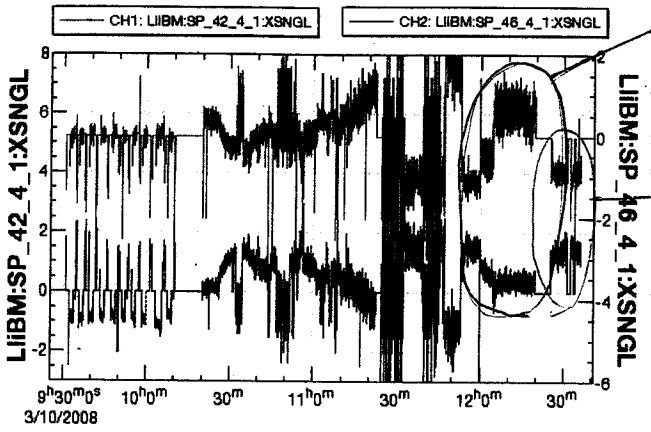
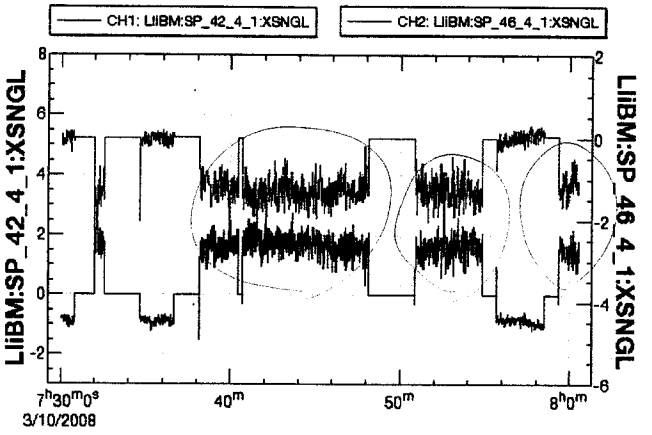
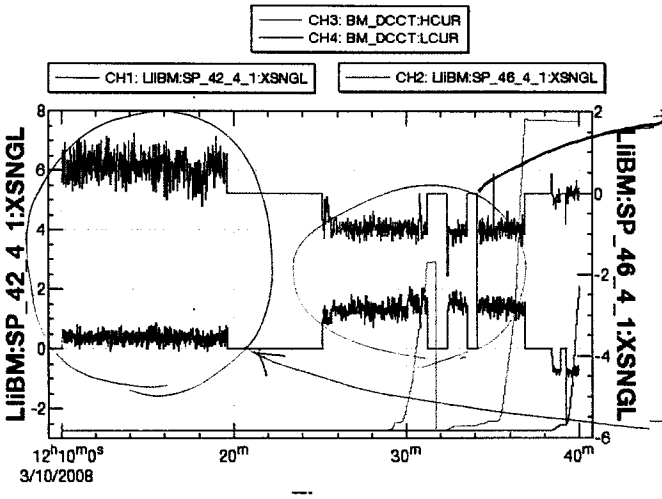


