MAY 16 | 0:0

Run #	Beam	Brho	Dp/p	obj scinl	C_FREE	sci/c_free	Duration	Type
63	Ni68	2.74	0.20%	511443	1324616	0.39	0:02:13	bad
62	Ni68	2.75	0.20%	9309137	25350813	0.37	0:42:15	bad
26	Ni68		bad	1.37E+08	13507445	10.11	0:22:30	bad
27	Ni68		bad	4601342	6718887	0.68	0:11:11	bad
18	Ni68	2.80	0.50%	7663	1787311	0.00	0:02:59	beam
19	Ni68	2.80	0.50%	47519	1723482	0.03	0:02:53	beam
88	Ni68	2.80	0.50%	490605	5155424	0.10	0:08:35	beam
89	Ni68	2.80	0.50%	56033	2246438	0.02	0:03:45	beam
90	Ni68	2.80	0.20%	10954	1135012	0.01	0:01:54	beam
91	Ni68	2.80	<0.5	10498	489686	0.02	0:00:49	beam
92	Ni68	2.80	1.50%	305369	3443172	0.09	0:05:44	beam
93	Ni68	2.80	1.50%	11618	129679	0.09	0:00:13	beam
166	Ni68	2.80	0.50%	208268	2641608	0.08	0:04:24	beam
167	Ni68	2.80	0.50%	102121	1678139	0.06	0:02:47	beam
168	Ni68	2.80	0.50%	65297	1196994	0.05	0:02:00	beam
169	Ni68	2.80	0.50%	71681	1087713	0.07	0:01:49	beam
170	Ni68	2.80	1%	126882	1851345	0.07	0:03:05	beam
83	Ni68	3.48	0.50%	175760	4114752	0.04	0:06:52	beam
84	Ni68	3.48	0.20%	20822	2603903	0.01	0:04:20	beam
85	Ni68	3.48	0.20%	14569	1773118	0.01	0:02:57	beam
86	Ni68	3.48	0.20%	28099	1657043	0.02	0:02:45	beam
87	Ni68	3.48	1.50%	62358	975108	0.06	0:01:37	beam
	Ni68	2.86		1681519	12090965	0.14	0:20:09	charge stat
25	Ni68	2.93	0.20%	45684220	4256197	10.73	0:07:06	charge stat
	Ni68	2.97		39311177	12272728	3.20	0:20:28	charge stat
22	Ni68	2.53		32542773	15119106	2.15	0:25:12	data
23	Ni68	2.53		3098383	1247438	2.48	0:02:05	data
71	Ni68	2.53		2.85E+08	19827777	14.35	0:33:03	data
21	Ni68	2.60		84937345	29297902	2.90	0:48:50	data
70	Ni68	2.60	0.50%	80053691	14538797	5.51	0:24:14	data
20	Ni68	2.67		67530693	19324520	3.49	0:32:12	data
24	Ni68	2.67					0:32:12	data
53	Ni68	2.72	0.20%	31510787	10819841	2.91	0:18:02	data
54	Ni68	2.72	0.20%	28750353	10003588	2.87	0:16:40	data
55	Ni68	2.72		36059704	13638327	2.64	0:22:44	data
56	Ni68	2.72	0.50%	75088626	13193292	5.69	0:22:00	data
57	Ni68	2.72	0.50%	69938153	18300199	3.82	0:30:30	data
58	Ni68	2.72	0.50%	91057424	19274797	4.72	0:32:08	data
59	Ni68	2.72	0.50%	90426708	16620355	5.44	0:27:42	data
60	Ni68	2.72	0.50%	1.1E+08	21258735	5.19	0:35:25	data
61	Ni68	2.72	0.50%	6877156	1345003	5.11	0:02:14	data
64	Ni68	2.80		8162121	10217122	0.80	0:17:02	data
65	Ni68	2.80		7439309	9649715	0.77	0:16:05	data
66	Ni68	2.80		7689740	10420423	0.74	0:17:22	data
67	Ni68	2.80		7448882	10318290	0.72	0:17:12	data
68	Ni68	2.80		8938212	12253898	0.73	0:20:25	data
69	Ni68	2.80		5653637	8089108	0.70	0:13:29	data
38	Ni68	2.86	0.50%	14750357	4921928	3.00	0:08:12	data
39	Ni68	2.86	0.50%	1.73E+08	17573766	9.83	0:29:17	data
40	Ni68	2.86	0.50%	2.94E+08	27343250	10.76	0:45:35	data
41	Ni68	2.86	0.50%	2.59E+08	24852214	10.40	0:41:26	data

03031 Run Sheet

Date 15/05/05	***Begin:*** 0:		***End:***
Target: **Be**	**Br** 2.45	dp/p= 0.5%	Scaler ____ Master.Live/Master 48%

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn ☐	Comments:
Who's on shift	

Run #	**start**	**stop**	
153	0:31	0:43	Prior NMR Look
154	0:43	1:16	

Efficiency:

E1. TUP total = 124817

OBJ total = 126346

XFP total = 128038

```
A1900 "Print15May05_00h42.txt"    Sunday 00:42:27 2005-05-15  A1900
***                                        run 154 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    3>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m   -0.00159 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23499 T  3.10148 m    3.10147 m   -0.00031 % (3.83031 Tm)
Seg 3:  3.52600 Tm  1.13928 T  3.09502 m    3.09493 m   -0.00272 % (3.52610 Tm)
Seg 4:  3.52600 Tm  1.13895 T  3.09582 m    3.09582 m    0.00002 % (3.52600 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.45512 Tm
Seg 8:  2.45000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10285 T  3.14194 m    3.14039 m   -0.04922 %
I205DS              1.10270 T  3.14204 m    3.14082 m   -0.03880 %
I223DS              1.11648 T  3.09708 m    3.09466 m   -0.07818 %
I228DS              1.09105 T  3.17034 m    3.16679 m   -0.11203 %
I265DS              0.87946 T  2.80280 m    2.78580 m   -0.60652 %
I269DS              0.87664 T  2.80280 m    2.79476 m   -0.28679 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Date 15/05/05	***Begin:***		***End:***
Target: **Be**	**Br** 2.45	dp/p= 0.5%	Scaler ____ Master.Live/Master 47%
			PPAC1 / **PPAC2**
			OBJ Sci / **XFP sci**
^{72}Zn ☐	Comments: GIUSEPPE & MARK		
Who's on shift			

Run #	**start**	**stop**	
155	1:16	1:44	
156	1:44	2:21	
157	2:21	2:32	Ion Sorce went out
158	5:50	6:24	X10 att now!
159	6:24	7:00	

total_F1 = 124817

total_OBJ = 126346

total_XFP = 128038

03031 Run Sheet

Date 15/05/05	***Begin:*** 7:03		***End:***
Target: **Be**	**Br** 2.53	dp/p= 0.5%	Scaler ____ Master.Live/Master 500/900

PPAC1	PPAC2
36 K	4.6 K
OBJ Sci	**XFP sci**
89 K	105 K

^{72}Zn ☐	Comments:
Who's on shift	Betty, Giuseppe, Mark

Run #	start	stop	ATT = X10
160	7:03	7:38	
161	7:38		
162	8:20		
163	9:02		
164	9:36	10[illegible]	

```
A1900 "Print15May05_07h07.txt"    Sunday 07:07:20 2005-05-15  A1900
***                                        run 160 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   10>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m   -0.00158 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23499 T  3.10148 m    3.10148 m    0.00013 % (3.83029 Tm)
Seg 3:  3.52600 Tm  1.13928 T  3.09502 m    3.09494 m   -0.00250 % (3.52609 Tm)
Seg 4:  3.52600 Tm  1.13897 T  3.09582 m    3.09578 m   -0.00139 % (3.52605 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.45512 Tm
Seg 8:  2.53000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10284 T  3.14194 m    3.14042 m   -0.04831 %
I205DS              1.10275 T  3.14204 m    3.14068 m   -0.04334 %
I223DS              1.11649 T  3.09708 m    3.09463 m   -0.07908 %
I228DS              1.09107 T  3.17034 m    3.16673 m   -0.11386 %
I265DS              0.90563 T  2.80280 m    2.79364 m   -0.32698 %
I269DS              0.90376 T  2.80280 m    2.79942 m   -0.12074 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110    0.01,    0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

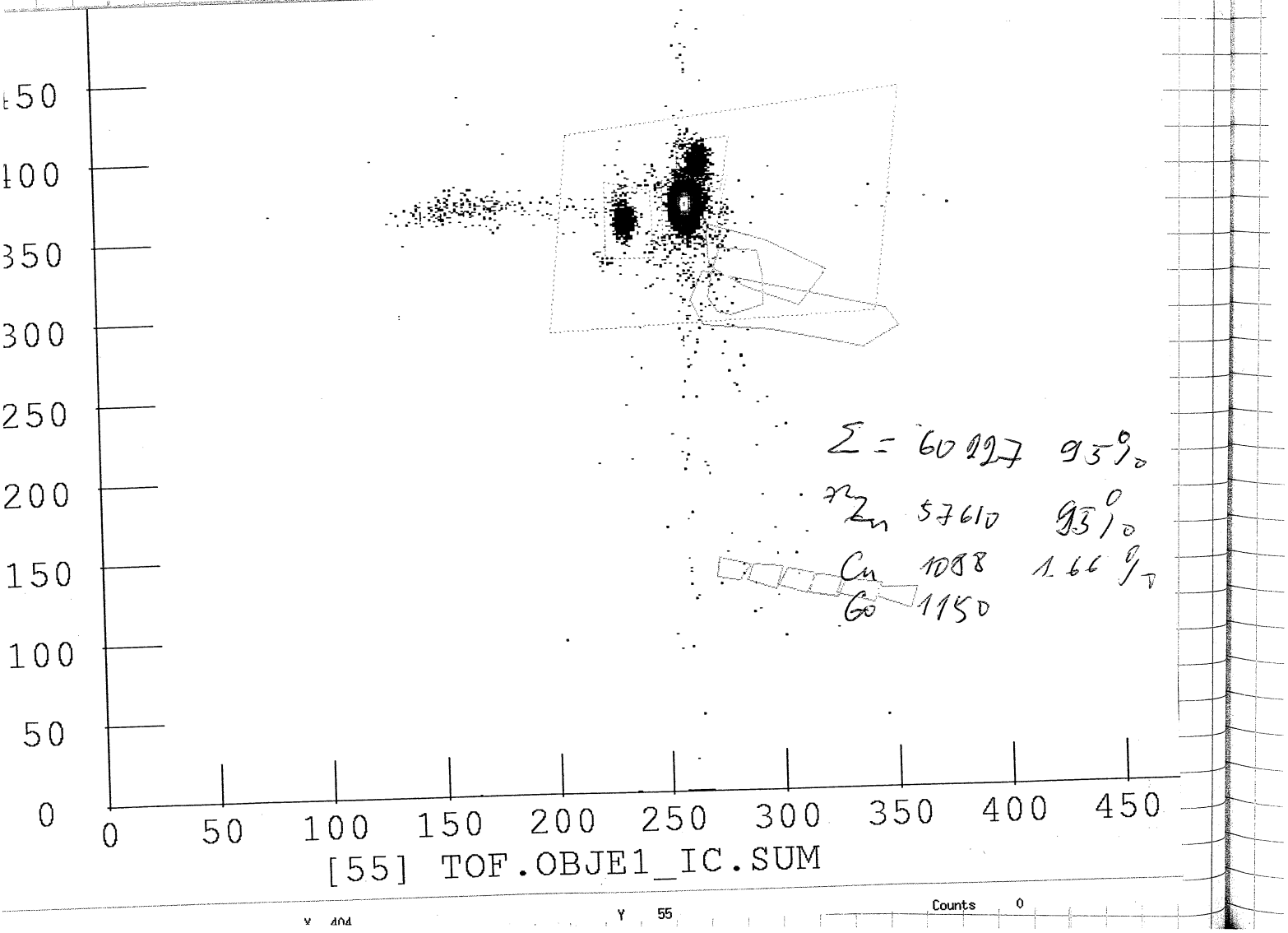
RUN	E1UP-DW	E1	obj	xfp	E1/obj	E1/xfp	obj/xfp	
64	15656	15663	15500	15541	1.010516129	1.007850203	0.997361817	
65	15300	15302	15139	15192	1.010766893	1.007240653	0.996511322	
66	12312	12306	12177	12220	1.010593742	1.007037643	0.996481178	
67	14151	14152	14003	14052	1.010640577	1.007116425	0.996512952	
68	12918	12919	12776	12812	1.011192862	1.008351545	0.997190134	
69	12072	12079	11965	11998	1.009527789	1.006751125	0.997249542	
70	17303	18039	16602	16885	1.086555837	1.068344685	0.983239562	
71	17508	18316	14789	15392	1.238488065	1.189968815	0.960823805	
72	23335	28023	22032	21757	1.271922658	1.287999265	1.01263961	
73	27033	31638	16754	17866	1.888384863	1.770849659	0.937758872	two groups in 2D spectra
74	26247	30682	19977	20652	1.535866246	1.485667248	0.967315514	two groups in 2D spectra
75	12201	14296	8881	9196	1.609728634	1.554588952	0.965745977	
76	27872	28334	14907	16532	1.900717784	1.713888217	0.901705783	
77	13364	13871	7573	8344	1.831638716	1.662392138	0.907598274	
78	18973	19270	11344	12456	1.698695346	1.547045601	0.910725755	
79	14243	21262	13175	14243	1.613814042	1.492803482	0.925015797	
80	17963	18243	16022	16328	1.138621895	1.117283195	0.981259187	
81	16784	17055	15059	15318	1.132545322	1.113396005	0.983091787	
82	15115	15357	13825	14041	1.110813743	1.093725518	0.98461648	
83	15140	15139	15135	15137	1.000264288	1.000132127	0.999867873	
84	13321	13327	13320	13331	1.000525526	0.999699947	0.999174856	
85	9375	9379	9371	9373	1.000853698	1.000640137	0.999786621	
86	14258	14260	14256	14258	1.000280584	1.000140272	0.999859728	
87	20014	20013	20004	20004	1.00044991	1.00044991	1	
88	14828	14857	14849	14851	1.000538757	1.000404013	0.999865329	
89	17038	17053	17051	17049	1.000117295	1.000234618	1.000117309	
90	6908	6915	6915	6915	1	1	1	
91	6555	6555	6555	6555	1	1	1	
92	12769	12792	12790	12784	1.000156372	1.000625782	1.000469337	
93	16268	16298	16297	16289	1.000061361	1.00055252	1.000491129	
94	junk							
95	14728	14744	14743	14748	1.000067829	0.999728777	0.999660971	
96	20493	20499	20496	20495	1.00014637	1.00019517	1.000048792	
97	13117	13146	13145	13140	1.000076075	1.000456621	1.000380518	
98	13925	13951	13947	13939	1.0002868	1.000860894	1.000573929	
99	17629	17659	17654	17647	1.000283222	1.000680002	1.000396668	
100	22378	22413	22408	22394	1.000223135	1.000848442	1.000625167	
101	12905	13427	11803	11782	1.137592138	1.139619759	1.00178238	
102	9413	22682	10777	10943	2.104667347	2.072740565	0.984830485	
103	13538	32493	13739	14074	2.365019288	2.308725309	0.976197243	
104	18814	45832	18228	18945	2.514373491	2.419213513	0.962153603	
105	12206	30661	12814	13215	2.392773529	2.320166477	0.969655694	
106	10396	25019	9872	9604	2.534339546	2.605060392	1.02790504	
107	15025	36241	13480	12674	2.688501484	2.859476093	1.063594761	
108	16041	38283	14790	13331	2.588438134	2.871727552	1.109444153	
109	31695	42237	13491	12826	3.130753836	3.293076563	1.051847809	Efficiency problems
110	27712	36968	11048	10030	3.346125996	3.685742772	1.101495513	Efficiency problems
111	29349	39116	10605	6347	3.688448845	6.162911612	1.670868127	Efficiency problems
112	23389	31216	8729	7306	3.576125558	4.272652614	1.194771421	Efficiency problems
113	25206	33637	9586	7766	3.508971417	4.331315993	1.23435488	Efficiency problems
114	19835	48335	19279	19990	2.507132113	2.417958979	0.964432216	
115	35122	47215	13049	10198	3.618284926	4.629829378	1.279564621	
116	19197	25746	6653	5104	3.869833158	5.044278997	1.303487461	
117	23211	30976	8092	6222	3.82797825	4.978463517	1.300546448	
118	18527	24744	6119	4319	4.043798006	5.729103959	1.41676314	
119	32032	32039	6018	4819	5.323861748	6.648474787	1.248806806	
120	23322	23322	4999	3799	4.665333067	6.138983943	1.315872598	

121	34753	34780	6722	5000	5.174055341	6.956	1.3444	
122	38969	38985	7752	6115	5.029024768	6.375306623	1.267702371	
123	42885	42917	9581	7139	4.479386285	6.011626278	1.342064715	
124	27710	27711	6719	4987	4.124274446	5.556647283	1.347302988	
125	23957	23955	5427	4396	4.414040907	5.449272066	1.234531392	
126	23425	23435	5275	4379	4.442654028	5.351678465	1.204612925	
127	41597	41608	8775	5876	4.741652422	7.081007488	1.493362832	
128	22738	22742	4781	3225	4.756745451	7.051782946	1.48248062	
129	26561	26565	5708	3665	4.653994394	7.248294679	1.557435198	
130	57948	58184	12659	25910	4.596255628	2.245619452	0.488575839	
131	24518	27595	6474	16599	4.262434353	1.662449545	0.390023495	
132	23704	26607	10936	16793	2.432973665	1.584410171	0.651223724	
133	11111	11111	11111	11111	1	1	1	
134	17997	20123	13028	18257	1.544596254	1.102207373	0.713589308	
135	5363	5945	5619	5621	1.058017441	1.057640989	0.999644191	
136	13835	15243	11703	11962	1.302486542	1.274285237	0.978348102	
137	10812	13618	5877	6442	2.317168623	2.11393977	0.912294319	Target scintillator
138	23229	25754	10933	12012	2.355620598	2.144022644	0.91017316	
139	15779	17652	9737	10416	1.81287871	1.694700461	0.934811828	
140	18236	23312	15440	16162	1.50984456	1.442395743	0.955327311	
141	11997	15300	7477	8089	2.046275244	1.891457535	0.924341699	
142	15709	20015	10618	11319	1.885006593	1.768265748	0.938068734	
143	22799	28528	21124	21830	1.350501799	1.30682547	0.967659185	
144	11111	11111	11111	11111	1	1	1	
145	2484	5728	3298	2498	1.736810188	2.293034428	1.320256205	
146	7542	17220	9964	10434	1.728221598	1.650373778	0.954954955	
147	2457	5524	4883	4267	1.131271759	1.29458636	1.144363722	
148	1767	3921	3157	3192	1.242001901	1.228383459	0.989035088	
149	4740	10903	6066	6376	1.797395318	1.710006274	0.951380176	
150	42861	42982	42974	42861	1.000186159	1.002823079	1.002636429	
151	20744	21274	17757	18128	1.198062736	1.173543689	0.979534422	
152	11111	11111	11111	11111	1	1	1	
153	54264	54489	46790	47691	1.164543706	1.142542618	0.981107546	
154	11111	11111	11111	11111	1	1	1	
155	11111	11111	11111	11111	1	1	1	
156	24385	24493	21159	21544	1.157568883	1.136882659	0.982129595	
157	11111	11111	11111	11111	1	1	1	
158	12836	12894	10814	11010	1.192343259	1.171117166	0.982198002	
159	11111	11111	11111	11111	1	1	1	
160	30752	30941	27185	27583	1.138164429	1.121741652	0.985570823	
161	11111	11111	11111	11111	1	1	1	
162	11111	11111	11111	11111	1	1	1	
163	11111	11111	11111	11111	1	1	1	
164	14003	14087	12725	12884	1.107033399	1.093371624	0.987659112	

