2001.07.13　減速位相 e^+ 生成.

① 通常の e^+ 運転状態で

シケイン スリット	e^+ pass	1.8~1.9	nC @ 21K5
	e^- "	0.6	"
	full open	1.3~1.4	"

昔. P4で studyしたときには. スリット位置で e^- passにすると. e^- の charge量の方が多かった.

何が違うか？　加速電界？

② KL_21の電界を昔の値くらいにする.

KL_21	E_s	Field
	38 kV	13.0 MV/m
	↓	↓
	32	10.3
	31	9.8
	30	9.2

E_s = 30kV に下げて 加速電界 ~ 9.2 MV/m にする.

位相 ϕ_{21} = 84.2° → 190.7° が e^+ yield 最適値

e^+ pass	1.1	nC @ 21K5
e^- pass	0.25	"
full open	1.0	"

やはり この状態でも e^- は劣勢となっている。

(?) 何か. 減速を経た粒子が通りにくくなる要因があるか？

- 昔. 4m管.　今 1m管　の違い？
- RF源が分離されている KL_21 と KL_18

Oct. 9. 2001.

2 bunch Acc. at Linac

Gun 011004-2B load

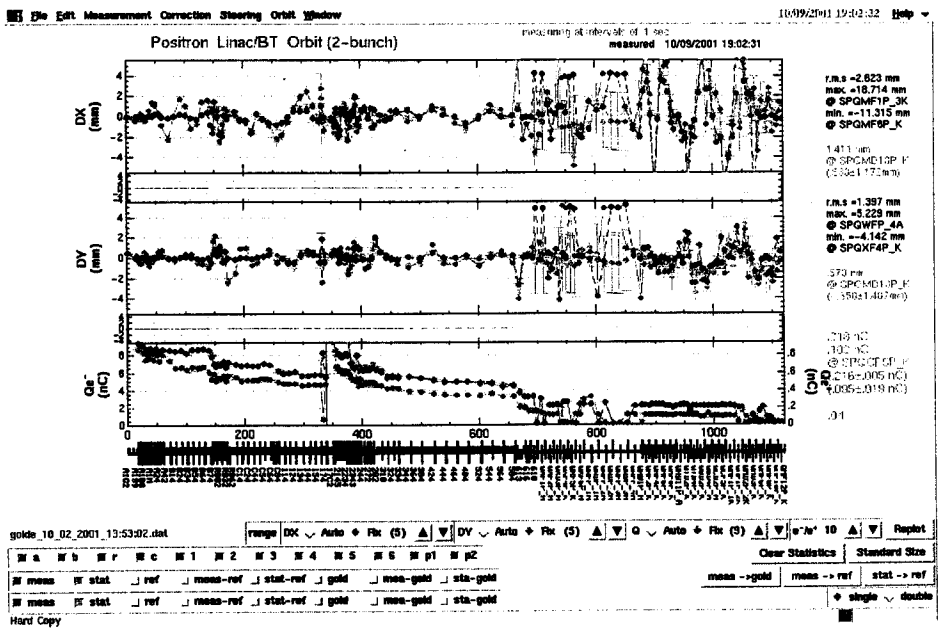
Timing data143.delay.all load

Gun delay2 調整.

SLED, 1, 2 調整

Gun delay

SP-SB-4 1st 0.46nC 2nd 0.32nC



調整後パラメータ

Gun 011009-2B

Timing delay144.delay.all

Mag data963.all に保存。

Gun
011004-2B → 011009-2B
Delay-2
0BA0 → 09D0
パルス電圧-2
05A0 → 0830

2001.10.10.Wed 2バンチ・スタディー

① 2バンチ用 パラメータ・セット (前ページ参照)

② 各バンチの Longitudinal Profile を確認する。

1st Bunch. 0.2nsレンジ. delay = 552.01ns. peak位置 = 692.02ns — 図7
100 nsレンジ. " = 392.04" " = 688.542ns
両方Bunch " " = 437.04" " = {688.477ns 1st
~~2nd Bunch~~ ~~5ns~~ レンジ " = ~~644.26~~ {785.397ns 2nd } 図2

2nd Bunch 2ns レンジ delay = 644.26 ns peak = 788.320ns
(サテライト1) 788.702ns
(" 2) 789.043ns } — 図3

(サテライト・バンチが ~~S-band~~ 2 bunch ある.
5ns レンジで見ても他には ないようだ。)

0.2ns レンジ delay = 648.63ns. peak = 788.645ns — 図4

(28psec 前方に別の peak あり。).

