Integral measurements of plural and multiple scattering of electrons with energies between 10 and 100 keV for $6 \leq Z \leq 83$: I. Thin and intermediate-thickness targets

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SUPPLEMENTAL MATERIAL
DETAILED MONTE CARLO SIMULATIONS

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The results of the detailed Monte Carlo simulations are given, with their uncertainty, in the following tables. The corresponding thicknesses, as well as the geometrical parameters of the cup and the ring, can be found in the paper. The two thin C targets are gathered together in Table 1. The thin Al, Cu, Te, Au, and Bi_2O_3 targets with C backing are considered in Tables 2, 3, 4, 5, and 6, respectively. Finally, the measurements for the intermediate self-supporting Al, Cu, and Au targets are reported in Tables 7, 8, and 9, respectively.

Table 1: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the thin C targets (A and B).

Target A			Target B	
Energy (keV)	Faraday Cup	Ring	Faraday Cup	Ring
10.	0.770(15)	0.1019(20)	0.746(15)	0.1107(22)
15.	0.889(17)	0.0488(9)	0.876(17)	0.0550(11)
20.	0.935(18)	0.0296(6)	0.927(18)	0.0329(7)
25.	0.958(19)	0.0182(4)	0.952(19)	0.0212(4)
30.	0.969(19)	0.0139(3)	0.966(19)	0.0145(3)
35.	0.975(19)	0.0109(2)	0.974(19)	0.0111(2)
40.	0.981(19)	0.0082(2)	0.979(19)	0.0090(2)
45.	0.984(20)	0.0070(1)	0.983(20)	0.0068(1)
50.	0.988(20)	0.0053(1)	0.985(20)	0.0062(1)
60.	0.991(20)	0.0041(1)	0.990(20)	0.0044(1)
70.	0.993(20)	0.0028(1)	0.992(20)	0.0030(1)
80.	0.996(20)	0.0022(1)	0.993(20)	0.0026(1)
90.	0.996(20)	0.0023(1)	0.994(20)	0.0023(1)
100.	1.00(20)	0.0014(1)	0.996(20)	0.0018(1)

Table 2: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the thin Al/C target.

Al/C		
Energy (keV)	Faraday Cup	Ring
10.	0.488(9)	0.204(4)
15.	0.699(14)	0.1304(3)
20.	0.808(16)	0.0840(2)
25.	0.870(17)	0.0586(12)
30.	0.906(18)	0.0418(8)
35.	0.929(19)	0.0312(6)
40.	0.944(19)	0.0246(5)
45.	0.955(19)	0.0199(4)
50.	0.963(19)	0.0160(3)
60.	0.973(20)	0.0112(2)
70.	0.979(20)	0.0089(2)
80.	0.984(20)	0.0072(1)
90.	0.987(20)	0.0054(1)
100.	0.989(20)	0.0043(1)

Table 3: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the thin Cu/C target.

Cu/C		
Energy (keV)	Faraday Cup	Ring
10.	0.204(4)	0.210(4)
15.	0.385(8)	0.220(4)
20.	0.536(11)	0.184(4)
25.	0.649(13)	0.149(3)
30.	0.726(14)	0.117(2)
35.	0.784(16)	0.093(2)
40.	0.827(17)	0.075(2)
45.	0.856(17)	0.0623(12)
50.	0.879(18)	0.0534(11)
60.	0.913(18)	0.0381(8)
70.	0.933(18)	0.0295(6)
80.	0.947(19)	0.0243(5)
90.	0.956(19)	0.0194(4)
100.	0.964(19)	0.0165(3)

Table 4: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the thin Te/C target.

Te/C			
Energy (keV)	Faraday Cup	Ring	
10.		0.198(4)	0.194(4)
15.		0.367(7)	0.204(4)
20.		0.505(10)	0.180(4)
25.		0.608(12)	0.151(3)
30.		0.684(14)	0.125(3)
35.		0.742(15)	0.104(2)
40.		0.784(16)	0.0884(18)
45.		0.818(16)	0.0756(15)
50.		0.844(17)	0.0659(13)
60.		0.882(18)	0.0501(10)
70.		0.908(18)	0.0397(8)
80.		0.924(18)	0.0321(6)
90.		0.938(19)	0.0267(5)
100.		0.948(19)	0.0222(4)

Table 5: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the thin Au/C target.

