TABLES. Measurements of K-shell ionization cross sections published up to Dec 2024.

The data are arranged first by increasing target atomic number and then by increasing incident electron energy. A plot corresponding to K-shell ionizacion cross section vs electron incident energy is shown at the end of each element´s table

Column nº	Title	Description
1	Energy E	Incident electron energy in keV
2	U	Overvoltage (Energy/I_K) with I_K = K-shell ionization energy from Larkins (1977) [La77]
3	σ_K	K-shell ionizacion cross section in barns
4	$\Delta\sigma_K$	Uncertainty of the ionization cross section (in barns) as reported by the author unless specified in column Notes
5	Method	A: Auger yields; E: EELS spectra; X: x-ray yields; I: ion number; SE: secondary electron number
6	Target	T: self-supporting thin films, TS: thin films on substrates, S: thick substrates, G: gases, TtS: thin films on thin substrate
7	Year	Year of publication
8	Reported datum	ICS: Ionization Cross Section; DICS: Differential Ionization Cross Section; XRP: X-Ray Production cross section
9	ω_K	K-shell fluorescence yield as reported by the author(s).
10	Ref.	Key for locating the reference in References list (page 2)
11	Notes	Comments on the data, uncertainties, or fluorescence yield values

References

Key	Author(s)	Journal
Ad66	Adamczyc et al.	J. Chem. Phys. 44, 4640–4642 (1966)
An96	An et al.	Phys. Rev. A 54, 3067–3069 (1996).
An00	An et al.	J. Phys. B 33, 3677–3684 (2000)
An03	An et al.	Nucl. Instrum. Methods Phys. Res. B 207, 268–274 (2003)
An06	An et al.	Nucl. Instrum. Methods Phys. Res. B 246, 281–287 (2006)
As63	Asundi and Kurepa	Journal of Electronics and Control 15, 41–50 (1963)
Ay07	Aydinol	Indian J. Pure Appl. Phys. 45, 641–646 (2007)
Ba15	Barros et al.	J. Phys. B 48, 175201 1–12 (2015)
Be70	Berkner et al.	Bull. Am . Phys. Soc. 11, 786 (1970)
Be78	Berenyi et al.	J. Phys. B 11, 709–713 (1978)
Br78	Brook et al.	J. Phys. B 11, 3115–3132 (1978)
Cl35	Clark	Phys. Rev. 48, 30–42 (1935)
Co72	Colliex and Jouffrey	Philos. Mag. 25, 491–511 (1972)
Da72	Davis et al.	Phys. Lett. A 38, 169–170 (1972)
Da75	Dangerfield et al.	J. Phys. B 8, 1744 (1975)
Do62	Downey et al.	*Electron Impact Studies of Gaseous Ionic Phenomena* (Thesis Ph.D., Liverpool University, 1962)
Do68	Dolgov-Savalev and Panchenko	Opt. Spectrosc. (USSR) (Engl. Transl.), 25: 270–2 (1968)
Do70	Dolgov-Savalev and Panchenko	Opt. Spectrosc. (USSR) (Engl. Transl.), 28: 578–8 (1970)
Eg75	Egerton	Philos. Mag. 31, 199–215 (1975)
Fe14	Fernandez et al.	J. Phys. B 47, 155201 1–9 (2014)
Fi58	Fite and Brackmann	Phys. Rev. 112, 1141–1151 (1958)
Fi67	Fischer and Hoffmann	Z. Phys. 204, 122–128 (1967)
Ga67	Gaudin and Hagemann	J. Chim. Phys. 64, 1209–1221 (1967)
Ge82	Genz et al.	Z. Phys. 305, 9–19 (1982)
Gl67	Glupe and Mehlhorn	Phys. Lett. A 25, 274–275 (1967)
Gl71	Glupe and Mehlhorn	Journal de Physique Colloques 32, 40–43 (1971)
Ha56	Harrison	*The Experimental Determination of Ionization Cross Sections of Gases Under Electron Impact* (Thesis Ph. D., The Catholic University of America, Washington, DC., 1956)
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He96b	He et al.	Nucl. Inst. Meth. Phys. Res. B 114 (1996) 213-216
He97	He et al.	Nucl. Instrum. Methods Phys. Res. N. 129, 445–450 (1997)
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Hi71	Hink and Paschke	Z. Phys. A 244 140–148 (1971)
Hi81	Hink et al.	Inner-Shell and X-Ray Physics of Atoms and Solids (Springer US, Boston, MA, 1981) p. 327–330.
Hi82	Hippler et al	Zeitschrift für Physik A Atoms and Nuclei 307, 83–87 (1982)
Hi83	Hippler et al.	J. Phys. B 16, L617–L621 (1983)
Ho79	Hoffmann et al.	Z. Phys. A. 293, 187–201 (1979)
Hu72	Hubner et al.	Z. Phys. A. 255, 269–280 (1972)
Is72	Isaacson	J. Chem. Phys. 56, 1813–1818 (1972)
Is77	Ishii et al.	Phys. Rev. A 15, 906--913, 1977
Je75	Jessenberger and Hink	Z. Phys. A 275, 331–337 (1975)
Ka80	Kamiya et al.	Phys. Rev. A 22, 413–420 (1980)

Ki66	Kieffer and Dunn	Rev. Mod. Phys. 38, 1–35 (1966)
Ki81	Kiss et al.	Acta. Sci. Hung. 50, 97–102 (1981)
La77	Larkins	At. Data and Nucl. Data Tables 20, 313 (1977)
Li34	Liska	Phys. Rev. 46, 169–176 (1934)
Li12	Limandri et al.	Phys. Rev. A 86, 042701 1–10 (2012)
Li20	Li et al.	Acta Phys. Sin. 69, 133401–1 (2020)
Ll00	Llovet et al.	J. Phys. B 33, 3761–3772 (2000)
Ll02	Llovet et al.	J. Phys. B 35, 973–982 (2002)
Ll14	Llovet et al.	J. Phys. Chem. Ref. Data 43, 013102 (2014)
Lo90	Long et al.	At. Data Nucl. Data Tables 45, 353–366 (1990)
Lu96	Luo et al.	J. Phys. B 29, 4001–4005 (1996)
Lu97	Luo et al.	J. Phys. B 30, 2681–2686 (1997)
Lu01	Luo et al.	Phys. Rev. A 63, 034702 1–3 (2001)
Mc88	McDonald and Spicer	Phys. Rev. A 37, 985–987 (1988)
Me04	Merlet et al.	Phys. Rev. A 69, 032708 1–7 (2004)
Me06	Merlet et al.	Phys. Rev. A 73, 062719 1–10 (2006)
Me16	Mei et al	J. Phys. B 49, 245204 1–6 (2016)
Mi70	Middleman et al.	Phys. Rev. A 2, 1429–1443 (1970)
Mo64	Motz and Placious	Phys. Rev. 136 A662--A665 (1964)
Mo84	Montague et al.	J. Phys. B 17, 3295–3310 (1984)
Na80	Nagy et al.	J. Phys. B 13, 1249–1267 (1980)
Pe98	Peng et al.	Phys. Rev. A 58, 2034–2036 (1998)
Pe15	Perez et al.	Phys. Rev. A 92, 062708 1–8 (2015)
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Re02	Rejoub et al.	Phys. Rev. A 65, 042713 1 (2002)
Ri77	Ricz et al.	Acta Phys. Acad. Sci. Hung. 42, 269–271 (1977)
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Sh88	Shah et al.	J. Phys. B 21, 2751–2761 (1988)
Sh91	Shevelko et al.	Phys. Scr. 43, 158 (1991)
Sh92	Shyn	Phys. Rev. A 45, 2951–2956 (1992)
Sh94	Shchagin et al.	Nucl. Instr. Meth. Phys. Res. B 84, 9–13 (1994)

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Sm30	Smith	Phys. Rev. 36, 1293–1302 (1930)
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Ta73	Tawara et al.	Physica 63, 351–367 (1973)
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Wa87	Watanabe	Phys. Rev. A 35, 1423–1425 (1987)
We87a	Wetzel et al.	Phys. Rev. A 35, 559–577 (1987)
We87b	Westbrook and Quarles	Nucl. Instr. Meth. Phys. B 24-25, 196–198 (1987)
Wu10	Wu et al.	J. Phys. B 268, 2820–2824 (2010)
Wu11	Wu et al.	Nucl. Inst. Meth. Phys. Res. B 269, 117–121 (2011)
Wu12	Wu et al.	Can. J. Phys. 90, 125–130 (2012)
Zh01	Zhou et al.	Chin. Phys. Lett. 18, 759 (2001)
Zh02	Zhou et al.	J. Phys. B 35, 841–845 (2002)
Zh09	Zhu et al.	Phys. Rev. A 79, 052710 1–7 (2009)

Hydrogen H
Z = 1
I_K = 0.0136 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
0.0146	1.074	5.44E+06	2.5E+05	I	G	1987	ICS		Sh87	
0.0148	1.088	6.61E+06	4.1E+05	I	G	1987	ICS		Sh87	
0.0150	1.103	7.62E+06	3.8E+05	I	G	1987	ICS		Sh87	
0.0151	1.110	8.20E+06	2.9E+05	I	G	1987	ICS		Sh87	
0.0152	1.118	8.70E+06	4.5E+05	I	G	1987	ICS		Sh87	
0.0154	1.132	9.90E+06	4.6E+05	I	G	1987	ICS		Sh87	
0.0156	1.147	1.08E+07	3.0E+05	I	G	1987	ICS		Sh87	
0.0159	1.169	1.25E+07	5.0E+05	I	G	1987	ICS		Sh87	
0.0161	1.184	1.37E+07	6.0E+05	I	G	1987	ICS		Sh87	
0.0164	1.206	1.45E+07	5.0E+05	I	G	1987	ICS		Sh87	
0.0166	1.221	1.63E+07	3.0E+05	I	G	1987	ICS		Sh87	
0.0169	1.243	1.68E+07	6.0E+05	I	G	1987	ICS		Sh87	
0.0171	1.257	1.73E+07	5.0E+05	I	G	1987	ICS		Sh87	
0.0174	1.279	1.96E+07	6.0E+05	I	G	1987	ICS		Sh87	
0.0176	1.294	2.07E+07	5.0E+05	I	G	1987	ICS		Sh87	
0.0179	1.316	2.15E+07	5.0E+05	I	G	1987	ICS		Sh87	
0.0181	1.331	2.22E+07	6.0E+05	I	G	1987	ICS		Sh87	
0.0184	1.353	2.35E+07	3.0E+05	I	G	1987	ICS		Sh87	
0.0187	1.375	2.50E+07	6.0E+05	I	G	1987	ICS		Sh87	
0.019	1.397	2.61E+07	4.0E+05	I	G	1987	ICS		Sh87	
0.019	1.416	2.82E+07	1.7E+06	I	G	1958	ICS		Fi58	*
0.0193	1.419	2.75E+07	5.0E+05	I	G	1987	ICS		Sh87	
0.0196	1.441	2.81E+07	4.0E+05	I	G	1987	ICS		Sh87	
0.0200	1.471	2.93E+07	9.0E+05	I	G	1987	ICS		Sh87	
0.0204	1.500	3.11E+07	1.0E+06	I	G	1987	ICS		Sh87	
0.0209	1.537	3.34E+07	2.0E+05	I	G	1987	ICS		Sh87	
0.0214	1.574	3.39E+07	4.0E+05	I	G	1987	ICS		Sh87	
0.0220	1.618	3.61E+07	5.0E+05	I	G	1987	ICS		Sh87	
0.0226	1.662	3.76E+07	9.0E+05	I	G	1987	ICS		Sh87	
0.023	1.676	3.53E+07	2.1E+06	I	G	1958	ICS		Fi58	*
0.0233	1.713	4.01E+07	6.0E+05	I	G	1987	ICS		Sh87	
0.024	1.765	4.15E+07	6.0E+05	I	G	1987	ICS		Sh87	
0.025	1.821	4.00E+07	2.4E+06	I	G	1958	ICS		Fi58	*
0.0248	1.824	4.30E+07	1.0E+06	I	G	1987	ICS		Sh87	
0.025	1.838	4.20E+07	8.4E+06	SE	G	1992	ICS		Sh92	
0.0256	1.882	4.44E+07	1.0E+06	I	G	1987	ICS		Sh87	
0.027	1.951	4.41E+07	2.6E+06	I	G	1958	ICS		Fi58	*
0.0266	1.956	4.57E+07	1.0E+06	I	G	1987	ICS		Sh87	
0.0273	2.007	4.75E+07	7.0E+05	I	G	1987	ICS		Sh87	
0.028	2.067	4.62E+07	2.8E+06	I	G	1958	ICS		Fi58	*