1st Bunch 2ns レンジ delay = 547.97ns peak = 692.058ns
(サテライト1) 692.448ns
(" 2) 692.797ns } — 図5

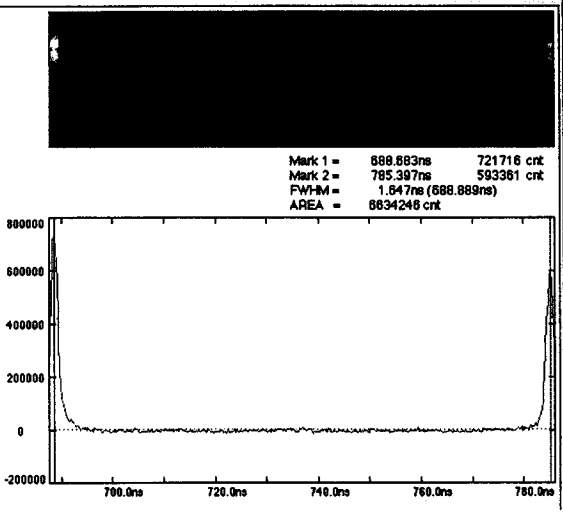
(1st Bunch 付近にも少しサテライトが居るが. 量は少ない。)

③ 各バンチの A1@B8 でのエネルギー測定. Gun Grid Pulser Timing.

		1st 設定	~~1st~~ ADC	2nd 設定	ADC
パルス電圧		0.41kV (05AΦ)	0.35kV	0.41kV (Φ83Φ)	0.41kV
delay		1.57 ns (Φ81C)	0.76 ns	1.90ns (Φ9DΦ)	1.00 ~~ns~~ 2nd B. delay
Energy	[1]	24.097 MeV		25.507 MeV	ΦΦ9DΦ 1.90, 1.00
	[2]	24.007		26.261	ΦΦ9BΦ 1.85, 0.98
	[3]	24.256		25.850	ΦΦ9FΦ 1.93, 1.02
	[4]	23.900		25.556	ΦΦA1Φ 1.95, 1.05
	[5]	24.187		25.238	ΦΦA3Φ 1.97, 1.07
	[6]	23.818		25.199	ΦΦA5Φ 2.00, 1.07
	[7]	24.220		25.104	ΦΦA7Φ 2.02, 1.12
	[8]	24.120		26.238	ΦΦ99Φ 1.85, 0.96

12:54 比較的 軌道の一致する. delay = ΦΦA5Φ (2.00ns) に設定する

Untitled



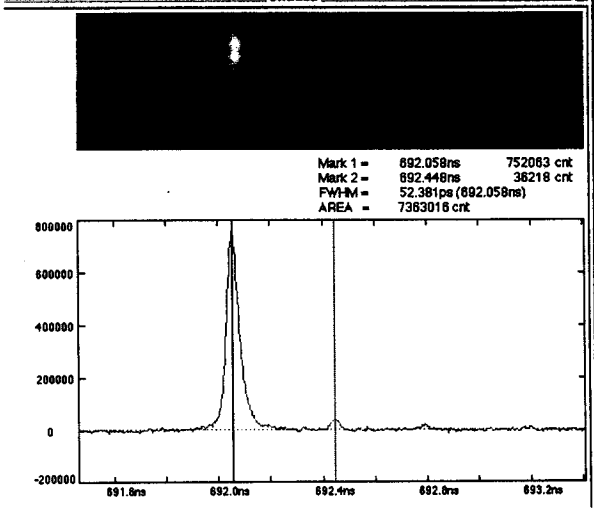
Measurement Condition

Live Time 10 pulse
Accum.Time 50 pulse
Control the Streak Camera
V-Sweep Range 100ns
MCP Gain 56 %
Delay 437.04 ns
Search pulse : 120 cnt.
Input Optics
Focus : Close
Slit Width : 50 um
Gravity Integ. Trig.Single
Table... Quit Do It

Image Status

<< Condition : BeamC6699_A1 >>
Accum.Time 50 pulse
Mcp Gain 56[%]
Streak Mode 100[NS]
Streak Trigger SINGLE
X: 0.000 Y: 0.480 Z: 4.8980
DC Calibration ON
DATE 2001:10:10
TIME 11:19:40

