

Beta star measurement

G. Wang and M.Bai

Yellow beta star and chromatic beta beat measurement

Measurements in 11502

	IP2			IP4			IP6			IP8			IP10			IP12		
	beta*	error bar	s*	beta*	error bar	s*	beta*	error bar	s*	beta*	error bar	s*	beta*	error bar	s*	beta*	error bar	s*
Yellow H	3.41	0.015	0.15	3.79	0.041	0.21	0.65	0.002	-0.12	0.87	0.017	-3.16	3.4	0.025	0.06	3.71	0.105	0.95
Yellow V	4.1	0.143	-0.94	3.38	0.009	-0.9	0.83	0.001	-0.4	0.84	0.003	0.25	3.23	0.035	0.49	3.29	0.026	0.52

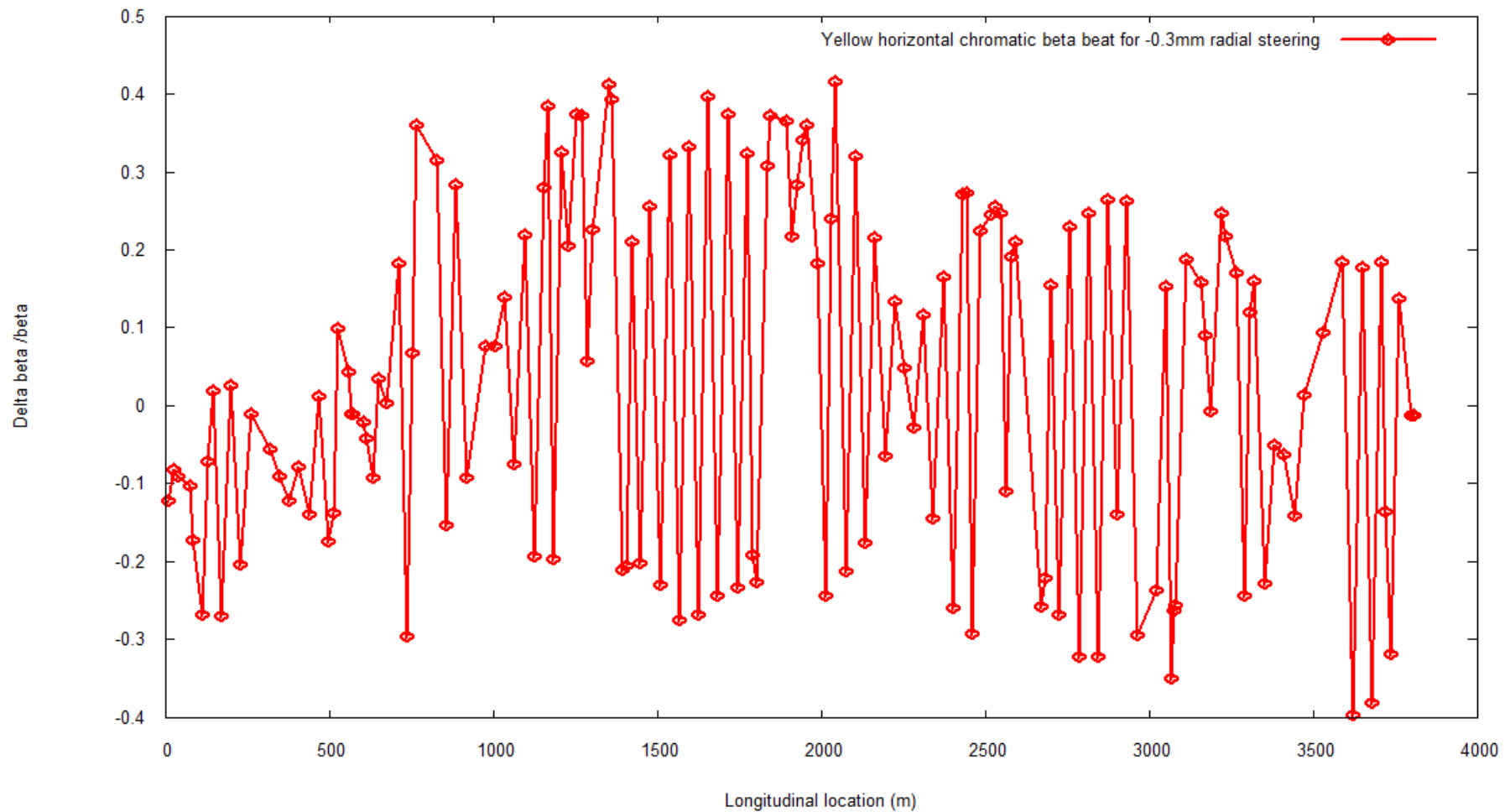
Measurements in 11172(blue)+11311(yellow)

	IP2			IP4			IP6			IP8			IP10			IP12		
	Beta*	Error	S*	Beta*	Error	S*	Beta*	Error	S*	Beta*	Error	S*	Beta*	Error	S*	Beta*	Error	S*
Blue V	3.142	0.02	-0.386	4.77	0.018	0.502	0.65	0.042	-0.12	0.625	0.042	-0.192	4.02	0.0182	0.137	3.818	0.019	-0.21
Blue H	3.552	0.02	-0.649	4.26	0.02	-0.76	0.62	0.044	-0.01	0.695	0.043	-0.3	3.787	0.0203	-0.72	4.455	0.019	-0.66
Yellow V	4.355	0.02	-0.925	3.28	0.033	-0.36	0.815	0.022	0.15	0.995	0.01	-2.705	3.14	0.0185	0.395	3.355	0.018	0.42