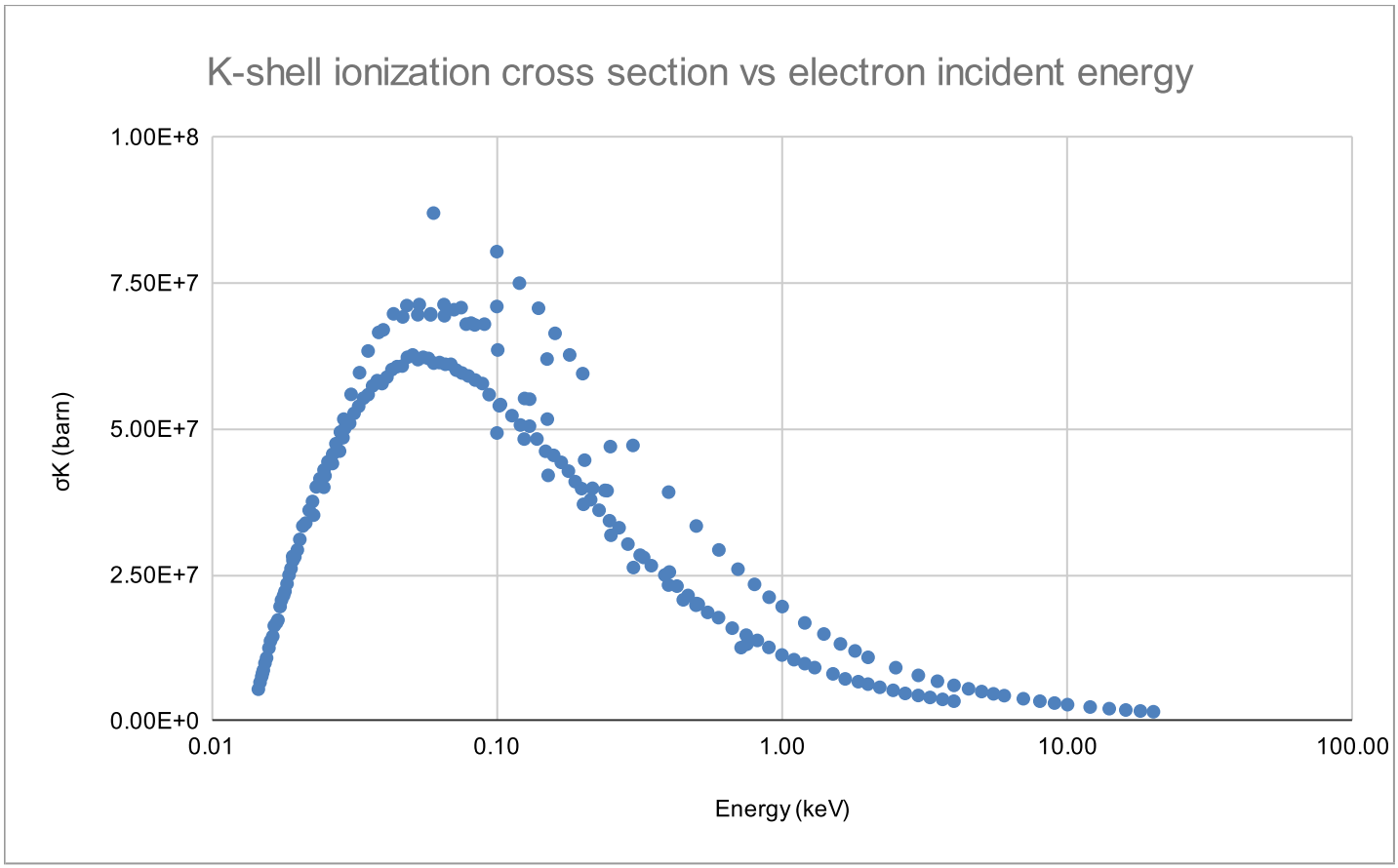
0.0283	2.081	4.95E+07	9.0E+05	I	G	1987	ICS	Sh87	
0.029	2.125	4.85E+07	2.9E+06	I	G	1958	ICS	Fi58	*
0.029	2.139	5.17E+07	3.1E+06	I	G	1958	ICS	Fi58	*
0.0293	2.154	5.01E+07	6.0E+05	I	G	1987	ICS	Sh87	
0.0305	2.243	5.10E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.031	2.269	5.59E+07	3.4E+06	I	G	1958	ICS	Fi58	*
0.0316	2.324	5.27E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.0328	2.412	5.39E+07	8.0E+05	I	G	1987	ICS	Sh87	
0.033	2.429	5.97E+07	3.6E+06	I	G	1958	ICS	Fi58	*
0.0341	2.507	5.53E+07	3.0E+05	I	G	1987	ICS	Sh87	
0.035	2.602	6.34E+07	3.8E+06	I	G	1958	ICS	Fi58	*
0.0354	2.603	5.59E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.0367	2.699	5.74E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.0381	2.801	5.83E+07	6.0E+05	I	G	1987	ICS	Sh87	
0.039	2.834	6.66E+07	4.0E+06	I	G	1958	ICS	Fi58	*
0.0396	2.912	5.78E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.040	2.941	6.70E+07	1.3E+07	SE	G	1992	ICS	Sh92	
0.0412	3.029	5.89E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.0429	3.154	6.02E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.043	3.196	6.97E+07	4.2E+06	I	G	1958	ICS	Fi58	*
0.0447	3.287	6.07E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.0466	3.426	6.08E+07	9.0E+05	I	G	1987	ICS	Sh87	
0.047	3.441	6.92E+07	4.2E+06	I	G	1958	ICS	Fi58	*
0.048	3.557	7.12E+07	4.3E+06	I	G	1958	ICS	Fi58	*
0.0486	3.574	6.23E+07	6.0E+05	I	G	1987	ICS	Sh87	
0.0507	3.728	6.27E+07	8.0E+05	I	G	1987	ICS	Sh87	
0.053	3.886	6.96E+07	4.2E+06	I	G	1958	ICS	Fi58	*
0.0529	3.890	6.19E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.053	3.933	7.13E+07	4.3E+06	I	G	1958	ICS	Fi58	*
0.0552	4.059	6.23E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.0576	4.235	6.21E+07	6.0E+05	I	G	1987	ICS	Sh87	
0.059	4.310	6.97E+07	4.2E+06	I	G	1958	ICS	Fi58	*
0.059	4.310	6.96E+07	4.2E+06	I	G	1958	ICS	Fi58	*
0.060	4.412	8.70E+07	1.7E+07	SE	G	1992	ICS	Sh92	
0.0601	4.419	6.13E+07	1.0E+06	I	G	1987	ICS	Sh87	
0.0630	4.632	6.14E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.065	4.801	7.13E+07	4.3E+06	I	G	1958	ICS	Fi58	*
0.066	4.817	6.94E+07	4.2E+06	I	G	1958	ICS	Fi58	*
0.0660	4.853	6.11E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.0690	5.074	6.11E+07	6.0E+05	I	G	1987	ICS	Sh87	
0.071	5.207	7.04E+07	4.2E+06	I	G	1958	ICS	Fi58	*
0.0721	5.301	6.01E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.075	5.515	7.08E+07	4.2E+06	I	G	1958	ICS	Fi58	*
0.0755	5.551	5.96E+07	8.0E+05	I	G	1987	ICS	Sh87	
0.078	5.742	6.80E+07	4.1E+06	I	G	1958	ICS	Fi58	*
0.0795	5.846	5.91E+07	9.0E+05	I	G	1987	ICS	Sh87	
0.081	5.974	6.82E+07	4.1E+06	I	G	1958	ICS	Fi58	*
0.084	6.154	6.78E+07	4.1E+06	I	G	1958	ICS	Fi58	*
0.0840	6.176	5.84E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.0890	6.544	5.78E+07	9.0E+05	I	G	1987	ICS	Sh87	

0.090	6.653	6.80E+07	4.1E+06	I	G	1958	ICS	Fi58	*
0.0940	6.912	5.59E+07	8.0E+05	I	G	1987	ICS	Sh87	
0.100	7.353	7.10E+07	1.4E+07	SE	G	1992	ICS	Sh92	
0.10	7.353	8.04E+07	4.8E+06	I	G	1966	ICS	Sc66	
0.100	7.360	4.93E+07	3.9E+06	I	G	1962	ICS	Ro62	*
0.101	7.406	6.36E+07	3.8E+06	I	G	1958	ICS	Fi58	*
0.1020	7.500	5.40E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.1030	7.574	5.42E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.1130	8.309	5.23E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.12	8.824	7.50E+07	4.5E+06	I	G	1966	ICS	Sc66	
0.1210	8.897	5.07E+07	8.0E+05	I	G	1987	ICS	Sh87	
0.125	9.172	4.83E+07	3.9E+06	I	G	1962	ICS	Ro62	*
0.125	9.199	5.52E+07	3.3E+06	I	G	1958	ICS	Fi58	*
0.1302	9.574	5.05E+07	6.0E+05	I	G	1987	ICS	Sh87	
0.130	9.585	5.51E+07	3.3E+06	I	G	1958	ICS	Fi58	*
0.1382	10.162	4.83E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.14	10.294	7.07E+07	4.2E+06	I	G	1966	ICS	Sc66	
0.1482	10.897	4.62E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.150	11.029	6.20E+07	1.2E+07	SE	G	1992	ICS	Sh92	
0.150	11.051	5.17E+07	3.1E+06	I	G	1958	ICS	Fi58	*
0.151	11.126	4.21E+07	3.4E+06	I	G	1962	ICS	Ro62	*
0.1582	11.632	4.55E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.16	11.765	6.64E+07	4.0E+06	I	G	1966	ICS	Sc66	
0.1682	12.368	4.43E+07	8.0E+05	I	G	1987	ICS	Sh87	
0.1782	13.103	4.28E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.18	13.235	6.27E+07	3.8E+06	I	G	1966	ICS	Sc66	
0.1882	13.838	4.10E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.1982	14.574	3.98E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.20	14.706	5.95E+07	3.6E+06	I	G	1966	ICS	Sc66	
0.201	14.797	3.71E+07	3.0E+06	I	G	1962	ICS	Ro62	*
0.203	14.933	4.47E+07	2.7E+06	I	G	1958	ICS	Fi58	*
0.2132	15.676	3.79E+07	7.0E+05	I	G	1987	ICS	Sh87	
0.216	15.913	3.99E+07	2.4E+06	I	G	1958	ICS	Fi58	*
0.2282	16.779	3.61E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.239	17.591	3.95E+07	2.4E+06	I	G	1958	ICS	Fi58	*
0.243	17.899	3.95E+07	2.4E+06	I	G	1958	ICS	Fi58	*
0.2482	18.250	3.43E+07	3.0E+05	I	G	1987	ICS	Sh87	
0.250	18.382	4.70E+07	9.4E+06	SE	G	1992	ICS	Sh92	
0.251	18.468	3.18E+07	2.5E+06	I	G	1962	ICS	Ro62	*
0.2682	19.721	3.31E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.2880	21.176	3.03E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.30	22.059	4.72E+07	2.8E+06	I	G	1966	ICS	Sc66	
0.301	22.138	2.63E+07	1.1E+06	I	G	1962	ICS	Ro62	*
0.3179	23.375	2.84E+07	3.0E+05	I	G	1987	ICS	Sh87	
0.327	24.045	2.80E+07	1.1E+06	I	G	1962	ICS	Ro62	*
0.3479	25.581	2.66E+07	2.0E+05	I	G	1987	ICS	Sh87	
0.3879	28.522	2.50E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.400	29.384	2.33E+07	9.3E+05	I	G	1962	ICS	Ro62	*
0.40	29.412	3.92E+07	2.4E+06	I	G	1966	ICS	Sc66	
0.402	29.585	2.55E+07	1.5E+06	I	G	1958	ICS	Fi58	*

0.4279	31.463	2.31E+07	1.0E+05	I	G	1987	ICS	Sh87	
0.450	33.101	2.08E+07	8.3E+05	I	G	1962	ICS	Ro62	*
0.4679	34.404	2.15E+07	2.0E+05	I	G	1987	ICS	Sh87	
0.499	36.677	1.98E+07	7.9E+05	I	G	1962	ICS	Ro62	*
0.50	36.765	3.34E+07	2.0E+06	I	G	1966	ICS	Sc66	
0.501	36.853	2.01E+07	1.2E+06	I	G	1958	ICS	Fi58	*
0.5082	37.368	2.00E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.5482	40.309	1.86E+07	6.0E+05	I	G	1987	ICS	Sh87	
0.5982	43.985	1.77E+07	3.0E+05	I	G	1987	ICS	Sh87	
0.60	44.118	2.93E+07	1.8E+06	I	G	1966	ICS	Sc66	
0.6682	49.132	1.59E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.7	51.471	2.60E+07	1.6E+06	I	G	1965	ICS	Sc65	
0.718	52.789	1.26E+07	5.0E+05	I	G	1962	ICS	Ro62	*
0.7482	55.015	1.47E+07	4.0E+05	I	G	1987	ICS	Sh87	
0.752	55.284	1.31E+07	7.9E+05	I	G	1958	ICS	Fi58	*
0.8	58.824	2.34E+07	1.4E+06	I	G	1965	ICS	Sc65	
0.8182	60.162	1.38E+07	2.0E+05	I	G	1987	ICS	Sh87	
0.8982	66.044	1.26E+07	5.0E+05	I	G	1987	ICS	Sh87	
0.9	66.176	2.12E+07	1.3E+06	I	G	1965	ICS	Sc65	
0.9982	73.397	1.13E+07	1.0E+05	I	G	1987	ICS	Sh87	
1.0	73.529	1.96E+07	1.2E+06	I	G	1965	ICS	Sc65	
1.1000	80.882	1.05E+07	1.0E+05	I	G	1987	ICS	Sh87	
1.2000	88.235	9.82E+06	1.9E+05	I	G	1987	ICS	Sh87	
1.2	88.235	1.68E+07	1.0E+06	I	G	1965	ICS	Sc65	
1.3000	95.588	9.14E+06	1.5E+05	I	G	1987	ICS	Sh87	
1.4	102.941	1.49E+07	8.9E+05	I	G	1965	ICS	Sc65	
1.5067	110.787	8.07E+06	1.7E+05	I	G	1987	ICS	Sh87	
1.6	117.647	1.32E+07	7.9E+05	I	G	1965	ICS	Sc65	
1.6627	122.257	7.21E+06	2.3E+05	I	G	1987	ICS	Sh87	
1.8	132.353	1.20E+07	7.2E+05	I	G	1965	ICS	Sc65	
1.8481	135.890	6.73E+06	2.2E+05	I	G	1987	ICS	Sh87	
1.9981	146.919	6.31E+06	2.0E+05	I	G	1987	ICS	Sh87	
2.0	147.059	1.09E+07	6.5E+05	I	G	1965	ICS	Sc65	
2.1981	161.625	5.77E+06	1.0E+05	I	G	1987	ICS	Sh87	
2.4481	180.007	5.25E+06	1.2E+05	I	G	1987	ICS	Sh87	
2.5	183.824	9.13E+06	5.5E+05	I	G	1965	ICS	Sc65	
2.6981	198.390	4.72E+06	1.1E+05	I	G	1987	ICS	Sh87	
2.9981	220.449	4.37E+06	2.1E+05	I	G	1987	ICS	Sh87	
3.0	220.588	7.81E+06	4.7E+05	I	G	1965	ICS	Sc65	
3.2981	242.507	4.03E+06	1.2E+05	I	G	1987	ICS	Sh87	
3.5	257.353	6.81E+06	4.1E+05	I	G	1965	ICS	Sc65	
3.6481	268.243	3.70E+06	6.0E+04	I	G	1987	ICS	Sh87	
3.9981	293.978	3.39E+06	1.7E+05	I	G	1987	ICS	Sh87	
4.0	294.118	6.10E+06	3.7E+05	I	G	1965	ICS	Sc65	
4.5	330.882	5.51E+06	3.3E+05	I	G	1965	ICS	Sc65	
5.0	367.647	5.04E+06	3.0E+05	I	G	1965	ICS	Sc65	
5.5	404.412	4.65E+06	2.8E+05	I	G	1965	ICS	Sc65	
6.0	441.176	4.34E+06	2.6E+05	I	G	1965	ICS	Sc65	
7.0	514.706	3.81E+06	2.3E+05	I	G	1965	ICS	Sc65	
8.0	588.235	3.39E+06	2.0E+05	I	G	1965	ICS	Sc65	