Untitled



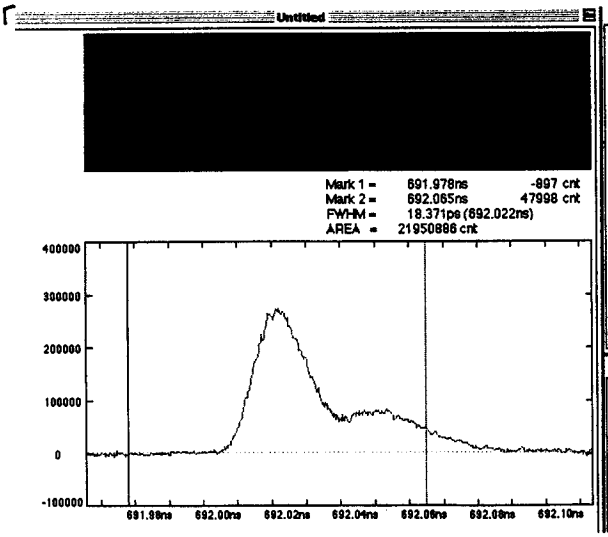
Measurement Condition

Live Time 10 pulse
Accum.Time 50 pulse
Control the Streak Camera
V-Sweep Range 2ns
MCP Gain 63 %
Delay 547.97 ns
Search pulse : 120 cnt.
Input Optics
Focus : Close
Slit Width : 50 um
Gravity Integ. Trig.Single
Table... Quit Do It

Image Status

<< Condition : BeamC6699_A1 >>
Accum.Time 50 pulse
Mcp Gain 63[%]
Streak Mode 2[NS]
Streak Trigger SINGLE
X: 0.000 Y: 0.480 Z: 4.8980
DC Calibration ON
DATE 2001:10:10
TIME 11:38:40

Untitled



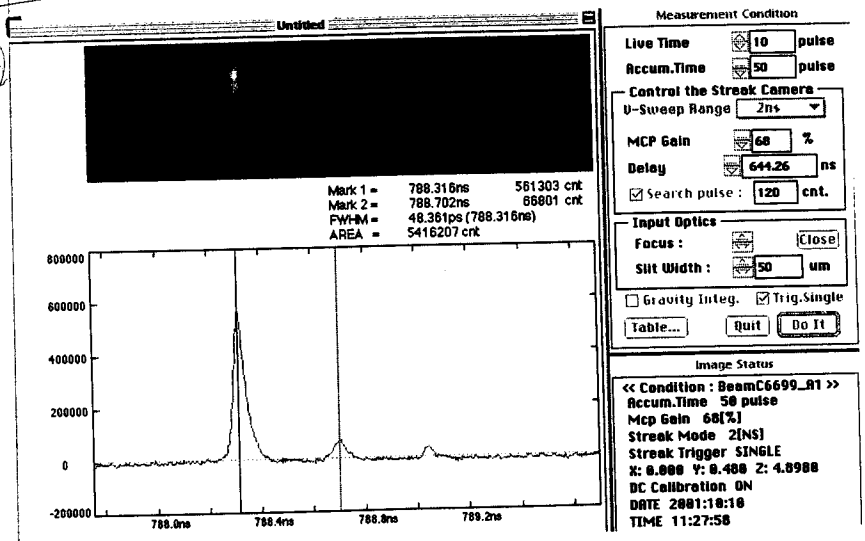
Measurement Condition

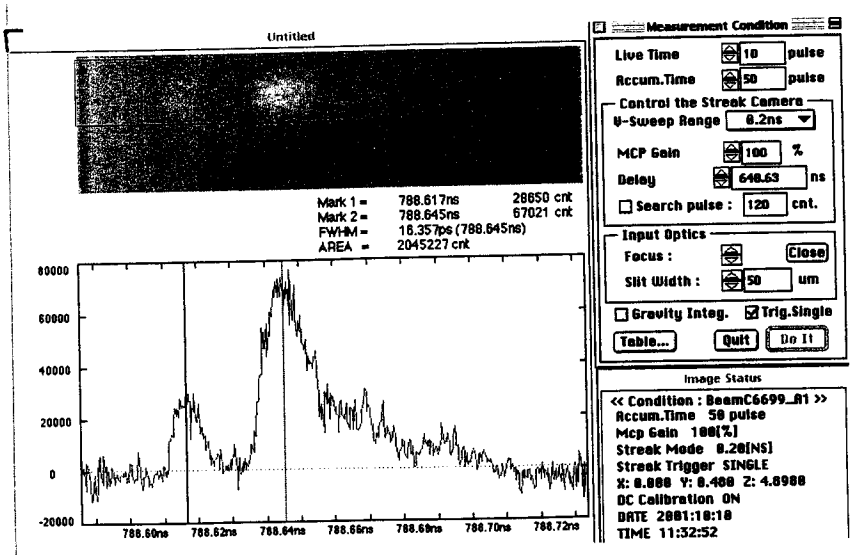
Live Time 10 pulse
Accum.Time 50 pulse
Control the Streak Camera
V-Sweep Range 0.2ns
MCP Gain 100 %
Delay 552.01 ns
Search pulse : 120 cnt.
Input Optics
Focus : Open
Slit Width : 50 um
Gravity Integ. Trig.Single
Table... Quit Do It