Au/C			
Energy (keV)	Faraday Cup	Ring	
10.		0.675(13)	0.100(2)
15.		0.786(16)	0.073(2)
20.		0.843(17)	0.0566(11)
25.		0.879(17)	0.0447(9)
30.		0.907(18)	0.0365(7)
35.		0.923(18)	0.0310(6)
40.		0.937(19)	0.0247(5)
45.		0.946(19)	0.0214(4)
50.		0.952(19)	0.0193(4)
60.		0.963(19)	0.0151(3)
70.		0.972(19)	0.0114(2)
80.		0.976(19)	0.0096(2)
90.		0.980(19)	0.0076(2)
100.		0.983(19)	0.0066(2)

Table 6: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the thin Bi_2O_3/C target.

Bi_2O_3/C		
Energy (keV)	Faraday Cup	Ring
10.	0.419(8)	0.166(3)
15.	-	0.129(3)
20.	0.722(14)	0.0994(19)
25.	0.794(16)	0.0765(15)
30.	0.835(17)	0.0623(12)
35.	0.869(17)	0.0521(10)
40.	0.891(18)	0.0436(9)
45.	-	0.0371(8)
50.	0.921(18)	0.0320(6)
60.	0.942(19)	0.0236(5)
70.	0.952(19)	0.0194(4)
80.	0.961(19)	0.0162(3)
90.	0.968(19)	0.0127(3)
100.	0.973(19)	0.0109(2)

Table 7: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the intermediate Al target.

Al		
Energy (keV)	Faraday Cup	Ring
10.	0.0491(9)	0.1012(20)
15.	0.0969(19)	0.167(3)
20.	0.169(3)	0.231(5)
25.	0.258(5)	0.261(5)
30.	0.345(7)	0.262(5)
35.	0.432(9)	0.246(5)
40.	0.512(10)	0.219(4)
45.	0.582(12)	0.189(4)
50.	0.643(13)	0.165(3)
60.	0.733(15)	0.125(2)
70.	0.799(16)	0.094(2)
80.	0.846(17)	0.0703(14)
90.	0.876(18)	0.0567(11)
100.	0.902(18)	0.0437(9)

Table 8: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the intermediate Cu target.

Cu		
Energy (keV)	Faraday Cup	Ring
10.	0.0128(3)	0.0279(6)
15.	0.0265(5)	0.0557(11)
20.	0.0372(7)	0.0797(16)
25.	0.0488(9)	0.102(2)
30.	0.0645(12)	0.125(2)
35.	0.0817(16)	0.152(3)
40.	0.104(2)	0.177(3)
45.	0.127(3)	0.202(4)
50.	0.156(3)	0.224(4)
60.	0.214(4)	0.255(5)
70.	0.277(5)	0.269(5)
80.	0.340(7)	0.269(5)
90.	0.403(8)	0.257(5)
100.	0.459(9)	0.241(5)

Table 9: Simulated values for the charge fraction collected in the Faraday cup and aluminium ring for the intermediate Au target.

Au		
Energy (keV)	Faraday Cup	Ring
10.	0.0314(6)	0.0672(13)
15.	0.0562(11)	0.104(2)
20.	0.0886(18)	0.144(3)
25.	0.132(3)	0.177(3)
30.	0.177(3)	0.201(4)
35.	0.228(4)	0.218(4)
40.	0.278(6)	0.223(4)
45.	0.323(6)	0.225(4)
50.	0.371(7)	0.222(4)
60.	0.455(9)	0.206(4)
70.	0.527(10)	0.186(4)
80.	0.587(12)	0.169(3)
90.	0.641(12)	0.147(3)
100.	0.685(13)	0.131(3)