9.0	661.765	3.07E+06	1.8E+05	I	G	1965	ICS	Sc65
10.0	735.294	2.80E+06	1.7E+05	I	G	1965	ICS	Sc65
12.0	882.353	2.39E+06	1.4E+05	I	G	1965	ICS	Sc65
14.0	1029.412	2.11E+06	1.3E+05	I	G	1965	ICS	Sc65
16.0	1176.471	1.88E+06	1.1E+05	I	G	1965	ICS	Sc65
18.0	1323.529	1.71E+06	1.0E+05	I	G	1965	ICS	Sc65
20.0	1470.588	1.58E+06	9.5E+04	I	G	1965	ICS	Sc65

(*) Digitalized from the original paper



Helium He

Z = 2

I_K = 0.0246 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
0.02	--	1.62E-19	9.73E-21	I	G	1956	ICS		Ha56	†,#
0.02	1.013	9.57E+05	5.7E+04	I	G	1984	ICS		Mo84	*,#
0.025	1.016	5.19E+05	3.1E+04	I	G	1965	ICS		Ra65	#
0.025	1.016	6.22E+05	3.7E+04	I	G	1930	ICS		Sm30	#
0.025	1.016	7.00E+05	4.2E+04	I	G	1980	ICS		St80	#
0.0250	1.016	6.00E+05	4.2E+04	I	G	1963	ICS		As63	
0.0250	1.016	5.40E+05	3.8E+04	I	G	1963	ICS		As63	
0.0250	1.016	6.20E+05	3.7E+04	I	G	1962	ICS		Do62	#
0.0250	1.016	3.70E+05	4.0E+04	I	G	2002	ICS		Re02	
0.026	1.037	1.13E+06	6.8E+04	I	G	1965	ICS		Ra65	#
0.026	1.037	1.27E+06	7.6E+04	I	G	1930	ICS		Sm30	#
0.03	1.046	1.53E+06	9.2E+04	I	G	1984	ICS		Mo84	*,#
0.026	1.057	1.75E+06	1.1E+05	I	G	1965	ICS		Ra65	#
0.026	1.057	1.95E+06	1.2E+05	I	G	1930	ICS		Sm30	#
0.0260	1.057	1.90E+06	1.3E+05	I	G	1963	ICS		As63	
0.0260	1.057	1.70E+06	1.2E+05	I	G	1963	ICS		As63	
0.0260	1.057	1.99E+06	1.2E+05	I	G	1962	ICS		Do62	#
0.03	1.074	2.53E+06	1.5E+05	I	G	1984	ICS		Mo84	*,#
0.027	1.077	2.36E+06	1.4E+05	I	G	1965	ICS		Ra65	#
0.027	1.077	2.60E+06	1.6E+05	I	G	1930	ICS		Sm30	#
0.0266	1.081	2.42E+06	8.0E+04	I	G	1988	ICS		Sh88	
0.03	1.089	2.67E+06	1.6E+05	I	G	1984	ICS		Mo84	*,#
0.03	1.092	2.24E+06	1.3E+05	I	G	1984	ICS		Mo84	*,#
0.027	1.098	3.03E+06	1.8E+05	I	G	1965	ICS		Ra65	#
0.027	1.098	3.22E+06	1.9E+05	I	G	1930	ICS		Sm30	#
0.0270	1.098	3.20E+06	2.2E+05	I	G	1963	ICS		As63	
0.0270	1.098	2.95E+06	2.1E+05	I	G	1963	ICS		As63	
0.0270	1.098	3.36E+06	2.0E+05	I	G	1962	ICS		Do62	#
0.0273	1.110	3.00E+06	4.0E+06	I	G	1978	ICS		Br78	
0.03	1.110	3.45E+06	2.1E+05	I	G	1984	ICS		Mo84	*,#
0.028	1.118	3.63E+06	2.2E+05	I	G	1965	ICS		Ra65	#
0.028	1.118	3.90E+06	2.3E+05	I	G	1930	ICS		Sm30	#
0.0275	1.118	2.90E+06	2.0E+05	I	G	2002	ICS		Re02	
0.0276	1.122	3.66E+06	9.0E+04	I	G	1988	ICS		Sh88	
0.03	1.136	4.31E+06	2.6E+05	I	G	1984	ICS		Mo84	*,#
0.028	1.138	4.25E+06	2.5E+05	I	G	1965	ICS		Ra65	#
0.028	1.138	4.55E+06	2.7E+05	I	G	1930	ICS		Sm30	#
0.0280	1.138	4.50E+06	3.2E+05	I	G	1963	ICS		As63	
0.0280	1.138	4.13E+06	2.9E+05	I	G	1963	ICS		As63	
0.0280	1.138	4.70E+06	2.8E+05	I	G	1962	ICS		Do62	#

0.0283	1.150	2.70E+06	8.0E+05	I	G	1978	ICS	Br78	
0.029	1.159	4.86E+06	2.9E+05	I	G	1965	ICS	Ra65	#
0.029	1.159	5.20E+06	3.1E+05	I	G	1930	ICS	Sm30	#
0.0286	1.163	4.80E+06	1.3E+04	I	G	1988	ICS	Sh88	
0.03	1.170	5.73E+06	3.4E+05	I	G	1984	ICS	Mo84	*,#
0.029	1.179	5.52E+06	3.3E+05	I	G	1965	ICS	Ra65	#
0.029	1.179	5.85E+06	3.5E+05	I	G	1930	ICS	Sm30	#
0.0290	1.179	5.36E+06	3.8E+05	I	G	1963	ICS	As63	
0.0290	1.179	6.10E+06	3.7E+05	I	G	1962	ICS	Do62	#
0.0293	1.191	3.30E+06	1.1E+06	I	G	1978	ICS	Br78	
0.030	1.199	6.14E+06	3.7E+05	I	G	1965	ICS	Ra65	#
0.030	1.199	6.48E+06	3.9E+05	I	G	1930	ICS	Sm30	#
0.0296	1.203	6.04E+06	1.2E+05	I	G	1988	ICS	Sh88	
0.03	1.213	6.02E+06	3.6E+05	I	G	1984	ICS	Mo84	*,#
0.03	1.217	6.45E+06	3.9E+05	I	G	1984	ICS	Mo84	*,#
0.030	1.220	6.74E+06	4.0E+05	I	G	1965	ICS	Ra65	#
0.030	1.220	7.10E+06	4.3E+05	I	G	1930	ICS	Sm30	#
0.030	1.220	6.90E+06	4.1E+05	I	G	1980	ICS	St80	#
0.0300	1.220	7.00E+06	4.9E+05	I	G	1963	ICS	As63	
0.0300	1.220	6.70E+06	4.7E+05	I	G	1963	ICS	As63	
0.0300	1.220	7.30E+06	4.4E+05	I	G	1962	ICS	Do62	#
0.0300	1.220	5.68E+06	4.0E+05	I	G	2002	ICS	Re02	
0.03	1.230	6.15E+06	3.7E+05	I	G	1956	ICS	Ha56	†,#
0.0303	1.232	5.20E+06	6.0E+05	I	G	1978	ICS	Br78	
0.031	1.240	7.37E+06	4.4E+05	I	G	1965	ICS	Ra65	#
0.0306	1.244	7.15E+06	1.6E+05	I	G	1988	ICS	Sh88	
0.03	1.258	8.66E+06	5.2E+05	I	G	1984	ICS	Mo84	*,#
0.031	1.260	8.02E+06	4.8E+05	I	G	1965	ICS	Ra65	#
0.0313	1.272	5.30E+06	8.0E+05	I	G	1978	ICS	Br78	
0.032	1.280	8.64E+06	5.2E+05	I	G	1965	ICS	Ra65	#
0.032	1.301	9.24E+06	5.5E+05	I	G	1965	ICS	Ra65	#
0.032	1.301	9.62E+06	5.8E+05	I	G	1930	ICS	Sm30	#
0.0320	1.301	9.50E+06	6.7E+05	I	G	1963	ICS	As63	
0.0320	1.301	9.20E+06	6.4E+05	I	G	1963	ICS	As63	
0.0320	1.301	9.90E+06	5.9E+05	I	G	1962	ICS	Do62	#
0.03	1.304	8.44E+06	5.1E+05	I	G	1984	ICS	Mo84	*,#
0.0321	1.305	8.71E+06	2.2E+05	I	G	1988	ICS	Sh88	
0.0323	1.313	4.90E+06	2.4E+06	I	G	1978	ICS	Br78	
0.033	1.321	9.85E+06	5.9E+05	I	G	1965	ICS	Ra65	#
0.0325	1.321	8.51E+06	4.3E+05	I	G	2002	ICS	Re02	
0.03	1.339	1.02E+07	6.1E+05	I	G	1984	ICS	Mo84	*,#
0.033	1.341	1.04E+07	6.2E+05	I	G	1965	ICS	Ra65	#
0.0333	1.354	8.10E+06	7.0E+05	I	G	1978	ICS	Br78	
0.034	1.362	1.09E+07	6.5E+05	I	G	1965	ICS	Ra65	#
0.0336	1.366	1.05E+07	3.0E+05	I	G	1988	ICS	Sh88	
0.034	1.382	1.14E+07	6.9E+05	I	G	1965	ICS	Ra65	#
0.034	1.382	1.22E+07	7.3E+05	I	G	1930	ICS	Sm30	#
0.03	1.389	1.02E+07	6.1E+05	I	G	1984	ICS	Mo84	*,#
0.0343	1.394	8.40E+06	7.0E+05	I	G	1978	ICS	Br78	
0.03	1.421	1.20E+07	7.2E+05	I	G	1984	ICS	Mo84	*,#

0.035	1.423	1.25E+07	7.5E+05	I	G	1980	ICS	St80	#
0.0350	1.423	1.29E+07	9.0E+05	I	G	1963	ICS	As63	
0.0350	1.423	1.35E+07	8.1E+05	I	G	1962	ICS	Do62	#
0.0350	1.423	1.09E+07	5.5E+05	I	G	2002	ICS	Re02	
0.04	1.426	1.11E+07	6.6E+05	I	G	1984	ICS	Mo84	*,#
0.04	1.426	1.14E+07	6.8E+05	I	G	1984	ICS	Mo84	*,#
0.0353	1.435	1.18E+07	1.3E+06	I	G	1978	ICS	Br78	
0.036	1.463	1.35E+07	8.1E+05	I	G	1965	ICS	Ra65	#
0.036	1.463	1.46E+07	8.7E+05	I	G	1930	ICS	Sm30	#
0.04	1.468	1.34E+07	8.1E+05	I	G	1984	ICS	Mo84	*,#
0.0363	1.476	9.60E+06	6.0E+05	I	G	1978	ICS	Br78	
0.04	1.508	1.45E+07	8.7E+05	I	G	1984	ICS	Mo84	*,#
0.0373	1.516	1.24E+07	7.0E+05	I	G	1978	ICS	Br78	
0.0373	1.516	1.18E+07	6.0E+05	I	G	1978	ICS	Br78	
0.038	1.545	1.55E+07	9.3E+05	I	G	1965	ICS	Ra65	#
0.038	1.545	1.65E+07	9.9E+05	I	G	1930	ICS	Sm30	#
0.0380	1.545	1.64E+07	1.1E+06	I	G	1963	ICS	As63	
0.0380	1.545	1.58E+07	1.1E+06	I	G	1963	ICS	As63	
0.0380	1.545	1.70E+07	1.0E+06	I	G	1962	ICS	Do62	#
0.04	1.553	1.40E+07	8.4E+05	I	G	1984	ICS	Mo84	*,#
0.04	1.553	1.43E+07	8.6E+05	I	G	1984	ICS	Mo84	*,#
0.0386	1.569	1.52E+07	3.0E+05	I	G	1988	ICS	Sh88	
0.04	1.584	1.58E+07	9.5E+05	I	G	1984	ICS	Mo84	*,#
0.040	1.626	1.72E+07	1.0E+06	I	G	1965	ICS	Ra65	#
0.040	1.626	1.79E+07	1.1E+06	I	G	1930	ICS	Sm30	#
0.040	1.626	1.75E+07	1.1E+06	I	G	1980	ICS	St80	#
0.0400	1.626	1.78E+07	1.2E+06	I	G	1963	ICS	As63	
0.0400	1.626	1.75E+07	1.2E+06	I	G	1963	ICS	As63	
0.0400	1.626	1.88E+07	1.1E+06	I	G	1962	ICS	Do62	#
0.0400	1.626	1.52E+07	7.6E+05	I	G	2002	ICS	Re02	
0.04	1.631	1.69E+07	1.0E+06	I	G	1984	ICS	Mo84	*,#
0.04	1.675	1.76E+07	1.1E+06	I	G	1984	ICS	Mo84	*,#
0.04	1.760	1.83E+07	1.1E+06	I	G	1984	ICS	Mo84	*,#
0.04	1.765	1.86E+07	1.1E+06	I	G	1984	ICS	Mo84	*,#
0.0436	1.772	1.90E+07	3.0E+05	I	G	1988	ICS	Sh88	
0.04	1.801	1.90E+07	1.1E+06	I	G	1984	ICS	Mo84	*,#
0.045	1.829	2.10E+07	1.3E+06	I	G	1965	ICS	Ra65	#
0.045	1.829	2.15E+07	1.3E+06	I	G	1930	ICS	Sm30	#
0.045	1.829	2.10E+07	1.3E+06	I	G	1980	ICS	St80	#
0.0450	1.829	2.14E+07	1.5E+06	I	G	1963	ICS	As63	
0.0450	1.829	2.19E+07	1.5E+06	I	G	1963	ICS	As63	
0.0450	1.829	2.29E+07	1.4E+06	I	G	1962	ICS	Do62	#
0.0450	1.829	1.90E+07	9.5E+05	I	G	2002	ICS	Re02	
0.05	1.837	2.01E+07	1.2E+06	I	G	1984	ICS	Mo84	*,#
0.05	1.885	2.06E+07	1.2E+06	I	G	1984	ICS	Mo84	*,#
0.047	1.911	2.16E+07	1.2E+06	I	G	1978	ICS	Br78	
0.05	1.923	2.14E+07	1.3E+06	I	G	1984	ICS	Mo84	*,#
0.05	1.936	2.02E+07	1.2E+06	I	G	1984	ICS	Mo84	*,#
0.05	1.955	2.26E+07	1.4E+06	I	G	1984	ICS	Mo84	*,#
0.05	1.955	2.27E+07	1.4E+06	I	G	1984	ICS	Mo84	*,#