KEKB mode
PFとの共通 optics

- KEKBのSHBA.2をPFのSHB1.2に合わせてKEKBのGUN-delay1とSBC～4を調整した
- Opticsを運転値。



今朝のKEKB e⁻時



調整後のKEKB e⁻入射

ゆるい、こちらの方がふらつきが小さい

KEKB mode と ふらつきが
(PF共通Optics)
今朝のKEKB e⁻が同じか
こちらの方が良いくらい

08/3/26 PF - KEKB multi energy study

紙谷、外川
菊地、窓田

PF beam 確認

GUN

SHB1

SHB2

SB

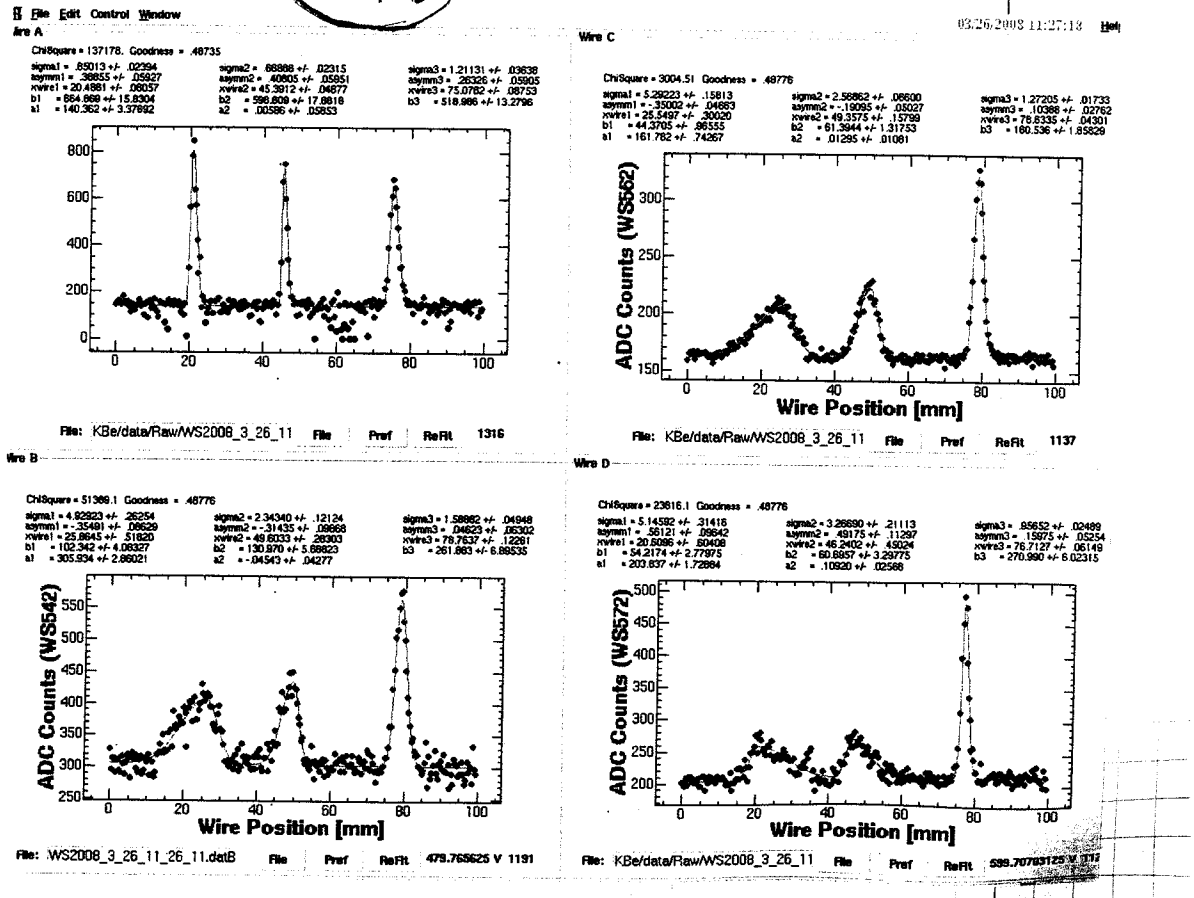
KEKB で 軌道を補正。

5_5 sector 以降 スクリーンで 横に beam size が 大きくなる。 Q を 手で 調整

QFJ4-4 31.15[A] → 32.66[A]

Wire Scanner で beam size 測定。

KEKB



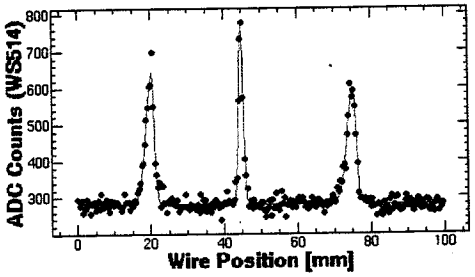
PF A1

File Edit Control Window 03/26/2008 11:50:34 Help

Wire A

ChiSquare = 87364.4 Goodness = .48776

sigma1 = 1.12143 +/- .03418 sigma2 = .58705 +/- .01765 sigma3 = 1.28053 +/- .04192
asymm1 = -.43078 +/- .05777 asymm2 = .09071 +/- .08106 asymm3 = -.36833 +/- .06372
xwire1 = 20.3387 +/- .07984 xwire2 = 44.8013 +/- .04392 xwire3 = 75.2136 +/- .09652
b1 = 360.057 +/- 9.33770 b2 = 498.115 +/- 12.8808 b3 = 310.586 +/- 6.83217
a1 = 283.981 +/- 2.28569 a2 = -.05348 +/- .03636

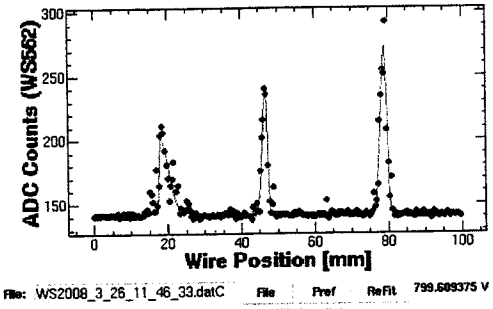


File: WS2008_3_26_11_40_25.datA File Pref ReFit 479.765625 V 1319

Wire C

ChiSquare = 7998.36 Goodness = .48776

sigma1 = 1.22935 +/- .05602 sigma2 = .65820 +/- .03190 sigma3 = .87080 +/- .02998
asymm1 = .80000 +/- .11004 asymm2 = -.36477 +/- .09945 asymm3 = -.28043 +/- .06453
xwire1 = 17.8723 +/- .15762 xwire2 = 48.6243 +/- .07163 xwire3 = 79.0098 +/- .07008
b1 = 98.3785 +/- 3.29124 b2 = 100.259 +/- 4.20016 b3 = 130.559 +/- 3.62009
a1 = 143.876 +/- .78624 a2 = -.02374 +/- .01351

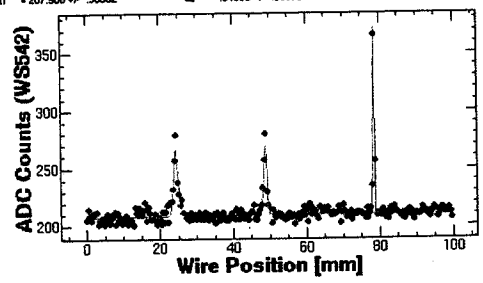


File: WS2008_3_26_11_46_33.datC File Pref ReFit 799.609375 V 1140

Wire B

ChiSquare = 4468.93 Goodness = .48776

sigma1 = .60685 +/- .04016 sigma2 = .41267 +/- .02831 sigma3 = .18946 +/- .23768
asymm1 = .03694 +/- .13625 asymm2 = -.30908 +/- .23998 asymm3 = -.80000 +/- 5.53563
xwire1 = 24.2885 +/- .10115 xwire2 = 48.8047 +/- .13482 xwire3 = 78.7324 +/- 1.94062
b1 = 57.3253 +/- 3.26383 b2 = 63.5420 +/- 4.27911 b3 = 209.884 +/- 790.880
a1 = 207.908 +/- .56802 a2 = .04086 +/- .00973