- Yellow beta star measurements are averaged for $Q_{dr} - Q_y = \pm 0.01$
- Chromatic beta beat is measured for blue (only for $Q_{dr} - Q_y = 0.01$) and yellow (for $Q_{dr} - Q_y = \pm 0.01$).
- Need to compare chromatic beta measurement with Mad calculation.
- s* has large error bars due to using Q1 bpms to calculate beta* and s*. Need to include dx bpms into beta star calculation.

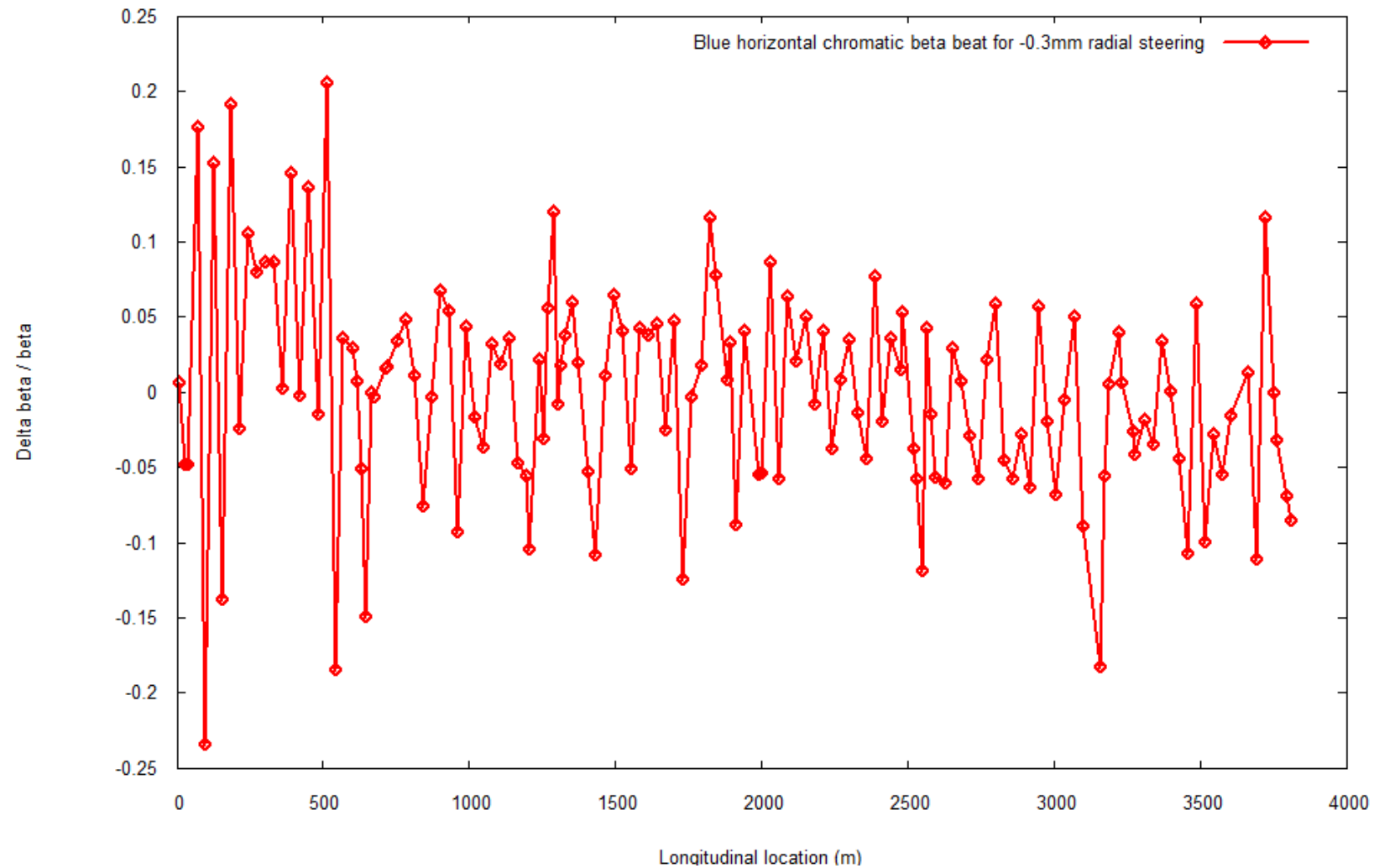
Yellow horizontal chromatic beta beat for -0.3mm radial displacement