Image Status

<< Condition : BeamC6699_A1 >>
Accum.Time 10 pulse
Mcp Gain 100[%]
Streak Mode 0.2[NS]
Streak Trigger SINGLE
X: 0.000 Y: 0.480 Z: 4.8980
DC Calibration ON
DATE 2001:10:10
TIME 10:59:27

2nd Brd

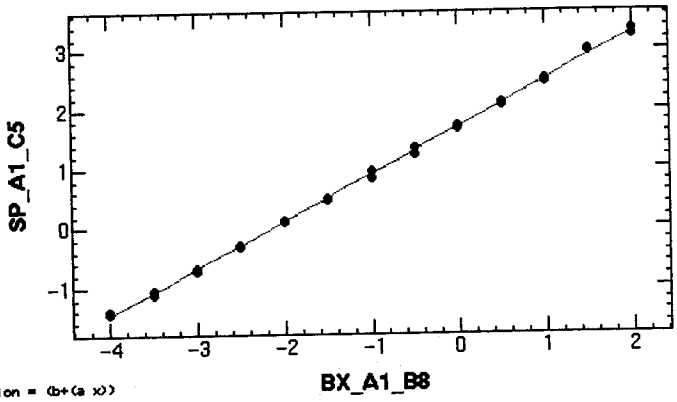

Untitled
Mark 1 = 788.316ns 561303 cnt
Mark 2 = 788.702ns 66801 cnt
FWHM = 48.361ps (788.316ns)
AREA = 5416207 cnt
800000
600000
400000
200000
0
-200000
788.0ns
788.4ns
788.8ns
789.2ns
Measurement Condition
Live Time 10 pulse
Accum.Time 50 pulse
Control the Streak Camera
V-Sweep Range 2ns
MCP Gain 68 %
Delay 644.26 ns
Search pulse : 120 cnt.
Input Optics
Focus : Close
Slit Width : 50 um
Gravity Integ. Trig.Single
Table... Quit Do It
Image Status
<< Condition : BeamC6699_A1 >>
Accum.Time 50 pulse
Mcp Gain 68[%]
Streak Mode 2[NS]
Streak Trigger SINGLE
X: 0.000 Y: 0.488 Z: 4.8988
DC Calibration ON
DATE 2001:10:10
TIME 11:27:58


Untitled
Mark 1 = 788.617ns 28650 cnt
Mark 2 = 788.645ns 67021 cnt
FWHM = 16.357ps (788.645ns)
AREA = 2045227 cnt
80000
60000
40000
20000
0
-20000
788.60ns
788.62ns
788.64ns
788.66ns
788.68ns
788.70ns
788.72ns
Measurement Condition
Live Time 10 pulse
Accum.Time 50 pulse
Control the Streak Camera
V-Sweep Range 0.2ns
MCP Gain 100 %
Delay 648.63 ns
Search pulse : 120 cnt.
Input Optics
Focus : Close
Slit Width : 50 um
Gravity Integ. Trig.Single
Table... Quit Do It
Image Status
<< Condition : BeamC6699_A1 >>
Accum.Time 50 pulse
Mcp Gain 100[%]
Streak Mode 0.2[NS]
Streak Trigger SINGLE
X: 0.000 Y: 0.488 Z: 4.8988
DC Calibration ON
DATE 2001:10:10
TIME 11:32:52

File Edit Window 10/10/2001 12:47:37 Help

ChiSquare = .04597 Goodness = .46160

a = .79395 +/- .00459 b = 1.70898 +/- .00973

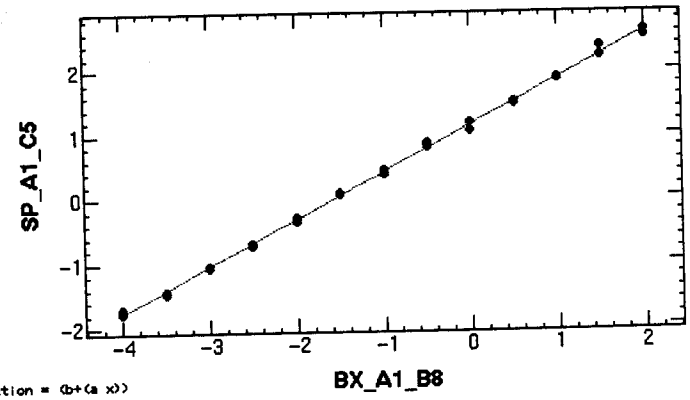


Function = (b+(a x))

