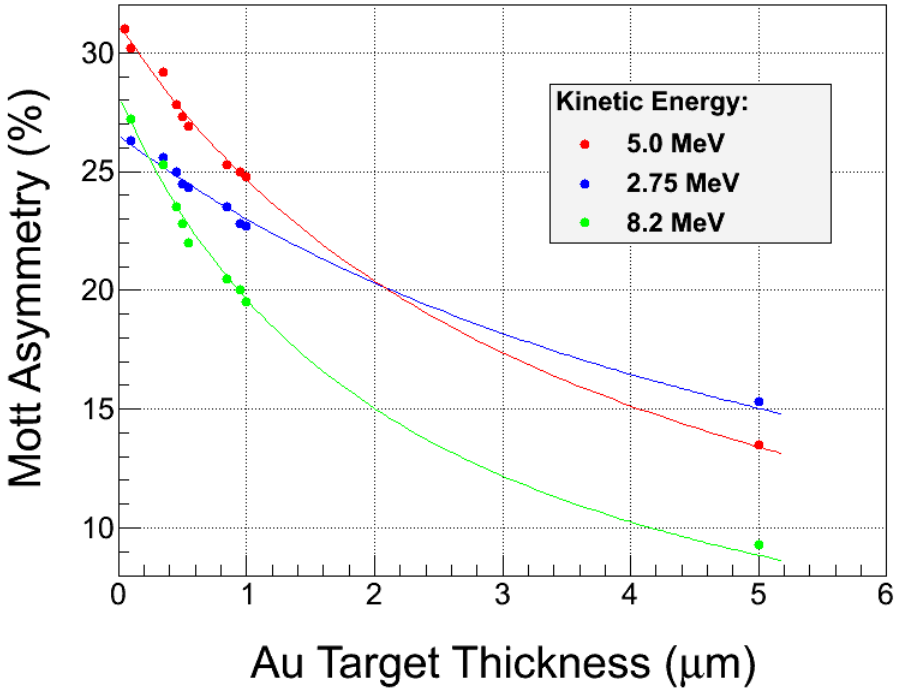
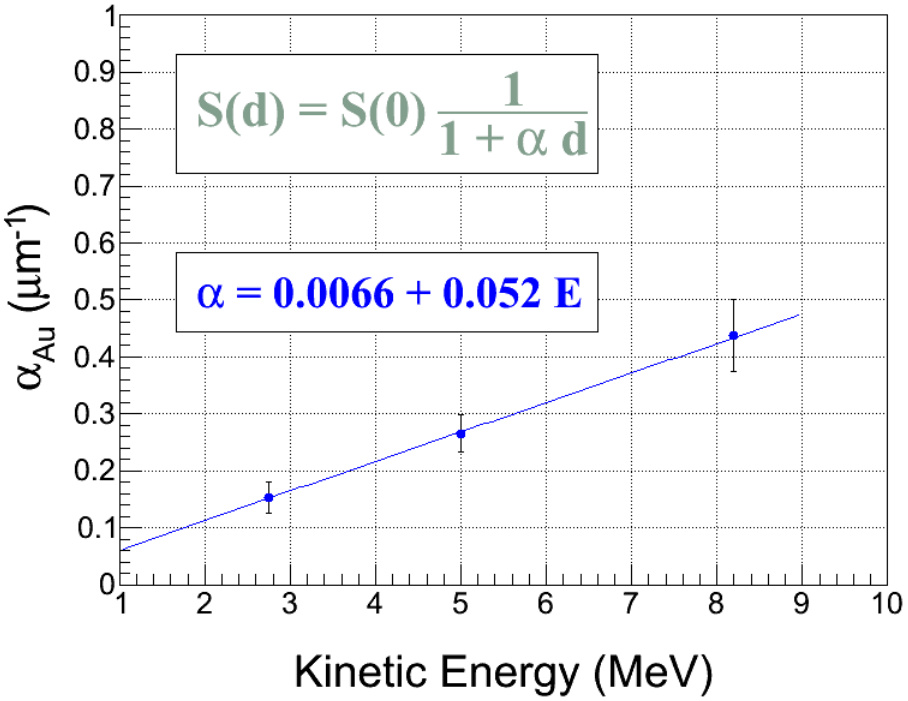
Mott Run Time Estimates