Measured on both sides, i.e. $Q_{dr} - Q_x = \pm 0.01$



Blue horizontal chromatic beta beat for -0.3mm radial displacement

Only measured for $Q_{dr} - Q_x = 0.01$



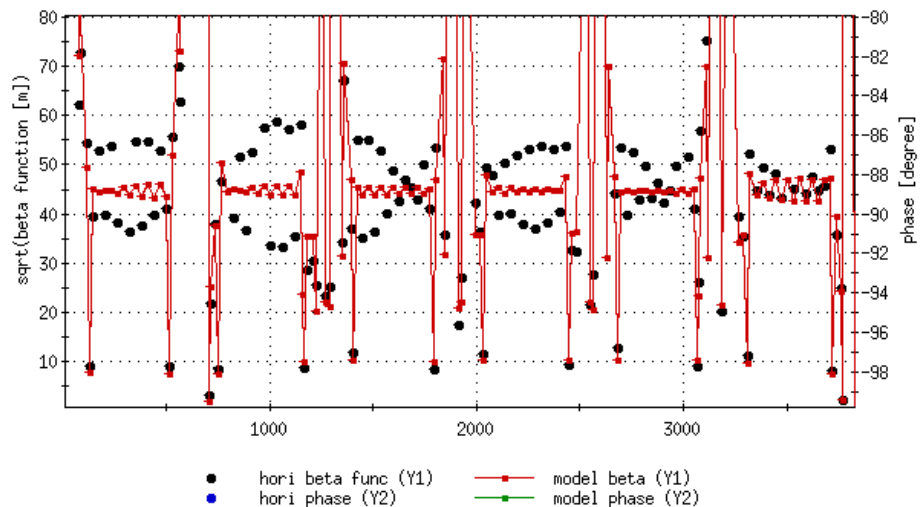
Thanks

$$s^* = s_0^* - \frac{\beta^*}{2} \left(\frac{\beta}{s_1 - s_2} \right) \frac{\delta\beta}{\beta}$$

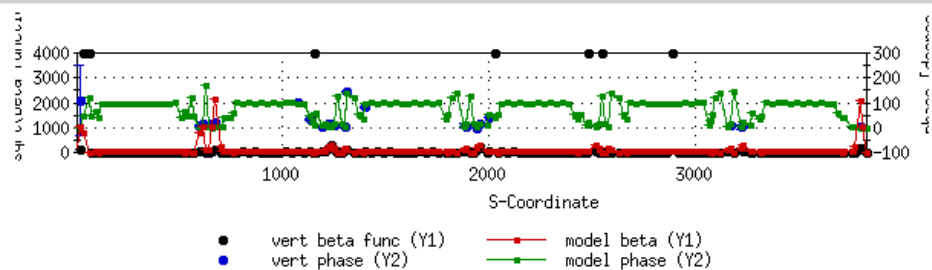
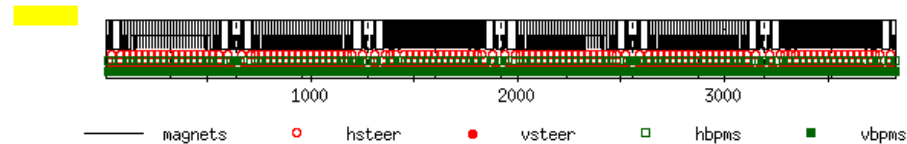
$$\beta = \max(\beta_1, \beta_2)$$

For dx bpm in IP8 $\frac{\beta}{s_1 - s_2} \approx 6$

For q1 bpm in IP8 $\frac{\beta}{s_1 - s_2} \approx 20$



Beam == Lattice: Yellow



Horizontal fit tune 0.237993 +/- 0.000027
The orbit(s) have been loaded.

PS State

Horizontal

Vertical

Setup/Betatron Tunes

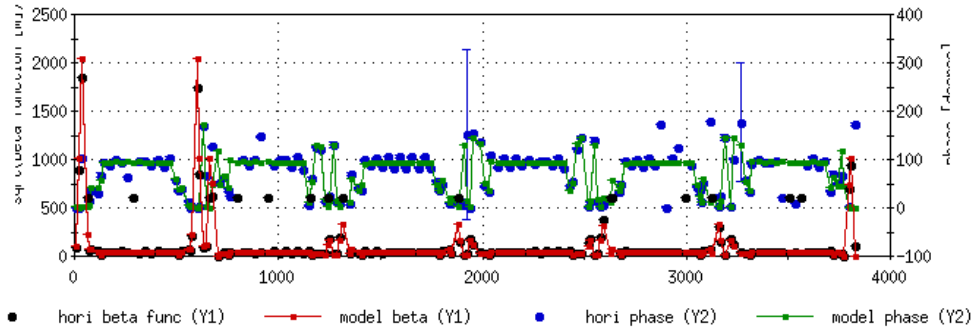
	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.1500	40.000	20.000	60.000	0.2265
V:	0.2407	0.0000	40.000	20.000	40.000	0.2226