2.87

03031 Run Sheet

Run# 165	S800		
Date__/05/05	***Begin:***		***End:***
Target: **Be**	**Br=____** **Tm** 2.728	dp/p=	Scaler 469 Master.Live/Master___
72Zn	Comments: Beam composition		
Who's on shift			



```
A1900 "Print15May05_10h12.txt"    Sunday 10:12:57 2005-05-15  A1900
***                Run 165 beam composition ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  300>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00129 % (3.83035 Tm)
Seg 2:  3.83030 Tm  1.23499 T  3.10148 m    3.10148 m   -0.00011 % (3.83030 Tm)
Seg 3:  3.52600 Tm  1.13920 T  3.09502 m    3.09514 m    0.00410 % (3.52586 Tm)
Seg 4:  3.52600 Tm  1.13897 T  3.09582 m    3.09578 m   -0.00143 % (3.52605 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.48070 Tm
Seg 7:  3.47240 Tm
Seg 8:  2.72800 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10771 T  3.14194 m    3.14225 m    0.00982 %
I205DS              0.00000 T  3.14204 m    0.00000 m  100.00000 %
I223DS              0.00000 T  3.09708 m    0.00000 m  100.00000 %
I228DS              1.08651 T  3.17034 m    3.19592 m    0.80688 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.97351 T  2.80280 m    2.80223 m   -0.02030 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,    9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110    0.01,    0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

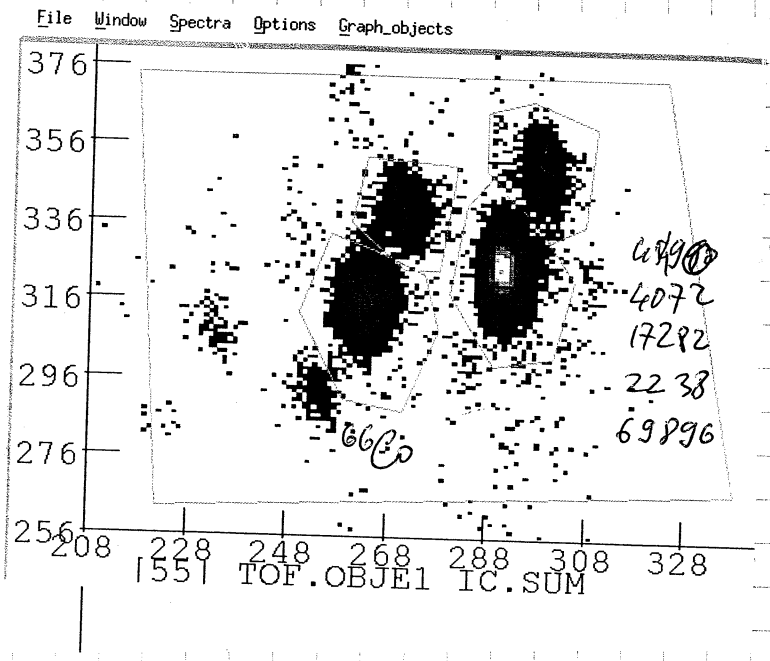
Run #	Beam	Brho	Dp/p	obj scinl	C_FREE	sci/c_free	Duration	Type	Comments	
98	72Zn	2.73	1.50%	542570	5922978	0.09	0:09:52	bad		
145	72Zn	3.08	0.50%			#DIV/0!		bad		
94				66	93840	0.00	0:00:09	bad		
124	72Zn	2.73	0.5		68806	0.00	0:04:53	beam		
125	72Zn	2.73	1		119056	0.00	0:12:55	beam		
126	72Zn	2.73	1.5		80123	0.00	0:06:53	beam		
127	72Zn	2.73	0.5		74650	0.00	0:05:57	beam		
150	72Zn	2.73	0.50%	438443	3163380	0.14	0:05:17	beam		
165	72Zn	2.73		508380	3109016	0.16	0:05:11	beam		
96	72Zn	2.73	0.50%	329939	4178817	0.08	0:06:58	beam		
97	72Zn	2.73	1%	513760	3140966	0.16	0:05:14	beam		
99	72Zn	2.73	1.50%	31629	2375807	0.01	0:03:57	beam		
100	72Zn	2.73	1.50%		60964	0.00	0:02:21	beam		
95	72Zn	2.78		356509	3221862	0.11	0:05:22	beam not centered		
119	72Zn	2.78	1%		478670	0.00	0:12:49	beam not centered		
120	72Zn	2.78	0.5		291184	0.00	0:15:59	beam not centered		
121	72Zn	2.78	1.5		255373	0.00	0:18:10	beam not centered		
122	72Zn	2.78	1.5		62154	0.00	0:04:24	beam not centered		
123	72Zn	2.78	0.5		42837	0.00	0:07:06	beam not centered		
128	72Zn	2.78	0.5		59559	0.00	0:04:40	charge states		
129	72Zn	2.78	0.2		69606	0.00	0:06:02	charge states		
130	72Zn	2.88	0.20%		3435700	0.00	0:10:09	charge states		
143	72Zn	2.98	0.20%		1.29E+08	0.00	0:10:09	charge states		
153	72Zn	2.45	0.50%	64830962	6272154	10.34	0:10:27	data		
154	72Zn	2.45	0.50%	1.89E+08	18667800	10.12	0:31:07	data		
155	72Zn	2.45	0.50%	1.91E+08	18972522	10.05	0:31:37	data		
156	72Zn	2.45	0.50%	1.97E+08	20646892	9.55	0:34:25	data		
157	72Zn	2.45	0.50%	70392496	8072427	8.72	0:13:27	data		
158	72Zn	2.45	0.50%	2.25E+08	20186439	11.17	0:33:39	data		
159	72Zn	2.45	0.50%	2.09E+08	20984915	9.95	0:34:54	data	3:09:36	
160	72Zn	2.53	0.50%	1.77E+08	20733694	8.54	0:34:33	data		
161	72Zn	2.53	0.50%	2.02E+08	24249610	8.33	0:40:25	data		
162	72Zn	2.53	0.50%	1.97E+08	25402824	7.76	0:42:21	data		
163	72Zn	2.53	0.50%	1.47E+08	20455561	7.21	0:34:06	data		
164	72Zn	2.53	0.50%	96844237	14103566	6.87	0:23:30	data	2:54:55	
101	72Zn	2.60	0.50%		1.91E+08	0.00	0:41:21	data	0:41:21	
151	72Zn	2.67	0.50%	3.06E+08	27455625	11.14	0:45:46	data		
152	72Zn	2.67	0.50%	93856699	8993141	10.44	0:15:00	data	1:00:46	
131	72Zn	2.88	0.50%		2.93E+08	0.00	0:40:45	data		
132	72Zn	2.88	0.50%		2.05E+08	0.00	0:19:21	data		
133	72Zn	2.88	0.50%		1350928	0.00	0:14:24	data		
134	72Zn	2.88	0.50%		27625350	0.00	0:28:02	data		
135	72Zn	2.88	0.50%		10553092	0.00	0:04:30	data		
136	72Zn	2.88	0.50%		5.65E+08	0.00	0:29:15	data		
138	72Zn	2.88	0.50%		4.85E+08	0.00	0:13:03	data		
139	72Zn	2.88	0.50%		1.4E+09	0.00	1:04:47	data	3:34:07	
109	72Zn	3.02	0.50%		1.1E+09	0.00	0:27:15	data		43.18
110	72Zn	3.02	0.50%		1.09E+09	0.00	1:02:03	data		
111	72Zn	3.02	0.50%		8.65E+08	0.00	0:45:37	data		
112	72Zn	3.02	0.50%		4.81E+08	0.00	0:33:58	data		
113	72Zn	3.02	0.50%		3.02E+08	0.00	0:24:18	data		
114	72Zn	3.02	1%		3.92E+08	0.00	0:24:09	data		
115	72Zn	3.02	1%		1.74E+08	0.00	0:16:47	data		
116	72Zn	3.02	1%		6.16E+08	0.00	0:22:20	data		
117	72Zn	3.02	1%		1.5E+09	0.00	0:56:18	data		
118	72Zn	3.02	1%		1.11E+09	0.00	0:45:12	data		
140	72Zn	3.02	0.50%		3.29E+08	0.00	0:15:33	data		
141	72Zn	3.02	0.50%		89254519	0.00	0:02:43	data		
142	72Zn	3.02	0.50%		1.11E+09	0.00	0:42:07	data	6:58:20	
144	72Zn	3.08	0.50%		9771004	0.00	0:00:20	data		
146	72Zn	3.08	0.50%	1.54E+09	39824706	38.78	1:05:58	data		
147	72Zn	3.08	0.50%	1.04E+08	14240917	7.33	0:23:40	data		
148	72Zn	3.08	0.50%	75915402	5145426	14.75	0:08:34	data		
149	72Zn	3.08	0.50%	2.01E+08	4496851	44.61	0:07:29	data		
102	72Zn	3.08	0.50%		9.92E+08	0.00	0:31:12	data		
103	72Zn	3.08	0.50%		-1.83E+09	0.00	1:05:12	data		
104	72Zn	3.08	0.50%		1.96E+09	0.00	1:03:07	data		
105	72Zn	3.08	0.50%		1.72E+09	0.00	1:14:47	data		
106	72Zn	3.08	0.50%		1.36E+09	0.00	0:54:59	data		
107	72Zn	3.08	0.50%		1.36E+09	0.00	1:00:21	data		
108	72Zn	3.08	0.50%		5.58E+08	0.00	0:27:15	data	8:02:54	
137	72Zn	2.88			1.46E+08	0.00	0:04:07	target scintillator		

68Ni 15 may 10:33

03031 Run Sheet

Run# 166	S800		
Date 5/05/05	*Begin:* 10:33		*End:*
Target: Be Ta	Br=____ Tm	dp/p=	Scaler ____ Master.Live/Master___
^{64}Ni ☐ Intensity_____pps ^{68}Ni ☐ Intensity_____pps	Comments: Do not forget to print Barney!		
Who's on shift			

```
A1900 "Print15May05_10h34.txt" (68Ni) Sunday 10:34:55 2005-05-15  A1900
***                                   68Ni, run 166 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  100>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m   -0.00154 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23499 T  3.10148 m    3.10148 m   -0.00007 % (3.83030 Tm)
Seg 3:  3.54250 Tm  1.14458 T  3.09502 m    3.09502 m    0.00003 % (3.54250 Tm)
Seg 4:  3.54250 Tm  1.14429 T  3.09582 m    3.09579 m   -0.00100 % (3.54254 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.80313 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10732 T  3.14194 m    3.14203 m    0.00279 %
I205DS              1.10716 T  3.14204 m    3.14248 m    0.01406 %
I223DS              1.12331 T  3.09708 m    3.09730 m    0.00716 %
I228DS              1.09781 T  3.17034 m    3.16925 m   -0.03451 %
I265DS              1.00064 T  2.80280 m    2.80134 m   -0.05219 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -0.00   10.00 mm E110
```



^{69}Cu 65%
~~^{71}Zn~~ 5.8%
^{68}Ni 24%
^{70}Cu
total

$\Delta p/p = 0,5$

Ext. ϕ. plano
−3 mm slit

now: 77% ^{69}Cu 13145
^{71}Zn 116
20% ^{68}Ni 3415
2 ^{70}Cu 28
tot 16871

Run # 167

Run # 168 −4 mm

82% 17924
2% 52
16% 3489
24
21746

Run # 169 = 2

7303 ^{69}Cu
158 Zn
2289 ^{68}Ni
44 ^{70}Cu
9908 total

We put = −3 mm

Run # 170 ϕ1 −3 mm

Δp/p ~ 1.5%

03031 Run Sheet

Run# 170	**S800**		
Date__/05/05	***Begin:***		***End:***
Target: **Be** **Ta**	**Br=____** **Tm** 2.8803	**dp/p=**	Scaler ____ Master.Live/Master___
^{68}Ni **Intensity_____pps**	Comments: Do not forget to print Barney!		
^{68}Ni **Intensity pps**	2 FP Slits −3		

```
A1900 "Print15May05_11h00.txt"    Sunday 11:00:08 2005-05-15  A1900
***       run 170 beam composition dp/p=1.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  300>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09876 m   -0.00187 % (3.83037 Tm)
Seg 2:  3.83030 Tm  1.23499 T  3.10148 m    3.10148 m    0.00013 % (3.83029 Tm)
Seg 3:  3.54250 Tm  1.14458 T  3.09502 m    3.09501 m   -0.00013 % (3.54250 Tm)
Seg 4:  3.54250 Tm  1.14430 T  3.09582 m    3.09578 m   -0.00130 % (3.54255 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.80300 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10732 T  3.14194 m    3.14203 m    0.00279 %
I205DS              1.10717 T  3.14204 m    3.14245 m    0.01315 %
I223DS              1.12334 T  3.09708 m    3.09722 m    0.00449 %
I228DS              1.09781 T  3.17034 m    3.16925 m   -0.03451 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:  -19.70,  24.02 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
```

03031 Run Sheet

Date__/05/05	***Begin:*** 11:03		***End:***
Target: **Be**	**Br____** 3.08	dp/p= 1.5%	Scaler ____ Master.Live/Master___
~~68~~ 7Li ☐	Comments:		
Who's on shift			

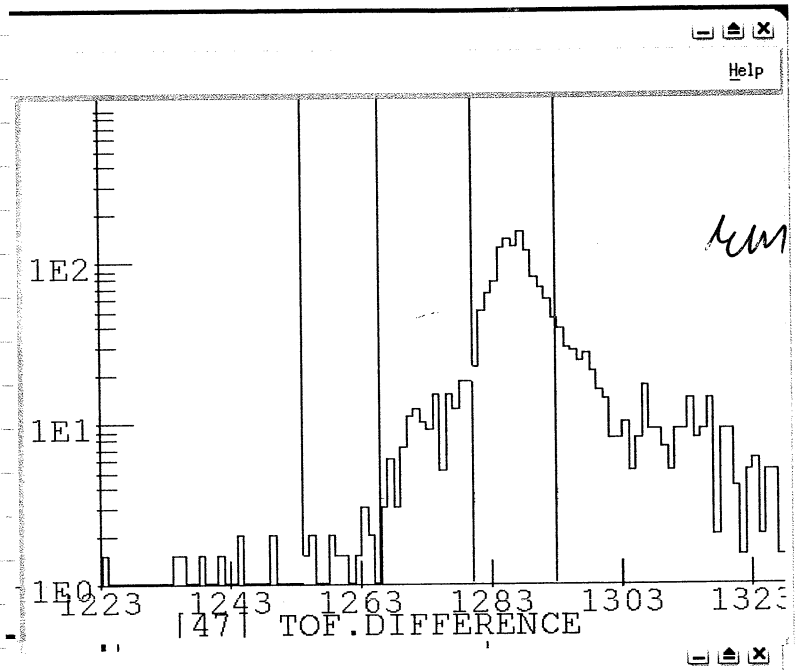
Run #	start	stop	Comments
171		11:25	
~~172~~	11:30	~12:45	
173	12:46	13:50	
174	13:50	14:50	
175	14:50	15:00	

Run 171 LT2
Live Trigg ~60
OBJ. Scint ~2881C
XFP. Scint ~3651C

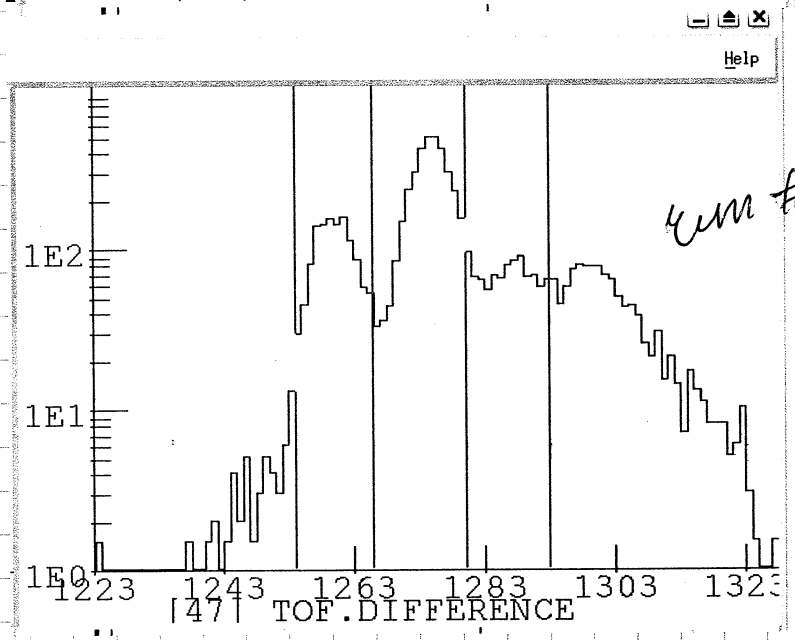
Effici :
E1. up vis dem 22619
E1 ~~1830~~ 27730
TOF-OBJ 18304
TOF. XFP 18345

```
A1900 "Print15May05_11h06.txt"    Sunday 11:06:18 2005-05-15  A1900
***                              run 171, 68Ni ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m   -0.00169 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10147 m   -0.00033 % (3.83031 Tm)
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09499 m   -0.00071 % (3.54253 Tm)
Seg 4:  3.54250 Tm  1.14430 T  3.09582 m    3.09579 m   -0.00118 % (3.54254 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  3.08000 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10733 T  3.14194 m    3.14200 m    0.00188 %
I205DS              0.00000 T  3.14204 m    0.00000 m  100.00000 %
I223DS              1.12332 T  3.09708 m    3.09727 m    0.00627 %
I228DS              1.09782 T  3.17034 m    3.16922 m   -0.03542 %
I265DS              1.09842 T  2.80280 m    2.80403 m    0.04380 %
I269DS              1.09872 T  2.80280 m    2.80326 m    0.01648 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:  -19.70,  24.02 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  BSet[kG]    Ratio     (live)     Set[A]   Read[A] DEVI
```



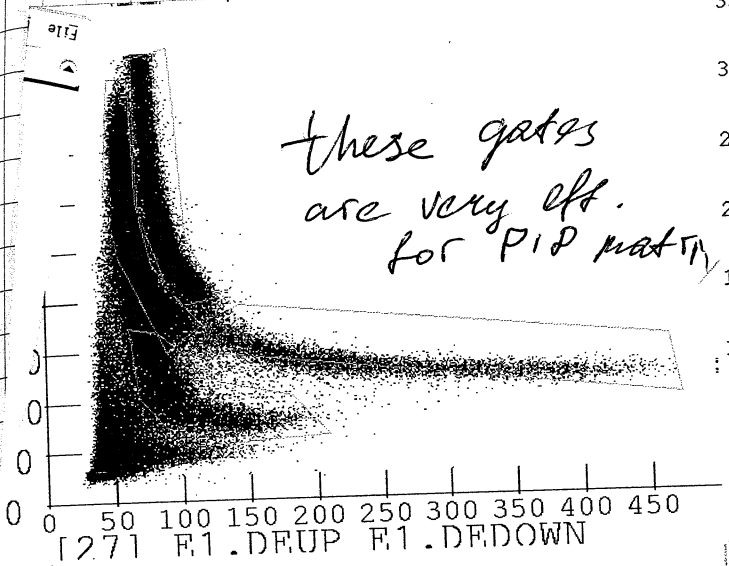
run 171

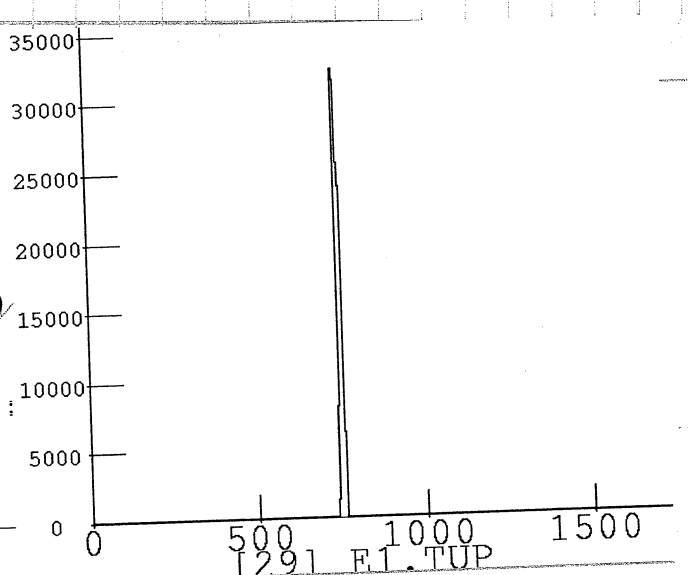


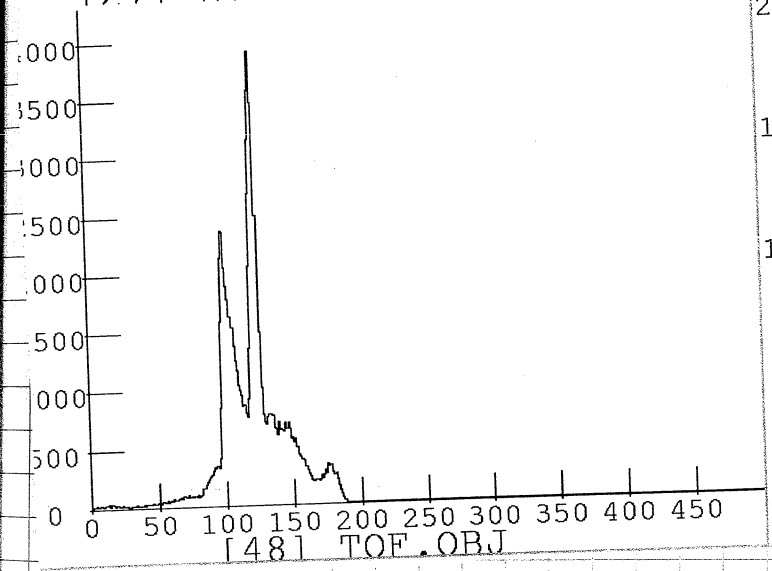
run #34

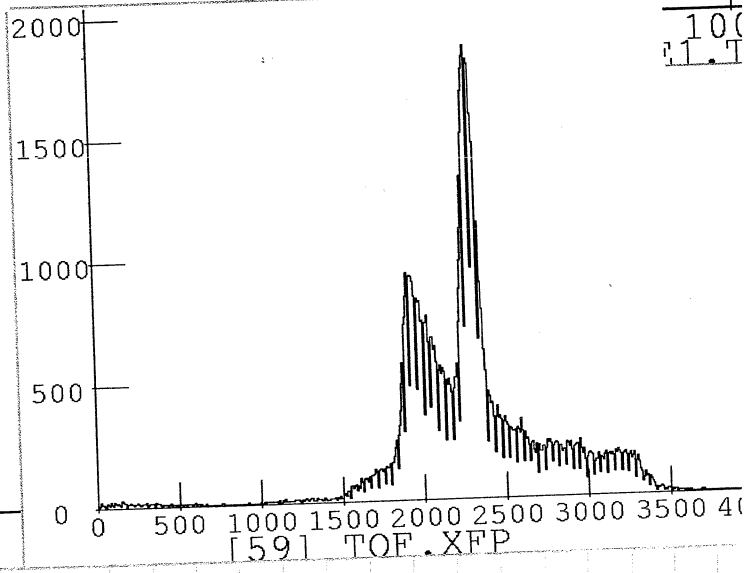
this time shift is due to change of cable

these gates are very eff. for PID matrix







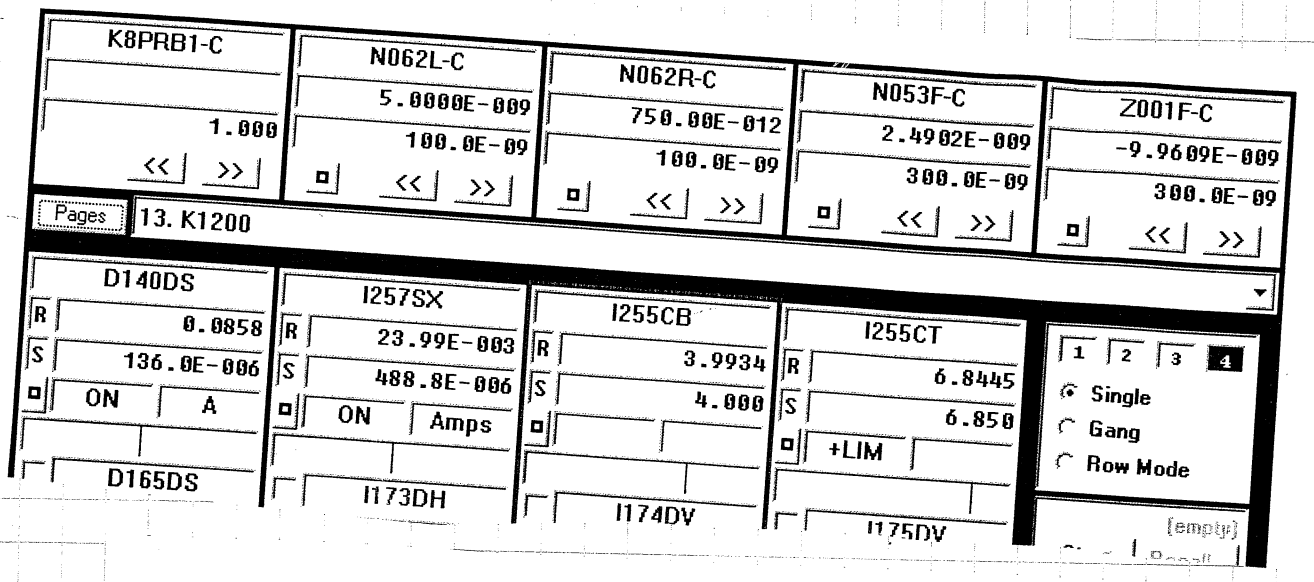


```
A1900 "Print15May05_15h03.txt"    Sunday 15:03:03 2005-05-15  A1900
***                                        run175 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m   -0.00171 % (3.83037 Tm)
Seg 2:  3.83030 Tm  1.23499 T  3.10148 m    3.10149 m    0.00019 % (3.83029 Tm)
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09500 m   -0.00038 % (3.54251 Tm)
Seg 4:  3.54250 Tm  1.14431 T  3.09582 m    3.09575 m   -0.00226 % (3.54258 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  3.08000 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10734 T  3.14194 m    3.14197 m    0.00098 %
I205DS              1.10715 T  3.14204 m    3.14251 m    0.01496 %
I223DS              1.12336 T  3.09708 m    3.09716 m    0.00271 %
I228DS              1.09783 T  3.17034 m    3.16919 m   -0.03633 %
I265DS              1.09867 T  2.80280 m    2.80339 m    0.02103 %
I269DS              1.09883 T  2.80280 m    2.80298 m    0.00647 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:  -19.70,  24.02 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Run# 176, 177	S800		
Date__/05/05	***Begin:***		***End:***
Target: **Be** **Ta**	**Br=___** 3.02 **Tm**	dp/p=	Scaler ____ Master.Live/Master___
^{64}Ni ☐ **Intensity_____pps**	Comments: Do not forget to print Barney!		
^{68}Ni ☐ **Intensity_____pps**	small blocking I255CB 3.99		
Who's on shift	CT 6.48		