0.05	1.968	2.21E+07	1.3E+06	I	G	1984	ICS	Mo84	*,#
0.0486	1.976	2.26E+07	5.0E+05	I	G	1988	ICS	Sh88	
0.050	2.033	2.43E+07	1.5E+06	I	G	1965	ICS	Ra65	#
0.050	2.033	2.43E+07	1.5E+06	I	G	1930	ICS	Sm30	#
0.050	2.033	2.37E+07	1.4E+06	I	G	1980	ICS	St80	#
0.0500	2.033	2.40E+07	1.7E+06	I	G	1963	ICS	As63	
0.0500	2.033	2.51E+07	1.8E+06	I	G	1963	ICS	As63	
0.0500	2.033	2.69E+07	1.6E+06	I	G	1962	ICS	Do62	#
0.0500	2.033	2.24E+07	1.1E+06	I	G	2002	ICS	Re02	
0.05	2.040	2.28E+07	1.4E+06	I	G	1984	ICS	Mo84	*,#
0.05	2.081	2.36E+07	1.4E+06	I	G	1984	ICS	Mo84	*,#
0.05	2.165	2.44E+07	1.5E+06	I	G	1984	ICS	Mo84	*,#
0.0536	2.179	2.50E+07	4.0E+05	I	G	1988	ICS	Sh88	
0.055	2.236	2.71E+07	1.6E+06	I	G	1965	ICS	Ra65	#
0.055	2.236	2.66E+07	1.6E+06	I	G	1930	ICS	Sm30	#
0.055	2.236	2.65E+07	1.6E+06	I	G	1980	ICS	St80	#
0.0550	2.236	2.60E+07	1.8E+06	I	G	1963	ICS	As63	
0.0550	2.236	2.63E+07	1.8E+06	I	G	1963	ICS	As63	
0.0550	2.236	2.98E+07	1.8E+06	I	G	1962	ICS	Do62	#
0.0550	2.236	2.47E+07	1.2E+06	I	G	2002	ICS	Re02	
0.06	2.289	2.61E+07	1.6E+06	I	G	1984	ICS	Mo84	*,#
0.06	2.382	2.66E+07	1.6E+06	I	G	1984	ICS	Mo84	*,#
0.0586	2.382	2.73E+07	6.0E+05	I	G	1988	ICS	Sh88	
0.060	2.439	2.90E+07	1.7E+06	I	G	1965	ICS	Ra65	#
0.060	2.439	2.90E+07	1.7E+06	I	G	1930	ICS	Sm30	#
0.060	2.439	2.86E+07	1.7E+06	I	G	1980	ICS	St80	#
0.0600	2.439	2.90E+07	2.0E+06	I	G	1963	ICS	As63	
0.0600	2.439	3.08E+07	2.2E+06	I	G	1963	ICS	As63	
0.0600	2.439	3.20E+07	1.9E+06	I	G	1962	ICS	Do62	#
0.0600	2.439	2.69E+07	1.3E+06	I	G	2002	ICS	Re02	
0.06	2.494	2.80E+07	1.7E+06	I	G	1984	ICS	Mo84	*,#
0.06	2.502	2.77E+07	1.7E+06	I	G	1984	ICS	Mo84	*,#
0.065	2.642	3.08E+07	1.8E+06	I	G	1965	ICS	Ra65	#
0.065	2.642	3.06E+07	1.8E+06	I	G	1980	ICS	St80	#
0.0650	2.642	3.26E+07	2.3E+06	I	G	1963	ICS	As63	
0.0650	2.642	3.32E+07	2.0E+06	I	G	1962	ICS	Do62	#
0.07	2.699	2.90E+07	1.7E+06	I	G	1984	ICS	Mo84	*,#
0.067	2.724	3.05E+07	3.3E+06	I	G	1978	ICS	Br78	
0.0686	2.789	3.05E+07	7.0E+05	I	G	1988	ICS	Sh88	
0.07	2.798	2.98E+07	1.8E+06	I	G	1984	ICS	Mo84	*,#
0.070	2.846	3.21E+07	1.9E+06	I	G	1965	ICS	Ra65	#
0.070	2.846	3.14E+07	1.9E+06	I	G	1930	ICS	Sm30	#
0.070	2.846	3.23E+07	1.9E+06	I	G	1980	ICS	St80	#
0.0700	2.846	3.10E+07	2.2E+06	I	G	1963	ICS	As63	
0.0700	2.846	3.44E+07	2.4E+06	I	G	1963	ICS	As63	
0.0700	2.846	3.40E+07	2.0E+06	I	G	1962	ICS	Do62	#
0.0700	2.846	2.96E+07	1.5E+06	I	G	2002	ICS	Re02	
0.07	2.911	3.08E+07	1.8E+06	I	G	1984	ICS	Mo84	*,#
0.07	2.911	3.09E+07	1.9E+06	I	G	1984	ICS	Mo84	*,#
0.075	3.049	3.34E+07	2.0E+06	I	G	1965	ICS	Ra65	#

0.075	3.049	3.33E+07	2.0E+06	I	G	1980	ICS	St80	#
0.0750	3.049	3.58E+07	2.5E+06	I	G	1963	ICS	As63	
0.0750	3.049	3.46E+07	2.1E+06	I	G	1962	ICS	Do62	#
0.0786	3.195	3.29E+07	6.0E+05	I	G	1988	ICS	Sh88	
0.08	3.202	3.25E+07	1.9E+06	I	G	1984	ICS	Mo84	*,#
0.080	3.252	3.44E+07	2.1E+06	I	G	1965	ICS	Ra65	#
0.080	3.252	3.33E+07	2.0E+06	I	G	1930	ICS	Sm30	#
0.080	3.252	3.44E+07	2.1E+06	I	G	1980	ICS	St80	#
0.0800	3.252	3.30E+07	2.3E+06	I	G	1963	ICS	As63	
0.0800	3.252	3.68E+07	2.6E+06	I	G	1963	ICS	As63	
0.0800	3.252	3.51E+07	2.1E+06	I	G	1962	ICS	Do62	#
0.0800	3.252	3.16E+07	1.6E+06	I	G	2002	ICS	Re02	
0.08	3.266	3.29E+07	2.0E+06	I	G	1956	ICS	Ha56	†,#
0.08	3.320	3.39E+07	2.0E+06	I	G	1984	ICS	Mo84	*,#
0.08	3.320	3.32E+07	2.0E+06	I	G	1984	ICS	Mo84	*,#
0.085	3.455	3.51E+07	2.1E+06	I	G	1965	ICS	Ra65	#
0.085	3.455	3.54E+07	2.1E+06	I	G	1980	ICS	St80	#
0.0850	3.455	3.75E+07	2.6E+06	I	G	1963	ICS	As63	
0.0886	3.602	3.45E+07	6.0E+05	I	G	1988	ICS	Sh88	
0.090	3.659	3.57E+07	2.1E+06	I	G	1965	ICS	Ra65	#
0.090	3.659	3.45E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.090	3.659	3.60E+07	2.2E+06	I	G	1980	ICS	St80	#
0.0900	3.659	3.79E+07	2.7E+06	I	G	1963	ICS	As63	
0.0900	3.659	3.28E+07	1.6E+06	I	G	2002	ICS	Re02	
0.0902	3.667	3.53E+07	5.0E+05	I	G	1988	ICS	Sh88	
0.09	3.738	3.54E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.09	3.738	3.47E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.095	3.862	3.62E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.095	3.862	3.65E+07	2.2E+06	I	G	1980	ICS	St80	#
0.0950	3.862	3.84E+07	2.7E+06	I	G	1963	ICS	As63	
0.0952	3.870	3.60E+07	5.0E+05	I	G	1988	ICS	Sh88	
0.097	3.943	3.84E+07	8.0E+05	I	G	1978	ICS	Br78	
0.097	3.943	3.70E+07	9.0E+05	I	G	1978	ICS	Br78	
0.10	4.032	3.64E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.10	4.032	3.54E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.10	4.032	3.46E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.100	4.065	3.66E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.100	4.065	3.52E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.100	4.065	3.26E+07	2.0E+06	I	G	1966	ICS	Sc66	
0.100	4.065	3.69E+07	2.2E+06	I	G	1980	ICS	St80	#
0.100	4.065	3.67E+07	8.0E+05	I	G	1988	ICS	Sh88	
0.1000	4.065	3.84E+07	2.7E+06	I	G	1963	ICS	As63	
0.1000	4.065	3.37E+07	1.7E+06	I	G	2002	ICS	Re02	
0.10	4.096	3.57E+07	2.1E+06	I	G	1956	ICS	Ha56	†,#
0.10	4.139	3.57E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.10	4.139	3.65E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.105	4.268	3.69E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.105	4.268	3.54E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.105	4.268	3.73E+07	2.2E+06	I	G	1980	ICS	St80	#
0.105	4.268	3.74E+07	9.0E+05	I	G	1988	ICS	Sh88	

0.11	4.450	3.64E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.110	4.472	3.70E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.110	4.472	3.55E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.110	4.472	3.74E+07	2.2E+06	I	G	1980	ICS	St80	#
0.110	4.472	3.70E+07	5.0E+05	I	G	1988	ICS	Sh88	
0.1100	4.472	3.41E+07	1.7E+06	I	G	2002	ICS	Re02	
0.11	4.539	3.57E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.115	4.675	3.72E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.115	4.675	3.55E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.115	4.675	3.74E+07	2.2E+06	I	G	1980	ICS	St80	#
0.115	4.675	3.67E+07	5.0E+05	I	G	1988	ICS	Sh88	
0.12	4.863	3.63E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.12	4.863	3.61E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.120	4.878	3.73E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.120	4.878	3.54E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.120	4.878	3.25E+07	2.0E+06	I	G	1966	ICS	Sc66	
0.120	4.878	3.74E+07	2.2E+06	I	G	1980	ICS	St80	#
0.120	4.878	3.70E+07	4.0E+05	I	G	1988	ICS	Sh88	
0.1200	4.878	3.45E+07	1.7E+06	I	G	2002	ICS	Re02	
0.125	5.081	3.74E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.125	5.081	3.73E+07	2.2E+06	I	G	1980	ICS	St80	#
0.13	5.246	3.63E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.130	5.285	3.74E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.130	5.285	3.53E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.130	5.285	3.72E+07	2.2E+06	I	G	1980	ICS	St80	#
0.130	5.285	3.69E+07	5.0E+05	I	G	1988	ICS	Sh88	
0.1300	5.285	3.47E+07	1.7E+06	I	G	2002	ICS	Re02	
0.13	5.403	3.66E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.135	5.488	3.73E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.135	5.488	3.72E+07	2.2E+06	I	G	1980	ICS	St80	#
0.140	5.691	3.72E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.140	5.691	3.51E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.140	5.691	3.21E+07	1.9E+06	I	G	1966	ICS	Sc66	
0.140	5.691	3.72E+07	2.2E+06	I	G	1980	ICS	St80	#
0.140	5.691	3.67E+07	4.0E+05	I	G	1988	ICS	Sh88	
0.1400	5.691	3.44E+07	1.7E+06	I	G	2002	ICS	Re02	
0.14	5.695	3.58E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.14	5.790	3.65E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.145	5.894	3.70E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.145	5.894	3.71E+07	2.2E+06	I	G	1980	ICS	St80	#
0.147	5.976	3.65E+07	9.0E+05	I	G	1978	ICS	Br78	
0.15	6.083	3.50E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.150	6.098	3.69E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.150	6.098	3.47E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.150	6.098	3.69E+07	2.2E+06	I	G	1980	ICS	St80	#
0.150	6.098	3.77E+07	5.3E+06	I	G	1987	ICS	We87a	
0.150	6.098	3.60E+07	4.0E+05	I	G	1988	ICS	Sh88	
0.1500	6.098	3.38E+07	1.7E+06	I	G	2002	ICS	Re02	
0.15	6.224	3.58E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.155	6.301	3.67E+07	2.2E+06	I	G	1980	ICS	St80	#