Accumulate Average

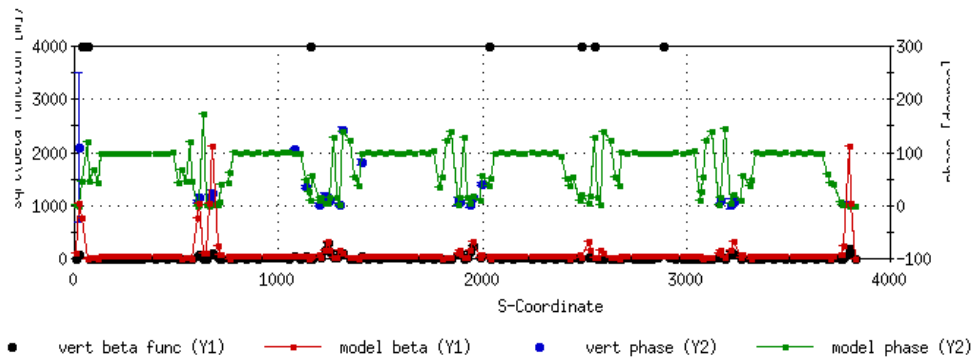
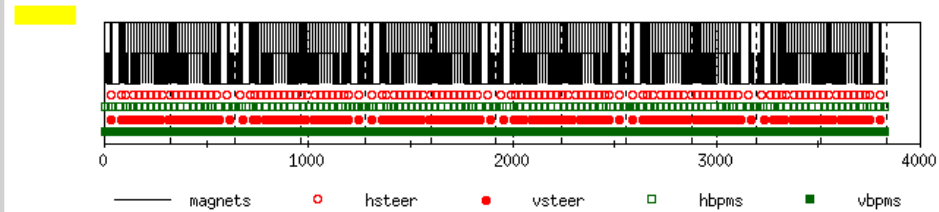
Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.37	3.95	0.68	0.87	3.33	3.93
H_b*sd	0.009	0.012	0.011	0.006	0.013	0.013
H_s*	0.74	1.16	-0.37	-2.15	0.42	0.87
V_b*	-1.00	-1.00	-1.00	-1.00	4.56	5.77
V_b*sd	0.000	0.006	0.010	0.012	0.015	0.016
V_s*	10.00	10.00	10.00	10.00	0.49	1.22

Betatron/Phase Advance **Beta Beat**



Beam <= Lattice: Yellow



PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.1500	40.000	20.000	60.000	0.2265
V:	0.2210	0.0000	40.000	20.000	40.000	0.2226

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.24	-1.00	-1.00	0.70	3.30	3.78
H_b*sd	0.013	0.003	0.000	0.012	0.012	0.017
H_s*	0.59	10.00	10.00	0.08	0.17	1.09
V_b*	-1.00	-1.00	-1.00	-1.00	4.55	-1.00
V_b*sd	0.000	0.006	0.010	0.012	0.014	0.012
V_s*	10.00	10.00	10.00	10.00	-0.79	10.00

Horizontal fit tune 0.237993 +/- 0.000027
The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_04+08, no radial shift

File Lattice SetUp
Help

Betatron/Phase Advance Beta Beat

PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.1400	40.000	20.000	60.000	0.2265
V:	0.2407	0.0000	40.000	20.000	40.000	0.2226

Accumulate Average

Beta Beat

● hori beta func (Y1) — model beta (Y1) ● hori phase (Y2) — model phase (Y2)

Beam <= Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpm ■ vbpm

Phase Beat

● vert beta func (Y1) — model beta (Y1) ● vert phase (Y2) — model phase (Y2)

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.41	3.79	0.65	0.87	3.40	3.71
H_b*sd	0.015	0.041	0.002	0.017	0.025	0.105
H_s*	0.15	0.21	-0.12	-3.16	0.06	0.95
V_b*	-1.00	-1.00	-1.00	-1.00	3.96	4.53
V_b*sd	0.000	0.000	0.000	0.000	0.697	1.831
V_s*	10.00	10.00	10.00	10.00	0.30	0.92

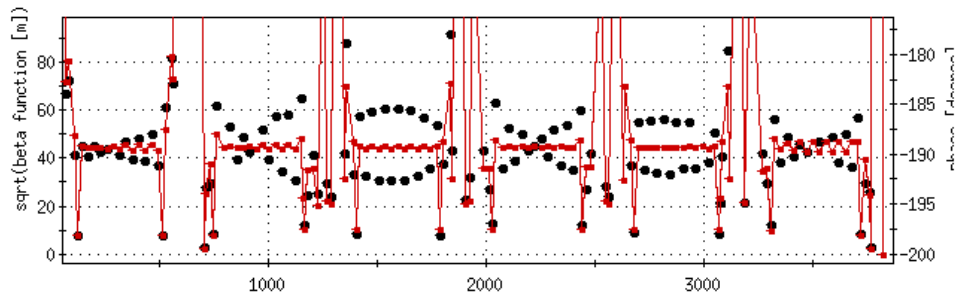
The orbit(s) have been loaded.
 The orbit saved into /home/cfsb/gawang/Chromatic_beta/fill11502Hacd08+04_optics

Fill 11502, Yellow store Hacd_11~16, with -0.3mm radial shift

File Lattice SetUp
Help

Betatron/Phase Advance

Beta Beat



Y-axis: sqrt(beta function [m]) (0 to 80), phase [degree] (-200 to -180)

X-axis: S-Coordinate (0 to 3500)

Legend: hori beta func (Y1) (black dots), model beta (Y1) (red line), hori phase (Y2) (blue dots), model phase (Y2) (green line)