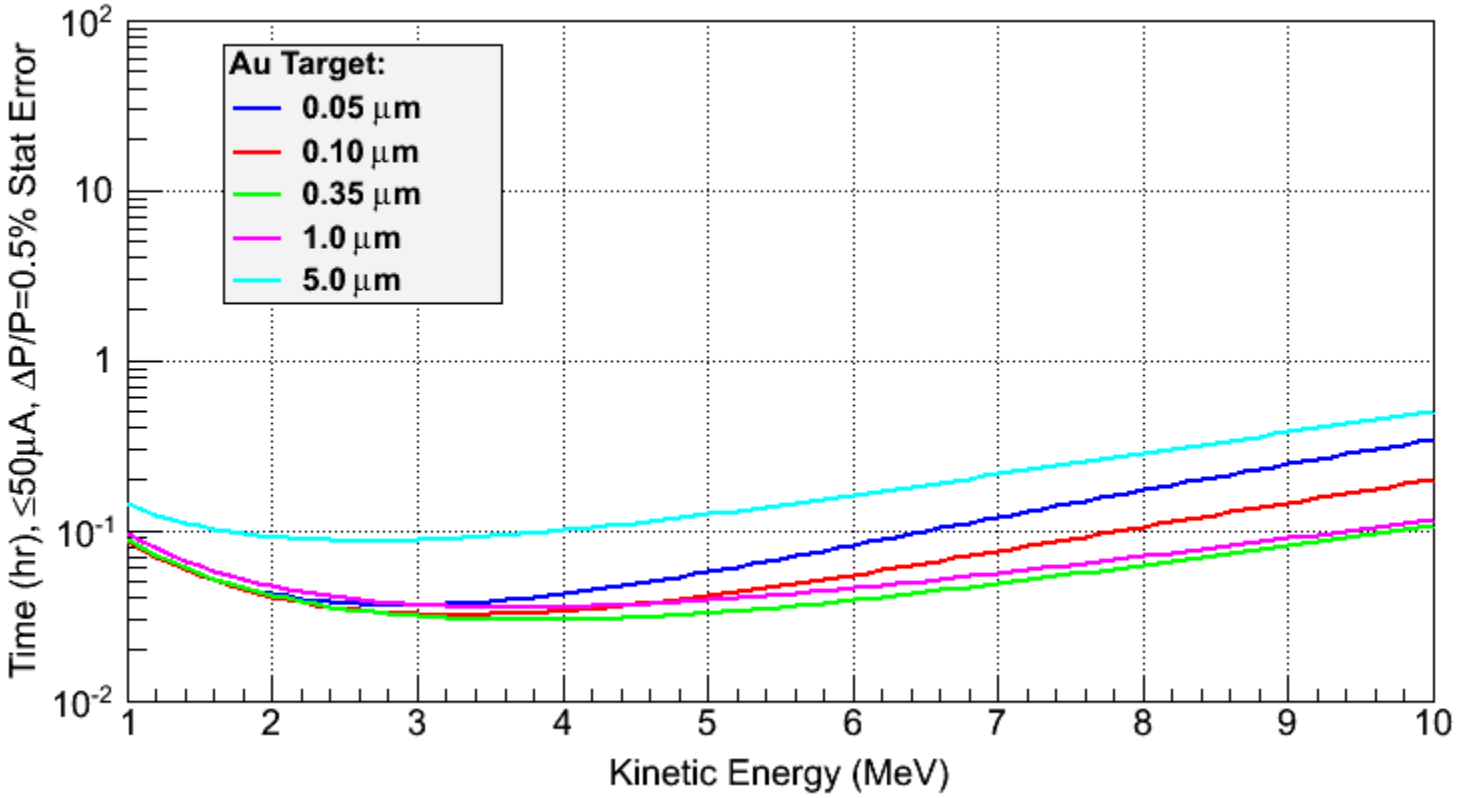
- DAQ rate < 5,000 Hz
- Beam current < 50 μA
- Target thickness extrapolation from Steigerwald is included
- Dump events: 25 Hz/μA per detector
- Beam polarization: 85%
- Statistical error (δp/p): 0.5%