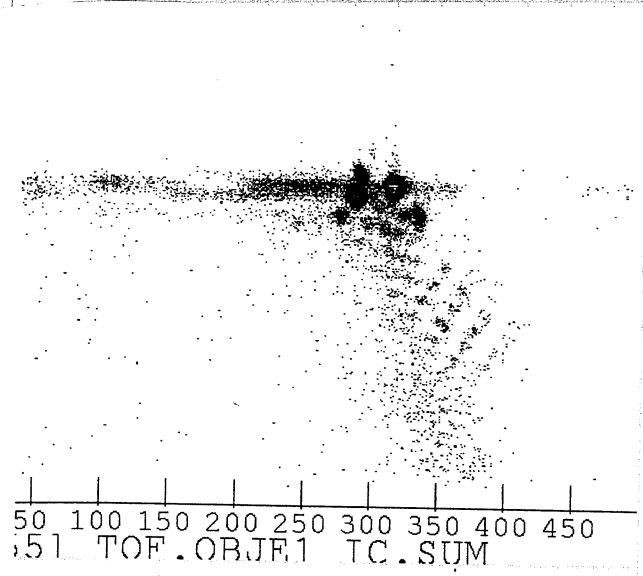
```
A1900 "Print15May05_15h11.txt"    Sunday 15:11:07 2005-05-15  A1900
***                                          run176 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00144 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23499 T  3.10148 m    3.10148 m    0.00011 % (3.83030 Tm)
Seg 3:  3.54250 Tm  1.14458 T  3.09502 m    3.09501 m   -0.00020 % (3.54251 Tm)
Seg 4:  3.54250 Tm  1.14431 T  3.09582 m    3.09575 m   -0.00229 % (3.54258 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  3.02000 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10732 T  3.14194 m    3.14203 m    0.00279 %
I205DS              1.10714 T  3.14204 m    3.14254 m    0.01586 %
I223DS              1.12335 T  3.09708 m    3.09719 m    0.00360 %
I228DS              1.09783 T  3.17034 m    3.16919 m   -0.03633 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:  -19.70,  24.02 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

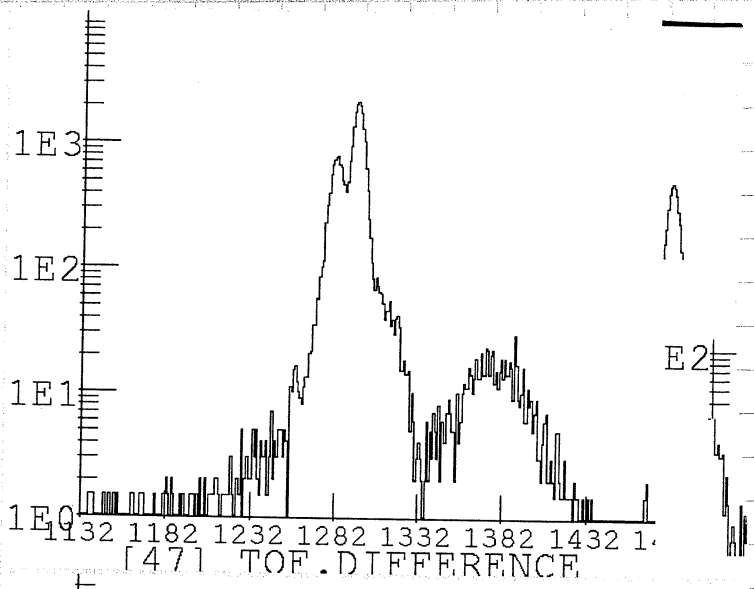


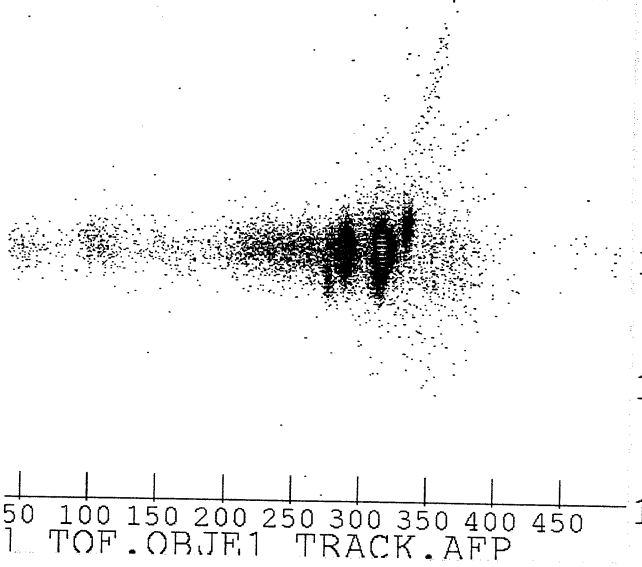
03031 Run Sheet

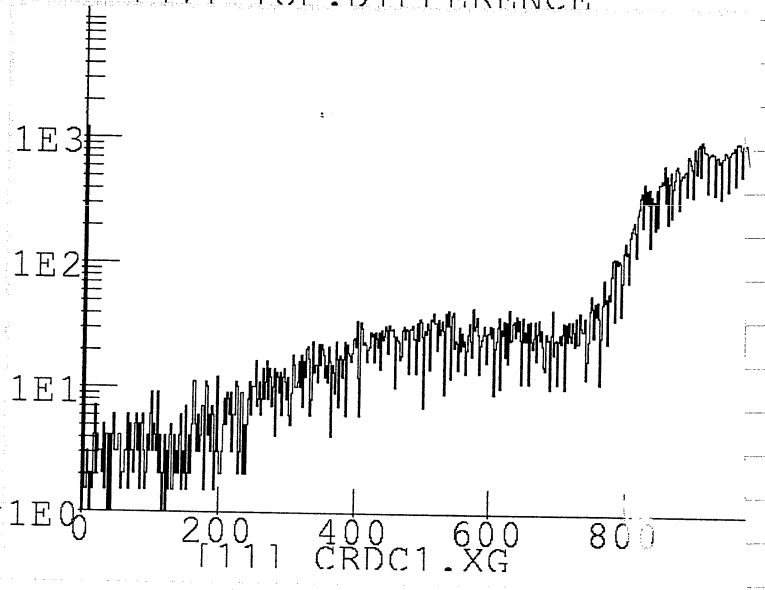
Date 15/05/05	***Begin:***		***End:***
Target: Be	**Br** 3.02	dp/p= 1.5%	Scaler ___
68			Master.Live/Master___
Who's on shift	Comments:		

Run #	**start**	**stop**	**Comments**
176	15^{00}	16^{25}	
177	16^{25}	16^{26}	beam problem beg short
178 - bad			ECR problem
179	17^{00}	17:32	
180	17:32	18:03	
181	18:03	18:36	
182	18:36		



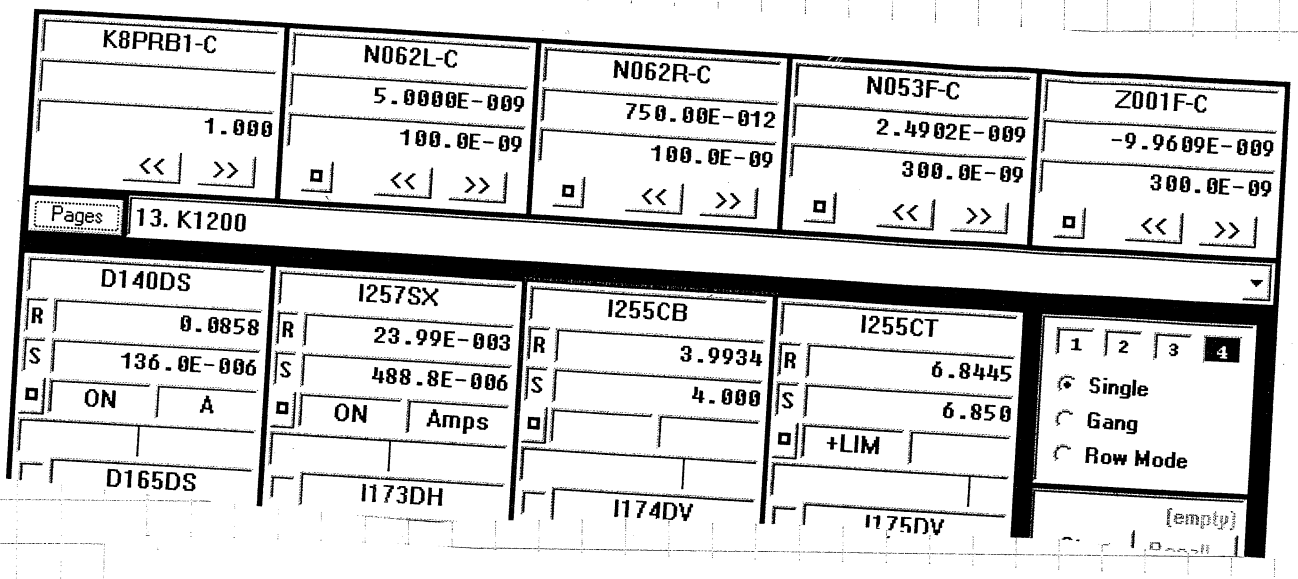






A1900 "Print15May05_17h04.txt" Sunday 17:04:39 2005-05-15 A1900
***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+ 11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att 1> ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b: 675 A, 650 A K1200: 812 A, 62 A RF: 22.49300 MHz
A1900 Optics: G19S3V13_30x20Focus60x30.data

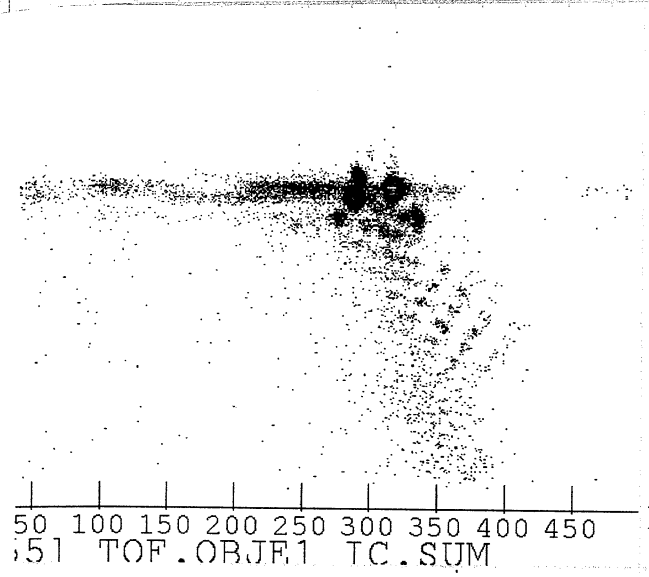
	Rigidity	Field	Radius	(live)	Difference (Field*Radius)
Seg 0:	4.32100 Tm				
Seg 1:	3.83030 Tm	1.23607 T	3.09882 m	3.09877 m	-0.00168 % (3.83036 Tm)
Seg 2:	3.83030 Tm	1.23500 T	3.10148 m	3.10146 m	-0.00054 % (3.83032 Tm)
Seg 3:	3.54250 Tm	1.14459 T	3.09502 m	3.09500 m	-0.00047 % (3.54252 Tm)

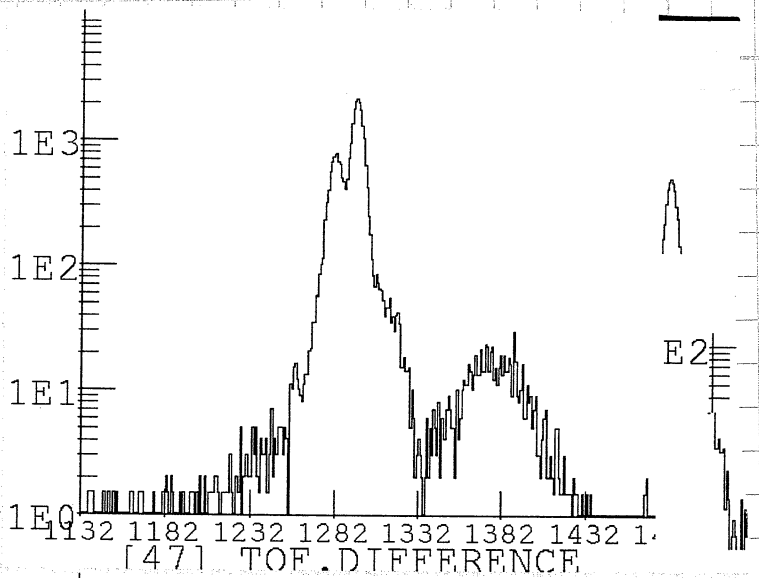


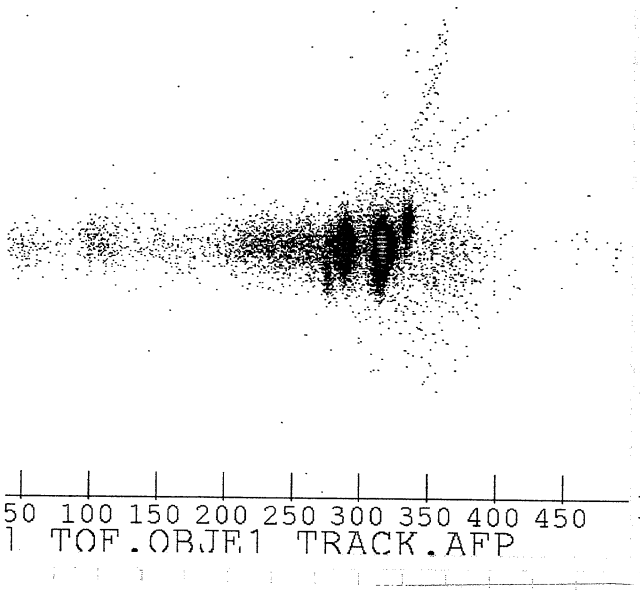
03031 Run Sheet

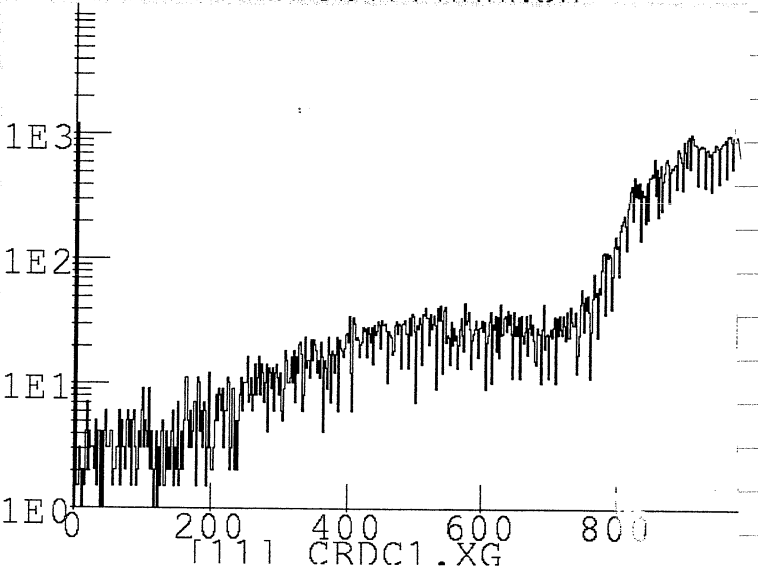
Date 15 /05/05	***Begin:***		***End:***
Target: Be	**Br** 3.02	dp/p= 1.5%	Scaler ___
68 1/4 68 N/	Comments:		Master.Live/Master___
Who's on shift			

Run #	**start**	**stop**	**Comments**
176	15^{00}	16^{25}	
177	16^{25}	16^{26}	beam problem beg short
178 - bad			ECR problem
179	17^{00}	17:32	
180	17:32	18:03	
181	18:03	18:36	
182	18:36		









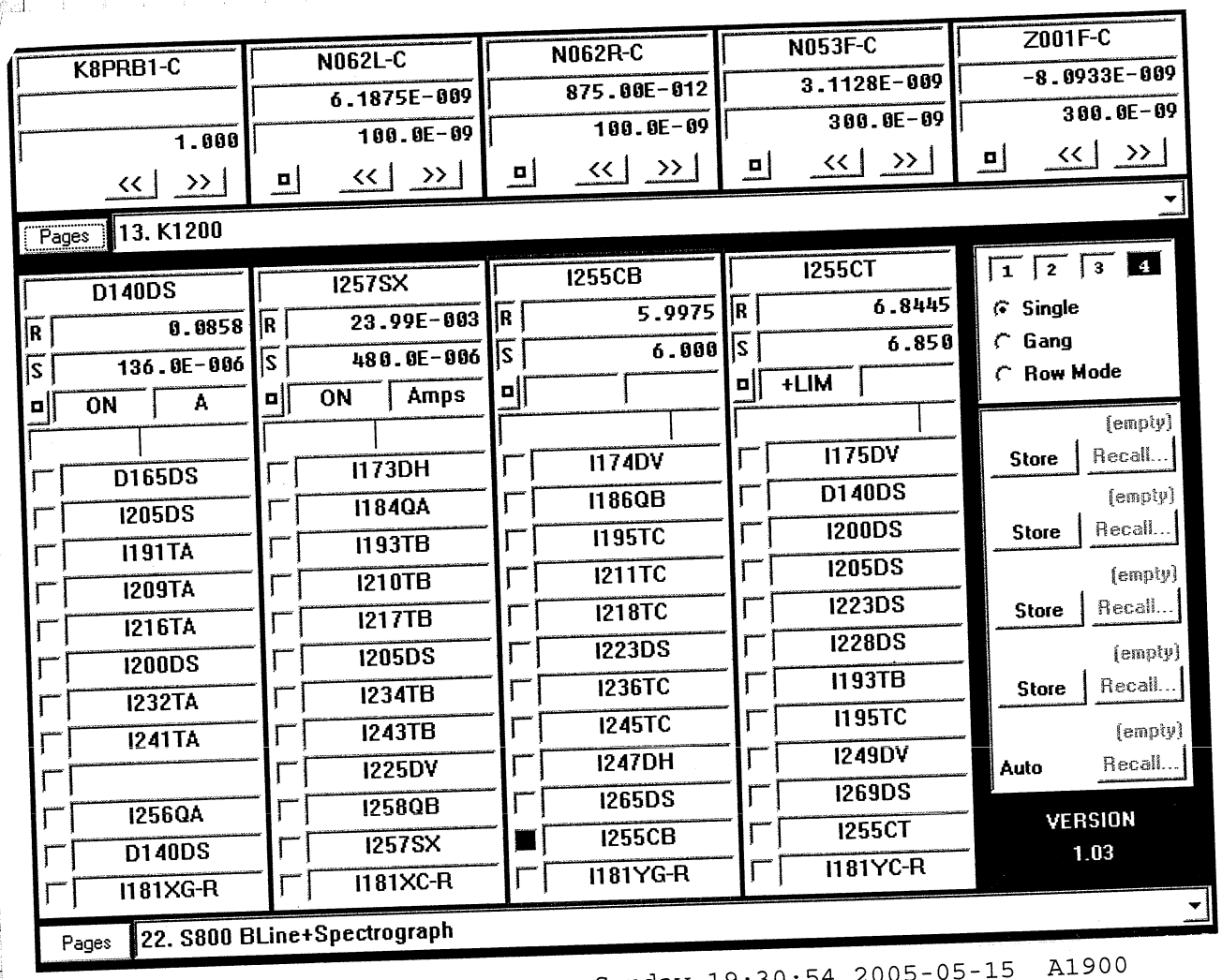
A1900 "Print15May05_17h04.txt" Sunday 17:04:39 2005-05-15 A1900
***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+ 11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att 1> ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b: 675 A, 650 A K1200: 812 A, 62 A RF: 22.49300 MHz
A1900 Optics: G19S3V13_30x20Focus60x30.data

	Rigidity	Field	Radius	(live)	Difference (Field*Radius)
Seg 0:	4.32100 Tm				
Seg 1:	3.83030 Tm	1.23607 T	3.09882 m	3.09877 m	-0.00168 % (3.83036 Tm)
Seg 2:	3.83030 Tm	1.23500 T	3.10148 m	3.10146 m	-0.00054 % (3.83032 Tm)
Seg 3:	3.54250 Tm	1.14459 T	3.09502 m	3.09500 m	-0.00047 % (3.54252 Tm)

A1900 "Print15May05_17h32.txt" Sunday 17:32:54 2005-05-15 A1900
*** run 180 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+ 11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att 1> ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b: 675 A, 650 A K1200: 812 A, 62 A RF: 22.49300 MHz
A1900 Optics: G19S3V13_30x20Focus60x30.data

	Rigidity	Field	Radius	(live)	Difference (Field*Radius)
Seg 0:	4.32100 Tm				
Seg 1:	3.83030 Tm	1.23607 T	3.09882 m	3.09877 m	-0.00156 % (3.83036 Tm)
Seg 2:	3.83030 Tm	1.23500 T	3.10148 m	3.10146 m	-0.00070 % (3.83033 Tm)
Seg 3:	3.54250 Tm	1.14459 T	3.09502 m	3.09501 m	-0.00026 % (3.54251 Tm)
Seg 4:	3.54250 Tm	1.14431 T	3.09582 m	3.09575 m	-0.00251 % (3.54259 Tm)
Seg 5:	3.52130 Tm				
Seg 6:	3.47923 Tm				
Seg 7:	3.47923 Tm				
Seg 8:	3.02000 Tm				
Z108DS		0.50280 T	7.04675 m	7.04554 m	-0.01710 %
D140DS		0.00145 T	2282.62069 m	2428.48276 m	6.39011 %
D165DS		0.37209 T	9.46362 m	9.46361 m	-0.00013 %
I200DS		1.10732 T	3.14194 m	3.14203 m	0.00279 %
I205DS		1.10718 T	3.14204 m	3.14242 m	0.01225 %
I223DS		1.12336 T	3.09708 m	3.09716 m	0.00271 %
I228DS		1.09782 T	3.17034 m	3.16922 m	-0.03542 %
I265DS		1.07764 T	2.80280 m	2.80242 m	-0.01355 %
I269DS		0.00000 T	2.80280 m	0.00000 m	100.00000 %

Z001TL: out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z020BC Beam Stop: -126.22 mm




```
A1900 "Print15May05_19h30.txt"     Sunday 19:30:54 2005-05-15  A1900
                                                    run183 ***
***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
        A1900 Optics: G19S3V13_30x20Focus60x30.data
        Rigidity        Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m   -0.00154 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00111 % (3.83034 Tm)
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09501 m   -0.00034 % (3.54251 Tm)
Seg 4:  3.54250 Tm  1.14431 T  3.09582 m    3.09576 m   -0.00213 % (3.54258 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
```

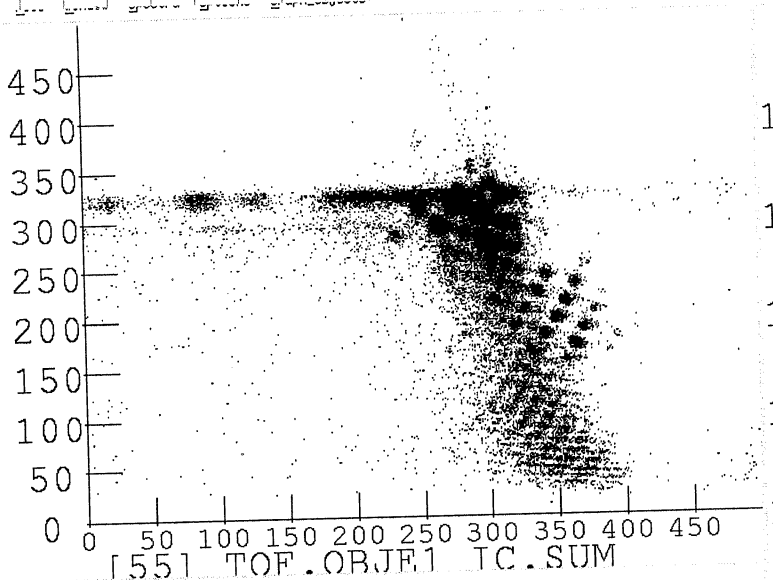
```
A1900 "Print15May05_18h04.txt"    Sunday 18:04:35 2005-05-15  A1900
***                                                  run181 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m   -0.00169 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m    0.00000 % (3.83032 Tm)
Seg 3:  3.54250 Tm  1.14458 T  3.09502 m    3.09502 m    0.00004 % (3.54250 Tm)
Seg 4:  3.54250 Tm  1.14431 T  3.09582 m    3.09575 m   -0.00239 % (3.54258 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  3.02000 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10732 T  3.14194 m    3.14203 m    0.00279 %
I205DS              1.10716 T  3.14204 m    3.14248 m    0.01406 %
I223DS              1.12334 T  3.09708 m    3.09722 m    0.00449 %
I228DS              1.09782 T  3.17034 m    3.16922 m   -0.03542 %
I265DS              1.07760 T  2.80280 m    2.80252 m   -0.00984 %
I269DS              1.07753 T  2.80280 m    2.80271 m   -0.00335 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:  -19.70,  24.02 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110    0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

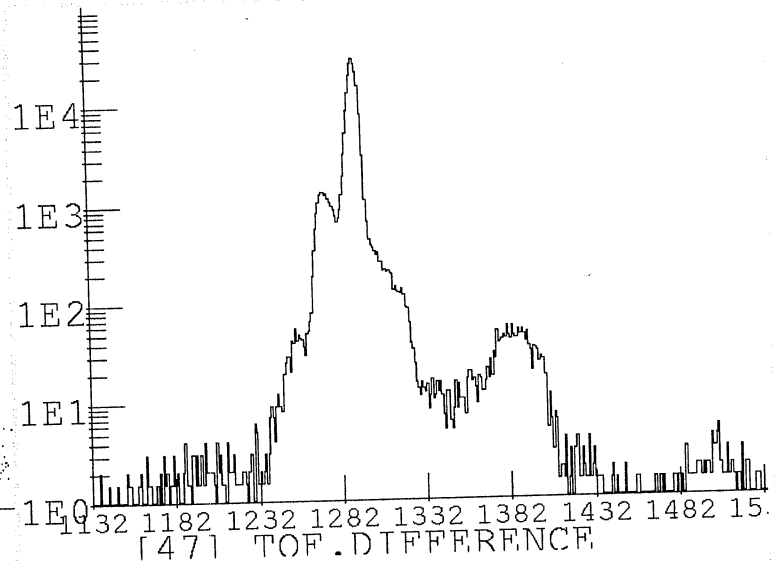
```
A1900 "Print15May05_18h38.txt"    Sunday 18:38:24 2005-05-15  A1900
***                                                  run182 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
```