PS State

Horizontal: Off


Vertical: Stby

Setup/Betatron Tunes

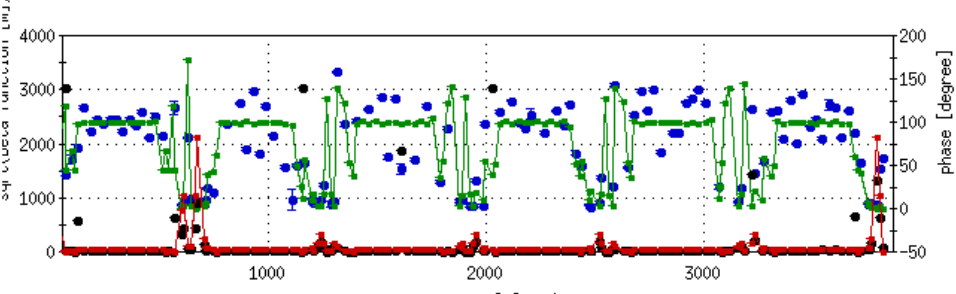
	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2360	0.1400	40.000	20.000	60.000	0.2250
V:	0.2407	0.0000	40.000	20.000	40.000	0.2314

Accumulate Average

Beam <= Lattice: Yellow



Legend: magnets (black line), hsteer (red circle), vsteer (blue circle), hbpm (green square), vbpm (black square)



Y-axis: sqrt(beta function [m]) (0 to 4000), phase [degree] (-50 to 200)

X-axis: S-Coordinate (0 to 3500)

Legend: vert beta func (Y1) (black dots), model beta (Y1) (red line), vert phase (Y2) (blue dots), model phase (Y2) (green line)

Cancel file loading

The orbit saved into /home/cfsb/gawang/Chromatic_beta/fill11502Hacd11-16_optics

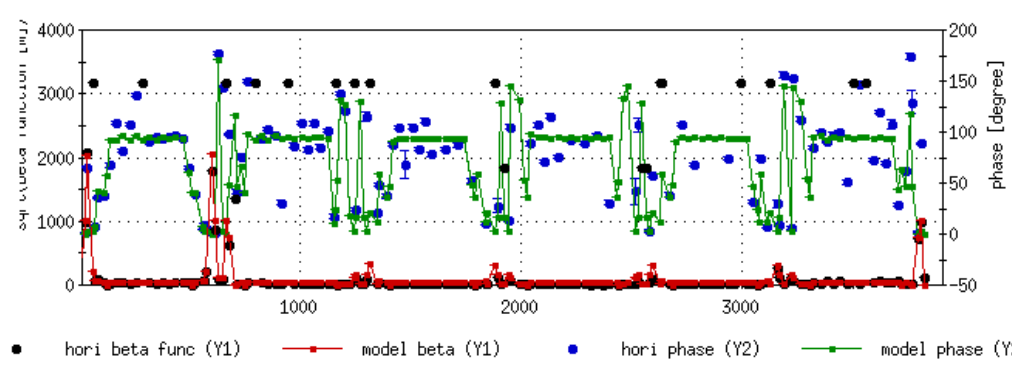
Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.07	3.36	0.66	0.80	2.95	3.04
H_b*sd	0.047	0.010	0.004	0.026	0.075	0.026
H_s*	-0.14	0.50	0.14	-2.27	-0.41	0.77
V_b*	2.51	0.79	-0.21	0.06	0.40	0.40
V_b*sd	15.250	7.844	0.759	1.357	4.721	4.750
V_s*	5.18	8.70	5.41	4.99	6.87	6.86

Fill 11502, Yellow store Vacd_01~06, no radial shift

File Lattice SetUp
Help

Betatron/Phase Advance
Beta Beat



● hori beta func (Y1)
 — model beta (Y1)
 ● hori phase (Y2)
 — model phase (Y2)

PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.0000	40.000	20.000	60.000	0.2248
V:	0.2210	0.0300	40.000	20.000	40.000	0.2312

Accumulate Average

Beam <== Lattice: Yellow



— magnets
 ○ hsteer
 ● vsteer
 □ hbpm
 ■ vbpm



● vert beta func (Y1)
 — model beta (Y1)
 ● vert phase (Y2)
 — model phase (Y2)

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	-1.00	1.34	-0.43	-0.41	-0.09	-0.01
H_b*sd	0.000	14.912	0.801	0.853	4.957	5.895
H_s*	10.00	6.37	6.67	6.74	8.15	8.02
V_b*	4.10	3.38	0.83	0.84	3.23	3.29
V_b*sd	0.143	0.009	0.001	0.003	0.035	0.026
V_s*	-0.94	-0.93	-0.40	0.25	0.49	0.52

Horizontal fit tune 0.251630 +/- 0.040762

The orbit(s) have been loaded.