Target Thickness Extrapolation





Au Target


Au Target:
0.05 μm
0.10 μm
0.35 μm
1.0 μm
5.0 μm
Time (hr), ≤50μA, ΔP/P=0.5% Stat Error
Kinetic Energy (MeV)
10²
10
1
10⁻¹
10⁻²
1
2
3
4
5
6
7
8
9
10

Au Target - 3.0 MeV

Target Thickness (μm)	I (μA)	Time (hr)	DAQ Rate (Hz)	Asym (%)	S_{eff}
0.05	12.76	0.04	5000	-40.49	-0.4763
0.10	7.31	0.03	5000	-40.16	-0.4725
0.35	2.33	0.03	5000	-38.62	-0.4543
1.0	0.84	0.04	5000	-35.11	-0.4130
5.0	0.17	0.09	5000	-22.51	-0.2649

Au Target - 5.0 MeV

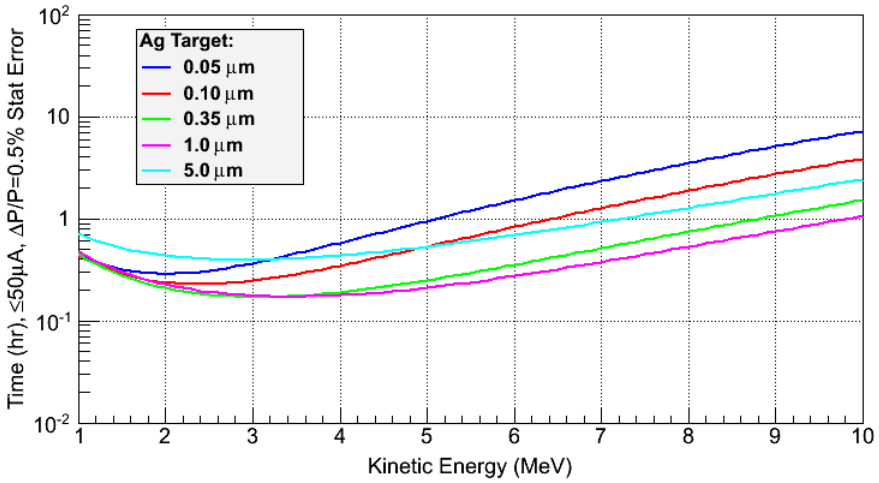
Target Thickness (μm)	I (μA)	Time (hr)	DAQ Rate (Hz)	Asym (%)	S_{eff}
0.05	29.77	0.06	5000	-43.77	-0.5150
0.10	21.19	0.04	5000	-43.20	-0.5083
0.35	8.69	0.03	5000	-40.57	-0.4773
1.0	3.43	0.04	5000	-35.02	-0.4120
5.0	0.73	0.12	5000	-19.01	-0.2237

Au Target - 8.0 MeV

Target Thickness (μm)	I (μA)	Time (hr)	DAQ Rate (Hz)	Asym (%)	S_{eff}
0.05	41.54	0.17	5000	-38.98	-0.4586
0.10	35.52	0.11	5000	-38.19	-0.4493
0.35	20.61	0.06	5000	-34.68	-0.4080
1.0	9.85	0.07	5000	-27.98	-0.3292
5.0	2.34	0.29	5000	-12.79	-0.1504