0.16	6.496	3.55E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.160	6.504	3.44E+07	2.1E+06	I	G	1930	ICS	Sm30	#
0.160	6.504	3.11E+07	1.9E+06	I	G	1966	ICS	Sc66	
0.160	6.504	3.64E+07	2.2E+06	I	G	1980	ICS	St80	#
0.160	6.504	3.58E+07	4.0E+05	I	G	1988	ICS	Sh88	
0.1600	6.504	3.35E+07	1.7E+06	I	G	2002	ICS	Re02	
0.16	6.604	3.54E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.16	6.604	3.59E+07	2.2E+06	I	G	1984	ICS	Mo84	*,#
0.165	6.707	3.62E+07	2.2E+06	I	G	1980	ICS	St80	#
0.170	6.911	3.39E+07	2.0E+06	I	G	1930	ICS	Sm30	#
0.170	6.911	3.58E+07	2.1E+06	I	G	1980	ICS	St80	#
0.170	6.911	3.55E+07	5.0E+05	I	G	1988	ICS	Sh88	
0.17	6.915	3.52E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.17	7.053	3.51E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.175	7.114	3.59E+07	2.2E+06	I	G	1965	ICS	Ra65	#
0.175	7.114	3.53E+07	2.1E+06	I	G	1980	ICS	St80	#
0.180	7.317	3.00E+07	1.8E+06	I	G	1966	ICS	Sc66	
0.180	7.317	3.49E+07	2.1E+06	I	G	1980	ICS	St80	#
0.1800	7.317	3.24E+07	1.6E+06	I	G	2002	ICS	Re02	
0.18	7.337	3.42E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.19	7.785	3.42E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.19	7.888	3.39E+07	2.0E+06	I	G	1984	ICS	Mo84	*,#
0.19	7.888	3.47E+07	2.1E+06	I	G	1984	ICS	Mo84	*,#
0.195	7.927	3.42E+07	5.0E+05	I	G	1988	ICS	Sh88	
0.197	8.008	3.38E+07	1.0E+06	I	G	1978	ICS	Br78	
0.200	8.130	3.47E+07	2.1E+06	I	G	1965	ICS	Ra65	#
0.200	8.130	3.25E+07	1.9E+06	I	G	1930	ICS	Sm30	#
0.200	8.130	2.91E+07	1.7E+06	I	G	1966	ICS	Sc66	
0.2000	8.130	3.14E+07	1.6E+06	I	G	2002	ICS	Re02	
0.20	8.186	3.28E+07	2.0E+06	I	G	1956	ICS	Ha56	†,#
0.220	8.943	3.25E+07	4.0E+05	I	G	1988	ICS	Sh88	
0.2250	9.146	3.03E+07	1.5E+06	I	G	2002	ICS	Re02	
0.23	9.147	3.23E+07	1.9E+06	I	G	1984	ICS	Mo84	*,#
0.23	9.268	3.27E+07	2.0E+06	I	G	1984	ICS	Mo84	*,#
0.247	10.041	3.16E+07	5.0E+05	I	G	1978	ICS	Br78	
0.25	10.162	3.05E+07	1.8E+06	I	G	1984	ICS	Mo84	*,#
0.250	10.163	3.21E+07	1.9E+06	I	G	1965	ICS	Ra65	#
0.250	10.163	3.00E+07	1.8E+06	I	G	1930	ICS	Sm30	#
0.250	10.163	3.13E+07	4.0E+05	I	G	1988	ICS	Sh88	
0.2500	10.163	2.90E+07	1.5E+06	I	G	2002	ICS	Re02	
0.25	10.297	3.11E+07	1.9E+06	I	G	1984	ICS	Mo84	*,#
0.27	11.070	3.00E+07	1.8E+06	I	G	1984	ICS	Mo84	*,#
0.28	11.179	2.98E+07	1.8E+06	I	G	1984	ICS	Mo84	*,#
0.280	11.382	2.89E+07	3.0E+05	I	G	1988	ICS	Sh88	
0.297	12.073	2.88E+07	1.3E+06	I	G	1978	ICS	Br78	
0.30	12.098	2.90E+07	1.7E+06	I	G	1984	ICS	Mo84	*,#
0.30	12.098	2.83E+07	1.7E+06	I	G	1984	ICS	Mo84	*,#
0.300	12.195	2.96E+07	1.8E+06	I	G	1965	ICS	Ra65	#
0.300	12.195	2.75E+07	1.6E+06	I	G	1930	ICS	Sm30	#
0.300	12.195	2.45E+07	1.5E+06	I	G	1966	ICS	Sc66	

0.3000	12.195	2.69E+07	1.3E+06	I	G	2002	ICS	Re02	
0.30	12.305	2.67E+07	1.6E+06	I	G	1956	ICS	Ha56	†,#
0.32	13.178	2.78E+07	1.7E+06	I	G	1984	ICS	Mo84	*,#
0.325	13.211	2.65E+07	3.0E+05	I	G	1988	ICS	Sh88	
0.33	13.309	2.72E+07	1.6E+06	I	G	1984	ICS	Mo84	*,#
0.347	14.106	2.75E+07	4.0E+05	I	G	1978	ICS	Br78	
0.35	14.167	2.65E+07	1.6E+06	I	G	1984	ICS	Mo84	*,#
0.350	14.228	2.75E+07	1.7E+06	I	G	1965	ICS	Ra65	#
0.350	14.228	2.55E+07	1.5E+06	I	G	1930	ICS	Sm30	#
0.3500	14.228	2.46E+07	1.2E+06	I	G	2002	ICS	Re02	
0.35	14.402	2.64E+07	1.6E+06	I	G	1984	ICS	Mo84	*,#
0.375	15.244	2.53E+07	3.0E+05	I	G	1988	ICS	Sh88	
0.397	16.138	2.47E+07	1.1E+06	I	G	1978	ICS	Br78	
0.400	16.260	2.57E+07	1.5E+06	I	G	1965	ICS	Ra65	#
0.400	16.260	2.36E+07	1.4E+06	I	G	1930	ICS	Sm30	#
0.400	16.260	2.09E+07	1.3E+06	I	G	1966	ICS	Sc66	
0.4000	16.260	2.32E+07	1.2E+06	I	G	2002	ICS	Re02	
0.40	16.358	2.31E+07	1.4E+06	I	G	1956	ICS	Ha56	†,#
0.40	16.374	2.42E+07	1.5E+06	I	G	1984	ICS	Mo84	*,#
0.430	17.480	2.32E+07	3.0E+05	I	G	1988	ICS	Sh88	
0.447	18.171	2.47E+07	8.0E+05	I	G	1978	ICS	Br78	
0.450	18.293	2.39E+07	1.4E+06	I	G	1965	ICS	Ra65	#
0.450	18.293	2.20E+07	1.3E+06	I	G	1930	ICS	Sm30	#
0.45	18.433	2.26E+07	1.4E+06	I	G	1984	ICS	Mo84	*,#
0.49	20.121	1.97E+07	1.2E+06	I	G	1956	ICS	Ha56	†,#
0.50	20.152	1.49E+07	8.9E+05	I	G	1967	ICS	Ga67	‡,#
0.500	20.325	2.24E+07	1.3E+06	I	G	1965	ICS	Ra65	#
0.500	20.325	2.06E+07	1.2E+06	I	G	1930	ICS	Sm30	#
0.500	20.325	1.82E+07	1.1E+06	I	G	1966	ICS	Sc66	
0.500	20.325	2.09E+07	3.0E+05	I	G	1988	ICS	Sh88	
0.5	20.325	1.65E+07	9.9E+05	I	G	1980	ICS	Na80	
0.5000	20.325	2.03E+07	1.0E+06	I	G	2002	ICS	Re02	
0.50	20.480	2.12E+07	1.3E+06	I	G	1984	ICS	Mo84	*,#
0.547	22.236	2.15E+07	2.0E+05	I	G	1978	ICS	Br78	
0.550	22.358	2.11E+07	1.3E+06	I	G	1965	ICS	Ra65	#
0.550	22.358	1.94E+07	1.2E+06	I	G	1930	ICS	Sm30	#
0.55	22.530	1.88E+07	1.1E+06	I	G	1984	ICS	Mo84	*,#
0.56	22.604	1.98E+07	1.2E+06	I	G	1984	ICS	Mo84	*,#
0.57	23.022	1.49E+07	8.9E+05	I	G	1966	ICS	Ad66	‡,#
0.570	23.171	1.87E+07	2.0E+05	I	G	1988	ICS	Sh88	
0.60	24.346	1.32E+07	7.9E+05	I	G	1967	ICS	Ga67	‡,#
0.600	24.390	2.00E+07	1.2E+06	I	G	1965	ICS	Ra65	#
0.600	24.390	1.82E+07	1.1E+06	I	G	1930	ICS	Sm30	#
0.600	24.390	1.59E+07	9.5E+05	I	G	1966	ICS	Sc66	
0.6000	24.390	1.79E+07	9.0E+05	I	G	2002	ICS	Re02	
0.60	24.542	1.88E+07	1.1E+06	I	G	1984	ICS	Mo84	*,#
0.60	24.590	1.76E+07	1.1E+06	I	G	1956	ICS	Ha56	†,#
0.650	26.423	1.90E+07	1.1E+06	I	G	1965	ICS	Ra65	#
0.650	26.423	1.73E+07	1.0E+06	I	G	1930	ICS	Sm30	#
0.650	26.423	1.77E+07	2.0E+05	I	G	1988	ICS	Sh88	

0.66	26.646	1.76E+07	1.1E+06	I	G	1984	ICS	Mo84	*,#
0.69	27.878	1.32E+07	7.9E+05	I	G	1966	ICS	Ad66	‡,#
0.70	28.319	1.18E+07	7.1E+05	I	G	1967	ICS	Ga67	‡,#
0.697	28.333	1.71E+07	3.0E+05	I	G	1978	ICS	Br78	
0.70	28.352	1.54E+07	9.3E+05	I	G	1956	ICS	Ha56	†,#
0.700	28.455	1.80E+07	1.1E+06	I	G	1965	ICS	Ra65	#
0.700	28.455	1.65E+07	9.9E+05	I	G	1930	ICS	Sm30	#
0.700	28.455	1.44E+07	8.6E+05	I	G	1965	ICS	Sc65	
0.7	28.455	1.44E+07	8.6E+05	I	G	1980	ICS	Na80	
0.7000	28.455	1.62E+07	8.1E+05	I	G	2002	ICS	Re02	
0.70	28.646	1.68E+07	1.0E+06	I	G	1984	ICS	Mo84	*,#
0.750	30.488	1.71E+07	1.0E+06	I	G	1965	ICS	Ra65	#
0.750	30.488	1.58E+07	9.5E+05	I	G	1930	ICS	Sm30	#
0.750	30.488	1.61E+07	2.0E+05	I	G	1988	ICS	Sh88	
0.76	30.796	1.57E+07	9.4E+05	I	G	1984	ICS	Mo84	*,#
0.76	30.796	1.66E+07	1.0E+06	I	G	1984	ICS	Mo84	*,#
0.77	31.409	1.24E+07	7.4E+05	I	G	1966	ICS	Ad66	‡,#
0.79	32.292	1.07E+07	6.4E+05	I	G	1967	ICS	Ga67	‡,#
0.800	32.520	1.65E+07	9.9E+05	I	G	1965	ICS	Ra65	#
0.800	32.520	1.50E+07	9.0E+05	I	G	1930	ICS	Sm30	#
0.800	32.520	1.32E+07	7.9E+05	I	G	1965	ICS	Sc65	
0.8000	32.520	1.47E+07	7.4E+05	I	G	2002	ICS	Re02	
0.80	32.689	1.44E+07	8.7E+05	I	G	1956	ICS	Ha56	†,#
0.847	34.431	1.52E+07	3.0E+05	I	G	1978	ICS	Br78	
0.850	34.553	1.57E+07	9.4E+05	I	G	1965	ICS	Ra65	#
0.86	35.162	1.13E+07	6.8E+05	I	G	1966	ICS	Ad66	‡,#
0.870	35.366	1.44E+07	2.0E+05	I	G	1988	ICS	Sh88	
0.89	36.265	9.78E+06	5.9E+05	I	G	1967	ICS	Ga67	‡,#
0.900	36.585	1.50E+07	9.0E+05	I	G	1965	ICS	Ra65	#
0.900	36.585	1.21E+07	7.3E+05	I	G	1965	ICS	Sc65	
0.9000	36.585	1.36E+07	6.8E+05	I	G	2002	ICS	Re02	
0.950	38.618	1.45E+07	8.7E+05	I	G	1965	ICS	Ra65	#
0.98	40.018	1.08E+07	6.5E+05	I	G	1966	ICS	Ad66	‡,#
0.99	40.239	8.98E+06	5.4E+05	I	G	1967	ICS	Ga67	‡,#
1.00	40.470	1.18E+07	7.1E+05	I	G	1956	ICS	Ha56	†,#
0.997	40.528	1.37E+07	3.0E+05	I	G	1978	ICS	Br78	
1.000	40.650	1.41E+07	8.4E+05	I	G	1965	ICS	Ra65	#
1.000	40.650	1.27E+07	7.6E+05	I	G	1930	ICS	Sm30	#
1.000	40.650	1.11E+07	6.7E+05	I	G	1965	ICS	Sc65	
1.000	40.650	1.28E+07	2.0E+04	I	G	1988	ICS	Sh88	
1.0	40.650	1.20E+07	7.2E+05	I	G	1980	ICS	Na80	
1.0000	40.650	1.24E+07	6.2E+05	I	G	2002	ICS	Re02	
1.098	44.653	8.41E+06	5.0E+05	I	G	1967	ICS	Ga67	‡,#
1.150	46.748	1.19E+07	2.0E+05	I	G	1988	ICS	Sh88	
1.200	48.780	9.63E+06	5.8E+05	I	G	1965	ICS	Sc65	
1.202	48.847	7.97E+06	4.8E+05	I	G	1967	ICS	Ga67	‡,#
1.294	52.600	7.53E+06	4.5E+05	I	G	1967	ICS	Ga67	‡,#
1.320	53.659	1.07E+07	2.0E+05	I	G	1988	ICS	Sh88	
1.392	56.573	7.12E+06	4.3E+05	I	G	1967	ICS	Ga67	‡,#
1.400	56.911	8.40E+06	5.0E+05	I	G	1965	ICS	Sc65	

