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
POLYNOMIAL FITS

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The coefficients of the polynomial

$$y(x) = \sum_{i=0}^{n} a_i \, x^i \tag{1}$$

that have been fitted to the charge fraction measured in the Faraday cup and aluminium ring, see paper for more details, are given in the following tables. The values for the two thin C targets are given 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 values for the intermediate self-supporting Al, Cu, and Au targets are reported in Tables 7, 8, and 9, respectively.

Table 1: Parameters fitted to the charge fraction in the Faraday cup and aluminium ring for the thin C target A.

	C target A		Target B	
Coefficients	Faraday cup	Ring	Faraday cup	Ring
a_0	$+0.304$	$+0.307$	$+0.195$	$+0.388$
a_1	$+0.074$	-0.033	$+0.089$	-0.044
a_2	$-3.60 \cdot 10^{-3}$	$+1.59 \cdot 10^{-3}$	$-4.43 \cdot 10^{-3}$	$+2.22 \cdot 10^{-3}$
a_3	$+9.68 \cdot 10^{-5}$	$-4.32 \cdot 10^{-5}$	$+1.24 \cdot 10^{-4}$	$-6.30 \cdot 10^{-5}$
a_4	$-1.53 \cdot 10^{-6}$	$+6.93 \cdot 10^{-7}$	$-2.07 \cdot 10^{-6}$	$+1.05 \cdot 10^{-6}$
a_5	$+1.43 \cdot 10^{-8}$	$-6.52 \cdot 10^{-9}$	$+2.03 \cdot 10^{-8}$	$-1.03 \cdot 10^{-8}$
a_6	$-7.22 \cdot 10^{-11}$	$+3.32 \cdot 10^{-11}$	$-1.08 \cdot 10^{-10}$	$+5.48 \cdot 10^{-11}$
a_7	$+1.53 \cdot 10^{-13}$	$-7.09 \cdot 10^{-14}$	$-2.42 \cdot 10^{-13}$	$-1.22 \cdot 10^{-13}$

Table 2: Parameters fitted for the charge fraction in the Faraday cup and aluminium ring for the thin Al/C target.

	Al/C	
Coefficients	Faraday cup	Ring
a_0	-0.219	$+0.435$
a_1	$+0.103$	-0.033
a_2	$-3.87 \cdot 10^{-3}$	$+1.16 \cdot 10^{-3}$
a_3	$+7.85 \cdot 10^{-5}$	$-2.20 \cdot 10^{-5}$
a_4	$-8.89 \cdot 10^{-7}$	$+2.36 \cdot 10^{-7}$
a_5	$+5.29 \cdot 10^{-9}$	$-1.34 \cdot 10^{-9}$
a_6	$-1.29 \cdot 10^{-11}$	$+3.15 \cdot 10^{-12}$

Table 3: Parameters fitted for the charge fraction in the Faraday cup and aluminium ring for the thin Cu/C target.

Cu/C		
Coefficients	Faraday cup	Ring
a_0	-0.297	-0.447
a_1	$+0.068$	$+0.153$
a_2	$-1.67 \cdot 10^{-3}$	$-1.40 \cdot 10^{-2}$
a_3	$+2.17 \cdot 10^{-5}$	$+6.65 \cdot 10^{-4}$
a_4	$-1.44 \cdot 10^{-7}$	$-1.92 \cdot 10^{-5}$
a_5	$+3.85 \cdot 10^{-10}$	$+3.54 \cdot 10^{-7}$
a_6	-	$-4.20 \cdot 10^{-9}$
a_7	-	$+3.10 \cdot 10^{-11}$
a_8	-	$-1.29 \cdot 10^{-13}$
a_9	-	$+2.34 \cdot 10^{-16}$

Table 4: Parameters fitted for the charge fraction in the Faraday cup and aluminium ring for the thin Te/C target.