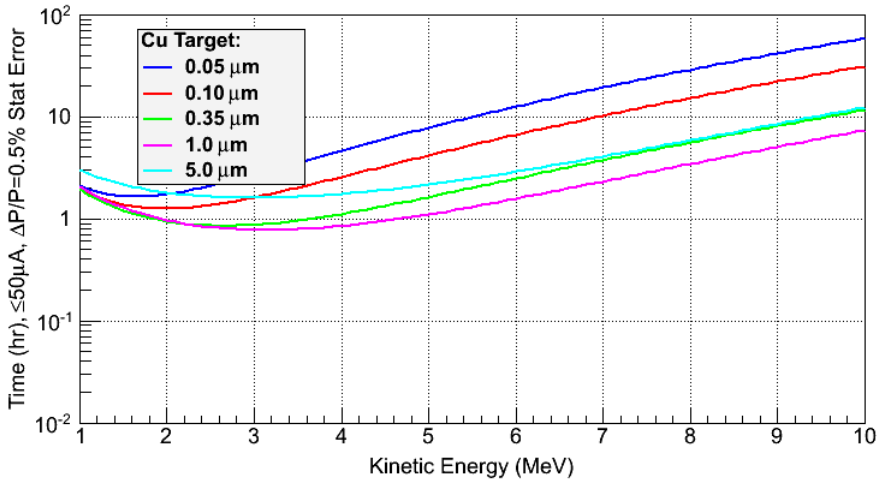
Ag Target - 5.0 MeV

Target Thickness (μm)	I (μA)	Time (hr)	DAQ Rate (Hz)	Asym (%)	S_{eff}
0.05	45.18	0.95	5000	-22.02	-0.2591
0.10	41.20	0.53	5000	-21.74	-0.2557
0.35	28.62	0.25	5000	-20.41	-0.2401
1.0	15.95	0.21	5000	-17.62	-0.2073
5.0	4.28	0.53	5000	-9.57	-0.1125



Cu Target - 5.0 MeV

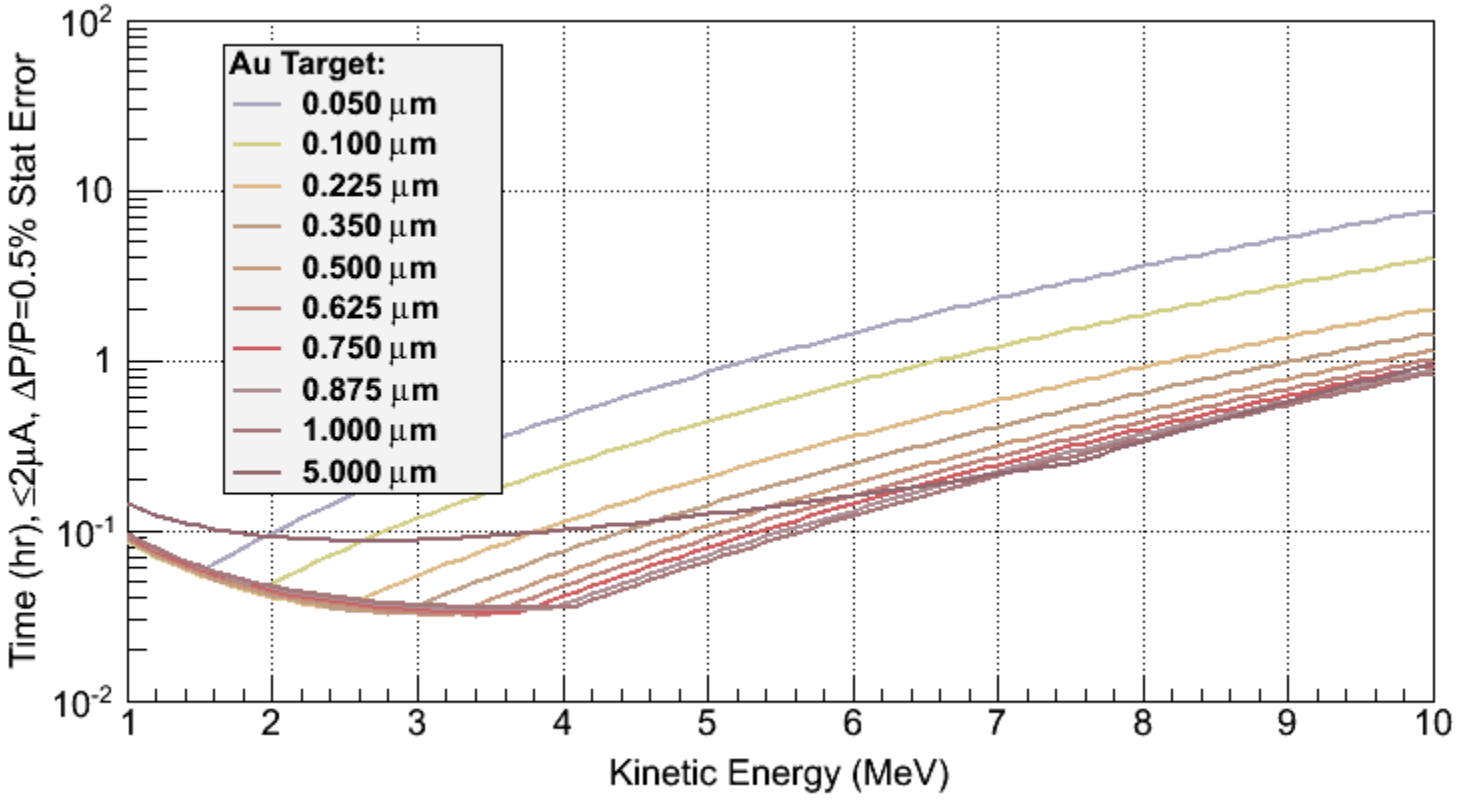
Target Thickness (μm)	I (μA)	Time (hr)	DAQ Rate (Hz)	Asym (%)	S_{eff}
0.05	47.87	7.82	5000	-11.55	-0.1359
0.10	45.92	4.18	5000	-11.40	-0.13.42
0.35	38.13	1.63	5000	-10.71	-0.1260
1.0	26.46	1.11	5000	-9.24	-0.1087
5.0	9.18	2.16	5000	-5.02	-0.0590