1.500	60.976	9.28E+06	5.6E+05	I	G	1930	ICS	Sm30	#
1.5	60.976	8.21E+06	4.9E+05	I	G	1980	ICS	Na80	
1.500	60.987	6.74E+06	4.0E+05	I	G	1967	ICS	Ga67	‡,#
1.520	61.789	9.55E+06	1.2E+05	I	G	1988	ICS	Sh88	
1.600	65.041	7.66E+06	4.6E+05	I	G	1965	ICS	Sc65	
1.641	66.726	6.30E+06	3.8E+05	I	G	1967	ICS	Ga67	‡,#
1.750	71.138	8.72E+06	1.0E+05	I	G	1988	ICS	Sh88	
1.794	72.907	5.97E+06	3.6E+05	I	G	1967	ICS	Ga67	‡,#
1.800	73.171	6.94E+06	4.2E+05	I	G	1965	ICS	Sc65	
2.000	81.295	5.42E+06	3.3E+05	I	G	1967	ICS	Ga67	‡,#
2.000	81.301	7.35E+06	4.4E+05	I	G	1930	ICS	Sm30	#
2.000	81.301	6.27E+06	3.8E+05	I	G	1965	ICS	Sc65	
2.0	81.301	6.93E+06	4.2E+05	I	G	1980	ICS	Na80	
2.010	81.707	7.96E+06	9.0E+04	I	G	1988	ICS	Sh88	
2.300	93.496	6.93E+06	8.0E+04	I	G	1988	ICS	Sh88	
2.500	101.626	6.08E+06	3.6E+05	I	G	1930	ICS	Sm30	#
2.500	101.626	5.28E+06	3.2E+05	I	G	1965	ICS	Sc65	
2.5	101.626	5.55E+06	3.3E+05	I	G	1980	ICS	Na80	
2.5	101.626	6.08E+06	3.6E+05	I	G	1934	ICS	Li34	#
2.650	107.724	6.15E+06	9.0E+04	I	G	1988	ICS	Sh88	
3.000	121.951	5.18E+06	3.1E+05	I	G	1930	ICS	Sm30	#
3.000	121.951	4.50E+06	2.7E+05	I	G	1965	ICS	Sc65	
3.000	121.951	5.51E+06	7.0E+04	I	G	1988	ICS	Sh88	
3.0	121.951	4.90E+06	2.9E+05	I	G	1980	ICS	Na80	
3.0	121.951	5.12E+06	3.1E+05	I	G	1934	ICS	Li34	#
3.500	142.276	4.58E+06	2.7E+05	I	G	1930	ICS	Sm30	#
3.500	142.276	3.99E+06	2.4E+05	I	G	1965	ICS	Sc65	
3.500	142.276	5.20E+06	1.3E+05	I	G	1988	ICS	Sh88	
3.5	142.276	4.24E+06	2.5E+05	I	G	1980	ICS	Na80	
3.5	142.276	4.52E+06	2.7E+05	I	G	1934	ICS	Li34	#
4.000	162.602	4.02E+06	2.4E+05	I	G	1930	ICS	Sm30	#
4.000	162.602	3.58E+06	2.1E+05	I	G	1965	ICS	Sc65	
4.000	162.602	4.48E+06	6.0E+04	I	G	1988	ICS	Sh88	
4.0	162.602	3.85E+06	2.3E+05	I	G	1980	ICS	Na80	
4.0	162.602	3.96E+06	2.4E+05	I	G	1934	ICS	Li34	#
4.085	166.056	2.96E+06	1.8E+05	I	G	1975	ICS	Sh75	‡,#
4.500	182.927	3.59E+06	2.2E+05	I	G	1930	ICS	Sm30	#
4.500	182.927	3.23E+06	1.9E+05	I	G	1965	ICS	Sc65	
4.5	182.927	3.46E+06	2.1E+05	I	G	1980	ICS	Na80	
4.5	182.927	3.62E+06	2.2E+05	I	G	1934	ICS	Li34	#
4.600	186.992	3.98E+06	5.0E+04	I	G	1988	ICS	Sh88	
5.000	203.252	2.95E+06	1.8E+05	I	G	1965	ICS	Sc65	
5.0	203.252	3.12E+06	1.9E+05	I	G	1980	ICS	Na80	
5.0	203.252	3.25E+06	2.0E+05	I	G	1934	ICS	Li34	#
5.500	223.577	2.73E+06	1.6E+05	I	G	1965	ICS	Sc65	
5.500	223.577	3.37E+06	4.0E+04	I	G	1988	ICS	Sh88	
6.000	243.902	2.57E+06	1.5E+05	I	G	1965	ICS	Sc65	
6.0	243.902	2.67E+06	1.6E+05	I	G	1934	ICS	Li34	#
6.100	247.967	3.08E+06	3.0E+04	I	G	1988	ICS	Sh88	
7.000	284.553	2.24E+06	1.3E+05	I	G	1965	ICS	Sc65	

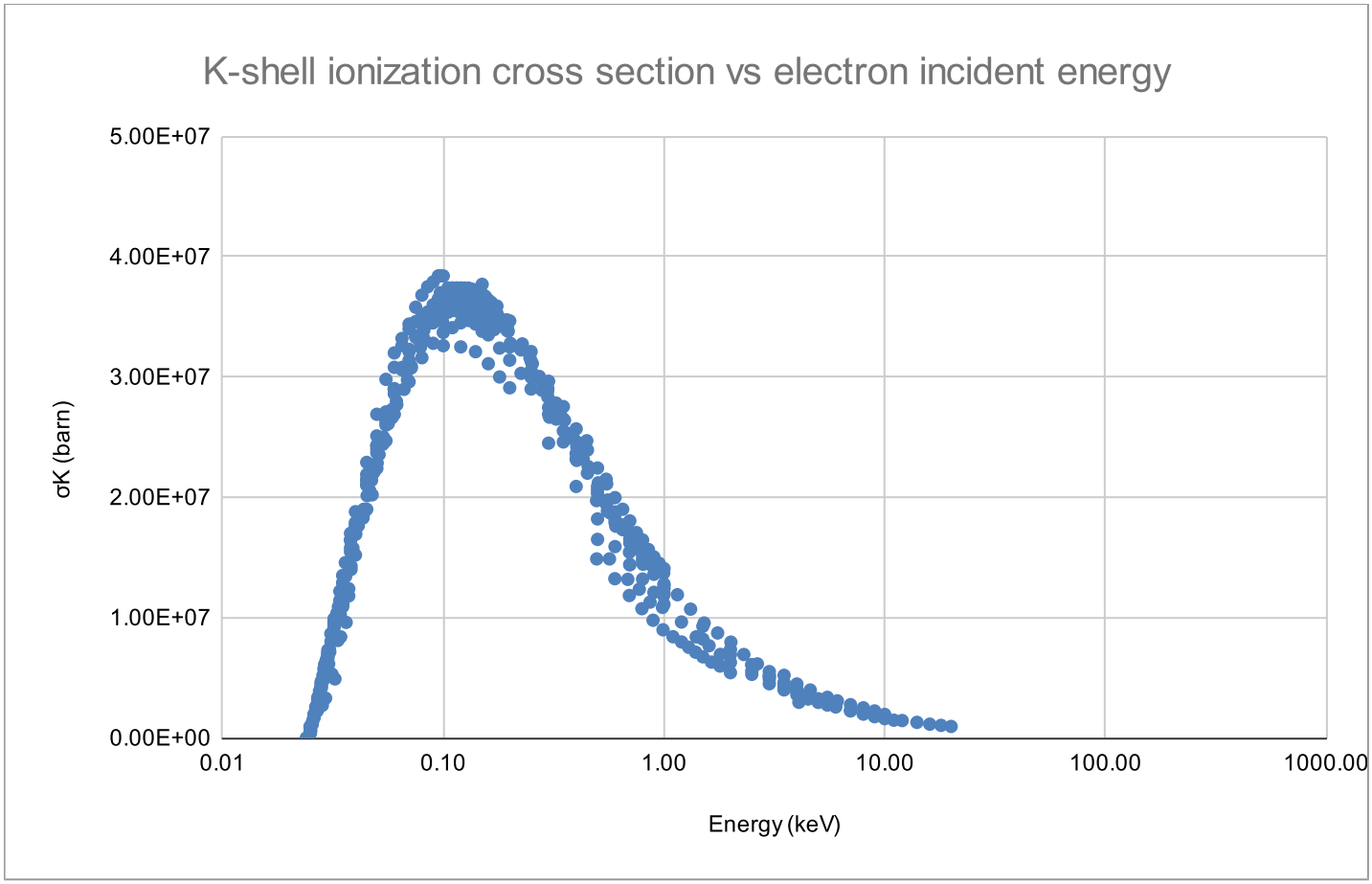
7.000	284.553	2.76E+06	3.0E+04	I	G	1988	ICS	Sh88	
7.0	284.553	2.28E+06	1.4E+05	I	G	1934	ICS	Li34	#
8.000	325.203	2.01E+06	1.2E+05	I	G	1965	ICS	Sc65	
8.000	325.203	2.50E+06	3.0E+04	I	G	1988	ICS	Sh88	
8.0	325.203	1.98E+06	1.2E+05	I	G	1934	ICS	Li34	#
9.000	365.854	1.81E+06	1.1E+05	I	G	1965	ICS	Sc65	
9.000	365.854	2.24E+06	3.0E+04	I	G	1988	ICS	Sh88	
9.0	365.854	1.76E+06	1.1E+05	I	G	1934	ICS	Li34	#
10.000	406.504	1.68E+06	1.0E+05	I	G	1965	ICS	Sc65	
10.000	406.504	1.95E+06	5.0E+04	I	G	1988	ICS	Sh88	
10.0	406.504	1.60E+06	9.6E+04	I	G	1934	ICS	Li34	#
11.0	447.154	1.47E+06	8.8E+04	I	G	1934	ICS	Li34	#
12.000	487.805	1.44E+06	8.6E+04	I	G	1965	ICS	Sc65	
14.000	569.106	1.29E+06	7.7E+04	I	G	1965	ICS	Sc65	
16.000	650.407	1.14E+06	6.8E+04	I	G	1965	ICS	Sc65	
18.000	731.707	1.04E+06	6.2E+04	I	G	1965	ICS	Sc65	
20.000	813.008	9.50E+05	5.7E+04	I	G	1965	ICS	Sc65	

(*) Digitalized from the original paper

(†) Digitalized from Ki66

(‡) Digitalized from Na80

(#) Uncertainties estimated considering similar experiments from other authors


K-shell ionization cross section vs electron incident energy
5.00E+07
4.00E+07
3.00E+07
2.00E+07
1.00E+07
0.00E+00
σK (barn)
0.01
0.10
1.00
10.00
100.00
1000.00
Energy (keV)