Energy at A1_B8 : 24.120057025010723 MeV

ChiSquare = .06137 Goodness = .46160

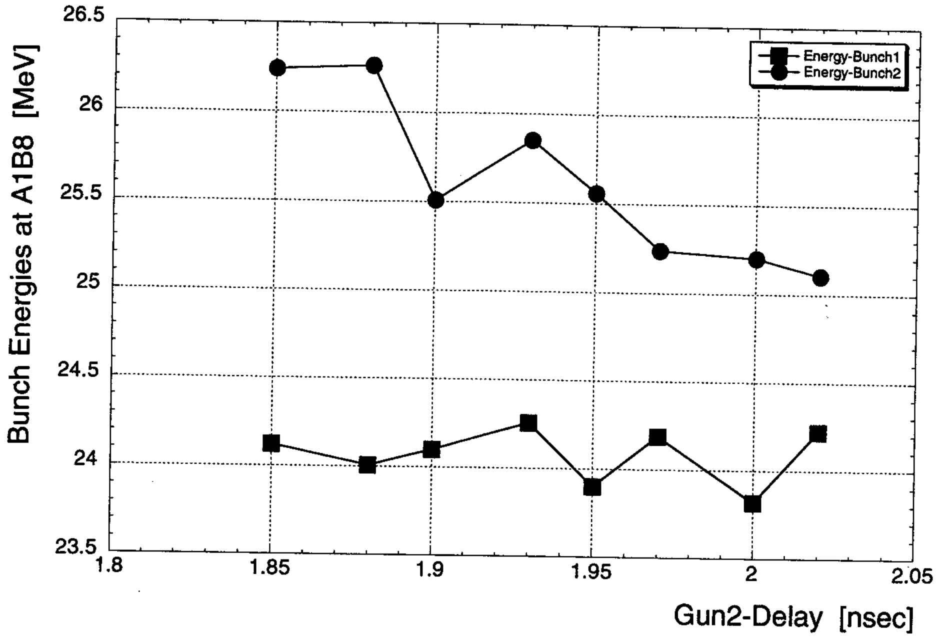
a = .72985 +/- .00530 b = 1.14485 +/- .01124



Function = (b+(a x))

Energy at A1_B8 : 26.238406408094436 MeV

Main Application Area



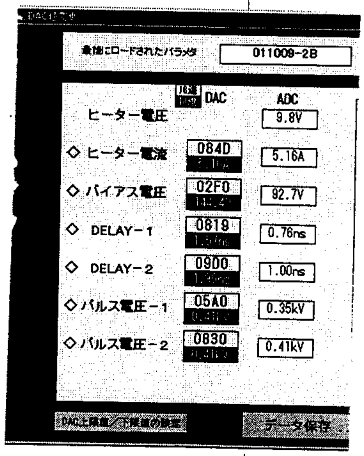
16:53 2bunch スキャン 続き. (スケ, てゆ)

second bunch の Delay 値 を変えて
Buncher 出口での エネルギー の そろう ように する.

(全てのト 全てる. sp_A1_0
sp_c440の 2ndBpay ...
スケア)

2nd bunch Delay 1st Delay は fixed

	2nd bunch Delay	E_1	E_2	Delay 値
①	0900	23.947	25.171	1.90ns
②	0A70	23.644	24.801	2.023ns
③	0B5A	23.949	23.253.	2.2ns
→ ④	0A06	23.50	24.09	2.1ns
⑤	1.7 08C6	23.038	23.018	
	2.3ns, 0B0E			



最終 設定値.
(出発値)

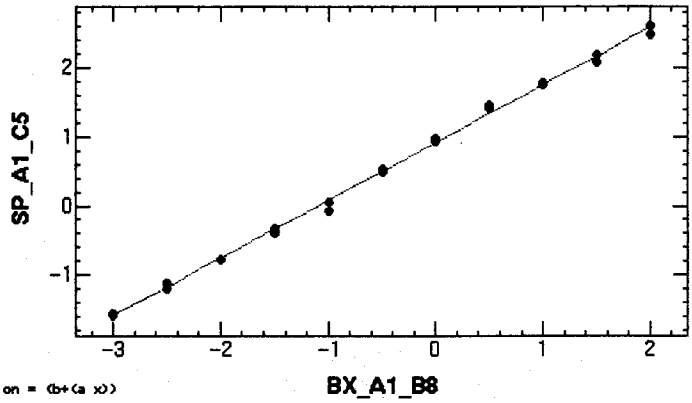
steering BX A1-B8 −3 ~ 0.5A 範囲.
vs. sp_A1_c5