Fill 11500, Blue store Hacd_02~04, with -0.3mm radial shift

File Lattice SetUp
Help

Betatron/Phase Advance
Beta Beat

● hori beta func (Y1) — model beta (Y1) ● hori phase (Y2) — model phase (Y2)

PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2402	0.1000	40.000	20.000	60.000	0.2302
V:	0.2210	0.0000	40.000	20.000	40.000	0.2226

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	4.18	5.27	0.76	0.71	3.88	5.12
H_b*sd	0.071	0.162	0.002	0.003	0.200	0.114
H_s*	-1.42	-0.17	0.15	-0.80	-1.74	-1.31
V_b*	-1.00	-1.00	-1.00	0.18	3.64	-1.00
V_b*sd	0.000	0.000	0.000	1.078	18.442	0.000
V_s*	10.00	10.00	10.00	3.10	3.57	10.00

Beam ==> Lattice: Blue

— magnets ○ hsteer ● vsteer □ hbpm ■ vbpm

● vert beta func (Y1) — model beta (Y1) ● vert phase (Y2) — model phase (Y2)

Horizontal fit tune 0.240197 +/- 0.000022

The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_04

File Lattice SetUp Help

Betatron/Phase Advance Beta Beat

● hori beta func (Y1) — model beta (Y1)
● hori phase (Y2) — model phase (Y2)

PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2151	0.1400	40.000	20.000	60.000	0.2251
V:	0.2407	0.0000	40.000	20.000	40.000	0.2307

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.35	3.65	0.62	0.96	3.31	3.48
H_b*sd	0.013	0.011	0.017	0.008	0.017	0.010
H_s*	-0.08	-0.45	-0.53	-4.82	-0.30	0.83
V_b*	-1.00	-1.00	-1.00	-1.00	3.37	3.52
V_b*sd	0.015	0.006	0.010	0.000	0.011	0.010
V_s*	10.00	10.00	10.00	10.00	-0.11	0.26

Beam <== Lattice: Yellow

— magnets ● hsteer ■ vsteer □ hbpm ● vbpm

● vert beta func (Y1) — model beta (Y1)
● vert phase (Y2) — model phase (Y2)

Horizontal fit tune 0.215100 +/- 0.000008
The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_05

File Lattice SetUp
Help

Betatron/Phase Advance
Beta Beat

● hori beta func (Y1) ● hori phase (Y2)
 — model beta (Y1) — model phase (Y2)

Beam <= Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpm's ■ vbpm's

● vert beta func (Y1) ● vert phase (Y2)
 — model beta (Y1) — model phase (Y2)

PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.0800	40.000	20.000	60.000	0.2265
V:	0.2407	0.0000	40.000	20.000	40.000	0.2226

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.60	4.05	0.68	0.67	3.50	3.91
H_b*sd	0.012	0.011	0.013	0.010	0.014	0.012
H_s*	0.37	1.02	0.31	0.15	0.53	0.88
V_b*	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
V_b*sd	0.006	0.005	0.012	0.009	0.013	0.009
V_s*	10.00	10.00	10.00	10.00	10.00	10.00

Horizontal fit tune 0.238006 +/- 0.000034

The orbit(s) have been loaded

qawang@acnl1n86: /vobs/apps/Looptics/X86 X86

Fill 11502, Yellow store Hacd_06

File Lattice SetUp
Help

Betatron/Phase Advance
Beta Beat

● hori beta func (Y1) — model beta (Y1)
● hori phase (Y2) — model phase (Y2)

Beam <== Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpms ■ vbpms

● vert beta func (Y1) — model beta (Y1)
● vert phase (Y2) — model phase (Y2)

PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.1000	40.000	20.000	60.000	0.2265
V:	0.2407	0.0000	40.000	20.000	40.000	0.2226

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.60	3.56	0.69	0.51	3.45	3.73
H_b*sd	0.012	0.012	0.012	0.004	0.011	0.012
H_s*	0.28	0.73	1.06	3.24	-0.17	0.44
V_b*	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
V_b*sd	0.006	0.007	0.011	0.010	0.011	0.014
V_s*	10.00	10.00	10.00	10.00	10.00	10.00

Horizontal fit tune 0.237525 +/- 0.005835
 The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_07

File Lattice SetUp
Help

Betatron/Phase Advance
Beta Beat

● hori beta func (Y1) — model beta (Y1)
● hori phase (Y2) — model phase (Y2)

Beam <== Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpms ■ vbpm

● vert beta func (Y1) — model beta (Y1)
● vert phase (Y2) — model phase (Y2)

PS State

Horizontal Off On

Vertical Stby On

Setup/Betatron Tunes

	Q _d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.1200	40.000	20.000	60.000	0.2265
V:	0.2407	0.0000	40.000	20.000	40.000	0.2226

Trigger AC Dipole

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.51	3.69	0.68	0.65	3.45	3.81
H_b*sd	0.014	0.012	0.011	0.003	0.013	0.013
H_s*	0.22	0.79	0.99	0.16	-0.09	0.67
V_b*	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
V_b*sd	0.007	0.005	0.011	0.010	0.011	0.011
V_s*	10.00	10.00	10.00	10.00	10.00	10.00

Horizontal fit tune 0.238002 +/- 0.000023
 The orbit(s) have been loaded.