Carbon C
Z = 6
I_K = 0.2838 keV

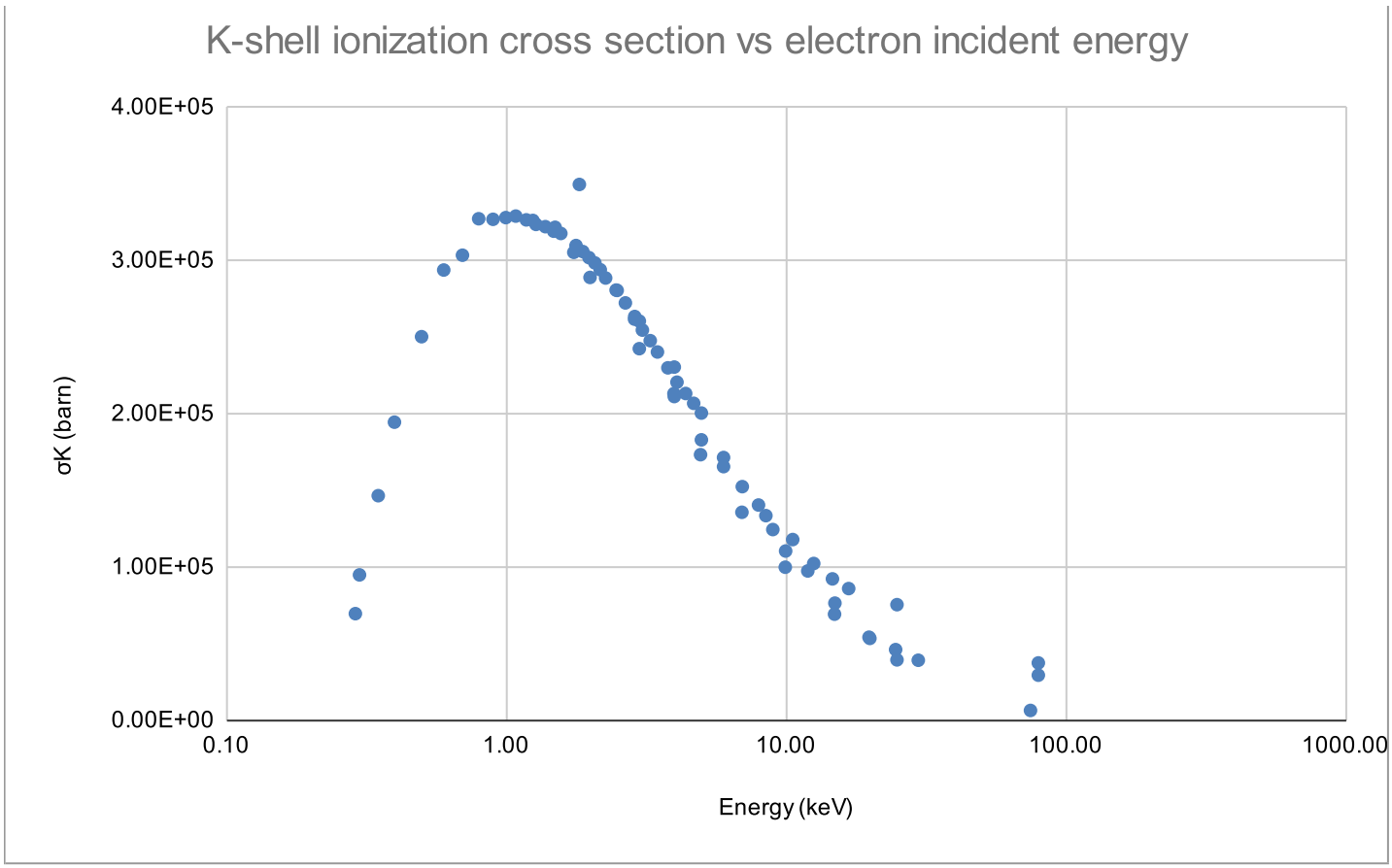
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
0.29	1.022	6.91E+04	1.2E+04	X	G	1973	XRP	0.00269	Ta73	
0.30	1.057	9.44E+04	1.7E+04	X	G	1973	XRP	0.00269	Ta73	
0.35	1.233	1.46E+05	2.6E+04	X	G	1973	XRP	0.00269	Ta73	
0.40	1.409	1.94E+05	3.5E+04	X	G	1973	XRP	0.00269	Ta73	
0.50	1.762	2.50E+05	4.5E+04	X	G	1973	XRP	0.00269	Ta73	
0.60	2.114	2.93E+05	5.3E+04	X	G	1973	XRP	0.00269	Ta73	
0.70	2.467	3.03E+05	5.5E+04	X	G	1973	XRP	0.00269	Ta73	
0.80	2.819	3.27E+05	5.9E+04	X	G	1973	XRP	0.00269	Ta73	
0.90	3.171	3.26E+05	5.9E+04	X	G	1973	XRP	0.00269	Ta73	
1.00	3.524	3.28E+05	5.9E+04	X	G	1973	XRP	0.00269	Ta73	
1.085	3.825	3.28E+05	4.9E+04	A	G	1967	ICS	0.0009	Gl67	*
1.184	4.171	3.26E+05	4.9E+04	A	G	1967	ICS	0.0009	Gl67	*
1.25	4.405	3.26E+05	5.9E+04	X	G	1973	XRP	0.00269	Ta73	
1.282	4.517	3.23E+05	4.8E+04	A	G	1967	ICS	0.0009	Gl67	*
1.385	4.879	3.22E+05	4.8E+04	A	G	1967	ICS	0.0009	Gl67	*
1.483	5.225	3.19E+05	4.8E+04	A	G	1967	ICS	0.0009	Gl67	*
1.50	5.285	3.21E+05	5.8E+04	X	G	1973	XRP	0.00269	Ta73	
1.573	5.541	3.17E+05	4.8E+04	A	G	1967	ICS	0.0009	Gl67	*
1.75	6.166	3.05E+05	5.5E+04	X	G	1973	XRP	0.00269	Ta73	
1.782	6.279	3.09E+05	4.6E+04	A	G	1967	ICS	0.0009	Gl67	*
1.832	6.454	3.49E+05	5.6E+04	X	T	1971	ICS	0.0035	Hi71	*
1.885	6.640	3.05E+05	4.6E+04	A	G	1967	ICS	0.0009	Gl67	*
1.983	6.987	3.01E+05	4.5E+04	A	G	1967	ICS	0.0009	Gl67	*
2.00	7.047	2.88E+05	5.2E+04	X	G	1973	XRP	0.00269	Ta73	
2.081	7.333	2.98E+05	4.5E+04	A	G	1967	ICS	0.0009	Gl67	*
2.175	7.664	2.94E+05	4.4E+04	A	G	1967	ICS	0.0009	Gl67	*
2.273	8.011	2.88E+05	4.3E+04	A	G	1967	ICS	0.0009	Gl67	*
2.479	8.733	2.80E+05	4.2E+04	A	G	1967	ICS	0.0009	Gl67	*
2.5	8.809	2.80E+05	4.0E+04	X	TS	2012	ICS	0.00168	Li12	
2.675	9.426	2.72E+05	4.1E+04	A	G	1967	ICS	0.0009	Gl67	*
2.884	10.163	2.61E+05	4.3E+04	X	T	1971	ICS	0.0035	Hi71	*,§
2.889	10.179	2.63E+05	3.9E+04	A	G	1967	ICS	0.0009	Gl67	*
3.00	10.571	2.42E+05	4.4E+04	X	G	1973	XRP	0.00269	Ta73	
3.0	10.571	2.60E+05	4.0E+04	X	TS	2012	ICS	0.00168	Li12	
3.077	10.841	2.54E+05	3.8E+04	A	G	1967	ICS	0.0009	Gl67	*
3.282	11.564	2.47E+05	3.7E+04	A	G	1967	ICS	0.0009	Gl67	*
3.483	12.272	2.40E+05	3.6E+04	A	G	1967	ICS	0.0009	Gl67	*
3.795	13.371	2.30E+05	3.4E+04	A	G	1967	ICS	0.0009	Gl67	*
3.989	14.056	2.13E+05	2.9E+04	X	T	1971	ICS	0.0035	Hi71	*,§
4.00	14.094	2.11E+05	3.8E+04	X	G	1973	XRP	0.00269	Ta73	

4.0	14.094	2.30E+05	4.0E+04	X	TS	2012	ICS	0.00168	Li12	
4.090	14.410	2.20E+05	3.3E+04	A	G	1967	ICS	0.0009	Gl67	*
4.393	15.479	2.13E+05	3.2E+04	A	G	1967	ICS	0.0009	Gl67	*
4.692	16.533	2.06E+05	3.1E+04	A	G	1967	ICS	0.0009	Gl67	*
4.965	17.495	1.73E+05	1.7E+04	X	T	1971	ICS	0.0035	Hi71	*
5.00	17.618	1.83E+05	3.3E+04	X	G	1973	XRP	0.00269	Ta73	
5.0	17.618	2.00E+05	2.0E+04	X	TS	2012	ICS	0.00168	Li12	
6.00	21.142	1.65E+05	3.0E+04	X	G	1973	XRP	0.00269	Ta73	
6.0	21.142	1.71E+05	9.0E+03	X	TS	2012	ICS	0.00168	Li12	
6.979	24.592	1.35E+05	1.5E+04	X	T	1971	ICS	0.0035	Hi71	*,§
7.0	24.665	1.52E+05	9.0E+03	X	TS	2012	ICS	0.00168	Li12	
8.0	28.189	1.40E+05	1.0E+04	X	TS	2012	ICS	0.00168	Li12	
8.50	29.951	1.33E+05	2.4E+04	X	G	1973	XRP	0.00269	Ta73	
9.0	31.712	1.24E+05	9.0E+03	X	TS	2012	ICS	0.00168	Li12	
9.971	35.133	9.94E+04	1.3E+04	X	T	1971	ICS	0.0035	Hi71	*,§
10.0	35.236	1.10E+05	1.0E+04	X	TS	2012	ICS	0.00168	Li12	
10.60	37.350	1.17E+05	2.1E+04	X	G	1973	XRP	0.00269	Ta73	
12.0	42.283	9.70E+04	4.0E+03	X	TS	2012	ICS	0.00168	Li12	
12.60	44.397	1.02E+05	1.8E+04	X	G	1973	XRP	0.00269	Ta73	
14.70	51.797	9.18E+04	1.7E+04	X	G	1973	XRP	0.00269	Ta73	
14.955	52.695	6.88E+04	9.2E+03	X	T	1971	ICS	0.0035	Hi71	*,§
15.0	52.854	7.60E+04	5.0E+03	X	TS	2012	ICS	0.00168	Li12	
16.80	59.197	8.55E+04	1.5E+04	X	G	1973	XRP	0.00269	Ta73	
19.862	69.985	5.38E+04	5.6E+03	X	T	1971	ICS	0.0035	Hi71	*
20.0	70.472	5.30E+04	4.0E+03	X	TS	2012	ICS	0.00168	Li12	
24.722	87.111	4.57E+04	5.6E+03	X	T	1971	ICS	0.0035	Hi71	*,§
25	88.090	7.50E+04	1.5E+04	E	T	1972	ICS		Is72	
25.0	88.090	3.90E+04	3.0E+03	X	TS	2012	ICS	0.00168	Li12	
29.790	104.968	3.87E+04	5.6E+03	X	T	1971	ICS	0.0035	Hi71	*,§
75	264.271	6.00E+03	1.2E+03	E	T	1972	ICS		Co72	#
80	281.889	3.70E+04	6.0E+03	E	T	1975	ICS		Eg75	
80	281.889	2.90E+04	5.8E+03	E	T	1979	ICS		Ro79	#

(*) Digitalized from the original paper

(#) Uncertainties estimated considering similar experiments from other authors

(§) Uncertainties interpolated from those given by the author


K-shell ionization cross section vs electron incident energy
4.00E+05
3.00E+05
2.00E+05
1.00E+05
0.00E+00
σK (barn)
0.10
1.00
10.00
100.00
1000.00
Energy (keV)