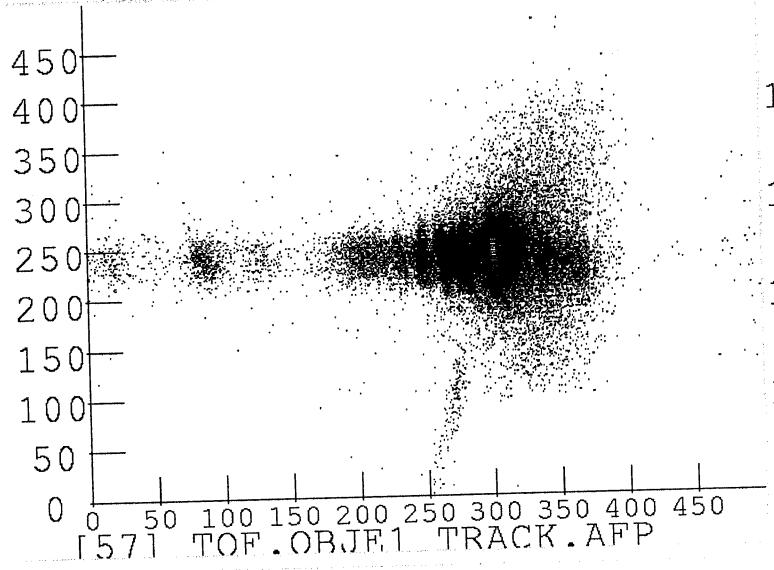
03031 Run Sheet

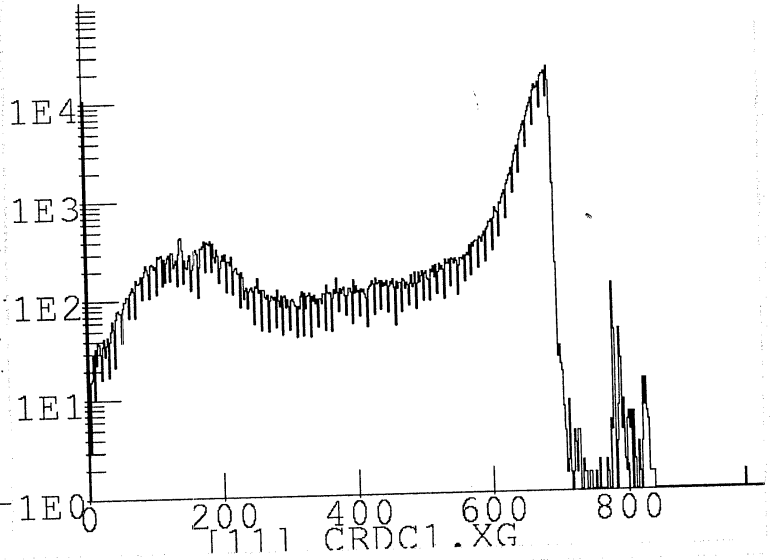
Date 15 /05/05	***Begin:*** 19:23		***End:***
Target: **Be**	**Br** 2.9657	dp/p= 0.5%	Scaler ____ Master.Live/Master___
68 Ni	Comments:		
Who's on shift			

Run #	**start**	**stop**	**Comments**
183	19:23		Forgot to change title of run.
184	20:30		









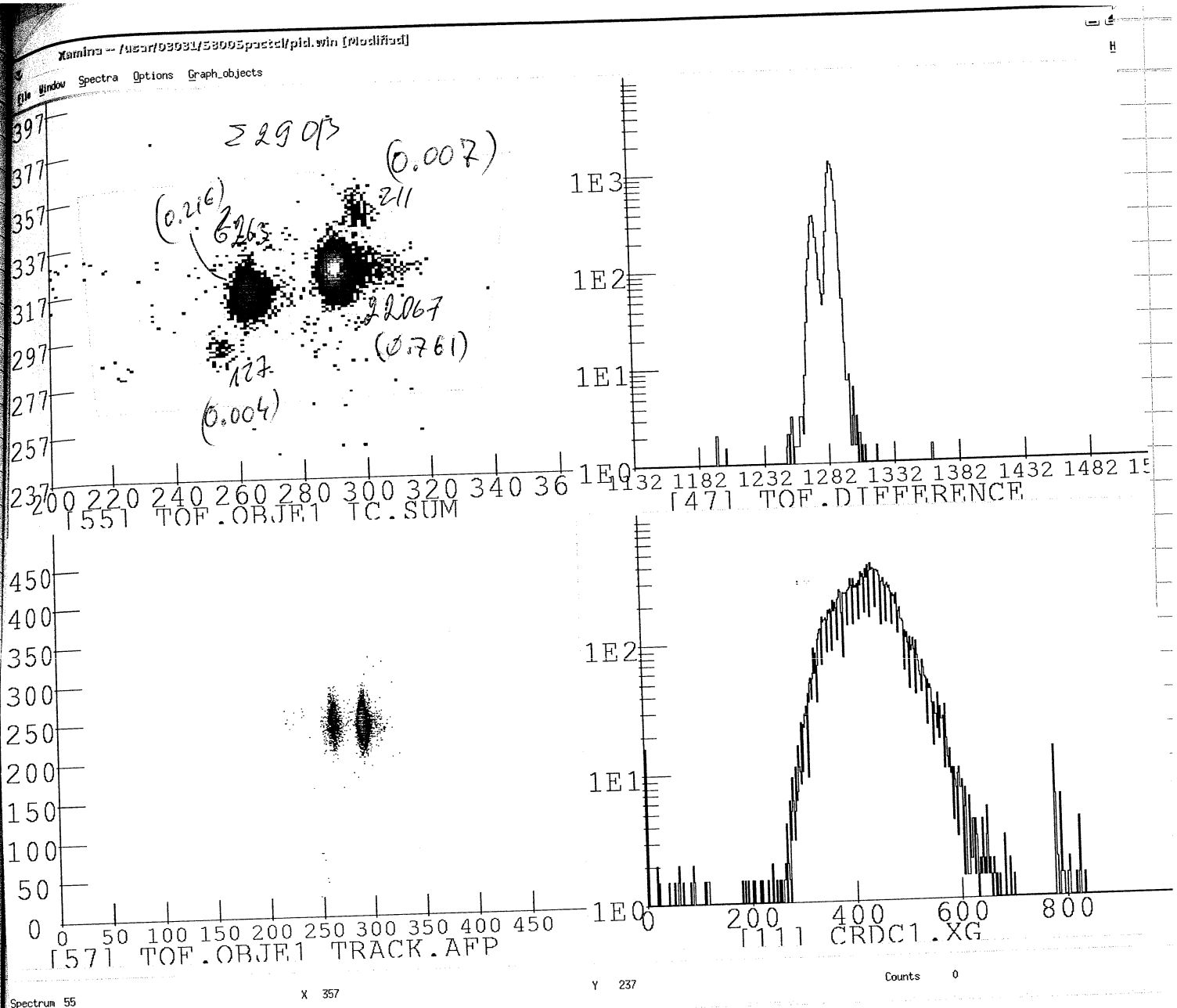
Spectrum 47 X 1242 Y 29950 Counts 9

```
A1900 "Print15May05_20h30.txt"     Sunday 20:30:11 2005-05-15  A1900
***                                          run184 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09876 m   -0.00186 % (3.83037 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00095 % (3.83034 Tm)
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09498 m   -0.00104 % (3.54254 Tm)
Seg 4:  3.54250 Tm  1.14431 T  3.09582 m    3.09574 m   -0.00274 % (3.54260 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.96570 Tm
Z108DS              0.00000 T  7.04675 m    0.00000 m  100.00000 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10733 T  3.14194 m    3.14200 m    0.00188 %
I205DS              1.10715 T  3.14204 m    3.14251 m    0.01496 %
I223DS              1.12335 T  3.09708 m    3.09719 m    0.00360 %
I228DS              1.09782 T  3.17034 m    3.16922 m   -0.03542 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              1.05821 T  2.80280 m    2.80256 m   -0.00846 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Run# 185	S800		
Date 5/05/05	**Begin:** 21:43		**End:**
Target: **Be** **Ta**	**Br=** 2.803 **Tm**	dp/p= 0.5%	Scaler ____ Master.Live/Master___
^{64}Ni **Intensity**_____**pps** ^{68}Ni **Intensity**_____**pps**	Comments: Do not forget to print Barney! Beam composition at 0.5		

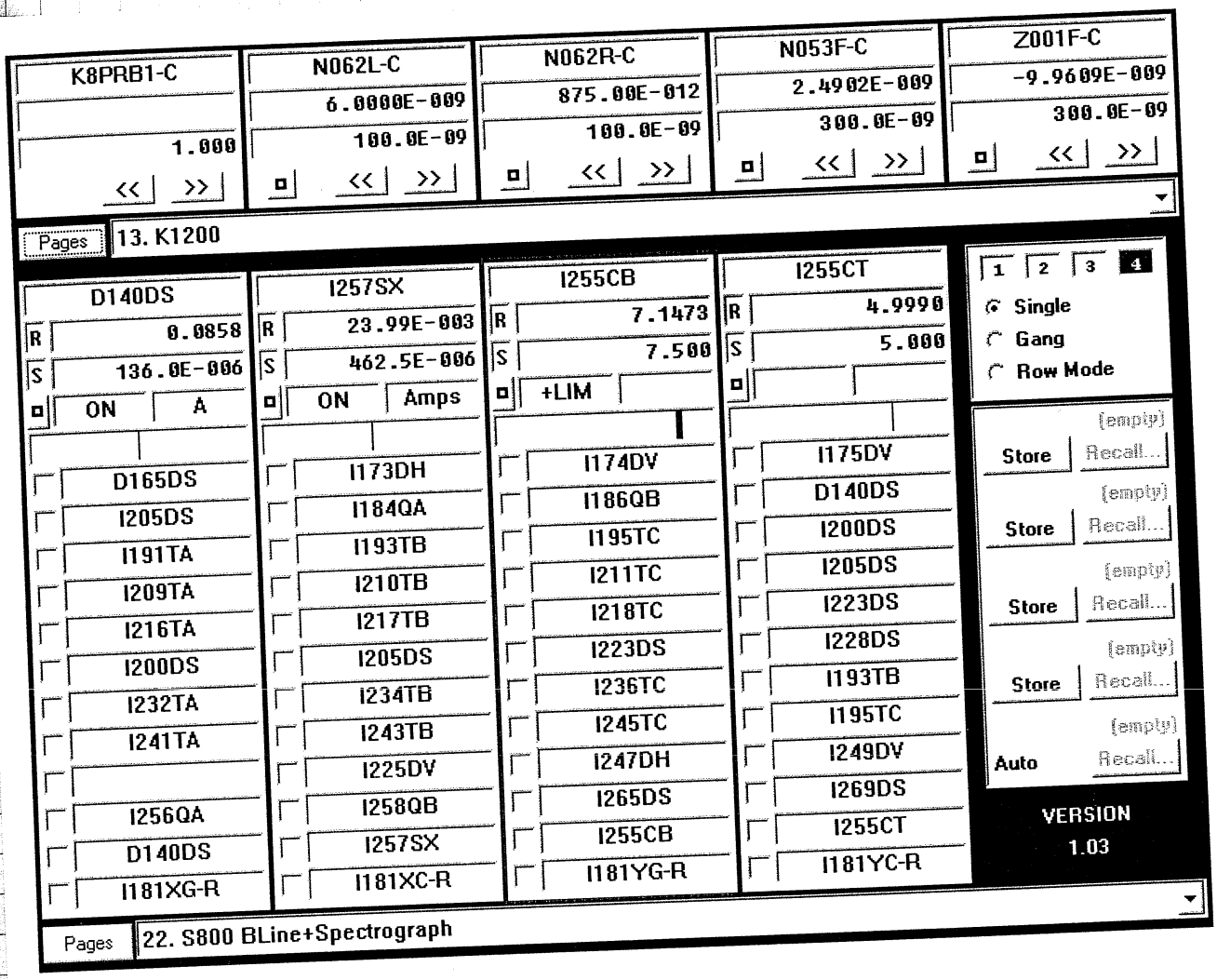
```
A1900 "Print15May05_21h44.txt"     Sunday 21:44:17 2005-05-15  A1900
***                                                  run185 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  100>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity        Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00141 % (3.83035 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00124 % (3.83035 Tm)
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09498 m   -0.00109 % (3.54254 Tm)
Seg 4:  3.54250 Tm  1.14431 T  3.09582 m    3.09575 m   -0.00253 % (3.54259 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.80300 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10731 T  3.14194 m    3.14206 m    0.00369 %
I205DS              1.10720 T  3.14204 m    3.14237 m    0.01044 %
I223DS              1.12337 T  3.09708 m    3.09714 m    0.00182 %
I228DS              1.09784 T  3.17034 m    3.16916 m   -0.03724 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,    9.35 mm  Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```


Xamine -- /user/03031/5800Spectcl/pid.win [Modified]
File Window Spectra Options Graph_objects
Σ2905
(0.007)
211
(0.216)
2265
2067
(0.761)
127
(0.004)
[55] TOF.OBJF1 TC.SUM
[47] TOF.DIFFERENCE
[57] TOF.OBJF1 TRACK.AFP
[111] CRDC1.XG
Spectrum 55
X 357
Y 237
Counts 0
Geometry
Zoom
Update All
Expand
Marker
Display
Update Selected
UnExpand
Summing Region
Band
Display +
Info + -
Log
Map
Integrate
Contour

03031 Run Sheet

Run# 186	**S800**		
Date__/05/05	***Begin:*** 2155		***End:*** 23:50
Target: **Be** **Ta**	**Br=**___ **Tm** 2.8578	dp/p= 0.5%	Scaler ____ Master.Live/Master___
^{68}Ni **Intensity**____**pps**	Comments: Do not forget to print Barney!		
^{68}Ni **Intensity**____**pps**			

```
A1900 "Print15May05_23h45.txt"    Sunday 23:45:19 2005-05-15  A1900
***                                          run186 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
        A1900 Optics: G19S3V13_30x20Focus60x30.data
        Rigidity       Field     Radius       (live)  Difference (Field*Radiu
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00123 % (3.83035
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00073 % (3.83033
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09498 m   -0.00104 % (3.54254
Seg 4:  3.54250 Tm  1.14432 T  3.09582 m    3.09573 m   -0.00296 % (3.54260
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.85780 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10731 T  3.14194 m    3.14206 m    0.00369 %
I205DS              1.10716 T  3.14204 m    3.14248 m    0.01406 %
I223DS              1.12336 T  3.09708 m    3.09716 m    0.00271 %
I228DS              1.09785 T  3.17034 m    3.16913 m   -0.03815 %
I265DS              1.01950 T  2.80280 m    2.80314 m    0.01209 %
I269DS              1.02014 T  2.80280 m    2.80138 m   -0.05066 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110     0.01,    0
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```


K8PRB1-C
1.000
N062L-C
6.0000E-009
100.0E-09
N062R-C
875.00E-012
100.0E-09
N053F-C
2.4902E-009
300.0E-09
Z001F-C
-9.9609E-009
300.0E-09
Pages
13. K1200
D140DS
R 0.0858
S 136.0E-006
ON A
D165DS
I205DS
I191TA
I209TA
I216TA
I200DS
I232TA
I241TA
I256QA
D140DS
I181XG-R
I257SX
R 23.99E-003
S 462.5E-006
ON Amps
I173DH
I184QA
I193TB
I210TB
I217TB
I205DS
I234TB
I243TB
I225DV
I258QB
I257SX
I181XC-R
I255CB
R 7.1473
S 7.500
+LIM
I174DV
I186QB
I195TC
I211TC
I218TC
I223DS
I236TC
I245TC
I247DH
I265DS
I255CB
I181YG-R
I255CT
R 4.9990
S 5.000
I175DV
D140DS
I200DS
I205DS
I223DS
I228DS
I193TB
I195TC
I249DV
I269DS
I255CT
I181YC-R
1 2 3 4
Single
Gang
Row Mode
(empty)
Store
Recall...
(empty)
Store
Recall...
(empty)
Store
Recall...
(empty)
Store
Recall...
(empty)
Auto
Recall...
VERSION
1.03
Pages
22. S800 BLine+Spectrograph

03031 Run Sheet

Run# 187	S800	
Date 5/05/05	Begin:	End:
Target: Be Ta	Br=____ Tm 2.803 / dp/p= 1.5	Scaler ____ Master.Live/Master___
^{64}Ni Intensity_____pps ^{68}Ni Intensity_____pps	Comments: Do not forget to print Barney! Beam Confirmation composition	

```
A1900 "Print16May05_00h03.txt"    Monday 00:03:07 2005-05-16  A1900
***                                          run187 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  300>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00144 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00098 % (3.83034 Tm)
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09499 m   -0.00075 % (3.54253 Tm)
Seg 4:  3.54250 Tm  1.14432 T  3.09582 m    3.09572 m   -0.00325 % (3.54262 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.80300 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10731 T  3.14194 m    3.14206 m    0.00369 %
I205DS              1.10717 T  3.14204 m    3.14245 m    0.01315 %
I223DS              1.12338 T  3.09708 m    3.09711 m    0.00093 %
I228DS              1.09783 T  3.17034 m    3.16919 m   -0.03633 %
I265DS              1.00204 T  2.80280 m    2.79729 m   -0.19646 %
I269DS              1.00175 T  2.80280 m    2.79810 m   -0.16757 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:  -19.70,  24.04 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

complete open

K8PRB1-C	N062L-C	N062R-C	N053F-C	Z001F-C
1.000	-62.500E-012	-62.500E-012	2.4902E-009	-8.7158E-009
<< >>	100.0E-09	100.0E-09	300.0E-09	300.0E-09
	<< >>	<< >>	<< >>	<< >>

Pages | 13. K1200

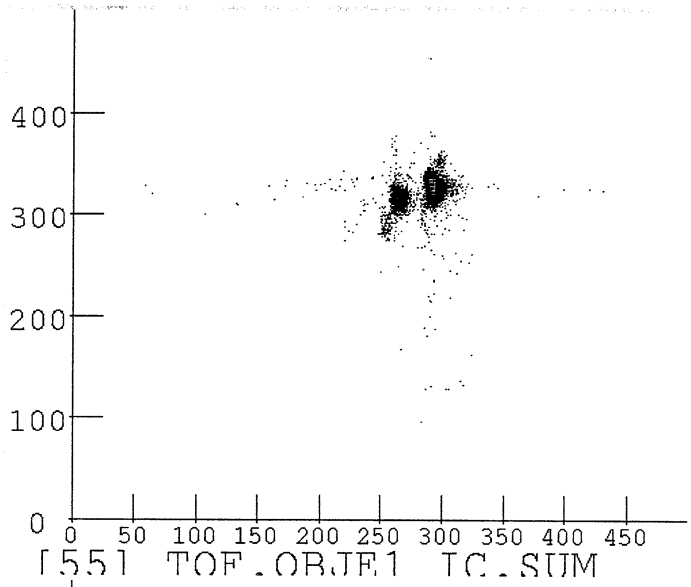
D140DS	I257SX	I255CB	I255CT
R 0.0858	R 23.99E-003	R 3.2075	R 6.8445
S 136.0E-006	S 453.7E-006	S 3.200	S 6.850
ON A	ON Amps		+LIM
D165DS	I173DH	I174DV	I175DV
I205DS	I184QA	I186QB	D140DS
I191TA	I193TB	I195TC	I200DS
I209TA	I210TB	I211TC	I205DS
I216TA	I217TB	I218TC	I223DS
		I223DS	I228DS

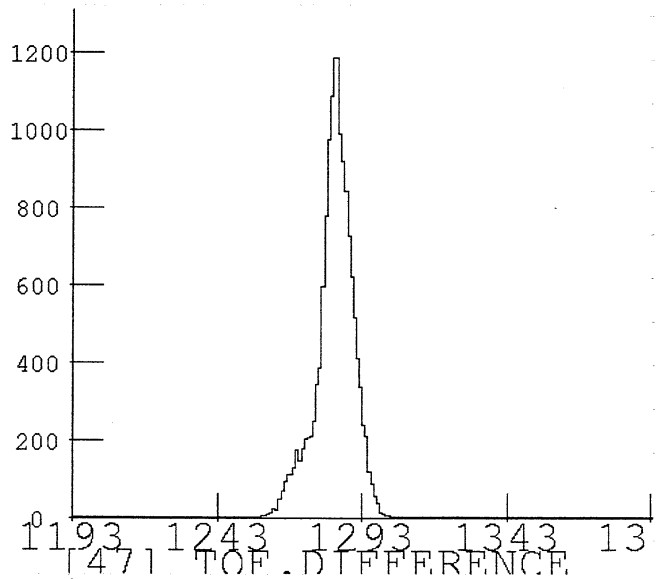
1 2 3 4

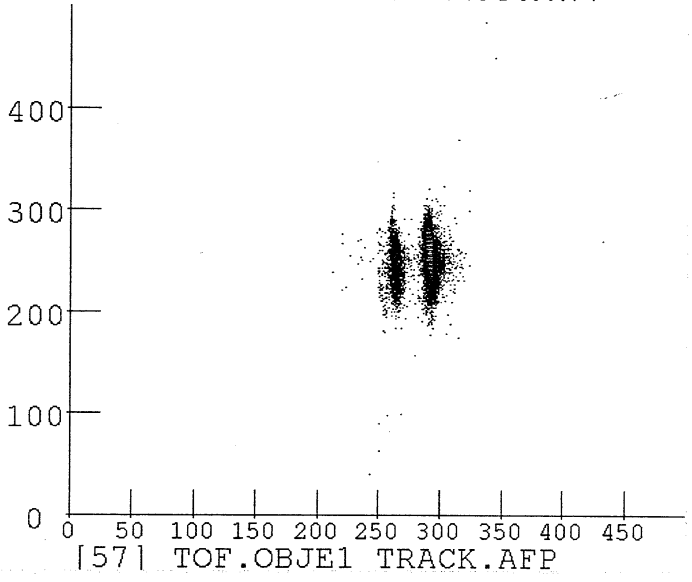
Single
Gang
Row Mode

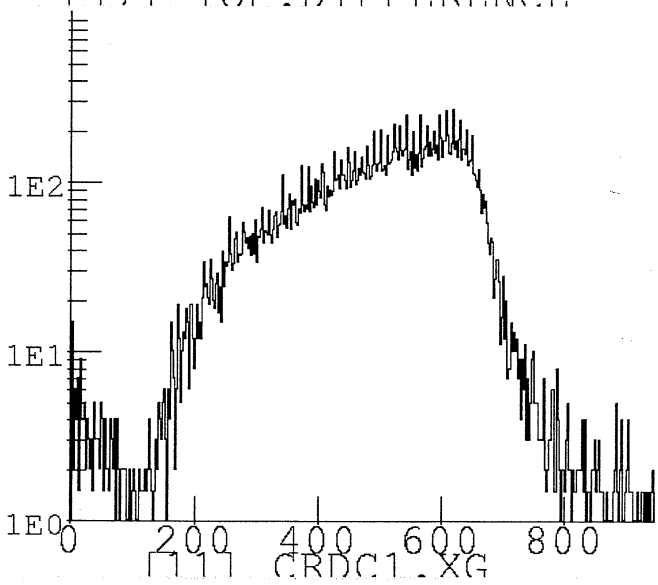
(empty) Store Recall...
(empty) Store Recall...
(empty) Store Recall...