Microsoft Outlook Web Access - Microsoft Internet Explorer provided by the C-A

Fill 11502, Yellow store Hacd_08

File Lattice SetUp
Help

Betatron/Phase Advance
Beta Beat

hori beta func (Y1)
 hori phase (Y2)
 model beta (Y1)
 model phase (Y2)

PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.1400	40.000	20.000	60.000	0.2265
V:	0.2407	0.0000	40.000	20.000	40.000	0.2226

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.50	3.93	0.68	0.78	3.51	3.94
H_b*sd	0.011	0.012	0.013	0.006	0.013	0.011
H_s*	0.38	0.84	0.29	-1.56	0.40	1.04
V_b*	-1.00	-1.00	-1.00	-1.00	4.55	5.48
V_b*sd	0.000	0.010	0.011	0.009	0.013	0.012
V_s*	10.00	10.00	10.00	10.00	0.61	1.32

Beam <= Lattice: Yellow

magnets
 hsteer
 vsteer
 hbpm
 vbpm

vert beta func (Y1)
 vert phase (Y2)
 model beta (Y1)
 model phase (Y2)

Horizontal fit tune 0.238005 +/- 0.000022

The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_09

File Lattice **SetUp** Help

Betatron/Phase Advance
Beta Beat

● hori beta func (Y1) ● hori phase (Y2)
 ● model beta (Y1) ● model phase (Y2)

PS State

Horizontal

Vertical

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2380	0.1500	40.000	20.000	60.000	0.2265
V:	0.2407	0.0000	40.000	20.000	40.000	0.2226

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.37	3.95	0.68	0.87	3.33	3.93
H_b*sd	0.009	0.012	0.011	0.006	0.013	0.013
H_s*	0.74	1.16	-0.37	-2.15	0.42	0.87
V_b*	-1.00	-1.00	-1.00	-1.00	4.56	5.77
V_b*sd	0.000	0.006	0.010	0.012	0.015	0.016
V_s*	10.00	10.00	10.00	10.00	0.49	1.22

Beam == Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpm ■ vbpm

● vert beta func (Y1) ● vert phase (Y2)
 ● model beta (Y1) ● model phase (Y2)

Horizontal fit tune 0.237993 +/- 0.000027
 The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_12

File Lattice SetUp
Help

Betatron/Phase Advance
Beta Beat

● hori beta func (Y1) — model beta (Y1) ● hori phase (Y2) — model phase (Y2)

Beam <== Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpm ■ vbpm

● vert beta func (Y1) — model beta (Y1) ● vert phase (Y2) — model phase (Y2)

PS State

Horizontal Off On

Vertical Stby On

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2150	0.1300	40.000	20.000	60.000	0.2250
V:	0.2407	0.0000	40.000	20.000	40.000	0.2314

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.41	3.49	0.58	0.81	3.32	3.31
H_b*sd	0.017	0.021	0.023	0.009	0.019	0.015
H_s*	-0.35	-0.71	0.39	-3.74	-0.52	0.52
V_b*	-1.00	4.95	-1.00	-1.00	3.35	3.40
V_b*sd	0.014	0.029	0.020	0.000	0.019	0.020
V_s*	10.00	6.44	10.00	10.00	0.22	0.80

Horizontal fit tune 0.215002 +/- 0.000016
 The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_13

File Lattice SetUp
Help

Betatron/Phase Advance **Beta Beat**

PS State

Horizontal Off

Vertical Stby

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2150	0.1500	40.000	20.000	60.000	0.2250
V:	0.2407	0.0000	40.000	20.000	40.000	0.2314

Accumulate Average

● hori beta func (Y1) — model beta (Y1) ● hori phase (Y2) — model phase (Y2)

Beam <== Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpms ■ vbpm

● vert beta func (Y1) — model beta (Y1) ● vert phase (Y2) — model phase (Y2)

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.22	3.22	0.61	0.58	3.18	3.07
H_b*sd	0.023	0.020	0.021	0.021	0.022	0.026
H_s*	-0.42	-0.22	0.77	0.18	-0.70	0.40
V_b*	-1.00	3.81	-1.00	-1.00	3.06	3.03
V_b*sd	0.020	0.042	0.018	0.000	0.019	0.025
V_s*	10.00	5.75	10.00	10.00	0.97	0.33

Horizontal fit tune 0.215002 +/- 0.000021
The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_14

File Lattice SetUp
Help

Betatron/Phase Advance
Beta Beat

● hori beta func (Y1) — model beta (Y1) ● hori phase (Y2) — model phase (Y2)

PS State

Horizontal Off

Vertical Stby

Beam <= Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpm ■ vbpm

● vert beta func (Y1) — model beta (Y1) ● vert phase (Y2) — model phase (Y2)

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2360	0.1100	40.000	20.000	60.000	0.2250
V:	0.2407	0.0000	40.000	20.000	40.000	0.2314

Trigger AC Dipole

Accumulate Average

Beta* at IPs

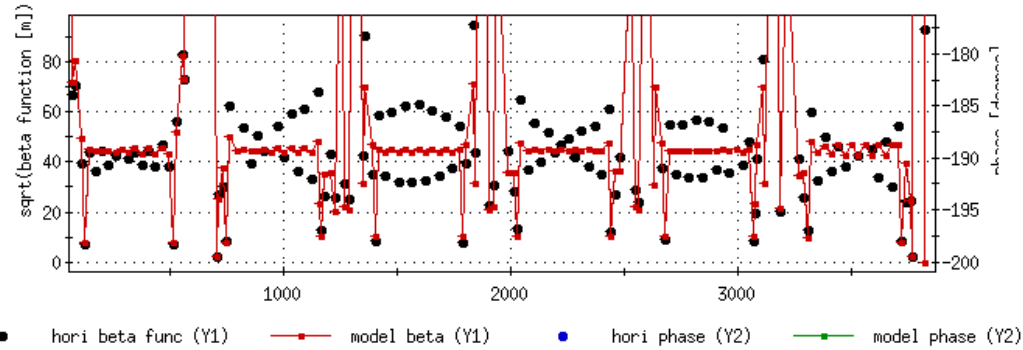
	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	2.85	3.43	0.71	0.81	2.63	2.92
H_b*sd	0.013	0.015	0.016	0.007	0.015	0.016
H_s*	0.14	1.49	-0.76	-1.09	-0.25	1.24
V_b*	7.20	-1.00	0.70	1.29	-1.00	-1.00
V_b*sd	0.018	0.007	0.022	0.017	0.013	0.011
V_s*	0.62	10.00	0.66	-0.01	10.00	10.00