Fall 2013 Gold Plan

Au Target

Beam current < 2 μA



Au Target - 3.0 MeV

Target Thickness (μm)	I (μA)	Time (hr)	DAQ Rate (Hz)	Asym (%)	S_{eff}
0.050	2.00	0.23	783	-40.49	-0.4763
0.100	2.00	0.12	1368	-40.16	-0.4725
0.225	2.00	0.05	2828	-39.38	-0.4632
0.350	2.00	0.04	4288	-38.62	-0.4543
0.500	1.66	0.03	5000	-37.75	-0.4441
0.625	1.33	0.03	5000	-37.05	-0.4359
0.750	1.12	0.03	5000	-36.38	-0.4280
0.875	0.96	0.04	5000	-35.73	-0.4204
1.000	0.84	0.04	5000	-35.11	-0.4130
5.000	0.17	0.09	5000	-22.51	-0.2649

Au Target - 5.0 MeV

Target Thickness (μm)	I (μA)	Time (hr)	DAQ Rate (Hz)	Asym (%)	S_{eff}
0.050	2.00	0.85	336	-43.77	-0.5150
0.100	2.00	0.44	472	-43.20	-0.5083
0.225	2.00	0.21	812	-41.84	-0.4922
0.350	2.00	0.14	1151	-40.57	-0.4773
0.500	2.00	0.11	1559	-39.14	-0.4604
0.625	2.00	0.09	1898	-38.88	-0.4473
0.750	2.00	0.08	2239	-36.96	-0.4349
0.875	2.00	0.07	2579	-35.96	-0.4231
1.000	2.00	0.07	2918	-35.02	-0.4120
5.000	0.73	0.12	5000	-19.01	-0.2237

Au Target - 8.0 MeV

Target Thickness (μm)	I (μA)	Time (hr)	DAQ Rate (Hz)	Asym (%)	S_{eff}
0.050	2.00	3.59	241	-38.98	-0.4586
0.100	2.00	1.87	282	-38.19	-0.4493
0.225	2.00	0.92	383	-36.35	-0.4277
0.350	2.00	0.65	485	-34.68	-0.4080
0.500	2.00	0.50	608	-32.86	-0.3866
0.625	2.00	0.44	709	-31.49	-0.3705
0.750	2.00	0.40	811	-30.23	-0.3556
0.875	2.00	0.37	913	-29.06	-0.3419
1.000	2.00	0.35	1015	-27.98	-0.3292
5.000	2.00	0.33	4276	-12.79	-0.1504