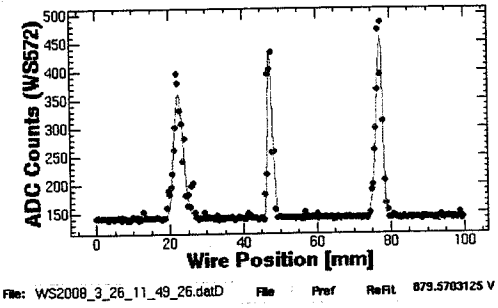


File: WS2008_3_26_11_43_0.datB File Pref ReFit 599.70703125 V 1193

Wire D

ChiSquare = 33110.3 Goodness = .48776

sigma1 = 1.21760 +/- .04098 sigma2 = .63323 +/- .02181 sigma3 = .89324 +/- .02370
asymm1 = .13256 +/- .06831 asymm2 = .25472 +/- .06799 asymm3 = -.45050 +/- .05041
xwire1 = 22.2370 +/- .10186 xwire2 = 47.1133 +/- .05198 xwire3 = 77.4980 +/- .05571
b1 = 219.286 +/- 6.29632 b2 = 294.261 +/- 874462 b3 = 321.145 +/- 7.30857
a1 = 143.878 +/- 1.80003 a2 = -.02374 +/- .02733

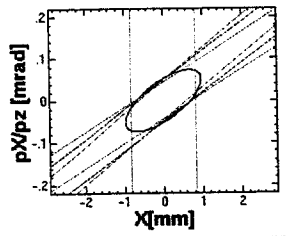


File: WS2008_3_26_11_49_26.datD File Pref ReFit 879.5703125 V 1126

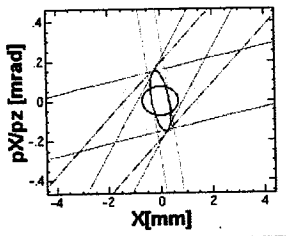
File Edit Window 03/26/2008 12:24:16 Help

Wire Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

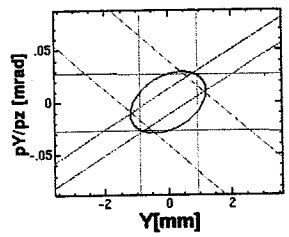
X phase space at Wire A



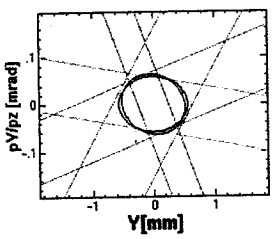
X phase space at Matching Point



Y phase space at Wire A



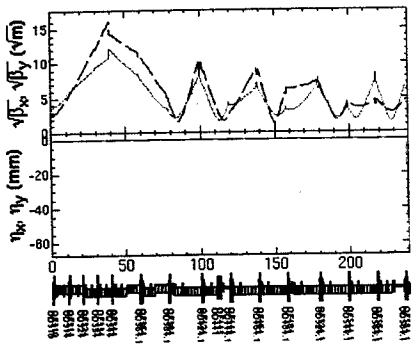
Y phase space at Matching Point



Results of Measurement

β_x @AC574+1 [m] :	2.917	β_y @AC574+1 [m] :	8.168
α_x @AC574+1 :	.589	α_y @AC574+1 :	.121
ε_x [m] :	5.0723E-8	ε_y [m] :	3.2696E-8
$\gamma\varepsilon_x$ [π.mm.mrad] :	248.158	$\gamma\varepsilon_y$ [π.mm.mrad] :	159.960
Bmag x :	2.337	Bmag y :	1.022
εBmag x :	1.1853E-7	εBmag y :	3.3413E-8
γεBmag x :	579.885	γεBmag y :	163.469

Optics Plot



Wire Selection

3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD

◆ 4-wire:ABCD

■ NonLinearFit

Calculate Optics Save All Parameters

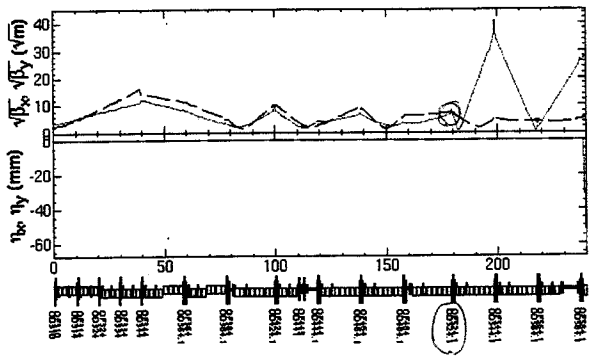
The Calculation for Q-Mag values are RECOVERed to the before matching.

File Edit Window 03/26/2008 12:28:07 Help

Wire Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

Matching Residual = 50.44

Matching Conditions
QD544 QF584: β_x < 60.00 1675.895
QD544 QF584: β_y < 60.00 23.965



PFA1 に.
Matching.
したが、収束せず.

Strength of Free Qmag (QX*)

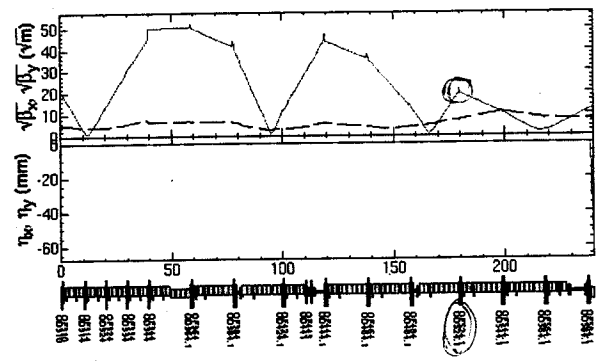
Matching Calculation
KEKB PFA1
NoBeamSizes
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

The Calculation for Q-Mag values are RECOVERed to the before matching.

File Edit Window 03/26/2008 12:26:57 Help

Wire Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

Matching Conditions
QD544 QF584: β_x < 100.00 124.407
QD544 QF584: β_y < 100.00 114.554



KEKB に.
$\beta < 100$
になるように.したが"

Strength of Free Qmag (QX*)

QF524が強すぎて.
PFがMatchingできなかった

Matching Calculation
KEKB PFA1
NoBeamSizes
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

The Calculation for Q-Mag values are RECOVERed to the before matching.

