bo10-tq4	bo10-bv4	-632	92
bo7-tq6	bo7-bh6	-180	91
yi3-qb3	yi3-bv3	-513	104
yo4-tq5	yo4-bv5	-430	502
yo8-tq5	yo8-bv5	-527	184
yo4-tq6	yo4-bh6	-397	89

APEX 4/10/2013

Quad Name	BPM Name	Result [μm]	Error [μm]
bi5-tq5	bi5-bh5	32	88
bo7-tq5	bo7-bv5	-167	131
bi5-tq6	bi5-bv6	-273	231
yi6-tq5	yi6-bh5	160	111
yi6-tq6	yi6-bv6	-362	139
yo8-qb8	yo8-bh8	295	99
yi6-qb9	yi6-bh9	-364	94
yi6-qb9	yi6-bh9	-362	81

APEX Schedule April 24, 2013

8:00am	Collimator study Montag, Drees	Injection
9:00am	Impedance study Blaskiewicz, Simon, Nicolos	Injection Spin flipper setup Bai, Jorg, Oddo, ...
12:00pm	Impedance study Blaskiewicz, Simon, Nicolos	Injection /store
3:00pm	AC dipole Optics measurements/ correction: GRD, Shen, Bai	Store
6:00pm		Injection
8:00pm	Beam-Beam study Luo, Simon	Store
10:00pm	Optics correction Chuyu	
11:00pm	Back2Physics	
12:00am		