7

File Edit Window 10/10/2001 17:23:17 Help

ChiSquare = .07989 Goodness = .45793

a = .83122 +/- .00852 b = .91256 +/- .01413

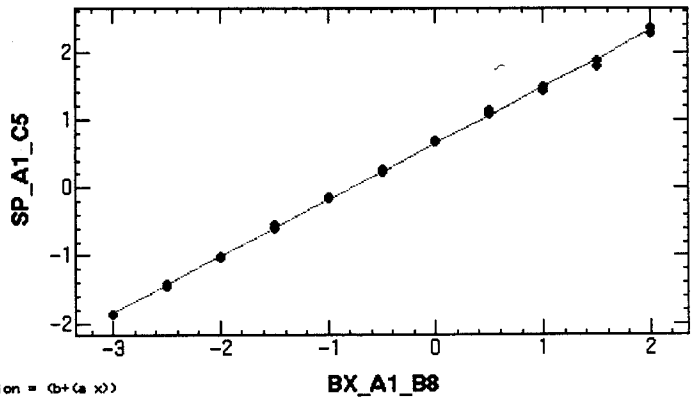


Function = (b+(a x))

Energy at A1_B8 : 23.038475840496972 MeV

ChiSquare = .03111 Goodness = .45793

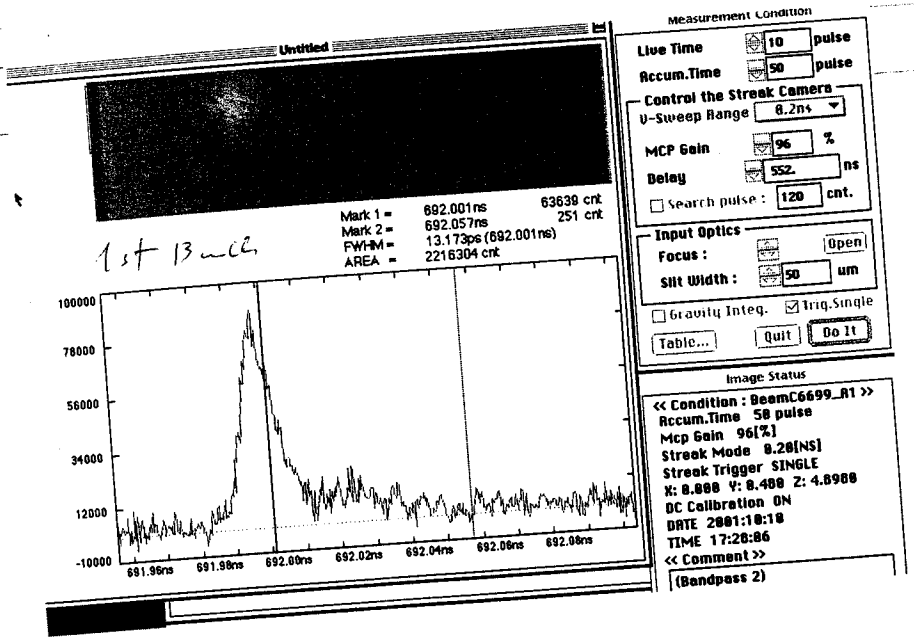
a = .83193 +/- .00532 b = .65124 +/- .00882