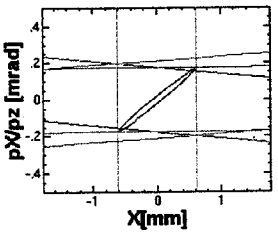
57

KEKBeでの計算

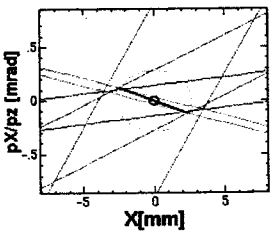
File Edit Window 03/26/2008 12:27:09 Help

Wire Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

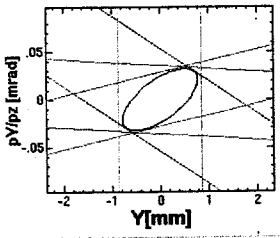
X phase space at Wire A



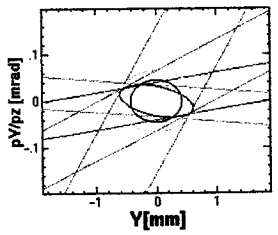
X phase space at Matching Point



Y phase space at Wire A



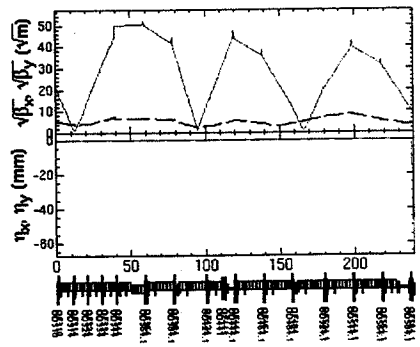
Y phase space at Matching Point



Results of Measurement

β_x @AC574+1 [m] :	478.080	β_y @AC574+1 [m] :	19.486
α_x @AC574+1 :	23.459	α_y @AC574+1 :	.466
ε_x [m] :	1.2499E-8	ε_y [m] :	1.9084E-8
$\gamma\varepsilon_x$ [π.mm.mrad] :	185.673	$\gamma\varepsilon_y$ [π.mm.mrad] :	298.774
Bmag x :	30.631	Bmag y :	1.311
εBmag x :	3.8284E-7	εBmag y :	2.5012E-8
γεBmag x :	5893.573	γεBmag y :	391.575

Optics Plot



Wire Selection
3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD
4-wire:ABCD
NonLinearFit
"Calculate Optics" Save All Parameters

The Calculation for Q-Mag values are RECOVERed to the before matching.

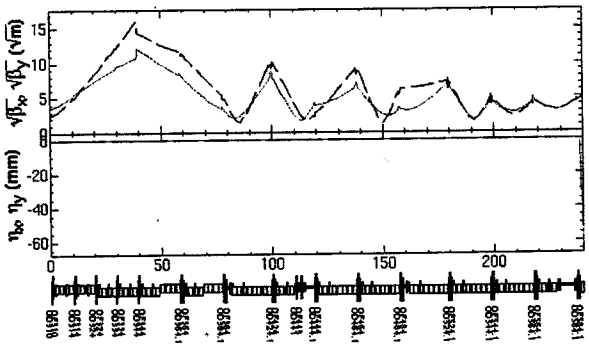
File Edit Window 03/26/2008 12:24:04 Help

Wire Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

Matching Residual = 8.9E-29

Matching Conditions

QD544 QF584: β_x <	60.00	27.977
QD544 QF584: β_y <	60.00	23.383



PFのみです。うまくMatchingする。

Strength of Free Qmag (QX*)

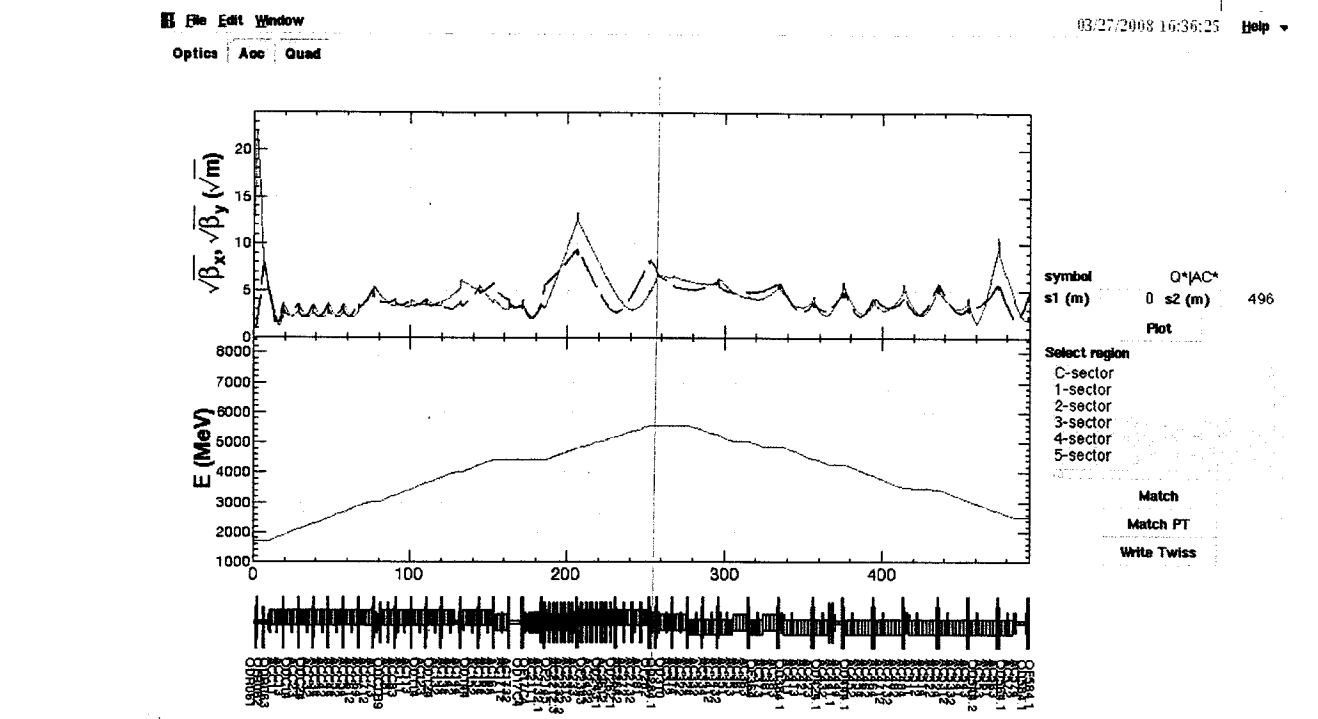
Matching Calculation
KEKBe PFA1
NoBeamSizes
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