File Window Spectra Options Graph_objects





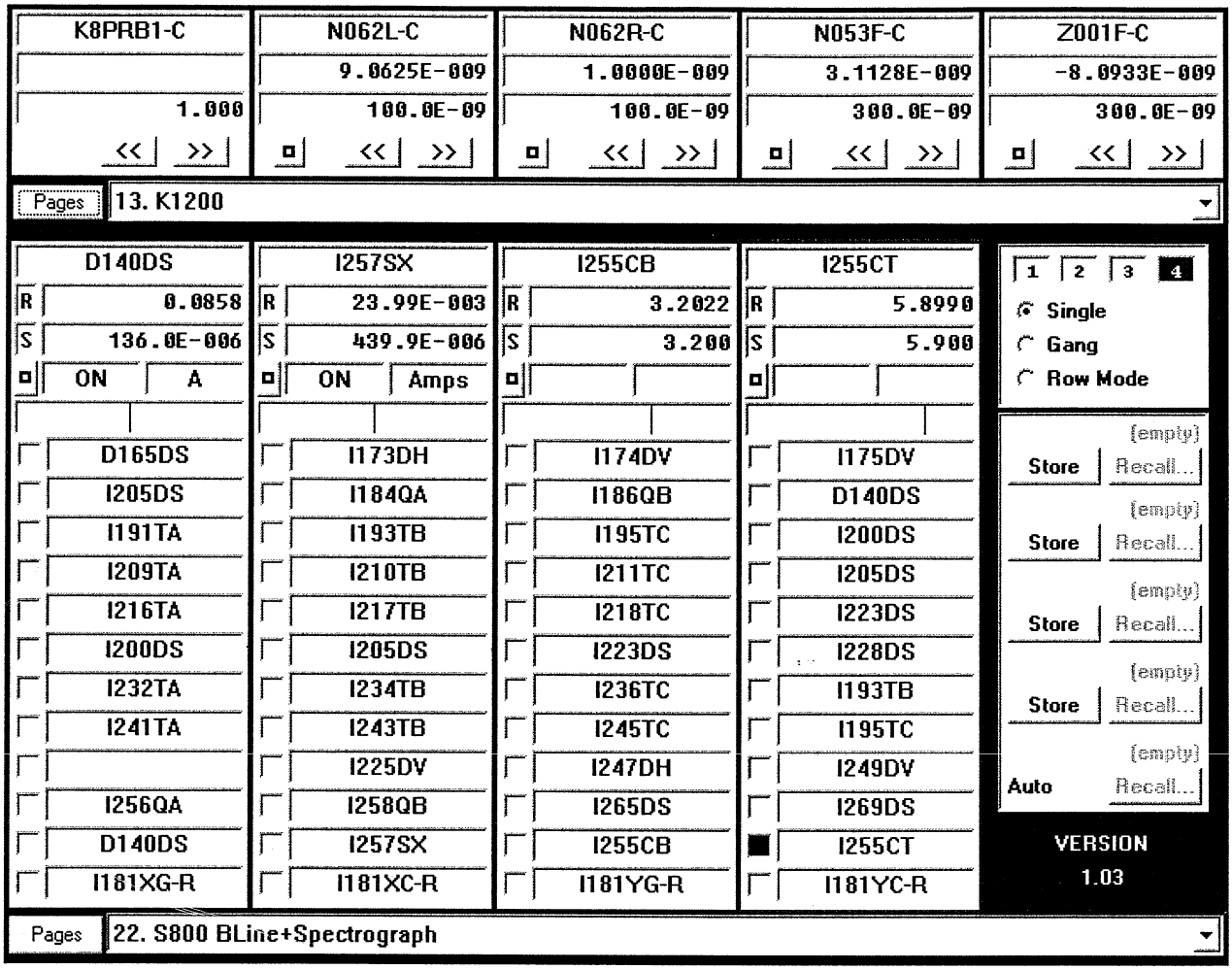




03031 Run Sheet

Run# 188 189, 190			S800
Date__/05/05	***Begin:***		***End:*** 2:30 am
Target: **Be** **Ta**	**Br=___ Tm** 2.7177	dp/p= 0.5	Scaler ____ Master.Live/Master___
^{64}Ni **Intensity_____pps** ☐	Comments: Do not forget to print Barney!		
^{68}Ni **Intensity_____pps** ☑	Slight blocking		

```
A1900 "Print16May05_00h52.txt"    Monday 00:52:08 2005-05-16  A1900
***                                        run188 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radiu
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00124 % (3.83035
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00060 % (3.83032
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09500 m   -0.00065 % (3.54252
Seg 4:  3.54250 Tm  1.14432 T  3.09582 m    3.09571 m   -0.00358 % (3.54263
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.71770 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10733 T  3.14194 m    3.14200 m    0.00188 %
I205DS              1.10717 T  3.14204 m    3.14245 m    0.01315 %
I223DS              1.12337 T  3.09708 m    3.09714 m    0.00182 %
I228DS              1.09784 T  3.17034 m    3.16916 m   -0.03724 %
I265DS              0.97238 T  2.80280 m    2.79489 m   -0.28204 %
I269DS              0.97152 T  2.80280 m    2.79737 m   -0.19377 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:   -4.70,   9.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.06, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,   9.88 mm F110    0.01,    0
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```


K8PRB1-C
1.000
N062L-C
9.0625E-009
100.0E-09
N062R-C
1.0000E-009
100.0E-09
N053F-C
3.1128E-009
300.0E-09
Z001F-C
-8.0933E-009
300.0E-09
Pages
13. K1200
D140DS
R 0.0858
S 136.0E-006
ON A
D165DS
I205DS
I191TA
I209TA
I216TA
I200DS
I232TA
I241TA
I256QA
D140DS
I181XG-R
I257SX
R 23.99E-003
S 439.9E-006
ON Amps
I173DH
I184QA
I193TB
I210TB
I217TB
I205DS
I234TB
I243TB
I225DV
I258QB
I257SX
I181XC-R
I255CB
R 3.2022
S 3.200
I174DV
I186QB
I195TC
I211TC
I218TC
I223DS
I236TC
I245TC
I247DH
I265DS
I255CB
I181YG-R
I255CT
R 5.8990
S 5.900
I175DV
D140DS
I200DS
I205DS
I223DS
I228DS
I193TB
I195TC
I249DV
I269DS
I255CT
I181YC-R
1 2 3 4
Single
Gang
Row Mode
(empty)
Store
Recall...
Auto
VERSION
1.03
Pages
22. S800 BLine+Spectrograph

03031 Run Sheet

Run# 191	S800		
Date__/05/05	***Begin:***		***End:***
Target: **Be** **Ta**	**Br=____ Tm** 2.803	dp/p= 0.5 %	Scaler ____ Master.Live/Master___
^{64}Ni **Intensity_____pps** ^{68}Ni **Intensity_____pps**	Comments: Do not forget to print Barney! beam composition		

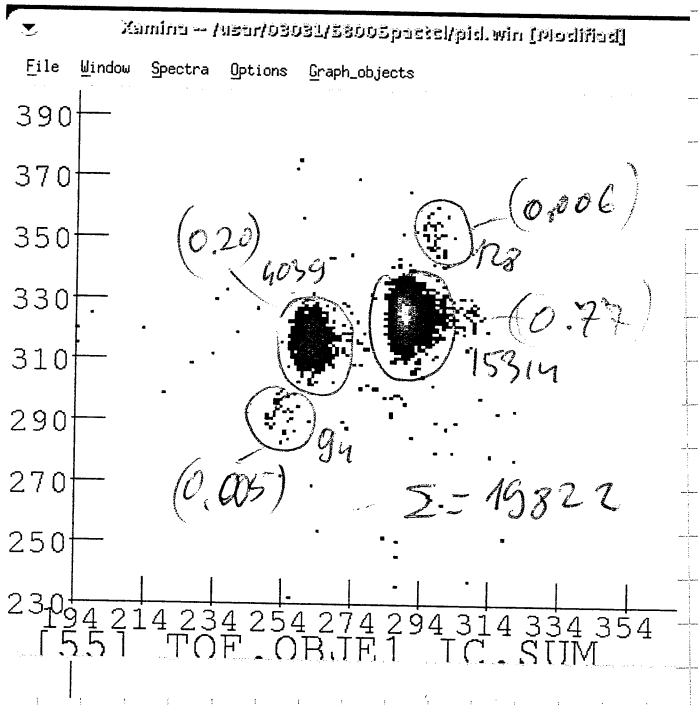
```
A1900 "Print16May05_03h08.txt"    Monday 03:08:28 2005-05-16  A1900
***                                    run 191 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  10k>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radi
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00123 % (3.83035
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00109 % (3.83034
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09498 m   -0.00106 % (3.54254
Seg 4:  3.54250 Tm  1.14433 T  3.09582 m    3.09569 m   -0.00423 % (3.54265
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.80300 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37221 T  9.46362 m    9.46055 m   -0.03248 %
I200DS              1.10731 T  3.14194 m    3.14206 m    0.00369 %
I205DS              1.10715 T  3.14204 m    3.14251 m    0.01496 %
I223DS              1.12337 T  3.09708 m    3.09714 m    0.00182 %
I228DS              1.09786 T  3.17034 m    3.16910 m   -0.03906 %
I265DS              0.99880 T  2.80280 m    2.80637 m    0.12729 %
I269DS              0.99978 T  2.80280 m    2.80362 m    0.02914 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:   -4.70,   9.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

K8PRB1-C	N062L-C	N062R-C	N053F-C	Z001F-C
	-62.500E-012	-62.500E-012	3.1128E-009	-8.7158E-009
1.000	100.0E-09	100.0E-09	300.0E-09	300.0E-09
<< >>	□ << >>	□ << >>	□ << >>	□ << >>

Pages | 13. K1200

D140DS	I257SX	I255CB	I255CT
R 0.0858	R 23.99E-003	R 3.2022	R 6.8445
S 136.0E-006	S 453.2E-006	S 3.200	S 6.850
□ ON A	□ ON Amps	□	□ +LIM
D165DS	I173DH	I174DV	I175DV
I205DS	I184QA	I186QB	D140DS

1 2 3 4
Single
Gang
Row Mode
(empty)
Store Recall...
(empty)



03031 Run Sheet

Date__/05/05	Begin:		End:
Target: Be	Br___ 2.6671	dp/p= 0.5	Scaler ___ Master.Live/Master___ 56%

PPAC1	PPAC2
11 e	8 e ???
OBJ Sci	**XFP sci**
80K	109 K

68Ni

Comments: no blocking

Who's on shift

Run #	start	stop	
192	3:30		
193	3:55		
194	4:20		← no Bρ matched
195	4:45		
196	5:10	5:20	

```
A1900 "Print16May05_05h08.txt"    Monday 05:08:04 2005-05-16  A1900
***                          run196, Br=2.6671 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m    0.00000 % (3.83036 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00130 % (3.83035 Tm)
Seg 3:  3.54250 Tm  1.14460 T  3.09502 m    3.09497 m   -0.00147 % (3.54255 Tm)
Seg 4:  3.54250 Tm  1.14434 T  3.09582 m    3.09568 m   -0.00455 % (3.54266 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.66710 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10731 T  3.14194 m    3.14206 m    0.00369 %
                    1.10722 T  3.14204 m    3.14231 m    0.00864 %
```

```
A1900 "Print16May05_03h33.txt"    Monday 03:33:34 2005-05-16  A1900
***           run 192, Br=2.6671 no blocking ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radi
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09879 m   -0.00108 % (3.83034
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00073 % (3.83033
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09498 m   -0.00101 % (3.54254
Seg 4:  3.54250 Tm  1.14432 T  3.09582 m    3.09571 m   -0.00359 % (3.54263
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.66710 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10731 T  3.14194 m    3.14206 m    0.00369 %
I205DS              1.10718 T  3.14204 m    3.14242 m    0.01225 %
I223DS              1.12337 T  3.09708 m    3.09714 m    0.00182 %
I228DS              1.09786 T  3.17034 m    3.16910 m   -0.03906 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.95383 T  2.80280 m    2.79620 m   -0.23546 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,   9.88 mm F110   -0.01,
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

42

03031 Run Sheet

Date 6 /05/05	***Begin:***		***End:***
Target: **Be**	**Br**___ 2.60T	dp/p= 0.5%	Scaler ___ 55%
			Master.Live/Master___

PPAC1	PPAC2
42K	5K
OBJ Sci	**XFP sci**
79K	109K

~~68~~ Ni	Comments:
Who's on shift	

Run #	start	stop	
197	5:26		
198	5:45		
199	06:08		
200	06:35		
201	05:58		
202	07-20	7:30	

```
A1900 "Print16May05_05h28.txt"    Monday 05:28:51 2005-05-16  A1900
***                          Run 197, Br=2.6 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09877 m   -0.00177 % (3.83037 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00085 % (3.83033 Tm)
Seg 3:  3.54250 Tm  1.14460 T  3.09502 m    3.09498 m   -0.00115 % (3.54254 Tm)
Seg 4:  3.54250 Tm  1.14433 T  3.09582 m    3.09570 m   -0.00387 % (3.54264 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.60000 Tm
Z108DS              0.50280 T  7.04675 m    7.04554 m   -0.01710 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37221 T  9.46362 m    9.46055 m   -0.03248 %
I200DS              1.10730 T  3.14194 m    3.14208 m    0.00459 %
I205DS              1.10715 T  3.14204 m    3.14251 m    0.01496 %
I223DS              1.12337 T  3.09708 m    3.09714 m    0.00182 %
I228DS              1.09784 T  3.17034 m    3.16916 m   -0.03724 %
I265DS              0.92762 T  2.80280 m    2.80287 m    0.00256 %
I269DS              0.92974 T  2.80280 m    2.79648 m   -0.22546 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 201.94 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.76,  98.93;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z058TL VAL = (invalid position)
```

03031 Run Sheet

Date__/05/05	Begin:		End:
Target: Be	Br___ 2.53	dp/p= 0,5	Scaler ____ 48 c/o Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

68 Ni ☐ Comments:

Who's on shift

Run #	start	stop	
203	7:42	8:00	
204	8:00	8:15	end to boost the scint. voltage
205	8:30		Comp. crashed
206	9:40		
207			After Scintillator Bias raised

Al 900 scintillator.

run 205 is practically empty

```
A1900 "Print16May05_07h44.txt"    Monday 07:44:28 2005-05-16  A1900
***                          run 203, 2.53Tm ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radiu
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00140 % (3.83035
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00109 % (3.83034
Seg 3:  3.54250 Tm  1.14460 T  3.09502 m    3.09497 m   -0.00147 % (3.54255
Seg 4:  3.54250 Tm  1.14434 T  3.09582 m    3.09567 m   -0.00484 % (3.54267
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.53000 Tm
Z108DS              0.00000 T  7.04675 m    0.00000 m  100.00000 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10731 T  3.14194 m    3.14206 m    0.00369 %
I205DS              1.10717 T  3.14204 m    3.14245 m    0.01315 %
I223DS              1.12336 T  3.09708 m    3.09716 m    0.00271 %
I228DS              1.09784 T  3.17034 m    3.16916 m   -0.03724 %
I265DS              0.90194 T  2.80280 m    2.80506 m    0.08080 %
I269DS              0.90410 T  2.80280 m    2.79836 m   -0.15831 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,    C
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Date 16 /05/05	***Begin:*** 10:29		***End:***
Target: **Be**	**Br** 2.53	dp/p=	Scaler ____ Master.Live/Master 53%

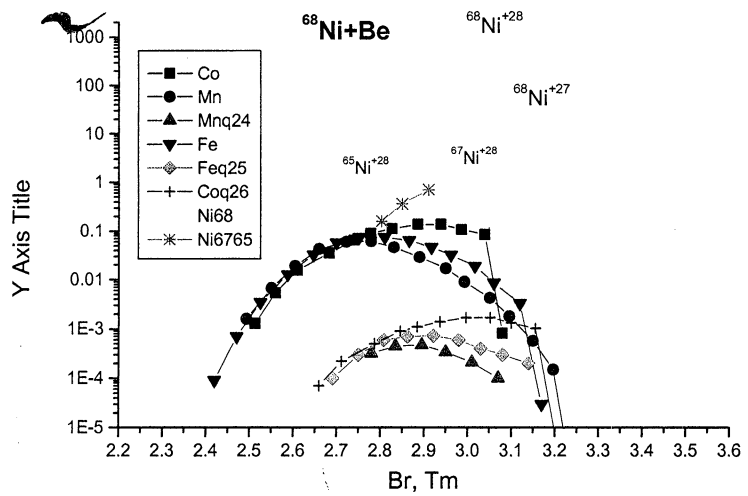
PPAC1	PPAC2
OBJ Sci	**XFP sci**

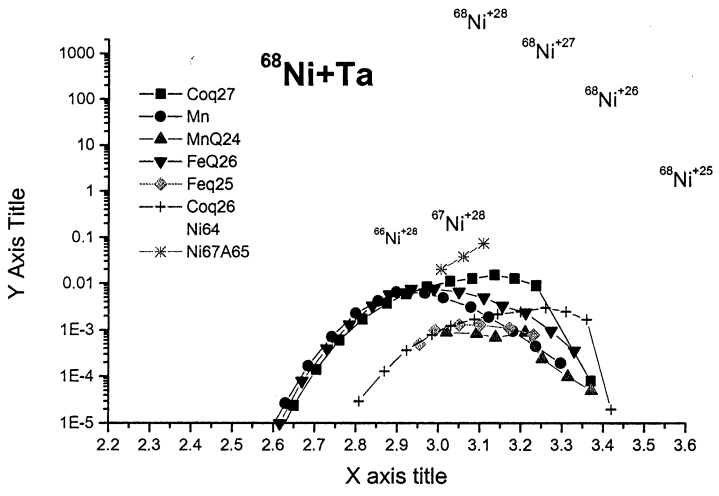
~~72Zn~~ No ☐

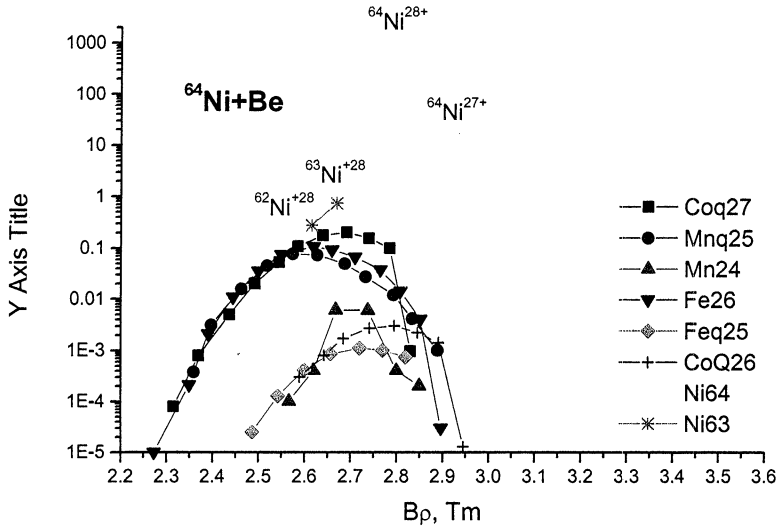
Comments:

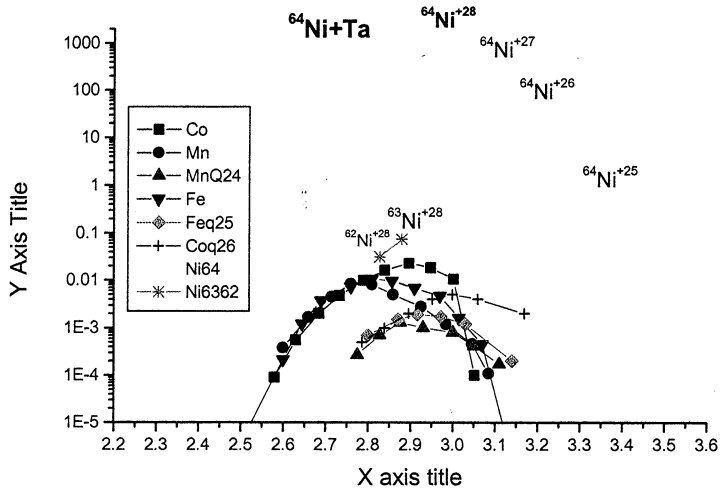
Who's on shift: Giuseppe, Mocko

Run #	start	stop	
208	10:29	11:46	
~~209~~	~~11:47~~		~~Beam compositions~~ Bρ 1.863


68Ni+Be
68Ni+28
68Ni+27
65Ni+28
67Ni+28
Co
Mn
Mnq24
Fe
Feq25
Coq26
Ni68
Ni6765
Y Axis Title
Br, Tm


68Ni+Ta
68Ni+28
68Ni+27
68Ni+26
68Ni+25
66Ni+28
67Ni+28
Coq27
Mn
MnQ24
FeQ26
Feq25
Coq26
Ni64
Ni67A65
Y Axis Title
X axis title


64Ni+Be
64Ni28+
64Ni27+
63Ni+28
62Ni+28
Coq27
Mnq25
Mn24
Fe26
Feq25
CoQ26
Ni64
Ni63
Y Axis Title
Bρ, Tm


64Ni+Ta
64Ni+28
64Ni+27
64Ni+26
64Ni+25
62Ni+28
63Ni+28
Co
Mn
MnQ24
Fe
Feq25
Coq26
Ni64
Ni6362
Y Axis Title
X axis title

03031 Run Sheet

Date 16 /05/05	***Begin:*** 11:47		***End:***
Target: **Be**	**Br** 2.803	dp/p= 0.5%	Scaler ____ Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn ^{68}Ni ☐	Comments: BEAM COMPOSITION
Who's on shift	

Run #	start	stop	
209	11:47		dp/p = 0.5%

1 ^{68}Ni ~~Zn Copper~~

2 ^{69}Cu

3 Ga

4

59.5 K

14.5

400

400

Total: 76.6 K

3 C.
(2) (1)

```
A1900 "Print16May05_11h48.txt"    Monday 11:48:42 2005-05-16  A1900
***  run209 beam composition 0.5% acceptance ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  100>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00137 % (3.83035 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00125 % (3.83035 Tm)
Seg 3:  3.54250 Tm  1.14459 T  3.09502 m    3.09499 m   -0.00088 % (3.54253 Tm)
Seg 4:  3.54250 Tm  1.14433 T  3.09582 m    3.09569 m   -0.00427 % (3.54265 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.80300 Tm
Z108DS              0.00000 T  7.04675 m    0.00000 m  100.00000 %
D140DS              0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS              0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS              1.10733 T  3.14194 m    3.14200 m    0.00188 %
I205DS              1.10716 T  3.14204 m    3.14248 m    0.01406 %
I223DS              1.12337 T  3.09708 m    3.09714 m    0.00182 %
I228DS              1.09783 T  3.17034 m    3.16919 m   -0.03633 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  BSet[kG]    Ratio     (live)     Set[A]   Read[A] DEVI
Z001DV     0.000    -0.230 -5332.450 -5332.450  -100.0000 -104.097      Z001DV
Z002DH     0.000    -2.064 -47772.40 -47772.40    -5.0316   -5.003      Z002DH
Z003DV     0.000     0.131  3024.933  3024.933     0.3166    0.368      Z003DV
Z004QA     1.685     7.297  1.002041  1.002041     5.0995    5.091      Z004QA
Z005QB    -0.414    -1.789  1.000000  1.000000    -1.2482   -1.220      Z005QB
```

03031 Run Sheet

Date 6/05/05	***Begin:***		***End:***
Target: **Be**	**Br** 2.803	dp/p= 1.5%	Scaler ____ Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn ☐	Comments:
Who's on shift	Beam Composition

Run #	start	stop	
210	11:55		$\Delta p/p$ = 1.5%

03
2001
04

1) 35.3 K
2) ~~5.0~~ K
3) 178
4) 291

Total = 43 K

```
A1900 "Print16May05_12h02.txt"    Monday 12:02:01 2005-05-16  A1900
***              run210 beam composition 1.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   1k>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00138 % (3.83035 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00136 % (3.83035 Tm)
Seg 3:  3.54250 Tm  1.14460 T  3.09502 m    3.09497 m   -0.00147 % (3.54255 Tm)
Seg 4:  3.54250 Tm  1.14433 T  3.09582 m    3.09569 m   -0.00418 % (3.54265 Tm)
Seg 5:  3.52130 Tm
Seg 6:  3.47923 Tm
Seg 7:  3.47923 Tm
Seg 8:  2.80300 Tm
Z108DS                0.00000 T  7.04675 m    0.00000 m  100.00000 %
D140DS                0.00145 T  2282.62069 m 2428.48276 m    6.39011 %
D165DS                0.37209 T  9.46362 m    9.46361 m   -0.00013 %
I200DS                1.10731 T  3.14194 m    3.14206 m    0.00369 %
I205DS                1.10713 T  3.14204 m    3.14257 m    0.01677 %
I223DS                1.12336 T  3.09708 m    3.09716 m    0.00271 %
I228DS                1.09784 T  3.17034 m    3.16916 m   -0.03724 %
I265DS                0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS                0.99883 T  2.80280 m    2.80628 m    0.12428 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:  -19.70,  24.02 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  BSet[kG]     Ratio     (live)      Set[A]    Read[A] DEVI
```

