



Advanced Laboratory Course

K223 – Nuclear γ - γ Angular Correlations – Measurement Data

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April 08 2021

We list here our raw, unprocessed data that can also be found in the files

- K223/data/cfd_threshold_scan
- K223/data/prompt_curve
- K223/data/SCA
- K223/data/main_measurement

in the form of .csv or .txt files with corresponding python scripts that were used to generate the plots in our lab report. **This document is only for the viewing of our measured data in a concise form, it serves no other purpose than that.**

Threshold scan for the CFD's

Threshold CFD 1	Counts	Threshold CFD 2	Counts
0	203940	0	140231
10	93476	10	95105
16	89580	16	91642
22	85135	22	88665
28	78700	28	82499
34	74363	34	79353
40	69715	40	74137
50	64135	50	68742
60	56065	60	62490
70	50783	70	57668
80	42107	80	51642
90	33787	90	45043
100	28825	100	38136
120	11206	120	26509
150	632	150	368

Table 1: Threshold scan for both CFDs with radioactive source.

Threshold CFD 1	Counts	Threshold CFD 2	Counts
0	91002	0	66467
10	359	10	465
16	250	16	340
22	174	22	198
28	106	28	143
34	98	34	114
40	71	40	85
50	48	50	64
60	59	60	59
70	42	70	48
80	34	80	28
90	37	90	25
100	21	100	19
120	20	120	13
150	7	150	4

Table 2: Threshold scan for both CFDs without radioactive source.

Prompt curve measurement

delay / ns	coincidence count
0	402
2	430
4	401
6	408
8	349
10	319
12	264
14	233
16	203
18	256
20	265
22	362
24	559
26	838
28	1109
30	1267
32	1529
34	1675
36	1658
38	1775
40	1764
42	1943
44	1789
46	1801
48	1875
50	1705
52	1435
54	1173
56	925
58	732
60	483
62	269
72	129
64	198
66	149
68	125
70	133

Table 3: Prompt curve measurement

Spectrum scan for the SCA's

lower limit SCA 1	upper limit SCA 1	counts	lower limit SCA 2	upper limit SCA 2	counts
0	20	2095	0	20	2081
20	40	2123	20	40	4146
40	60	1998	40	60	2102
60	80	2079	60	80	2188
80	100	2175	80	100	2206
100	120	2321	100	120	2293
120	140	2615	120	140	2541
140	160	2434	140	160	2675
160	180	2472	160	180	2481
180	200	2104	180	200	2369
200	220	2028	200	220	2182
220	240	2022	220	240	2065
240	260	1972	240	260	1900
260	280	1903	260	280	1957
280	300	1887	280	300	1905
300	320	1961	300	320	1820
320	340	1819	320	340	1860
340	360	1896	340	360	1854
360	380	1912	360	380	1882
380	400	1934	380	400	1935
400	420	1981	400	420	1998
420	440	2028	420	440	1901
440	460	2084	440	460	2071
460	480	2111	460	480	2206
480	500	2310	480	500	2213
500	520	2448	500	520	2487
520	540	2626	520	540	2569
540	560	2506	540	560	2332
560	580	2266	560	580	1941
580	600	1773	580	600	1645
600	620	1701	600	620	1551
620	640	1648	620	640	1431
640	660	1386	640	660	1342
660	680	1345	660	680	3291
680	700	3300	680	700	5767
700	720	6011	700	720	3128
720	740	3892	720	740	649
740	760	918	740	760	1266
760	780	778	760	780	3693
780	800	3205	780	800	4041

Table 4: Spectrum scan for the SCA's

lower limit SCA 1	upper limit SCA 1	counts	lower limit SCA 2	upper limit SCA 2	counts
800	820	4939	800	820	1410
820	840	2707	820	840	285
840	860	614	840	860	83
860	880	120	860	880	88
880	900	85	880	900	80
900	920	84	900	920	53
920	940	73	920	940	51
940	960	75	940	960	73
960	980	67	960	980	51
980	1000	74	980	1000	67

Table 4: Spectrum scan for the SCA's

Main measurement

angle / deg	coincidence count	Det. 1 count	Det. 2 count	time / s	clock / hh:mm
180	9746	15210	14590	200	14:10
180	9689	15184	14524	200	15:08
180	9665	15156	14530	200	15:30
180	9732	15159	14623	200	15:51
180	9482	15114	14564	200	16:46
90	8651	15199	14781	200	14:14
90	8611	15169	14765	200	15:12
90	8913	15158	14742	200	15:34
90	8778	15156	14784	200	15:55
90	8663	15129	14722	200	16:50
270	8588	15189	14510	200	14:18
270	8624	15189	14475	200	15:16
270	8645	15179	14479	200	15:38
270	8706	15147	14670	200	15:59
270	8708	15116	14555	200	16:54
225	9020	15176	14525	200	14:23
225	8971	15157	14507	200	15:21
225	9057	15140	14529	200	15:42
225	9131	15143	14559	200	16:03
225	9313	15104	14491	200	16:58
135	9046	15175	14689	200	14:28
135	9218	15155	14708	200	15:25
135	9174	15128	14604	200	15:47
135	9337	15164	14684	200	16:07
135	9139	15107	14669	200	17:03
120	9060	15196	14676	200	14:35
120	8773	15169	14711	200	16:11
105	8817	15195	14659	200	14:38
105	8880	15148	14760	200	16:16
150	9660	15187	14674	200	14:43
150	9267	15155	14597	200	16:20
165	9602	15156	14623	200	14:47
165	9732	15137	14587	200	16:24
195	9499	15181	14507	200	14:51
195	9580	15159	14511	200	16:28
210	9283	15156	14470	200	14:55
210	9388	15125	14556	200	16:32
240	8743	15176	14530	200	15:00
240	8773	15131	14489	200	16:37
255	8658	15148	14572	200	15:04
255	8489	15106	14509	200	16:42