The Calculation for Q-Mag values are RECOVERed to the before matching.

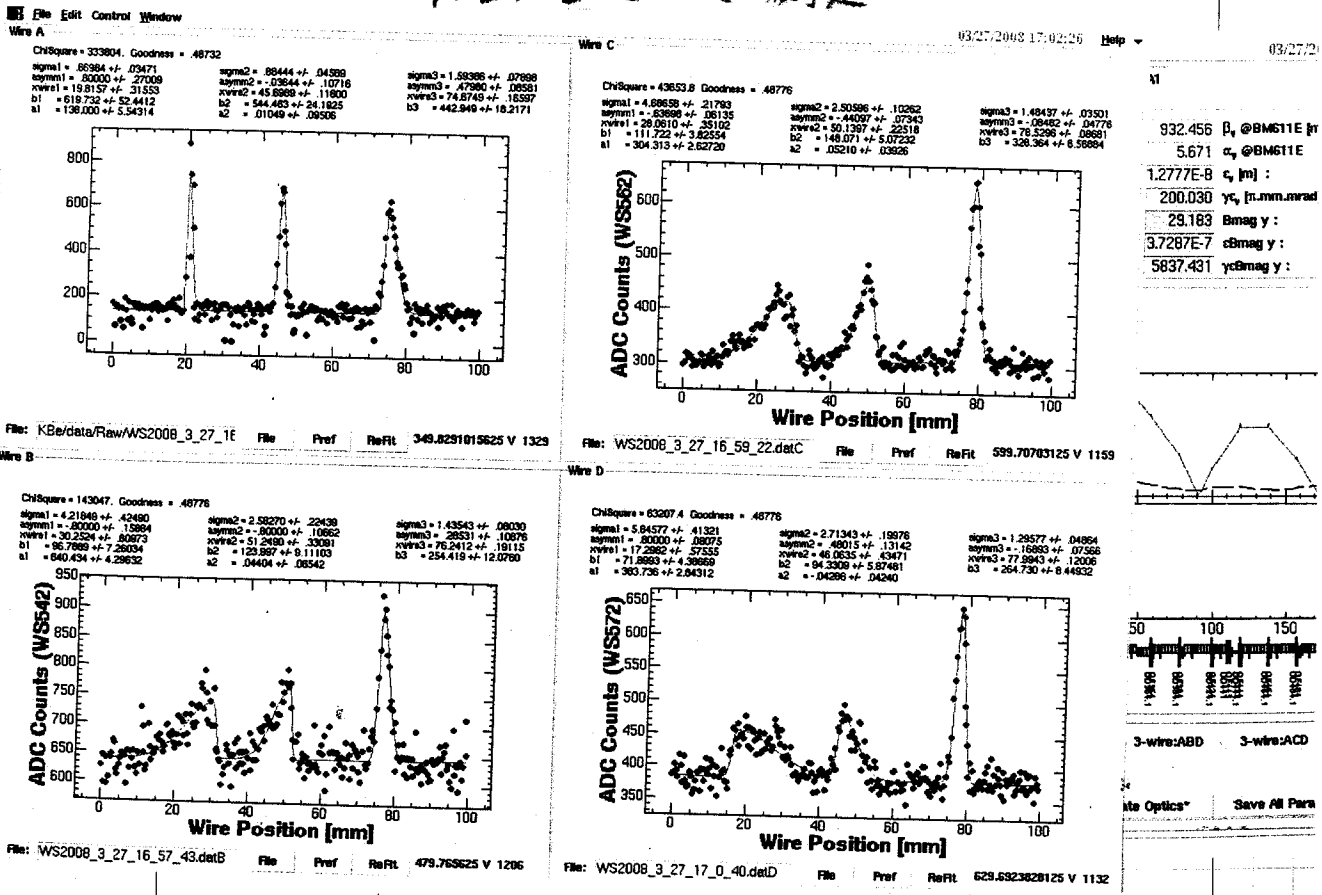
08/3/27 Matching retry

紙谷, 大西, 飯田

今の加速 data を元に, design を計算し直して load (大西氏)