12:00 Beam Stop

03031 Run Sheet

Date 16/05/05	***Begin:***		***End:***
Target: **Be**	**Br** 2.728	dp/p= 1.5%	Scaler ____ Master.Live/Master 94%
^{72}Zn ☐	Comments:		
Who's on shift			

Run #	start	stop	Comments
211	1:37PM	1:42PM	^{72}Zn Beam Composition Bp = 2.728 dp/p = 1.5%

Boost XFP Voltage from 1030 to:

1050

```
A1900 "Print16May05_13h38.txt"    Monday 13:38:30 2005-05-16  A1900
***                          run211 72Zn 1.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   3k>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00118 % (3.83035 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00142 % (3.83035 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00202 % (3.52593 Tm)
Seg 4:  3.52600 Tm  1.13892 T  3.09582 m    3.09591 m    0.00265 % (3.52591 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.72805 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10234 T  3.14194 m    3.14184 m   -0.00306 %
I205DS              1.10273 T  3.14204 m    3.14073 m   -0.04161 %
I223DS              1.14658 T  3.09708 m    3.09721 m    0.00422 %
I228DS              1.12009 T  3.17034 m    3.17046 m    0.00377 %
I265DS              0.97302 T  2.80280 m    2.80369 m    0.03188 %
I269DS              0.97339 T  2.80280 m    2.80263 m   -0.00614 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:  -19.70,  24.02 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.76,  98.93;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Run# 212	S800		
Date 16/05/05	***Begin:*** 1.44PM		***End:*** 1.49PM
Target: **Be** **Ta**	**Br=** 2.718 **Tm**	dp/p= 1.0%	Scaler ____ Master.Live/Master 82%
~~64Ni~~ 72Zn **Intensity**____**pps** ☐	Comments: Do not forget to print Barney! BEAM COMPOSITION		
~~64Ni~~ 72Zn **Intensity**____**pps** ☐	$\Delta p/p = 1\%$ 72Zn		
Who's on shift			

Beam Compositon

72Zn

```
A1900 "Print16May05_13h43.txt"    Monday 13:43:22 2005-05-16  A1900
***      run212 beam composition 72Zn 1%dp/p ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   1k>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00143 % (3.83035 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00140 % (3.83035 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00266 % (3.52591 Tm)
Seg 4:  3.52600 Tm  1.13892 T  3.09582 m    3.09592 m    0.00321 % (3.52589 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.72805 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10231 T  3.14194 m    3.14193 m   -0.00034 %
I205DS              1.10271 T  3.14204 m    3.14079 m   -0.03980 %
I223DS              1.14661 T  3.09708 m    3.09713 m    0.00161 %
I228DS              1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS              0.97318 T  2.80280 m    2.80323 m    0.01544 %
I269DS              0.97336 T  2.80280 m    2.80271 m   -0.00306 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:  -12.20,  16.62 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 201.94 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110    0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  BSet[kG]    Ratio     (live)     Set[A]   Read[A] DEVI
Z001DV     0.000    -0.230 -5332.450 -5332.450  -100.0000 -103.706      Z001DV
Z002DH     0.000    -2.064 -47772.40 -47772.40    -5.0316   -5.003      Z002DH
Z003DV     0.000     0.131  3024.933  3024.933     0.3166    0.307      Z003DV
```

03031 Run Sheet

Run# 213	S800		
Date 16 /05/05	***Begin:*** 1:56		***End:*** 1:56 PM
Target: **Be** **Ta**	**Br=** 2.128 **Tm**	dp/p= 0.5 %	Scaler ____ Master.Live/Master 83 %
~~^{76}Kr~~ ^{72}Zn ☐ **Intensity**____**pps**	Comments: Do not forget to print Barney!		BEAM COMPOSITION
~~^{68}Ni~~ ^{72}Zn ☐ **Intensity**____**pps**	$\Delta p/p = 0.5\%$ ^{72}Zn		
Who's on shift			

Beam Composition
^{72}Zn

```
A1900 "Print16May05_13h51.txt"    Monday 13:51:13 2005-05-16  A1900
***        run213 beam composition 72Zn 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  300>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00117 % (3.83034 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10143 m   -0.00167 % (3.83036 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00203 % (3.52593 Tm)
Seg 4:  3.52600 Tm  1.13892 T  3.09582 m    3.09593 m    0.00328 % (3.52588 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.72805 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10235 T  3.14194 m    3.14182 m   -0.00397 %
I205DS              1.10273 T  3.14204 m    3.14073 m   -0.04161 %
I223DS              1.14659 T  3.09708 m    3.09718 m    0.00335 %
I228DS              1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS              0.97320 T  2.80280 m    2.80318 m    0.01338 %
I269DS              0.97338 T  2.80280 m    2.80266 m   -0.00511 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,    9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Date 16/05/05	***Begin:*** 2:13 PM		***End:***
Target: **Be**	**Br** 2.6	dp/p= 0.5%	Scaler ____ Master.Live/Master___
^{72}Zn	Comments:		
Who's on shift			

Run #	**start**	**stop**	**Comments**
214	2:13 PM	2:55	~~adj~~ check scintillator efficiency problem.

OBJ. scint 420000

OBJ. XFP 520000

Ratio : 0.84

~~Some scaler information on OBJ. XFP~~

~~total rate~~

Attenuation = 100

Trigger Rate : 10

OBJ. scint : 4100

OBJ. xfp : 5000

Attenuation = 10

Trigger Rate = 130

OBJ = 62000

XFP = 75000

Ratio: 82%

Attenuation = 3

Trigger Rate = 250

OBJ = 133000

XFP = 160000

Ratio: 83%

The rate dependent XFP – OBJ dead time

The was a loss of counts in the XFP spectrum and in the OBJ Scint spectra at high rates of 5×10^5 /s. The loss for XFP = ~ 0.5 ≈ 50%. The scope showed that there is a discriminator pulse in the XFP for every event at this rate, but we saw some added time in the XLM inspect outputs for the XFP and OBJ. ⟸ Daniel said there was a 500 ns latency in the XLM, which would explain a 25% efficiency loss. ~~Then the~~

Daniel removed a 450 delay on the trigger and in the XFP and OBJ stops

03031 Run Sheet

Date__/05/05	Begin:		End:
Target: Be	Br 2.6	dp/p= 0.5%	Scaler ____ Master.Live/Master___
^{72}Zn ☐	Comments:		
Who's on shift			

Run #	start	stop	Comments
215.	15:00.		Efficiency problem partly corrected.
216	16:20		
217	17:30		
218	17:45		
219			
220	1815		
221	1835		

Run	215	216
trigger	440	410
OBJ. Scint	335k	279k
XFP Scint	305k	345k
Live time	0.83	0.82

From Spectra

E1 UP v.s. down	167k	3390
E1 Up	169k	3417
ToF. OBJ	127k	2627
ToF. XFP	160k	3244

```
A1900 "Print16May05_15h11.txt"    Monday 15:11:32 2005-05-16  A1900
***                                run215, Zn ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00123 % (3.83035 Tm
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10143 m   -0.00150 % (3.83036 Tm
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09509 m    0.00000 % (3.52592 Tm
Seg 4:  3.52600 Tm  1.13891 T  3.09582 m    3.09595 m    0.00420 % (3.52585 Tm
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.60000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS              1.10277 T  3.14204 m    3.14062 m   -0.04524 %
I223DS              1.14660 T  3.09708 m    3.09716 m    0.00248 %
I228DS              1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS              0.92969 T  2.80280 m    2.79663 m   -0.22010 %
I269DS              0.92890 T  2.80280 m    2.79901 m   -0.13524 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:   -4.70,    9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110    0.01,    0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

Br - 2.67

03031 Run Sheet

Date__/05/05	Begin:		End:
Target: Be	Br___ 2.67	dp/p= 0.5%	Scaler ____ Master.Live/Master___
^{72}Zn	Comments:		
Who's on shift			

Run #	start	stop	Comments
222	1920	1930	DAQ crashed Scaler wont.

Run #	start	stop	trigger life	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
223	1935		172	139K	186K	0.87	13592	13541	9875	12639
Ratios		→		0.74					0.734	0.93
224	21:05		151	137K	192K	0.8?	16091	1'.106	1801	15090
				71%					0.73	0.94

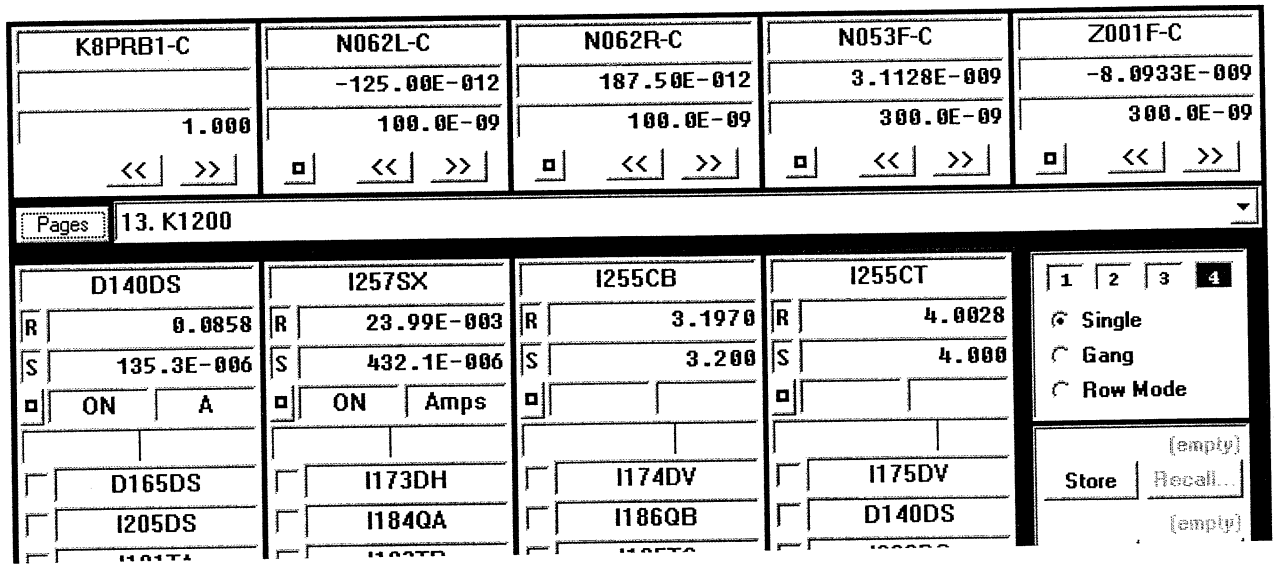
for Run 222, try 2 att. setting

Att.

X1 OBJ/E1 ~0.58 XFP/E1 ~0.88 LIVE ~0.6 $f_1 f_2 f_3 \sim 0.3$

X3 0.73 0.93 0.87 $f_1 f_3 f_3 \sim 0.6$

↳ lower beam, similar of count-rate for good events




```
A1900 "Print16May05_19h16.txt"    Monday 19:16:36 2005-05-16  A1900
***                              Run 222 Br=2.67 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09879 m   -0.00091 % (3.83033 Tm)
Seg 2:  3.83030 Tm  1.23502 T  3.10148 m    3.10140 m   -0.00247 % (3.83039 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00258 % (3.52591 Tm)
Seg 4:  3.52600 Tm  1.13880 T  3.09582 m    3.09624 m    0.01354 % (3.52552 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.67000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10235 T  3.14194 m    3.14182 m   -0.00397 %
I205DS              1.10270 T  3.14204 m    3.14082 m   -0.03889 %
I223DS              1.14661 T  3.09708 m    3.09713 m    0.00161 %
I228DS              1.12009 T  3.17034 m    3.17046 m    0.00377 %
I265DS              0.95188 T  2.80280 m    2.80498 m    0.07762 %
I269DS              0.95216 T  2.80280 m    2.80415 m    0.04819 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,    0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.76,  98.93;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

64

03031 Run Sheet

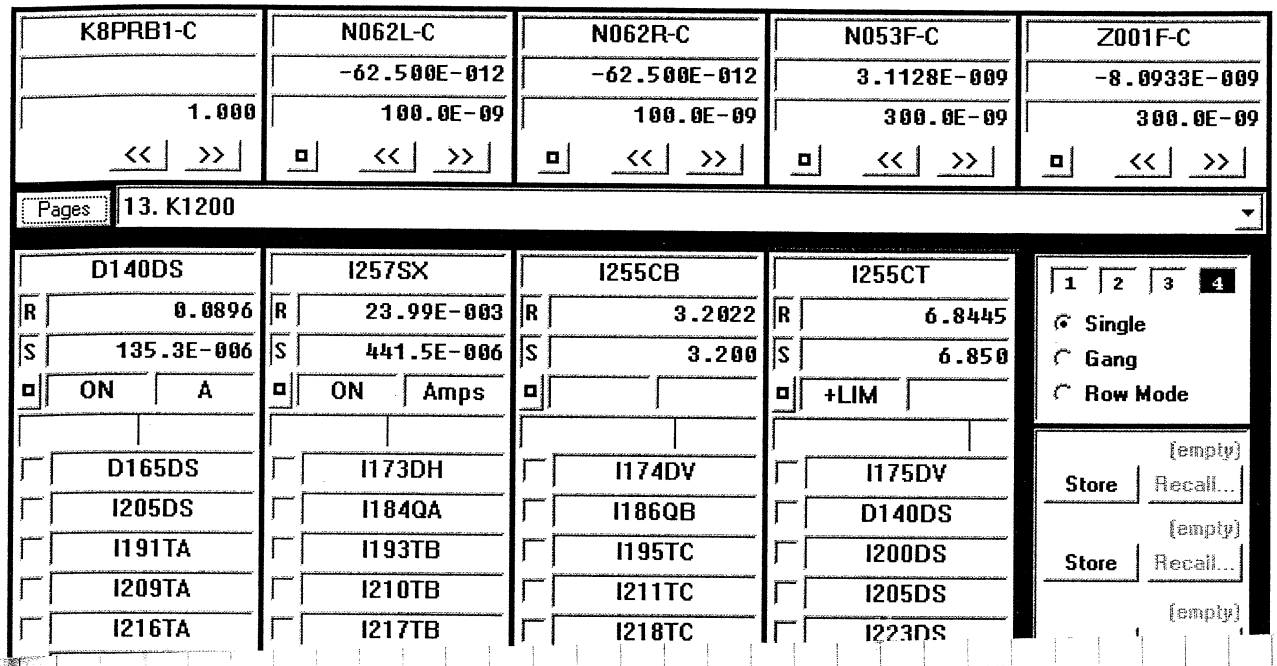
Run# 225	S800		
Date__/05/05	***Begin:***		***End:***
Target: **Be** Ta	**Br=___** Tm 2.728	dp/p= 0.5	Scaler ____ Master.Live/Master___
^{64}Ni **Intensity___pps** Zn ^{68}Ni **Intensity_____pps**	Comments: Do not forget to print Barney! Beam composition		
Who's on shift	225 for 0.5% 226 for 0.2%		

Ga = 1436

Zn^{72} 20980 / 33852

Ge 2959 / 33852

1442 / 33852

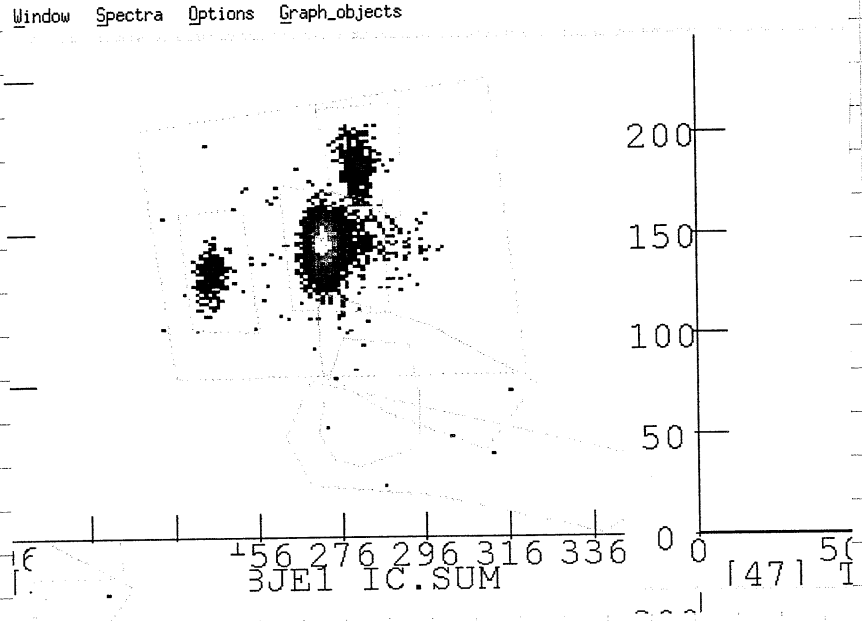



```
A1900 "Print16May05_22h40.txt"    Monday 22:40:10 2005-05-16  A1900
***              Run 225 beam composition 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  100>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00118 % (3.83035 Tm)
Seg 2:  3.83030 Tm  1.23502 T  3.10148 m    3.10141 m   -0.00215 % (3.83038 Tm)
Seg 3:  3.52600 Tm  1.13921 T  3.09502 m    3.09512 m    0.00329 % (3.52588 Tm)
Seg 4:  3.52600 Tm  1.13860 T  3.09582 m    3.09677 m    0.03067 % (3.52492 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.72800 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS              1.10274 T  3.14204 m    3.14070 m   -0.04252 %
I223DS              1.14661 T  3.09708 m    3.09713 m    0.00161 %
I228DS              1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,    9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 201.94 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.76,  98.93;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector:  PPAC
```

```
A1900 "Print16May05_22h46.txt"    Monday 22:46:13 2005-05-16  A1900
***            Run 226 beam composition 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  100>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m    0.00000 % (3.83035 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00121 % (3.83035 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00281 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13861 T  3.09582 m    3.09677 m    0.03040 % (3.52493 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.72800 Tm
Z108DS               0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS               0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS               0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS               1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS               1.10277 T  3.14204 m    3.14062 m   -0.04524 %
I223DS               1.14660 T  3.09708 m    3.09716 m    0.00248 %
I228DS               1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS               0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS               0.97175 T  2.80280 m    2.80731 m    0.16078 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110    -2.99,   10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slit                                                    39
I187                                                    )"] out
I213                                                    : [0"] out
I214
Extr
```

Xamine -- /user/03031/s800Spectcl/pid.win [Modified]

Window Spectra Options Graph_objects



Σ 5589

Cu 250 91.0

Zn 4795 85

Ga 484 8.6

03031 Run Sheet

Date__/05/05	Begin:		End:
Target: Be	Br___ 2.875	dp/p= 0.2%	Scaler ____ Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn ☑ Comments:

Who's on shift

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
227	~~23~~00		160	100K	141K	0.89	2420	2488 ✓ 64%	1649	2253 90%
							23099	23200 ✓ 62%	14737	21380 88%
228	0:05	1:09	200	149K ✓ 81%	183K	0.85	~~4340~~ 4240	~~4371~~ 4365 ✓ 91%	3871 ✓ 96%	4072
229	1:10	2:05	208	149K ✓ ~~100%~~ 80%	187K	0.86	11447o	117499 ✓ 92%	105224 ✓ 95%	~~108585~~

cell

```
A1900 "Print16May05_23h04.txt"     Monday 23:04:26 2005-05-16  A1900
***                                2.875 0.2%  ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity        Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09879 m   -0.00102 % (3.83034 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00130 % (3.83035 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09511 m    0.00314 % (3.52589 Tm)
Seg 4:  3.52600 Tm  1.13860 T  3.09582 m    3.09679 m    0.03130 % (3.52490 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.87500 Tm
Z108DS                0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS                0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS                0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS                1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS                1.10277 T  3.14204 m    3.14062 m   -0.04524 %
I223DS                1.14660 T  3.09708 m    3.09716 m    0.00248 %
I228DS                1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS                0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS                1.02417 T  2.80280 m    2.80715 m    0.15524 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.06, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC
Extra Drive: Z059TL.VAL  = (invalid position)
```

Raised XF-SCI bias voltage from 1050 to 1055. 11:35 PM Monday

A1900 "Print17May05_01h57.txt" Tuesday 01:57:14 2005-05-17 A1900
*** run229 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+ 11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att 1> ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b: 675 A, 650 A K1200: 812 A, 62 A RF: 22.49300 MHz
A1900 Optics: G19S3V13_30x20Focus60x30.data

	Rigidity	Field	Radius	(live)	Difference (Field*Radius)
Seg 0:	4.32100 Tm				
Seg 1:	3.83030 Tm	1.23606 T	3.09882 m	3.09879 m	-0.00089 % (3.83033 Tm)
Seg 2:	3.83030 Tm	1.23501 T	3.10148 m	3.10144 m	-0.00129 % (3.83035 Tm)
Seg 3:	3.52600 Tm	1.13923 T	3.09502 m	3.09508 m	0.00216 % (3.52592 Tm)
Seg 4:	3.52600 Tm	1.13859 T	3.09582 m	3.09680 m	0.03161 % (3.52489 Tm)
Seg 5:	3.50350 Tm				
Seg 6:	3.46338 Tm				
Seg 7:	3.55120 Tm				
Seg 8:	2.87500 Tm				
Z108DS		0.50040 T	7.04675 m	7.04636 m	-0.00549 %
D140DS		0.00135 T	2282.62069 m	2595.18519 m	13.69323 %
D165DS		0.37028 T	9.46362 m	9.46170 m	-0.02033 %
I200DS		1.10233 T	3.14194 m	3.14187 m	-0.00216 %
I205DS		1.10273 T	3.14204 m	3.14073 m	-0.04161 %
I223DS		1.14659 T	3.09708 m	3.09718 m	0.00335 %
I228DS		1.12011 T	3.17034 m	3.17040 m	0.00198 %
I265DS		0.00000 T	2.80280 m	0.00000 m	100.00000 %
I269DS		1.02418 T	2.80280 m	2.80712 m	0.15427 %

Z001TL: out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R: -1.25, 5.32 mm; Z037DC: out
Z057MS: 1.5 pct, Z061MS: out
Z059DC: out, Z062SC: out, Z057TL: [5"]Al 240
Z082 XC,G,YG: 0.16, 203.50, 202.05 mm Z082Deg: out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap: 0.01, -0.04 mm; D110 -3.01, 10.00 mm F110 -0.01, 0.69
B110DC: out, D110DC: out, D111DC: 5 mil BC-404, F110DC: out
Slits: I181 XC,G,YC,G: 0.79, 98.98; -0.00, 98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL = (invalid position)

03031 Run Sheet

Date 7/05/05	***Begin:***		***End:***
Target: **Be**	**Br**___ 2.875	dp/p= 0.2%	Scaler ____ Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn ✓

Who's on shift

Comments:

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
230	2:05	3:00	235	160K	197K	0.82	27803	28543	25125	26082
				↓				↓	↓	
				82%				90%	94%	
Ø										

```
A1900 "Print17May05_02h44.txt"   Tuesday 02:44:39 2005-05-17  A1900
***                          run230 2.8750 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09880 m   -0.00077 % (3.83033 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10143 m   -0.00147 % (3.83036 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00221 % (3.52592 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03160 % (3.52489 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.87500 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10235 T  3.14194 m    3.14182 m   -0.00397 %
I205DS              1.10274 T  3.14204 m    3.14070 m   -0.04252 %
I223DS              1.14660 T  3.09708 m    3.09716 m    0.00248 %
I228DS              1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              1.02418 T  2.80280 m    2.80712 m    0.15427 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
'214DC Detector: _PPAC_
 xtra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Date 7/05/05	***Begin:***		***End:***
Target: **Be**	**Br**___ 3.02	dp/p= 0.2%	Scaler ____ Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn ✓ Comments: No Blocking

Who's on shift

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
231	3:11	3:55	302	159K	191K	0.78	13915	14885	13282	13425
				✓				✓	✓	
				83%				95%	96%	
232	3:56	4:41	286	144K	172K	0.79	23176	24740	22274	22175
				✓				✓	✓	
				83%				96%	96%	
233			283	148K	181K	0.79	19859	21260	18976	18933
				✓				✓		✓
				82%				96%		95%

```
A1900 "Print17May05_03h14.txt"   Tuesday 03:14:04 2005-05-17  A1900
***                          run231 3.020 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09879 m   -0.00094 % (3.83034 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00121 % (3.83035 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00216 % (3.52592 Tm)
Seg 4:  3.52600 Tm  1.13860 T  3.09582 m    3.09679 m    0.03135 % (3.52489 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  3.02000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10234 T  3.14194 m    3.14184 m   -0.00306 %
I205DS              1.10274 T  3.14204 m    3.14070 m   -0.04252 %
I223DS              1.14659 T  3.09708 m    3.09718 m    0.00335 %
I228DS              1.12010 T  3.17034 m    3.17043 m    0.00288 %
I265DS              1.07724 T  2.80280 m    2.80346 m    0.02357 %
I269DS              1.07750 T  2.80280 m    2.80278 m   -0.00056 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.06, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,   9.88 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

```
A1900 "Print17May05_04h02.txt"   Tuesday 04:02:46 2005-05-17  A1900
***                          run232 3.020 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09879 m   -0.00087 % (3.83033 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00145 % (3.83036 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00282 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03159 % (3.52489 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  3.02000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10234 T  3.14194 m    3.14184 m   -0.00306 %
I205DS              1.10272 T  3.14204 m    3.14076 m   -0.04071 %
I223DS              1.14659 T  3.09708 m    3.09718 m    0.00335 %
I228DS              1.12009 T  3.17034 m    3.17046 m    0.00377 %
I265DS              1.07724 T  2.80280 m    2.80346 m    0.02357 %
I269DS              1.07749 T  2.80280 m    2.80281 m    0.00037 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.71,  98.93;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

```
A1900 "Print17May05_05h26.txt"   Tuesday 05:26:42 2005-05-17  A1900
***                          run233 3.020 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)

Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09880 m   -0.00063 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00130 % (3.83035 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00276 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13860 T  3.09582 m    3.09679 m    0.03124 % (3.52490 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  3.02000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10235 T  3.14194 m    3.14182 m   -0.00397 %
I205DS              1.10276 T  3.14204 m    3.14065 m   -0.04433 %
I223DS              1.14660 T  3.09708 m    3.09716 m    0.00248 %
I228DS              1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS              1.07726 T  2.80280 m    2.80341 m    0.02172 %
I269DS              1.07747 T  2.80280 m    2.80286 m    0.00222 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Date 17 /05/05	***Begin:***		***End:***
Target: **Be** Runs 234 ÷ 241 ÷	**Br** 3.02	dp/p= 0.2%	Scaler ____ Master.Live/Master____
^{72}Zn	Comments:		
Who's on shift			

PPAC1	PPAC2
OBJ Sci	**XFP sci**

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
234	5:27	6:12	302	160K	192K	0.79	20614	21979	19453	19357
				84%				94%	94%	
235	6:12	6:59	299	156K	187K	0.78	35070	37420	33186	32539
				83%				95%	98%	
236	6:59		301	154K	183K	0.76	27191	29011	25834	24976
				84%				98%	92%	

* Run 236 readout ~~crash~~ froze at ≈ 7:43

– Mike rebooted computer & VME.