Te/C		
Coefficients	Faraday cup	Ring
a_0	-0.263	-0.081
a_1	$+0.057$	$+0.053$
a_2	$-1.19 \cdot 10^{-3}$	$-3.56 \cdot 10^{-3}$
a_3	$+1.32 \cdot 10^{-5}$	$+1.11 \cdot 10^{-4}$
a_4	$-7.53 \cdot 10^{-8}$	$-1.95 \cdot 10^{-6}$
a_5	$1.73 \cdot 10^{-10}$	$+1.95 \cdot 10^{-8}$
a_6	-	$-1.05 \cdot 10^{-10}$
a_7	-	$+2.36 \cdot 10^{-13}$

Table 5: Parameters fitted for the charge fraction in the Faraday cup and aluminium ring for the thin Au/C target.

Au/C		
Coefficients	Faraday cup	Ring
a_0	$+0.230$	$+0.210$
a_1	$+0.062$	-0.014
a_2	$-2.36 \cdot 10^{-3}$	$+4.47 \cdot 10^{-4}$
a_3	$+4.94 \cdot 10^{-5}$	$-8.37 \cdot 10^{-6}$
a_4	$-5.78 \cdot 10^{-7}$	$+9.08 \cdot 10^{-8}$
a_5	$+3.55 \cdot 10^{-9}$	$-5.30 \cdot 10^{-10}$
a_6	$-8.91 \cdot 10^{-12}$	$+1.29 \cdot 10^{-12}$

Table 6: Parameters fitted for the charge fraction in the Faraday cup and aluminium ring for the thin Bi_2O_3/C target.

Bi_2O_3/C		
Coefficients	Faraday cup	Ring
a_0	-0.322	$+0.399$
a_1	$+0.101$	-0.024
a_2	$-3.60 \cdot 10^{-3}$	$+6.22 \cdot 10^{-4}$
a_3	$+7.06 \cdot 10^{-5}$	$-8.51 \cdot 10^{-6}$
a_4	$-7.79 \cdot 10^{-7}$	$+5.86 \cdot 10^{-8}$
a_5	$+4.54 \cdot 10^{-9}$	$-1.60 \cdot 10^{-10}$
a_6	$-1.09 \cdot 10^{-11}$	-

Table 7: Parameters fitted for the charge fraction in the Faraday cup and aluminium ring for the intermediate Al target.

Al		
Coefficients	Faraday cup	Ring
a_0	$+0.080$	-0.186
a_1	-0.014	$+0.035$
a_2	$+1.49 \cdot 10^{-3}$	$-7.81 \cdot 10^{-4}$
a_3	$-3.02 \cdot 10^{-5}$	$-1.96 \cdot 10^{-6}$
a_4	$+2.56 \cdot 10^{-7}$	$+2.31 \cdot 10^{-7}$
a_5	$-8.00 \cdot 10^{-10}$	$-2.52 \cdot 10^{-9}$
a_6	-	$+8.66 \cdot 10^{-12}$

Table 8: Parameters fitted for the charge fraction in the Faraday cup and aluminium ring for the intermediate Cu target.

Cu		
Coefficients	Faraday cup	Ring
a_0	$-3.72 \cdot 10^{-3}$	-0.032
a_1	$-3.28 \cdot 10^{-3}$	$-1.30 \cdot 10^{-4}$
a_2	$+5.78 \cdot 10^{-4}$	$+5.05 \cdot 10^{-4}$
a_3	$-2.24 \cdot 10^{-5}$	$-1.37 \cdot 10^{-5}$
a_4	$+4.29 \cdot 10^{-7}$	$+1.42 \cdot 10^{-7}$
a_5	$-3.80 \cdot 10^{-9}$	$-5.27 \cdot 10^{-10}$
a_6	$+1.25 \cdot 10^{-11}$	-

Table 9: Parameters fitted for the charge fraction in the Faraday cup and aluminium ring for the intermediate Au target.

Au		
Coefficients	Faraday cup	Ring
a_0	$+0.033$	-0.062
a_1	$-2.21 \cdot 10^{-3}$	$+0.016$
a_2	$+3.91 \cdot 10^{-4}$	$-3.07 \cdot 10^{-4}$
a_3	$-5.08 \cdot 10^{-6}$	$+2.19 \cdot 10^{-6}$
a_4	$+2.05 \cdot 10^{-8}$	$-5.45 \cdot 10^{-9}$