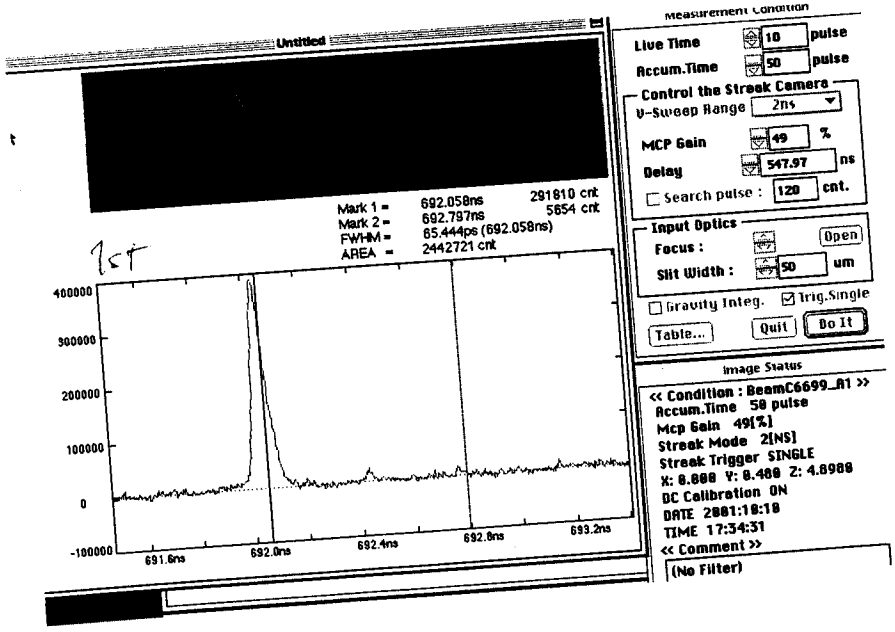


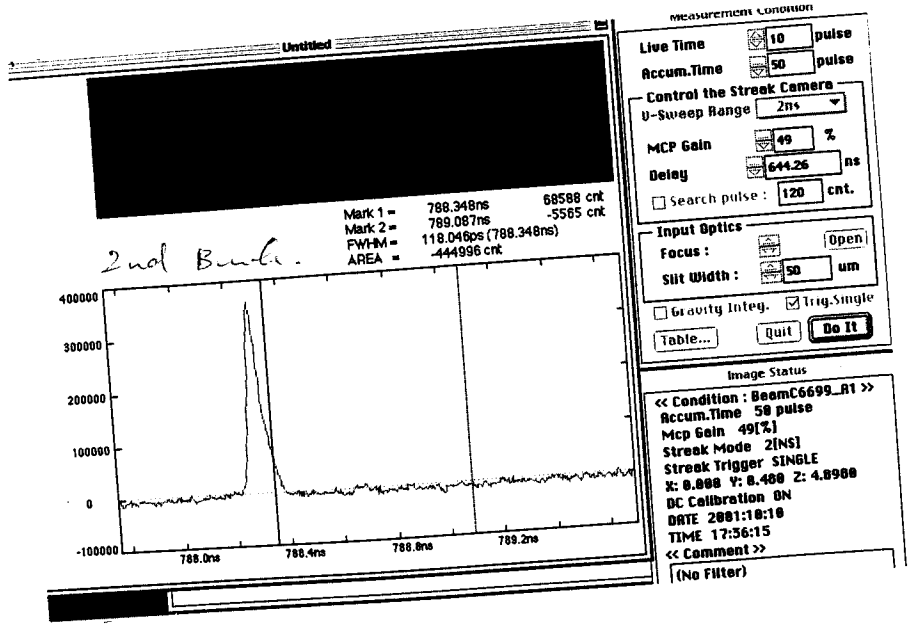
Function = (b+(a x))

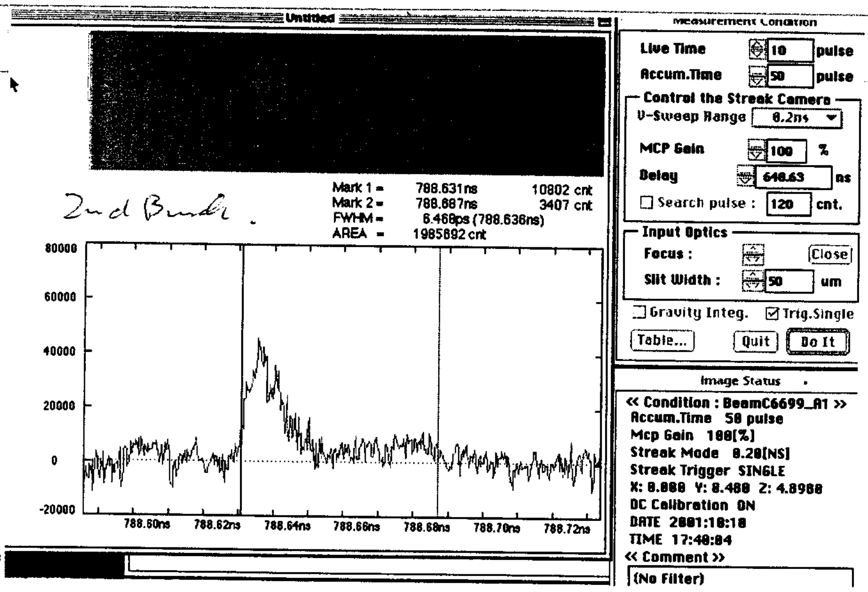
Energy at A1_B8 : 23.018839059358335 MeV