– Event space was full, Ron Fox freed some space

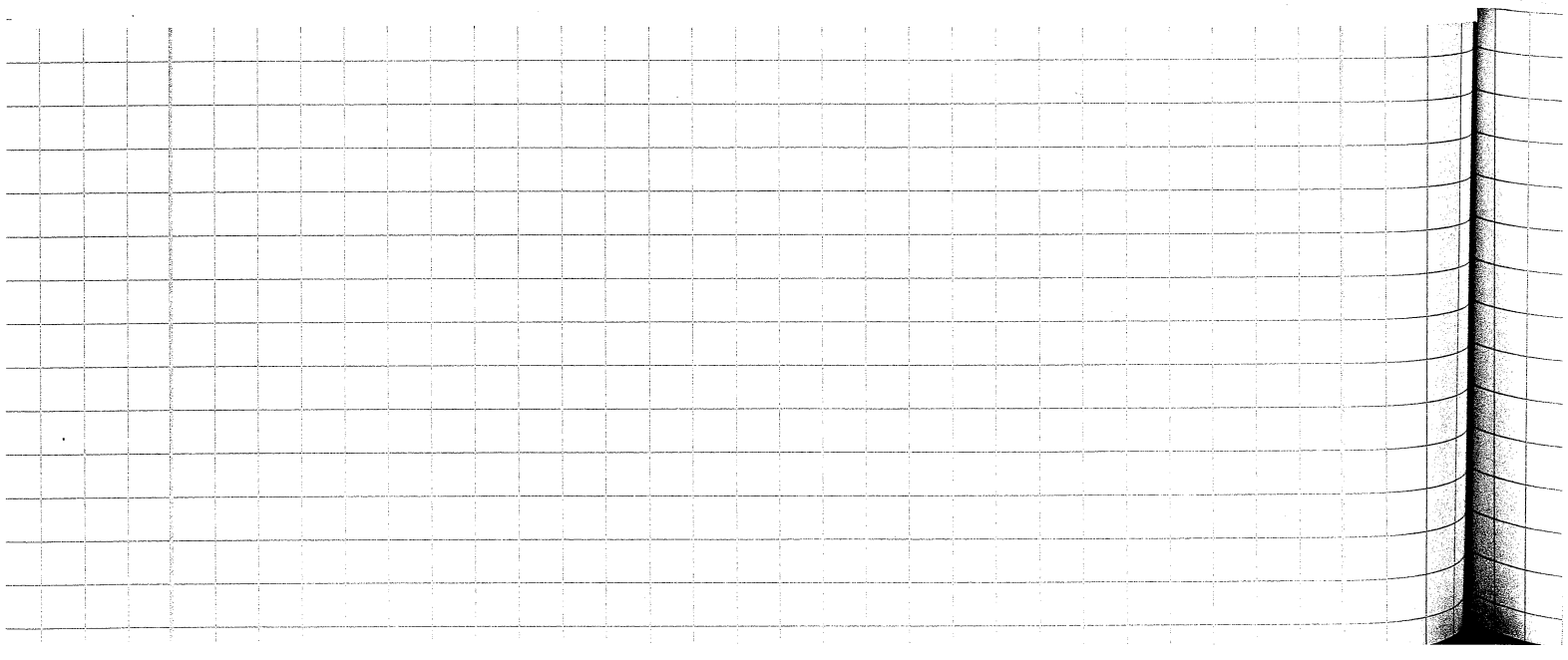
→ Run 241 is the next good run.

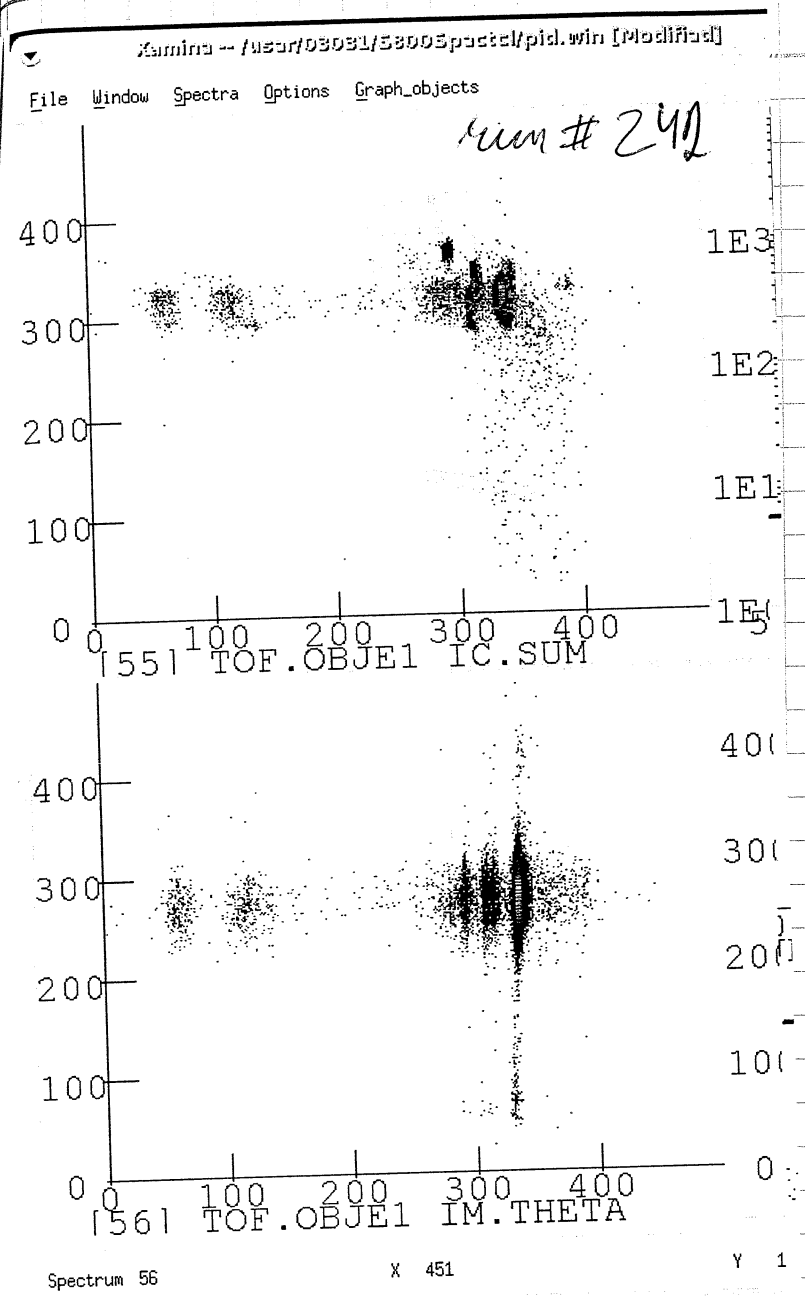
```
A1900 "Print17May05_05h59.txt"   Tuesday 05:59:05 2005-05-17  A1900
***                          run234 3.020 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23607 T  3.09882 m    3.09878 m   -0.00114 % (3.83034 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00123 % (3.83035 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00260 % (3.52591 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03153 % (3.52489 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  3.02000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10235 T  3.14194 m    3.14182 m   -0.00397 %
I205DS              1.10276 T  3.14204 m    3.14065 m   -0.04433 %
I223DS              1.14660 T  3.09708 m    3.09716 m    0.00248 %
I228DS              1.12008 T  3.17034 m    3.17049 m    0.00466 %
I265DS              1.07725 T  2.80280 m    2.80343 m    0.02264 %
I269DS              1.07749 T  2.80280 m    2.80281 m    0.00037 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Pairs:
```

Who's on shift

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
241	8-30	9-20	215	112K	134K	81.2%	27730	29765	24069	25830
242	9-22	10:35							98%	
243	10:35									
244	10:40	11:02								

```
A1900 "Print17May05_07h01.txt"   Tuesday 07:01:58 2005-05-17  A1900
***                          run236 3.020 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09879 m   -0.00098 % (3.83034 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10143 m   -0.00148 % (3.83036 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09509 m    0.00241 % (3.52592 Tm)
Seg 4:  3.52600 Tm  1.13860 T  3.09582 m    3.09679 m    0.03120 % (3.52490 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  3.02000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10235 T  3.14194 m    3.14182 m   -0.00397 %
I205DS              1.10273 T  3.14204 m    3.14073 m   -0.04161 %
I223DS              1.14659 T  3.09708 m    3.09718 m    0.00335 %
I228DS              1.12008 T  3.17034 m    3.17049 m    0.00466 %
I265DS              1.07726 T  2.80280 m    2.80341 m    0.02172 %
I269DS              1.07747 T  2.80280 m    2.80286 m    0.00222 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```




Xamine -- /user/03031/S800Spectcl/pid.win [Modified]
File Window Spectra Options Graph_objects
run # 242
400
300
200
100
0
0 100 200 300 400
[55] TOF.OBJE1 IC.SUM
400
300
200
100
0
0 100 200 300 400
[56] TOF.OBJE1 IM.THETA
Spectrum 56
X 451
Y 1

03031 Run Sheet

Date 7/05/05	***Begin:***		***End:***
Target: **Be**	**Br**___ 3.08	dp/p= 0.2%	Scaler ___ Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn ☐ Comments:

Who's on shift

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
244	11:00		222	105K	129K	84%	41628	45316	41262	38598
										92%
245			231	123K	149K	83%	60383	64335	39576	55029
246			241	146K	175K	80.2%	~~8809~~	7652	7229	7080
										98%
247	2:30P									

```
A1900 "Print17May05_11h12.txt"   Tuesday 11:12:39 2005-05-17  A1900
***              Run 244, Br=3.08, dp/p=0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m    0.00000 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00087 % (3.83033 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00286 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03156 % (3.52489 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  3.08000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10234 T  3.14194 m    3.14184 m   -0.00306 %
I205DS              1.10276 T  3.14204 m    3.14065 m   -0.04433 %
I223DS              1.14657 T  3.09708 m    3.09724 m    0.00510 %
I228DS              1.12010 T  3.17034 m    3.17043 m    0.00288 %
I265DS              1.09906 T  2.80280 m    2.80239 m   -0.01446 %
I269DS              1.09920 T  2.80280 m    2.80204 m   -0.02719 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 201.94 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

```
A1900 "Print17May05_17h05.txt"   Tuesday 17:05:22 2005-05-17  A1900
***                run250 beam composition 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   30>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity        Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09880 m   -0.00049 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10144 m   -0.00131 % (3.83035 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00274 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03168 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.72800 Tm
Z108DS
D140DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D165DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
I200DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I205DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I223DS              1.10272 T  3.14204 m    3.14076 m   -0.04071 %
I228DS              1.14658 T  3.09708 m    3.09721 m    0.00422 %
I265DS              1.12010 T  3.17034 m    3.17043 m    0.00288 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out  0.00000 m  100.00000 %
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:   -1.25,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector:  PPAC
Extra Drive: Z059TL.VAL  = (invalid position)
```

Cu 593 41%

Zn 1219 87%

Ga 1082 8.7%

~~Total~~ 13959

03031 Run Sheet

Run# 250	S800		
Date__/05/05	***Begin:***		***End:***
Target: **Be** **Ta** 24	**Br=**2.7 **Tm** 0.2%	dp/p=	Scaler ____ Master.Live/Master___
^{64}**Ni** **Intensity**_____**pps** ^{68}**Ni** **Intensity**_____**pps**	Comments: Do not forget to print Barney! Foam Composition @ XFP voltage 1055 V. 085		
Who's on shift			

Who's on shift										
Run #	**start**	**stop**	**trigger**	**OBJ sci**	**XFP sci**	**Live time**	**E1 2D**	**E1 TUP**	**TOF obj**	**TOF xfp**
				5K	6K					

dp/p is changed to 0.5% p

7235 / 7556 / 6005 / 7082

03031 Run Sheet

Date__/05/05	***Begin:***		***End:***
Target: **Be** $B\rho = 2.53$	**Br___**	dp/p= 0.5	Scaler ___ Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn

Who's on shift

Comments: ~~252~~ 252 OBJ scint 1.64 ~~kV~~ 1.66 kV

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
252	17^{20}	18 06	400	276k	338K	67	7235	7556	6005	7082
253	18^{07}		400	300k	350k	67%				
254	19^{20}		430	300k	350k	64%				

```
A1900 "Print17May05_17h22.txt"   Tuesday 17:22:24 2005-05-17  A1900
***              Run 252 brho=2.53; 0.5% dp/p ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m   -0.00040 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10143 m   -0.00152 % (3.83036 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09511 m    0.00311 % (3.52589 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03187 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55120 Tm
Seg 8:  2.53000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS              1.10272 T  3.14204 m    3.14076 m   -0.04071 %
I223DS              1.14658 T  3.09708 m    3.09721 m    0.00422 %
I228DS              1.12011 T  3.17034 m    3.17040 m    0.00198 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.90251 T  2.80280 m    2.80329 m    0.01759 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Date__/05/05	***Begin:***		***End:***
Target: **Be**	**Br___** 2.45	dp/p=	Scaler ____ Master.Live/Master___
^{72}Zn ☐	Comments:		
Who's on shift			

PPAC1	PPAC2
OBJ Sci	**XFP sci**

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
255	19:26		440	320k	370k	62%				
256	20:16		434	32K	38K	64%				
257	20:54		443	33K	38K	63%	17938	16068	13902	16200

03031 Run Sheet

Date__/05/05	Begin:		End:
Target: Be	Br___ 2.728	dp/p= 0.5%	Scaler ____ Master.Live/Master___

PPAC1	PPAC2
OBJ Sci	**XFP sci**

^{72}Zn

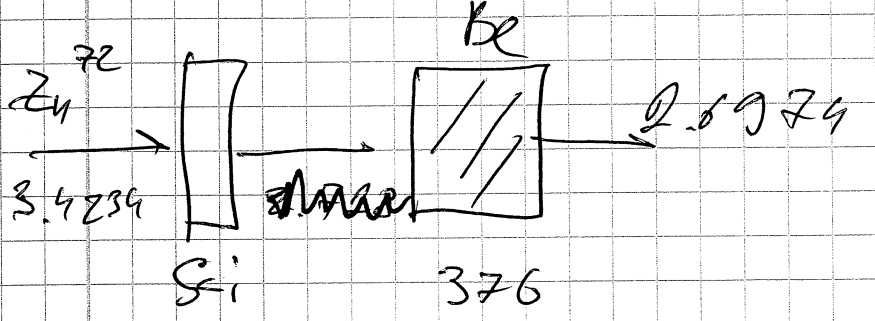
Who's on shift

Comments:

AT 100

Run #	start	stop	trigger	OBJ sci	XFP sci	Live time	E1 2D	E1 TUP	TOF obj	TOF xfp
258	21:36	21:39	dp/p=	0.5%						
259	21:42	21:43	dp/p=	0.5%						
260			dp/p=	0.2%						

22:00 We put plastic sci into "target chamber" of S800



Discover that segment 7 has the wrong magnetic setting (should be the same as segment 6)

03031 Run Sheet

Run# 262.	S800	
Date__/05/05	***Begin:***	***End:***
Target: **Be** **Ta**	**Br=** 2.728 **Tm** dp/p=	Scaler ____ Master.Live/Master___
^{64}Ni **Intensity_____pps** 272 cr ^{68}Ni **Intensity_____pps**	Comments: Same as ~~run~~ run conditions Do not forget to print Barney! tgt scint. out. ~~This is a reference run.~~ ~~Segment 1 blowing.~~	
Who's on		

```
A1900 "Print17May05_23h17.txt"   Tuesday 23:17:05 2005-05-17  A1900
***                          run262 72Zn 0.2% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   1k>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m   -0.00034 % (3.83031 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00084 % (3.83033 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00257 % (3.52591 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03187 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.46340 Tm
Seg 8:  2.72800 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS              1.10274 T  3.14204 m    3.14070 m   -0.04252 %
I223DS              1.12012 T  3.09708 m    3.09199 m   -0.16434 %
I228DS              1.09397 T  3.17034 m    3.16590 m   -0.14004 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.26,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.06, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
```

03031 Run Sheet

Run# 263	S800	
Date__/05/05	*Begin:*	*End:*
Target: **Be** **Ta**	**Br=**2.728 **Tm** dp/p=	Scaler ____ Master.Live/Master___
^{64}Ni Intensity_____pps 12 for ^{68}Ni Intensity_____pps	Comments: Do not forget to print Barney! Segment 7 is set to be the same as May 13.	

```
A1900 "Print17May05_23h26.txt"   Tuesday 23:26:49 2005-05-17  A1900
***                                  run 263 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   1k>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m   -0.00038 % (3.83031 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00073 % (3.83033 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00203 % (3.52593 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03161 % (3.52489 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.45512 Tm
Seg 8:  2.72805 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS              1.10274 T  3.14204 m    3.14070 m   -0.04252 %
I223DS              1.11767 T  3.09708 m    3.09136 m   -0.18470 %
I228DS              1.09156 T  3.17034 m    3.16530 m   -0.15883 %
I265DS              0.97515 T  2.80280 m    2.79757 m   -0.18661 %
I269DS              0.97049 T  2.80280 m    2.81100 m    0.29266 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.26,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.06, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Run# 264	S800		
Date__/05/05	Begin:		End:
Target: Be Ta	Br=2.728 Tm	dp/p=	Scaler ____ Master.Live/Master___
^{64}Ni Intensity____pps ^{68}Ni Intensity_____pps	Comments: Do not forget to print Barney! Segment7 is set to be the same as the bedone i.e. Prime Run212.		
Who's on shift			

```
A1900 "Print17May05_23h43.txt"   Tuesday 23:43:27 2005 05 17
***                                        run264 ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   30>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23605 T  3.09882 m    3.09881 m   -0.00021 % (3.83031 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00052 % (3.83032 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00265 % (3.52591 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03193 % (3.52487 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55510 Tm
Seg 8:  2.72805 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00145 T  2282.62069 m 2416.20690 m    5.85232 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10235 T  3.14194 m    3.14182 m   -0.00397 %
I205DS              1.10271 T  3.14204 m    3.14079 m   -0.03980 %
I223DS              1.14782 T  3.09708 m    3.09726 m    0.00590 %
I228DS              1.12129 T  3.17034 m    3.17054 m    0.00645 %
I265DS              0.97515 T  2.80280 m    2.79757 m   -0.18661 %
I269DS              0.97052 T  2.80280 m    2.81092 m    0.28956 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -1.26,   5.32 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector:  PPAC
```

03031 Run Sheet

Date__/05/05	Begin: 264		End:
Target: ~~Be~~ BLANK	Br___ 2.728	dp/p=	Scaler ____ Master.Live/Master___
^{72}Zn ☐	Comments: Blank target run.		
Who's on shift			

PPAC1	PPAC2
OBJ Sci	**XFP sci**

Run #	start	stop	
265	0:24	0:29	~~AHA~~ BLANK TARGET ~~Bρ=2.728~~
			Bρ = 2.728 Δp/p = 0.2%
266	0:32	0:37	BLANK TARGET
			Bρ = 2.728 Δp/p = 0.5%

03031 Run Sheet

Run# 267	S800		
Date__/05/05	*Begin:* 0:41		*End:* 0:46
Target: ~~Be~~ ~~Ta~~ BLANK	Br=2.67 Tm	dp/p= 0.5%	Scaler ____ Master.Live/Master___
~~64Ni~~ Intensity_____pps 72Zn ~~68Ni~~ Intensity_____pps	Comments: Do not forget to print Barney! BLANK TARGET		
Who's on shift			

```
A1900 "Print18May05_00h44.txt" Wednesday 00:44:59 2005-05-18  A1900
***                          run267 blank 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m    0.00000 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00054 % (3.83032 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00273 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03168 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55510 Tm
Seg 8:  2.67000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS              1.10270 T  3.14204 m    3.14082 m   -0.03889 %
I223DS              1.14782 T  3.09708 m    3.09726 m    0.00590 %
I228DS              1.12127 T  3.17034 m    3.17060 m    0.00824 %
I265DS              0.95778 T  2.80280 m    2.78770 m   -0.53887 %
I269DS              0.95209 T  2.80280 m    2.80436 m    0.05554 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110    0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  BSet[kG]    Ratio    (live)     Set[A]   Read[A] DEVI
```