KEKB e⁻ で測定



59

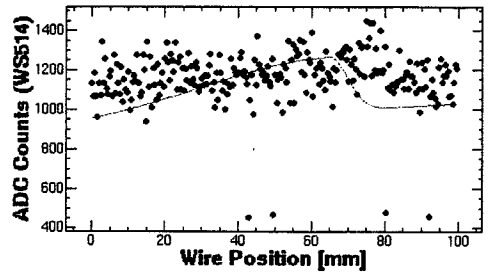
PF-AI で測定

File Edit Control Window 03/27/2003 19:36:01 Help

Wire A

ChiSquare = 7008505 Goodness = .48776

sigma1 = .01000 +/- 9.8E-19	sigma2 = .01000 +/- 2.4E-18	sigma3 = 19.7048 +/- 7.08219
asymm1 = -.80000 +/- 5.4E-21	asymm2 = -.80000 +/- 1.3E-20	asymm3 = -.74833 +/- .12823
xwire1 = 18.1898 +/- 5.1E-20	xwire2 = 68.3870 +/- 1.3E-19	xwire3 = 64.8000 +/- 2.83111
b1 = 26.9800 +/- 3.0E-24	b2 = 26.9800 +/- 7.8E-24	b3 = 278.870 +/- 40.0366
a1 = 908.000 +/- 119.383	a2 = 1.22911 +/- 1.38687	

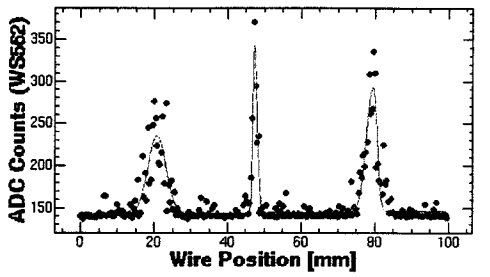


File: WS2008_3_27_19_29_33.datA File Pref ReFit 479.765625 V 1332

Wire C

ChiSquare = 54906.9 Goodness = .48776

sigma1 = 2.43468 +/- .18355	sigma2 = .58133 +/- .03942	sigma3 = 1.44732 +/- .09581
asymm1 = .00441 +/- .14665	asymm2 = .30670 +/- .15628	asymm3 = -.27962 +/- .11851
xwire1 = 20.8771 +/- .44601	xwire2 = 47.1733 +/- .10873	xwire3 = 79.4698 +/- .20859
b1 = 92.2206 +/- 5.80108	b2 = 189.434 +/- 12.1983	b3 = 147.792 +/- 7.45377
a1 = 142.726 +/- 2.24784	a2 = .03390 +/- .03770	

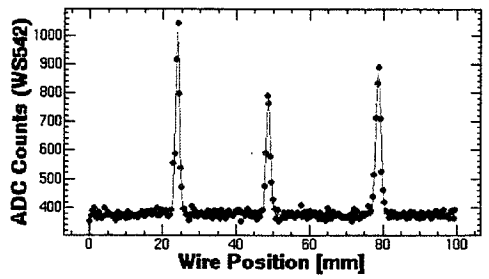


File: WS2008_3_27_19_25_44.datC File Pref ReFit 879.5703125 V 1161

Wire B

ChiSquare = 46972.5 Goodness = .48776

sigma1 = .55443 +/- .01137	sigma2 = .57061 +/- .01781	sigma3 = .56332 +/- .01577
asymm1 = -.05935 +/- .04418	asymm2 = .12744 +/- .06526	asymm3 = -.00435 +/- .04871
xwire1 = 23.9566 +/- .03006	xwire2 = 48.5163 +/- .04585	xwire3 = 78.5269 +/- .03958
b1 = 638.828 +/- 11.2752	b2 = 411.434 +/- 11.0859	b3 = 506.118 +/- 10.3346
a1 = 377.967 +/- 1.87546	a2 = -.02673 +/- .03254	

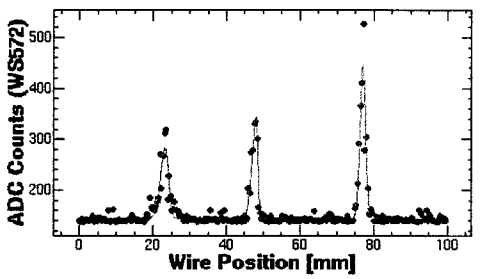


File: WS2008_3_27_19_28_22.datB File Pref ReFit 679.66796875 V 1208

Wire D

ChiSquare = 40854.5 Goodness = .48776

sigma1 = 1.09846 +/- .06762	sigma2 = .75781 +/- .04017	sigma3 = .76843 +/- .02544
asymm1 = -.16579 +/- .12440	asymm2 = .59879 +/- .07855	asymm3 = -.06004 +/- .06806
xwire1 = 23.2815 +/- .16723	xwire2 = 48.1739 +/- .06576	xwire3 = 77.0347 +/- .06408
b1 = 140.147 +/- 7.36723	b2 = 201.260 +/- 9.06987	b3 = 309.110 +/- 8.78257
a1 = 144.546 +/- 1.77072	a2 = -.01580 +/- .03023	



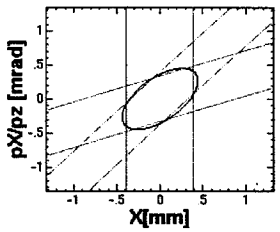
File: WS2008_3_27_19_27_3.datD File Pref ReFit 879.5703125 V 1133

Select Matching zone on localhost:15.0

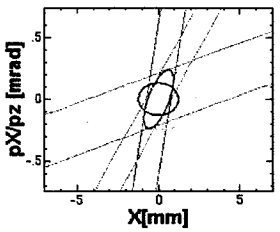
File Edit Window 03/27/2003 19:36:14 Help