Horizontal fit tune 0.236000 +/- 0.000029

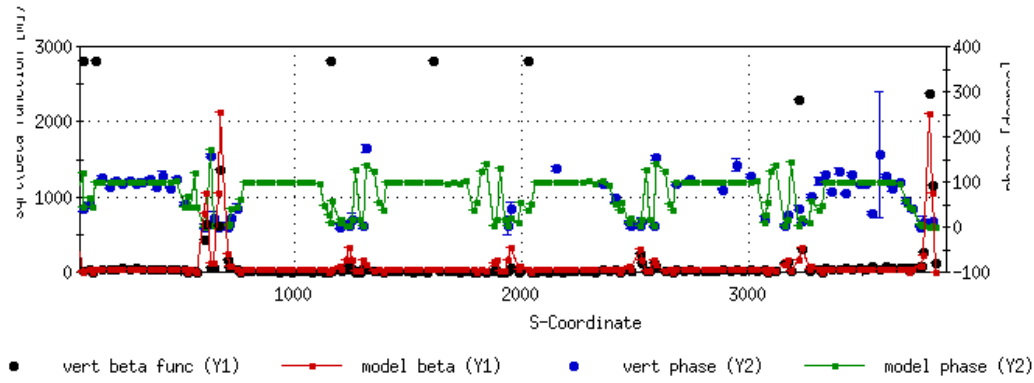
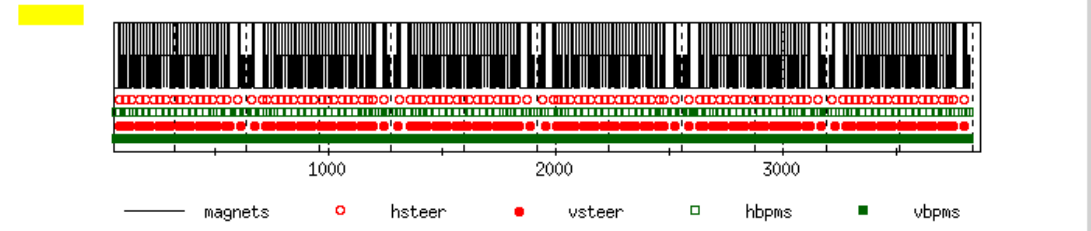
The orbit(s) have been loaded.

Fill 11502, Yellow store Hacd_15

Betatron/Phase Advance Beta Beat



Beam <= Lattice: Yellow



Horizontal fit tune 0.236002 +/- 0.000024
The orbit(s) have been loaded.

PS State

Horizontal Off

Vertical Stby

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2360	0.1400	40.000	20.000	60.000	0.2250
V:	0.2407	0.0000	40.000	20.000	40.000	0.2314

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	3.04	3.38	0.71	0.94	2.86	2.93
H_b*sd	0.015	0.020	0.015	0.006	0.016	0.018
H_s*	-0.12	1.19	0.91	-5.14	-0.50	0.67
V_b*	5.22	-1.00	0.50	1.00	-1.00	-1.00
V_b*sd	0.019	0.009	0.034	0.026	0.014	0.015
V_s*	-0.15	10.00	1.09	-0.10	10.00	10.00

Fill 11502, Yellow store Hacd_16

File Lattice SetUp
Help

Betatron/Phase Advance

Beta Beat

● hori beta func (Y1) — model beta (Y1) ● hori phase (Y2) — model phase (Y2)

PS State

Horizontal Off On

Vertical Stby On

Setup/Betatron Tunes

	Q_d	Amp	Up	Flat	Down	Tune
H:	0.2360	0.1400	40.000	20.000	60.000	0.2250
V:	0.2407	0.0000	40.000	20.000	40.000	0.2314

Accumulate Average

Beta* at IPs

	IP2	IP4	IP6	IP8	IP10	IP12
H_b*	2.85	3.34	0.71	0.99	2.68	2.88
H_b*sd	0.018	0.017	0.018	0.009	0.019	0.021
H_s*	0.04	1.69	-0.17	-4.34	-0.32	0.92
V_b*	5.66	-1.00	0.55	1.07	-1.00	-1.00
V_b*sd	0.022	0.009	0.049	0.041	0.026	0.012
V_s*	0.60	10.00	0.69	0.08	10.00	10.00

Beam <= Lattice: Yellow

— magnets ○ hsteer ● vsteer □ hbpm ■ vbpm

● vert beta func (Y1) — model beta (Y1) ● vert phase (Y2) — model phase (Y2)

Horizontal fit tune 0.236002 +/- 0.000028

The orbit(s) have been loaded.