RUN# 268

03031 Run Sheet

Date__/05/05	Begin: 0:50	End: 0:55
Target: ~~Be~~ BLANK	Br___ 2.6 / dp/p= 0.5%	Scaler ____ Master.Live/Master___
		PPAC1 / PPAC2 / OBJ Sci / XFP sci
^{72}Zn	Comments: BLANK TARGET	

```
A1900 "Print18May05_00h54.txt" Wednesday 00:54:14 2005-05-18  A1900
***                          run268 blank 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09880 m   -0.00056 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00060 % (3.83032 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00206 % (3.52593 Tm)
Seg 4:  3.52600 Tm  1.13860 T  3.09582 m    3.09679 m    0.03121 % (3.52490 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55510 Tm
Seg 8:  2.60000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10234 T  3.14194 m    3.14184 m   -0.00306 %
I205DS              1.10272 T  3.14204 m    3.14076 m   -0.04071 %
I223DS              1.14782 T  3.09708 m    3.09726 m    0.00590 %
I228DS              1.12129 T  3.17034 m    3.17054 m    0.00645 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,    9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

RUN # 269

03031 Run Sheet

Date__/05/05	Begin: 0:58		End: 1:03
Target: ~~Be~~ BLANK	Br___ 2.53	dp/p= 0.5%	Scaler ____ Master.Live/Master___
			PPAC1 / PPAC2 OBJ Sci / XFP sci
^{72}Zn ☐	Comments: BLANK TARGET		
Who's on shift			

```
A1900 "Print18May05_01h02.txt" Wednesday 01:02:30 2005-05-18  A1900
***                          run269 2.530 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m   -0.00046 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00064 % (3.83032 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09509 m    0.00234 % (3.52592 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03186 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55510 Tm
Seg 8:  2.53000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37016 T  9.46362 m    9.46477 m    0.01219 %
I200DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS              1.10274 T  3.14204 m    3.14070 m   -0.04252 %
I223DS              1.14783 T  3.09708 m    3.09724 m    0.00503 %
I228DS              1.12130 T  3.17034 m    3.17052 m    0.00556 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  BSet[kG]     Ratio      (live)      Set[A]    Read[A] DEVI
```

Run# 270	S800		A1900
Target: Views Be ~~Ta~~ BLANK	~~DS~~ Bρ 2.45 Tm	dp/p= slits 0.5%	
^{64}Ni Intensity ~~pps~~ 722 pps ^{68}Ni Intensity ~~pps~~	Comments: BLANK TARGET		
	Start: 1:05	Stop: 1:11	

```
A1900 "Print18May05_01h10.txt" Wednesday 01:10:18 2005-05-18  A1900
***                          run270 blank 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att   1M>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity        Field     Radius        (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m   -0.00034 % (3.83031 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10147 m   -0.00034 % (3.83031 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00208 % (3.52593 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03181 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55510 Tm
Seg 8:  2.45000 Tm
Z108DS                0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS                0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS                0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS                1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS                1.10275 T  3.14204 m    3.14068 m   -0.04342 %
I223DS                1.14783 T  3.09708 m    3.09724 m    0.00503 %
I228DS                1.12128 T  3.17034 m    3.17057 m    0.00735 %
I265DS                0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS                0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  RSet[kG]     Ratio     (live)     Set[A]     Read[A] RTWF
```

Run# 271	S800		A1900
Target: Views Be ~~Ta~~ BLANK	~~DS=~~ Bρ ___ Tm 2.875	dp/p= ~~slits~~ 0.5%	
~~^{64}Ni Intensity ___ pps~~ 72 Zn ~~^{68}Ni Intensity ___ pps~~	Comments: BLANK TARGET		
	Start: 1:16	Stop: 1:21	

```
A1900 "Print18May05_01h20.txt" Wednesday 01:20:38 2005-05-18  A1900
***                          run271 blank 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att ??? >  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m   -0.00043 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10147 m   -0.00041 % (3.83032 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00220 % (3.52592 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03154 % (3.52489 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55510 Tm
Seg 8:  2.87500 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10234 T  3.14194 m    3.14184 m   -0.00306 %
I205DS              1.10271 T  3.14204 m    3.14079 m   -0.03980 %
I223DS              1.14783 T  3.09708 m    3.09724 m    0.00503 %
I228DS              1.12129 T  3.17034 m    3.17054 m    0.00645 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              1.02333 T  2.80280 m    2.80946 m    0.23746 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  BSet[kG]    Ratio    (live)     Set[A]   Read[A] DEVI
```

102

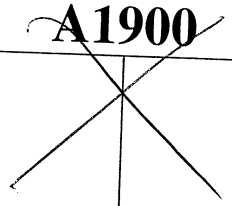
Run# 272	S800		A1900
Target: Views Be Ta BLANK	~~DS~~ Bρ 3.02 Tm	dp/p= ~~slits~~ 0.5%	
^{64}Ni ~~Intensity~~ pps 722m ^{68}Ni ~~Intensity~~ pps	Comments: BLANK TARGET		
	Start: 1:24		Stop: 1:29

```
A1900 "Print18May05_01h28.txt" Wednesday 01:28:00 2005-05-18  A1900
***                          run272 blank 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23605 T  3.09882 m    3.09881 m   -0.00019 % (3.83031 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10146 m   -0.00064 % (3.83032 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09508 m    0.00218 % (3.52592 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03193 % (3.52487 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55510 Tm
Seg 8:  3.02000 Tm
Z108DS              0.00000 T  7.04675 m    0.00000 m  100.00000 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10234 T  3.14194 m    3.14184 m   -0.00306 %
I205DS              1.10271 T  3.14204 m    3.14079 m   -0.03980 %
I223DS              1.14781 T  3.09708 m    3.09729 m    0.00677 %
I228DS              1.12128 T  3.17034 m    3.17057 m    0.00735 %
I265DS              1.07729 T  2.80280 m    2.80333 m    0.01893 %
I269DS              1.07342 T  2.80280 m    2.81344 m    0.37953 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,    9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:     0.16, 203.50, 201.94 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110    0.01,    0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)

MagName  Ref[kG]  RSet[kG]     Ratio     (live)      Set[A]   Read[A] DEVI
```

Run# 273	S800		A1900
Target: Views ~~Be~~ ~~Ta~~ BLANK	~~DS~~ Bp 3.08 Tm	dp/p= slits 0.5%	~~X~~
~~^{64}Ni Intensity pps~~ 72 2m ~~^{68}Ni Intensity pps~~	Comments: BLANK TARGET		
	Start: 1:31	Stop: 1:36	

```
A1900 "Print18May05_01h36.txt" Wednesday 01:36:08 2005-05-18  A1900
***                          run273 blank 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09881 m   -0.00037 % (3.83031 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00089 % (3.83033 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00275 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09682 m    0.03223 % (3.52486 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.55510 Tm
Seg 8:  3.08000 Tm
Z108DS              0.00000 T  7.04675 m    0.00000 m  100.00000 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10234 T  3.14194 m    3.14184 m   -0.00306 %
I205DS              1.10268 T  3.14204 m    3.14087 m   -0.03708 %
I223DS              1.14784 T  3.09708 m    3.09721 m    0.00415 %
I228DS              1.12125 T  3.17034 m    3.17066 m    0.01002 %
I265DS              1.09907 T  2.80280 m    2.80237 m   -0.01537 %
I269DS              1.09513 T  2.80280 m    2.81245 m    0.34435 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.06, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,   9.88 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.76,  98.93;  -0.00,  98.39
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

Run# 274	S800		A1900
Target: Views Be Ta ~~BLANK~~	~~DS~~ Bρ ____ Tm 3.08	dp/p= ~~slits~~ 0.2%	
~~^{64}Ni Intensity ____ pps~~ 727m ~~^{68}Ni Intensity ____ pps~~	Comments: BLANK TARGET		
	Start: 1:39	Stop: 1:41	

Stopped earlier !

Field shut off for magnets I200DS and I205DS

Problem ~~#~~ solved by operator.

1:50: Inserted Be Target

Bρ in Seg 7 set to correct value 3.4551 Tm.

03031 Run Sheet

Run# 275	S800		
Date__/05/05	*Begin:* 2:30		*End:*
Target: Be ~~Ta~~	Br=___ Tm 3.02	dp/p= 0.5%	Scaler ____ Master.Live/Master 0.95
~~^{64}Ni~~ Intensity____pps 72Zn	Comments: Do not forget to print Barney!		
~~^{68}Ni~~ Intensity____pps			
Who's on			

```
A1900 "Print18May05_02h28.txt" Wednesday 02:28:19 2005-05-18  A1900
***                      run275 Be target 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    1>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09880 m   -0.00055 % (3.83032 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10143 m   -0.00149 % (3.83036 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00283 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03185 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.45510 Tm
Seg 8:  3.02000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10232 T  3.14194 m    3.14190 m   -0.00125 %
I205DS              1.10225 T  3.14204 m    3.14210 m    0.00192 %
I223DS              1.11577 T  3.09708 m    3.09661 m   -0.01531 %
I228DS              1.08993 T  3.17034 m    3.17002 m   -0.01009 %
I265DS              1.07778 T  2.80280 m    2.80206 m   -0.02654 %
I269DS              1.07700 T  2.80280 m    2.80409 m    0.04586 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.06, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -3.01,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Run# 276	S800	
Date__/05/05	*Begin:* 3:09	*End:* 3:11
Target: **Be** Ta	Br=____ Tm 2.728	dp/p= 0.5% Scaler ____ Master.Live/Master 542
^{64}Ni Intensity_____pps ^{68}Ni Intensity_____pps	Comments: Do not forget to print Barney!	

```
A1900 "Print18May05_03h14.txt" Wednesday 03:14:39 2005-05-18  A1900
***                    run276 beam comp 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att  300>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
       A1900 Optics: G19S3V13_30x20Focus60x30.data
       Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23605 T  3.09882 m    3.09882 m   -0.00008 % (3.83030 Tm)
Seg 2:  3.83030 Tm  1.23501 T  3.10148 m    3.10143 m   -0.00152 % (3.83036 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09510 m    0.00272 % (3.52590 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03176 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.45510 Tm
Seg 8:  2.72800 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10232 T  3.14194 m    3.14190 m   -0.00125 %
I205DS              1.10224 T  3.14204 m    3.14213 m    0.00282 %
I223DS              1.11578 T  3.09708 m    3.09658 m   -0.01620 %
I228DS              1.08991 T  3.17034 m    3.17008 m   -0.00826 %
I265DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
I269DS              0.00000 T  2.80280 m    0.00000 m  100.00000 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.06, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;  -0.03,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

03031 Run Sheet

Run# 277	S800	
Date__/05/05	*Begin:* 3:20	*End:*
Target: Be ~~Ta~~	Br=___ Tm 2.6	dp/p= 0.5%	Scaler ____ Master.Live/Master___
~~^{64}Ni~~ Intensity____pps 72 Zm ~~^{68}Ni~~ Intensity____pps	Comments: Do not forget to print Barney!	
Who's on		

```
A1900 "Print18May05_03h44.txt" Wednesday 03:44:09 2005-05-18  A1900
***                                                          ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    3>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23606 T  3.09882 m    3.09879 m   -0.00082 % (3.83033 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m   -0.00105 % (3.83034 Tm)
Seg 3:  3.52600 Tm  1.13923 T  3.09502 m    3.09509 m    0.00226 % (3.52592 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09681 m    0.03186 % (3.52488 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.45510 Tm
Seg 8:  2.60000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10233 T  3.14194 m    3.14187 m   -0.00216 %
I205DS              1.10226 T  3.14204 m    3.14207 m    0.00101 %
I223DS              1.11578 T  3.09708 m    3.09658 m   -0.01620 %
I228DS              1.08992 T  3.17034 m    3.17005 m   -0.00917 %
I265DS              0.93430 T  2.80280 m    2.78283 m   -0.71243 %
I269DS              0.92816 T  2.80280 m    2.80124 m   -0.05562 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.22 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:    0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110    0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.74,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

brho	Run	live.trigger	obj.scint	xfp.scint		%trigger	trig/xfp	.bad/t.goo
3.08	273	9.00	304013	360536		0.014975		
	247	238.77	120088	143232			0.001667	
	146	21.05	390246	461374			4.56E-05	36.53766
3.02	272	7.31	309494	366253		0.018303		
	215	456.27	346280	418414			0.00109	
	110	106.16	292462	451794			0.000235	4.640826
2.88	271	3.91	301764	357104		0.009962		
	228	197.03	145236	179263			0.001099	
	131	172.31	119667	470670			0.000366	3.002256
2.67	267	1.20	289524	345694		0.003428		
	224	190.23	135208	187842			0.001013	
	151	789.03	111361	133331			0.005918	0.171129
2.60	268	0.76	287916	343364		0.00116		
	214	473.38	2075272	248063			0.001908	
	101	770.49	76892	94105			0.008188	0.233074
2.53	269	0.51	296132	351930		0.001261		
	253	404.00	298255	351590			0.001149	
	163	467.00	72050	86160			0.00542	0.211999
2.45	270	0.44	298658.00	353864.00		0.00111		
	255	433.47	323216.00	386976.00			0.00112	
	154	563.13	101203.00	120944.00			0.004656	0.240575

Run 268 - 273 blank target runs.
Run 211 - 260 Runs with bad segment 7 settings
Run ~~269~~ 274 - 165 Runs with good segment 7 setting

① Trigger rates with target frame are very low.
i.e. beam not hitting target frame and ~~prod~~ reaction products from frame do not get into focal plane detector

② Bad trigger/good trigger ratios increase with BP.
This means that with increasing BP, more and more of the reaction products from other contaminants get into the focal plane detector.
Exact % of less events must be ~~anticipated~~ obtained from off line analysis with gates on good ~~prod~~ fragments

03031 Run Sheet

Run# 278	S800		
Date 18/05/05	Begin: 3:45		End:
Target: ~~Be~~ Be ~~Ti~~	Br= 2.60 Tm	dp/p= 0.5%	Scaler ____ Master.Live/Master___
^{64}Ni Intensity____pps ☐ ^{72}Zn ^{68}Ni Intensity____pps ☐	Comments: Do not forget to print Barney!		
Who's on			

```
A1900 "Print18May05_03h54.txt" Wednesday 03:54:35 2005-05-18  A1900
***                          run278 2.600 0.5% ***
Expt: 03031 "Fragmentation of Ni-68" [Betty Tsang] Line: S800 [8]
Beam: 76 Ge 12+  11.59 MeV/nuc (K500) 30+ 130.00 MeV/nuc (K1200)
<Att    3>  ECR, Apertures: RTECR 50.0; 15.0; 50.0 mm RHVBI: 25.4900 kV
K500 a,b:    675 A,    650 A K1200:    812 A,     62 A RF:  22.49300 MHz
      A1900 Optics: G19S3V13_30x20Focus60x30.data
      Rigidity       Field     Radius       (live)  Difference (Field*Radius)
Seg 0:  4.32100 Tm
Seg 1:  3.83030 Tm  1.23605 T  3.09882 m    3.09882 m   -0.00012 % (3.83030 Tm)
Seg 2:  3.83030 Tm  1.23500 T  3.10148 m    3.10145 m    0.00000 % (3.83034 Tm)
Seg 3:  3.52600 Tm  1.13922 T  3.09502 m    3.09509 m    0.00245 % (3.52591 Tm)
Seg 4:  3.52600 Tm  1.13859 T  3.09582 m    3.09680 m    0.03155 % (3.52489 Tm)
Seg 5:  3.50350 Tm
Seg 6:  3.46338 Tm
Seg 7:  3.45510 Tm
Seg 8:  2.60000 Tm
Z108DS              0.50040 T  7.04675 m    7.04636 m   -0.00549 %
D140DS              0.00135 T  2282.62069 m 2595.18519 m   13.69323 %
D165DS              0.37028 T  9.46362 m    9.46170 m   -0.02033 %
I200DS              1.10232 T  3.14194 m    3.14191 m   -0.00100 %
I205DS              1.10227 T  3.14204 m    3.14204 m    0.00010 %
I223DS              1.11613 T  3.09708 m    3.09561 m   -0.04756 %
I228DS              1.08994 T  3.17034 m    3.16999 m   -0.01101 %
I265DS              0.93431 T  2.80280 m    2.78280 m   -0.71349 %
I269DS              0.92815 T  2.80280 m    2.80127 m   -0.05454 %
Z001TL:  out, Z013TL: [0"] out; Z014TL [0"] out
Z015TL: [4"]Be 235, Z016TL [0"] out
Z030BC Beam Stop: -126.09 mm
Z037L,R:   -4.70,   9.35 mm; Z037DC:  out
Z057MS: 1.5 pct, Z061MS:  out
Z059DC:  out, Z062SC:  out, Z057TL: [5"]Al 240
Z082 XC,G,YG:    0.16, 203.50, 202.05 mm Z082Deg:  out
Z101DC: out, Z102DC: out; Z103DC: out, Z105SC: out
B110 Cent,Gap:   -0.01,  -0.04 mm; D110   -2.99,  10.00 mm F110   -0.01,   0.69
B110DC:  out, D110DC:  out, D111DC: 5 mil BC-404, F110DC:  out
Slits: I181 XC,G,YC,G:    0.79,  98.98;   0.02,  98.34
I187: [3"]Obj Scint, I188: [0"] out, I189: , I190: [0"] out
I213: [0"] out, I214: [0"] out, I215: [0"] out, I216: [0"] out
I214DC Detector: _PPAC_
Extra Drive: Z059TL.VAL  = (invalid position)
```

150 72Zn	2.728	0.50%	438443	3163380	0.14	0:07:29	beam
165 72Zn	2.728		508380	3109016	0.16	0:23:30	beam
211 Zn72	2.728	1.50%	158329	3102844	0.051027	0:05:10	beam
212 Zn72	2.728	1%	582375	3266830	0.178269	0:05:27	beam
213 Zn72	2.728	0.50%	618504	3349258	0.184669	0:05:35	beam
225 Zn72	2.73	0.50%					beam
226 Zn72	2.73	0.20%					beam
250 Zn72	2.73	0.20%					beam
258 Zn72	2.73	0.50%					beam
259 Zn72	2.73	0.50%					beam
260 Zn72	2.73	0.50%					beam
210 Zn72	2.803	1.50%	111015	2683626	0.041368	0:05:11	beam
143 72Zn	2.975	0.20%	1.29E+08	6089421	21.20	0:42:07	charge sta
153 72Zn	2.45	0.50%	64830962	6272154	10.34	0:15:00	data
154 72Zn	2.45	0.50%	1.89E+08	18667800	10.12	0:10:27	data
155 72Zn	2.45	0.50%	1.91E+08	18972522	10.05	0:31:07	data
156 72Zn	2.45	0.50%	1.97E+08	20646892	9.55	0:31:37	data
157 72Zn	2.45	0.50%	70392496	8072427	8.72	0:34:25	data
158 72Zn	2.45	0.50%	2.25E+08	20186439	11.17	0:13:27	data
159 72Zn	2.45	0.50%	2.09E+08	20984915	9.95	0:33:39	data
160 72Zn	2.53	0.50%	1.77E+08	20733694	8.54	0:34:54	data
161 72Zn	2.53	0.50%	2.02E+08	24249610	8.33	0:34:33	data
162 72Zn	2.53	0.50%	1.97E+08	25402824	7.76	0:40:25	data
163 72Zn	2.53	0.50%	1.47E+08	20455561	7.21	0:42:21	data
164 72Zn	2.53	0.50%	96844237	14103566	6.87	0:34:06	data
214 Zn72	2.6	0.50%	5.65E+08	27196363	20.76	0:45:20	data
215 Zn72	2.6	0.50%	1.55E+09	44659909	34.63583	1:14:27	data
216 Zn72	2.6	0.50%	6.07E+08	21124794	28.71836	0:35:13	data
217 Zn72	2.6	0.50%	7.3E+08	20209392	36.13818	0:33:41	data
218 Zn72	2.6	0.50%	5.46E+08	11576945	47.15584	0:19:18	data
219 Zn72	2.6	0.50%	6.88E+08	15232308	45.16419	0:25:23	data
220 Zn72	2.6	0.50%	5.16E+08	12114058	42.5748	0:20:11	data
221 Zn72	2.6	0.50%	7.77E+08	18458387	42.11498	0:30:46	data
151 72Zn	2.67	0.50%	3.06E+08	27455625	11.14	0:05:17	data
152 72Zn	2.67	0.50%	93856699	8993141	10.44	0:45:46	data
222 Zn72	2.67	0.50%	1706915	120040	14.21955	0:00:17	data
223 Zn72	2.67	0.50%	7.35E+08	1025464	716.7128	1:29:17	data
138 72Zn	2.875	0.50%	4.85E+08	7828765	61.96	0:04:07	data
139 72Zn	2.875	0.50%	1.4E+09	38874168	36.04	0:13:03	data
140 72Zn	3.02	0.50%	3.29E+08	9334878	35.25	1:04:47	data
141 72Zn	3.02	0.50%	89254519	1629214	54.78	0:15:33	data
142 72Zn	3.02	0.50%	1.11E+09	25272470	43.99	0:02:43	data
144 72Zn	3.08	0.50%	9771004	197369	49.51	0:10:09	data
145 72Zn	3.08	0.50%			#DIV/0!	0:00:20	data
146 72Zn	3.08	0.50%	1.54E+09	39824706	38.78		data
147 72Zn	3.08	0.50%	1.04E+08	14240917	7.33	1:05:58	data
148 72Zn	3.08	0.50%	75915402	5145426	14.75	0:23:40	data
149 72Zn	3.08	0.50%	2.01E+08	4496851	44.61	0:08:34	data
137 72Zn	2.875	0.50%	1.46E+08	2465266	59.17	0:04:07	target scin
255 Zn72	2.45	0.50%					
256 Zn72	2.45	0.50%					
257 Zn72	2.45	0.50%					
251 Zn72	2.53	0.50%					
252 Zn72	2.53	0.50%					
253 Zn72	2.53	0.50%					
254 Zn72	2.53	0.50%					
224 Zn72	2.67	0.50%					
227 Zn72	2.88	0.20%					
228 Zn72	2.88	0.20%					
229 Zn72	2.88	0.20%					
230 Zn72	3.02	0.20%					
231 Zn72	3.02	0.20%					
232 Zn72	3.02	0.20%					
233 Zn72	3.02	0.20%					
234 Zn72	3.02	0.20%					
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238 Zn72	3.02	0.20%					
239 Zn72	3.02	0.20%					
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241 Zn72	3.02	0.20%					
242 Zn72	3.02	0.20%					
243 Zn72	3.02	0.20%					
244 Zn72	3.02	0.20%					
245 Zn72	3.08	0.20%					
246 Zn72	3.08	0.20%					
247 Zn72	3.08	0.20%					
248 Zn72	3.08	0.20%					
249 Zn72	3.08	0.20%					

Beam 2.803

GAME plan for 15-16 may 3031

Br, Tm	dp/p	Duration time	Blocking yes/no	Former runs	att
3.08	1.5%	~~4h~~ ~~11h~~ (11h)	CB 3.1864 CT 5.7979	32-36 72 0.5% 73-75 1.5%	1
3.02	1.5%	~~4 h~~ 3 + 11		28-32 76-79 1.5% 80-82 0.5%	
2.9657	0.5	~~3~~ h +45	I255CB at ~~3.18~~ 6.0 I255 CT at 6.85	47-52 3.18 in Run# 52	
2.8578	0.2% ✓ 0.5%	1 h +5	both sides	37-46	
2.7177 ~~2.728?~~	0.5%	~~1h~~ ✓ ~~3h~~ 2 +3.5	I255CB at 3.186 I255 CT at 5.7979	53-55 0.2% 56-61 0.5%	
2.6671		~~2~~ 1 h +1		20,24(?)	3
2.60	0.5%	3 h +1	CB 3.18 ? CT 5.78	21 ? 70	
2.53	~~0.5~~ 1.5	3 h +1		22,23 71	

done 2.803

done

done

done

done

done

done

done

done

BPM

Beam : Bρ 2.728

GAME plan for 16-17 may 03031

^{72}Zn

Br, Tm	dp/p	Duration time	Blocking	Former runs	
3.08	0.5% 0.2%	8h	no	144-149	1.5h
3.02	0.5% 0.2%	7h	no	140-142	1h
2.875	0.5 0.2%	3.5h	CB=6.4 CT=7.0	130- charge st. 131-135 138-139	~3h
2.67	0.5%	2h 3h.	CB=3.2 CT=4.0	151-152	1h
2.60	0.5%	3-4h	no	101	0.7h
2.53		3 h 2	no	160-164	3h Att10
2.45	0.5%	3h 2	no	153-154 155-159	3h Att.10

~ 29 h

Image 1 Slits

7037 −19.7/24 1.5%

−12.2/16.6 1.0%

−4.70/9.33 0.5%

−1.13/5.30 0.2%

−3.70/8.53 Don't use

charge distr.

$^{72}Zn^{+30}$ Br=2.7390

$^{72}Zn^{+29}$ Br=2.8335

$^{72}Zn^{+28}$ Br=2.9347