Wire Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFAI | Matching PFAI

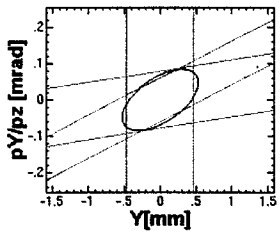
X phase space at Wire A



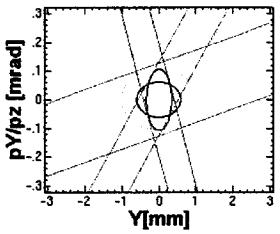
X phase space at Matching Point



Y phase space at Wire A



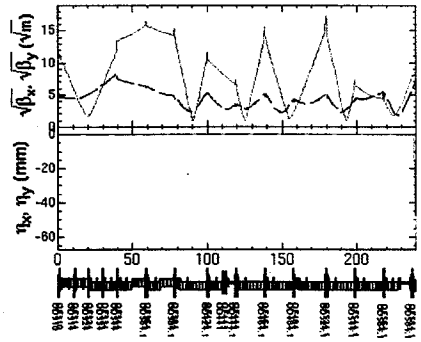
Y phase space at Matching Point



Results of Measurement

β_x @AC574+1 [m] :	5.083	β_y @AC574+1 [m] :	3.182
α_x @AC574+1 :	-.894	α_y @AC574+1 :	-.012
ε_x [m] :	1.5906E-7	ε_y [m] :	3.6414E-8
$\gamma\varepsilon_x$ [π.mm.mrad] :	778.165	$\gamma\varepsilon_y$ [π.mm.mrad] :	178.152
Bmag x :	1.947	Bmag y :	1.679
εBmag x :	3.0975E-7	εBmag y :	6.1146E-8
γεBmag x :	1515.412	γεBmag y :	299.151

Optics Plot



Wire Selection

3-wire:ABC 3-wire:ABD 3-wire:ACD 3-wire:BCD

4-wire:ABCD

NonLinearFit

Calculate Optics Save All Parameters

The Calculation for Q-Mag values are RECOVERed to the before matching

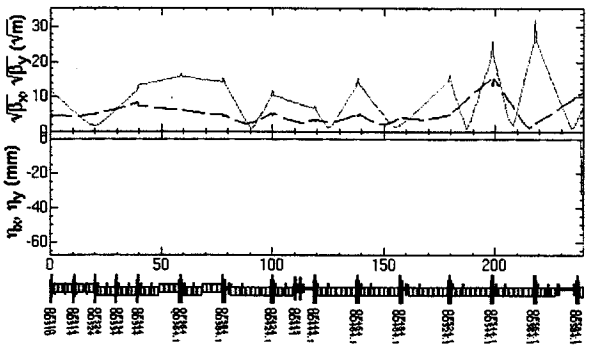
File Edit Window 03/27/2008 19:36:39

Wire Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

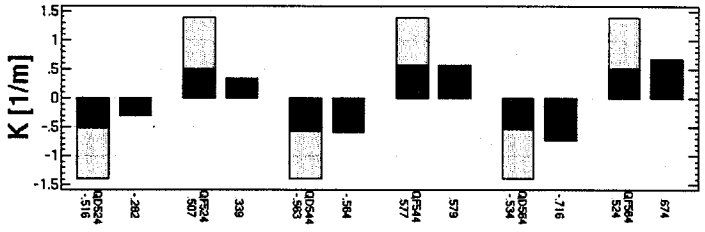
Matching Residual = 40.38659

Matching Conditions
QD544 QF584: β_x < 60.00 1036.76548
QD544 QF584: β_y < 60.00 242.5233

Matchingできず



Strength of Free Qmag (QX*)

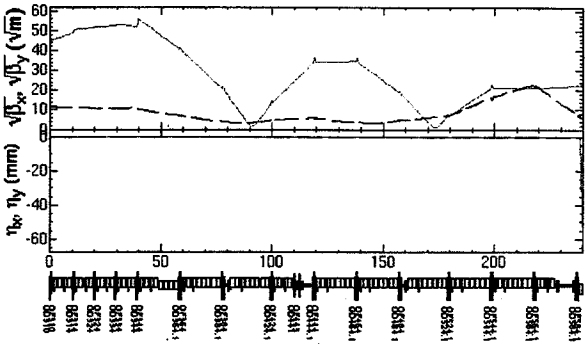


Matching Calculation
KEKBe PFA1
NoBeamSizes
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

File Edit Window 03/27/2008 19:36:31

Wire Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

Matching Conditions
QD544 QF584: β_x < 400.00 515.81692
QD544 QF584: β_y < 400.00 525.15732



Strength of Free Qmag (QX*)

Matching Calculation
KEKBe PFA1
NoBeamSizes
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

Calculation for Q-Mag values are RECOVERed to the before matching.

61

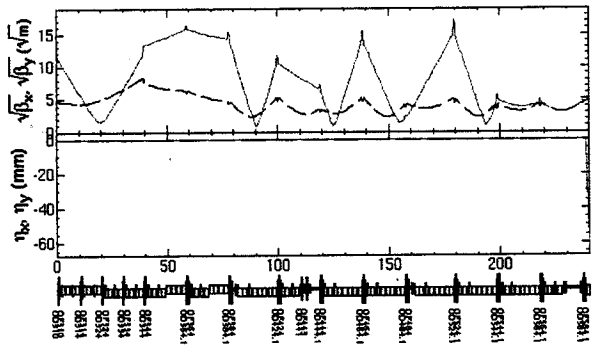
File Edit Window 03/27/2003 19:45:11 Help

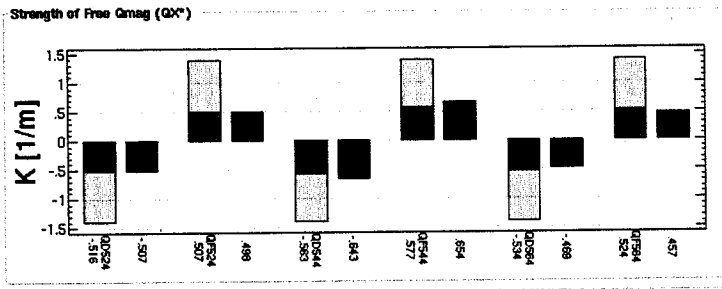
re Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

Matching Residual = 1.8268E-27

Matching Conditions
QD544 QF584: β_x < 60.00 31.49725
QD544 QF584: β_y < 60.00 18.65158