Main Application Area


Untitled
Mark 1 = 692.001ns 63639 cnt
Mark 2 = 692.057ns 251 cnt
FWHM = 13.173ps (692.001ns)
AREA = 2216304 cnt
1st Bunch
100000
78000
56000
34000
12000
-10000
691.96ns
691.98ns
692.00ns
692.02ns
692.04ns
692.06ns
692.08ns
Measurement Condition
Live Time 10 pulse
Accum.Time 50 pulse
Control the Streak Camera
V-Sweep Range 8.2ns
MCP Gain 96 %
Delay 552 ns
Search pulse : 120 cnt.
Input Optics
Focus : Open
Slit Width : 50 um
Gravity Integ. Trig.Single
Table... Quit Do It
Image Status
<< Condition : BeamC6699_A1 >>
Accum.Time 50 pulse
Mcp Gain 96[%]
Streak Mode 8.20[NS]
Streak Trigger SINGLE
X: 0.000 Y: 0.400 Z: 4.8900
DC Calibration ON
DATE 2001:10:18
TIME 17:28:06
<< Comment >>
(Bandpass 2)


Untitled
Mark 1 = 692.058ns 291810 cnt
Mark 2 = 692.797ns 5654 cnt
FWHM = 65.444ps (692.058ns)
AREA = 2442721 cnt
1st
400000
300000
200000
100000
0
-100000
691.6ns
692.0ns
692.4ns
692.8ns
693.2ns
Measurement Condition
Live Time 10 pulse
Accum.Time 50 pulse
Control the Streak Camera
V-Sweep Range 2ns
MCP Gain 49 %
Delay 547.97 ns
Search pulse : 120 cnt.
Input Optics
Focus : Open
Slit Width : 50 um
Gravity Integ. Trig.Single
Table... Quit Do It
Image Status
<< Condition : BeamC6699_A1 >>
Accum.Time 50 pulse
Mcp Gain 49[%]
Streak Mode 2[NS]
Streak Trigger SINGLE
X: 0.000 Y: 0.400 Z: 4.8900
DC Calibration ON
DATE 2001:10:18
TIME 17:34:31
<< Comment >>
(No Filter)


Untitled
Mark 1 = 788.348ns 68588 cnt
Mark 2 = 789.087ns -5565 cnt
FWHM = 118.046ps (788.348ns)
AREA = -444996 cnt
2nd Bunch
400000
300000
200000
100000
0
-100000
788.0ns
788.4ns
788.8ns
789.2ns
Measurement Condition
Live Time 10 pulse
Accum.Time 50 pulse
Control the Streak Camera
V-Sweep Range 2ns
MCP Gain 49 %
Delay 644.26 ns
Search pulse : 120 cnt.
Input Optics
Focus : Open
Slit Width : 50 um
Gravity Integ. Trig.Single
Table... Quit Do It
Image Status
<< Condition : BeamC6699_A1 >>
Accum.Time 50 pulse
Mcp Gain 49[%]
Streak Mode 2[NS]
Streak Trigger SINGLE
X: 0.000 Y: 0.400 Z: 4.8900
DC Calibration ON
DATE 2001:10:18
TIME 17:56:15
<< Comment >>
(No Filter)



2nd Bunch.

入射部 について 状態は 同様 OK として 次に 進むことにする.

A1 までの エネルギー測定

BX-A1-22 vs. SP-A1-M — 絶対値は 問題ではないが Ratio は OK である。

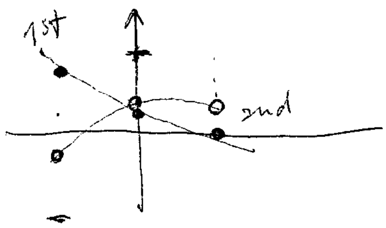
		1st E	2nd E		ヘリ[illegible]値	
①	Nominal	8.269	7.9439	MeV	4.53	(正相)
②		8.086	8.0166		4.6	
③					4.8	
④		7.882	7.902	MeV	4.65	← OK fixed!

Orbit Correction by 1kc 5.4 で やったら →

A1 まで 軌道 OK.

次に A4 までの エネルギー測定 SX-A4-3 vs SP-A4-X
(I 4.5 A)

	1st E	2nd E
Nominal	27.275	27.446
② −8.8ns	27.2998	26.716
③ +8.8ns −all A	27.017	27.3699
④ −1.75	27.379	25.715
⑤ 0ns	27.413	26.657



画視がみない