KEKBeでβの制限をかけるとMatchingできる





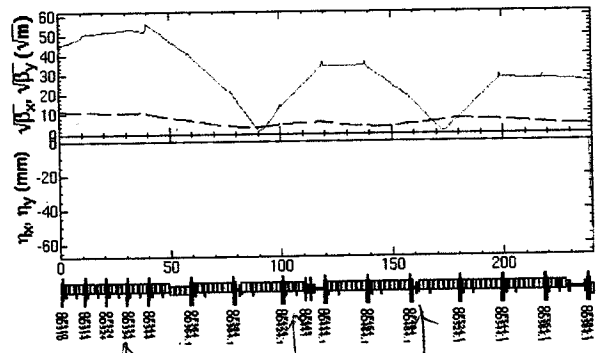
Matching Calculation
KEKBe PFA1
NoBeamSizes
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Set Q-Magnets
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

File Edit Window 03/27/2003 19:46:18 Help

re Scan | Optics Calculate | Matching | Optics Calculate KEKBe | Matching KEKBe | Optics Calculate PFA1 | Matching PFA1

Matching Conditions
QD544 QF584: β_x < 400.00 882.43751
QD544 QF584: β_y < 400.00 49.67026

PF Matchした状態でKEKBeではこのようになっていてBeam Lossがないので使えるかもしれない

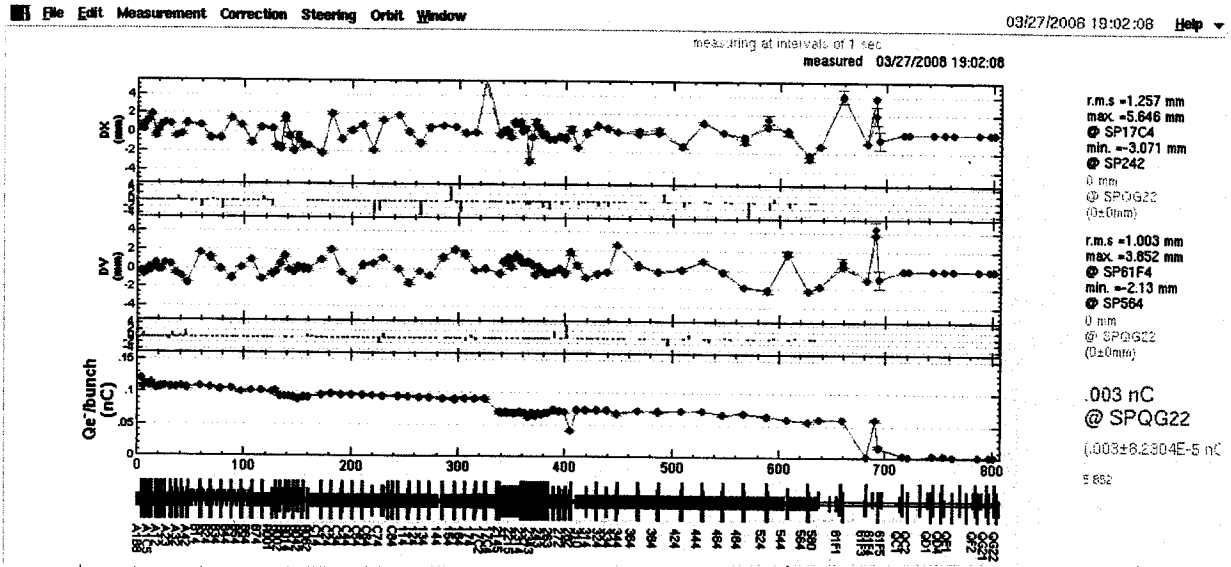


screenでみると
33, 43, 51 で β_x が小さくなっている

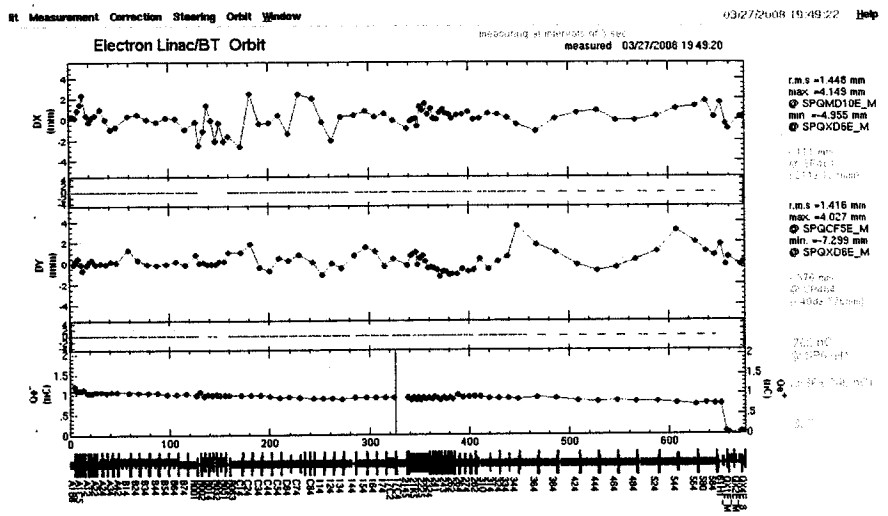
Matching Calculation
KEKBe PFA1
NoBeamSizes
Calc Matching
Recover Calculation
Reset Calculation
Q-mag Set
Q-mag Read&Write
Read Q-Mag from File
Save Q-Mag to File

design を set に通したもの ↓

PF-A1 e- INJECTION DATA DATA 2008.03.27 TIME 19:02



軌道を補正して、Matching を set したもの ↓



◎ PF ↔ KEKB で、軌道の乱れがあまりなかった。