Nitrogen N

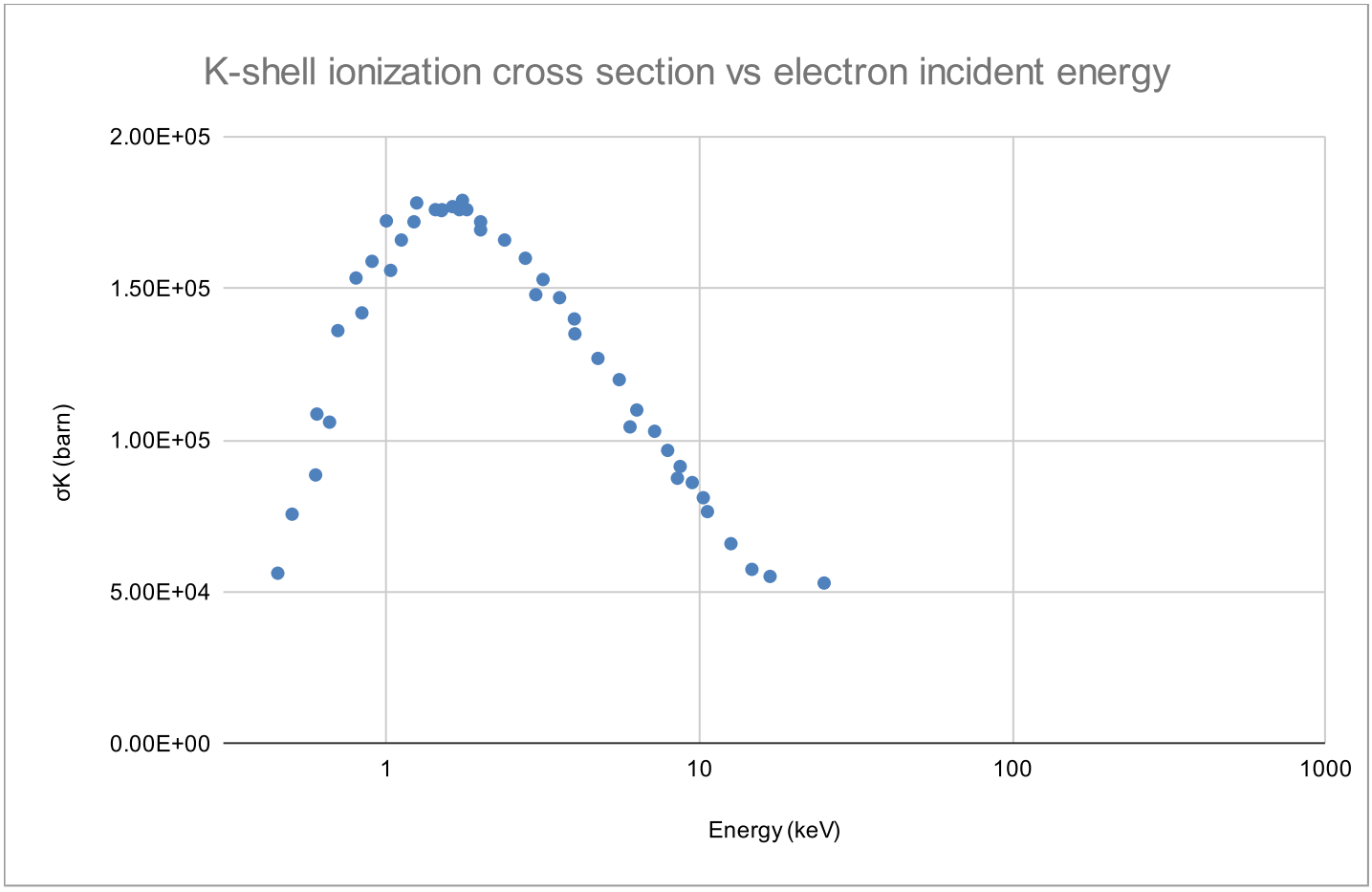
Z = 7

I_K = 0.4016 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
0.45	1.121	5.62E+04	1.0E+04	X	G	1973	XRP	0.00473	Ta73	
0.50	1.245	7.57E+04	1.4E+04	X	G	1973	XRP	0.00473	Ta73	
0.594	1.480	8.86E+04	5.5E+03	A	G	1971	ICS	0.0015	Gl71	*
0.60	1.494	1.09E+05	2.0E+04	X	G	1973	XRP	0.00473	Ta73	
0.659	1.640	1.06E+05	6.8E+03	A	G	1971	ICS	0.0015	Gl71	*
0.70	1.743	1.36E+05	2.5E+04	X	G	1973	XRP	0.00473	Ta73	
0.80	1.992	1.53E+05	2.8E+04	X	G	1973	XRP	0.00473	Ta73	
0.835	2.080	1.42E+05	9.0E+03	A	G	1971	ICS	0.0015	Gl71	*
0.90	2.241	1.59E+05	2.9E+04	X	G	1973	XRP	0.00473	Ta73	
1.00	2.490	1.72E+05	3.1E+04	X	G	1973	XRP	0.00473	Ta73	
1.032	2.570	1.56E+05	9.0E+03	A	G	1971	ICS	0.0015	Gl71	*
1.116	2.780	1.66E+05	1.0E+04	A	G	1971	ICS	0.0015	Gl71	*
1.225	3.050	1.72E+05	9.0E+03	A	G	1971	ICS	0.0015	Gl71	*
1.25	3.113	1.78E+05	3.2E+04	X	G	1973	XRP	0.00473	Ta73	
1.434	3.570	1.76E+05	9.0E+03	A	G	1971	ICS	0.0015	Gl71	*
1.50	3.735	1.76E+05	3.2E+04	X	G	1973	XRP	0.00473	Ta73	
1.506	3.750	1.76E+05	9.0E+03	A	G	1971	ICS	0.0015	Gl71	*
1.626	4.050	1.77E+05	8.0E+03	A	G	1971	ICS	0.0015	Gl71	*
1.711	4.260	1.76E+05	9.0E+03	A	G	1971	ICS	0.0015	Gl71	*
1.75	4.358	1.79E+05	3.2E+04	X	G	1973	XRP	0.00473	Ta73	
1.807	4.500	1.76E+05	1.0E+04	A	G	1971	ICS	0.0015	Gl71	*
2.000	4.980	1.72E+05	7.0E+03	A	G	1971	ICS	0.0015	Gl71	*
2.00	4.980	1.69E+05	3.1E+04	X	G	1973	XRP	0.00473	Ta73	
2.386	5.940	1.66E+05	8.0E+03	A	G	1971	ICS	0.0015	Gl71	*
2.779	6.920	1.60E+05	8.0E+03	A	G	1971	ICS	0.0015	Gl71	*
3.00	7.470	1.48E+05	2.7E+04	X	G	1973	XRP	0.00473	Ta73	
3.165	7.880	1.53E+05	7.0E+03	A	G	1971	ICS	0.0015	Gl71	*
3.574	8.900	1.47E+05	8.0E+03	A	G	1971	ICS	0.0015	Gl71	*
3.984	9.920	1.40E+05	7.0E+03	A	G	1971	ICS	0.0015	Gl71	*
4.00	9.960	1.35E+05	2.4E+04	X	G	1973	XRP	0.00473	Ta73	
4.739	11.800	1.27E+05	6.0E+03	A	G	1971	ICS	0.0015	Gl71	*
5.542	13.800	1.20E+05	7.0E+03	A	G	1971	ICS	0.0015	Gl71	*
6.00	14.940	1.04E+05	1.9E+04	X	G	1973	XRP	0.00473	Ta73	
6.305	15.700	1.10E+05	5.0E+03	A	G	1971	ICS	0.0015	Gl71	*
7.189	17.900	1.03E+05	5.1E+03	A	G	1971	ICS	0.0015	Gl71	*
7.912	19.700	9.67E+04	5.0E+03	A	G	1971	ICS	0.0015	Gl71	*
8.50	21.165	8.75E+04	1.6E+04	X	G	1973	XRP	0.00473	Ta73	
8.675	21.600	9.14E+04	4.1E+03	A	G	1971	ICS	0.0015	Gl71	*
9.478	23.600	8.61E+04	4.4E+03	A	G	1971	ICS	0.0015	Gl71	*
10.281	25.600	8.11E+04	4.1E+03	A	G	1971	ICS	0.0015	Gl71	*

10.60	26.394	7.65E+04	1.4E+04	X	G	1973	XRP	0.00473	Ta73
12.60	31.375	6.60E+04	1.2E+04	X	G	1973	XRP	0.00473	Ta73
14.70	36.604	5.75E+04	1.0E+04	X	G	1973	XRP	0.00473	Ta73
16.80	41.833	5.52E+04	1.0E+04	X	G	1973	XRP	0.00473	Ta73
25	62.251	5.30E+04	1.5E+04	E	T	1972	ICS	0.0015	Is72

(*) Digitalized from the original paper

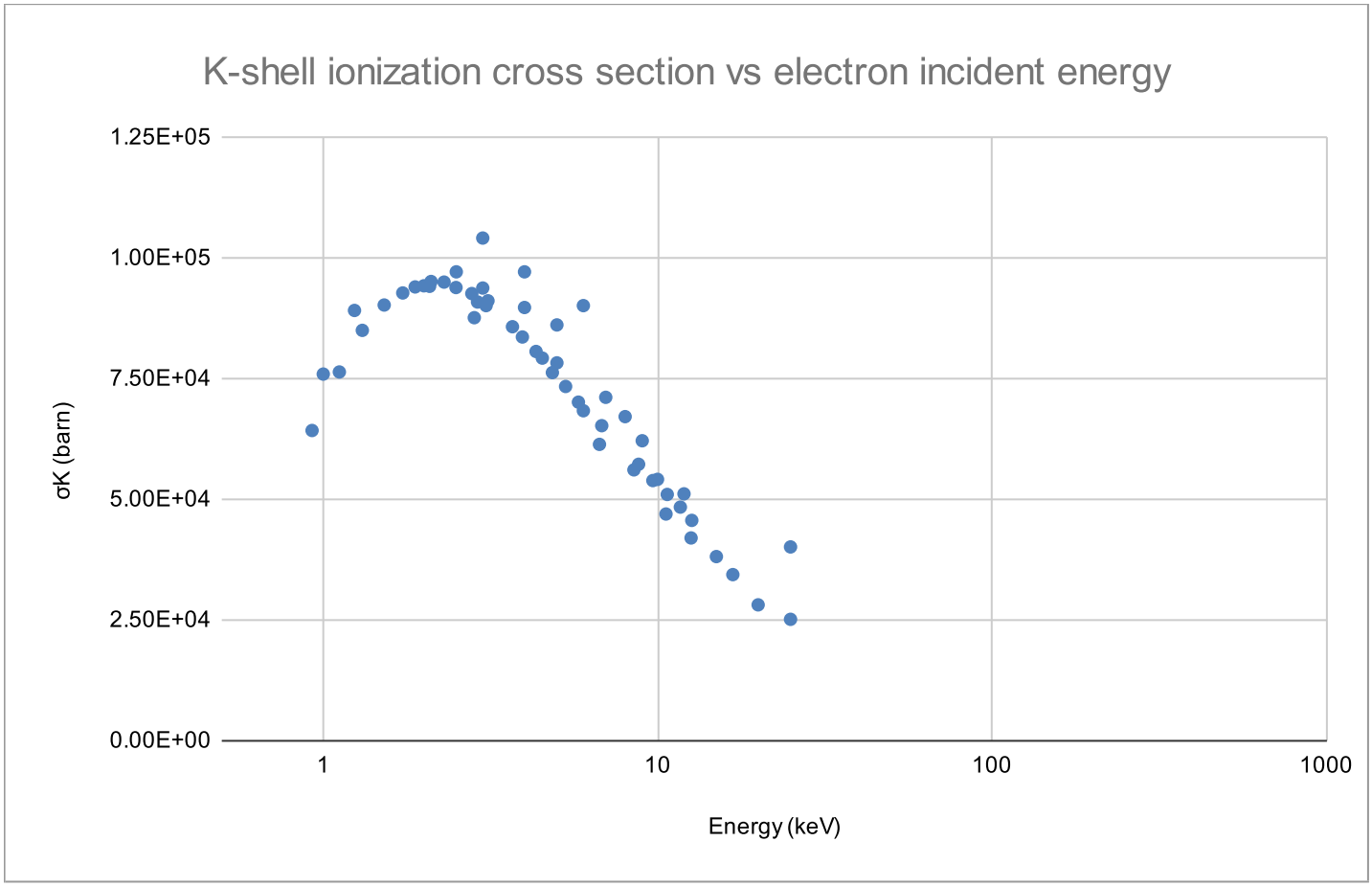


Oxygen O
Z = 8
I_K = 0.5320 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
0.93	1.740	6.41E+04	4.6E+03	A	G	1971	ICS	0.0022	Gl71	*
1.0	1.880	7.58E+04	1.6E+04	X	G	1973	XRP	0.00645	Ta73	
1.12	2.100	7.63E+04	5.0E+03	A	G	1971	ICS	0.0022	Gl71	*
1.240	2.331	8.90E+04	8.9E+03	A	G	1985	ICS		Pl85	
1.31	2.460	8.49E+04	5.3E+03	A	G	1971	ICS	0.0022	Gl71	*
1.52	2.860	9.01E+04	4.6E+03	A	G	1971	ICS	0.0022	Gl71	*
1.73	3.250	9.26E+04	4.5E+03	A	G	1971	ICS	0.0022	Gl71	*
1.88	3.540	9.39E+04	4.9E+03	A	G	1971	ICS	0.0022	Gl71	*
2.0	3.759	9.41E+04	1.2E+04	X	G	1973	XRP	0.00645	Ta73	
2.080	3.910	9.40E+04	9.4E+03	A	G	1985	ICS		Pl85	
2.10	3.950	9.50E+04	4.3E+03	A	G	1971	ICS	0.0022	Gl71	*
2.30	4.320	9.49E+04	4.3E+03	A	G	1971	ICS	0.0022	Gl71	*
2.50	4.690	9.38E+04	4.5E+03	A	G	1971	ICS	0.0022	Gl71	*
2.5	4.699	9.70E+04	7.0E+03	X	TS	2012	ICS	0.00571	Li12	
2.78	5.230	9.25E+04	4.3E+03	A	G	1971	ICS	0.0022	Gl71	*
2.83	5.320	8.75E+04	4.5E+03	A	G	1971	ICS	0.0022	Gl71	*
2.89	5.440	9.08E+04	4.1E+03	A	G	1971	ICS	0.0022	Gl71	*
3.0	5.639	9.36E+04	1.2E+04	X	G	1973	XRP	0.00645	Ta73	
3.0	5.639	1.04E+05	7.0E+03	X	TS	2012	ICS	0.00571	Li12	
3.07	5.770	9.00E+04	4.5E+03	A	G	1971	ICS	0.0022	Gl71	*
3.110	5.846	9.10E+04	9.1E+03	A	G	1985	ICS		Pl85	
3.68	6.920	8.56E+04	4.1E+03	A	G	1971	ICS	0.0022	Gl71	*
3.94	7.410	8.35E+04	3.9E+03	A	G	1971	ICS	0.0022	Gl71	*
4.0	7.519	8.96E+04	1.2E+04	X	G	1973	XRP	0.00645	Ta73	
4.0	7.519	9.70E+04	2.0E+03	X	TS	2012	ICS	0.00571	Li12	
4.33	8.140	8.05E+04	3.6E+03	A	G	1971	ICS	0.0022	Gl71	*
4.52	8.500	7.91E+04	3.8E+03	A	G	1971	ICS	0.0022	Gl71	*
4.85	9.110	7.61E+04	3.4E+03	A	G	1971	ICS	0.0022	Gl71	*
5.0	9.398	7.81E+04	1.0E+04	X	G	1973	XRP	0.00645	Ta73	
5.0	9.398	8.60E+04	2.0E+03	X	TS	2012	ICS	0.00571	Li12	
5.31	9.980	7.33E+04	3.1E+03	A	G	1971	ICS	0.0022	Gl71	*
5.80	10.900	7.00E+04	3.2E+03	A	G	1971	ICS	0.0022	Gl71	*
6.0	11.278	6.82E+04	8.9E+03	X	G	1973	XRP	0.00645	Ta73	
6.0	11.278	9.00E+04	1.0E+04	X	TS	2012	ICS	0.00571	Li12	
6.70	12.600	6.13E+04	2.9E+03	A	G	1971	ICS	0.0022	Gl71	*
6.81	12.800	6.51E+04	3.3E+03	A	G	1971	ICS	0.0022	Gl71	*
7.0	13.158	7.10E+04	2.0E+03	X	TS	2012	ICS	0.00571	Li12	
8.0	15.038	6.70E+04	5.0E+03	X	TS	2012	ICS	0.00571	Li12	
8.5	15.977	5.60E+04	7.3E+03	X	G	1973	XRP	0.00645	Ta73	
8.78	16.500	5.71E+04	2.8E+03	A	G	1971	ICS	0.0022	Gl71	*

9.0	16.917	6.20E+04	5.0E+03	X	TS	2012	ICS	0.00571	Li12	
9.68	18.200	5.38E+04	2.3E+03	A	G	1971	ICS	0.0022	Gl71	*
10.0	18.797	5.40E+04	3.0E+03	X	TS	2012	ICS	0.00571	Li12	
10.6	19.925	4.68E+04	6.1E+03	X	G	1973	XRP	0.00645	Ta73	
10.69	20.100	5.09E+04	2.4E+03	A	G	1971	ICS	0.0022	Gl71	*
11.70	22.000	4.83E+04	2.5E+03	A	G	1971	ICS	0.0022	Gl71	*
12.0	22.556	5.10E+04	4.0E+03	X	TS	2012	ICS	0.00571	Li12	
12.6	23.684	4.19E+04	5.4E+03	X	G	1973	XRP	0.00645	Ta73	
12.66	23.800	4.55E+04	1.8E+03	A	G	1971	ICS	0.0022	Gl71	*
15.0	28.195	3.80E+04	2.0E+03	X	TS	2012	ICS	0.00571	Li12	
16.8	31.579	3.43E+04	4.5E+03	X	G	1973	XRP	0.00645	Ta73	
20.0	37.594	2.80E+04	3.0E+03	X	TS	2012	ICS	0.00571	Li12	
25	46.992	4.00E+04	1.5E+04	E	T	1972	ICS	0.0022	Is72	
25.0	46.992	2.50E+04	2.0E+03	X	TS	2012	ICS	0.00571	Li12	

(*) Digitalized from the original paper



Neon Ne

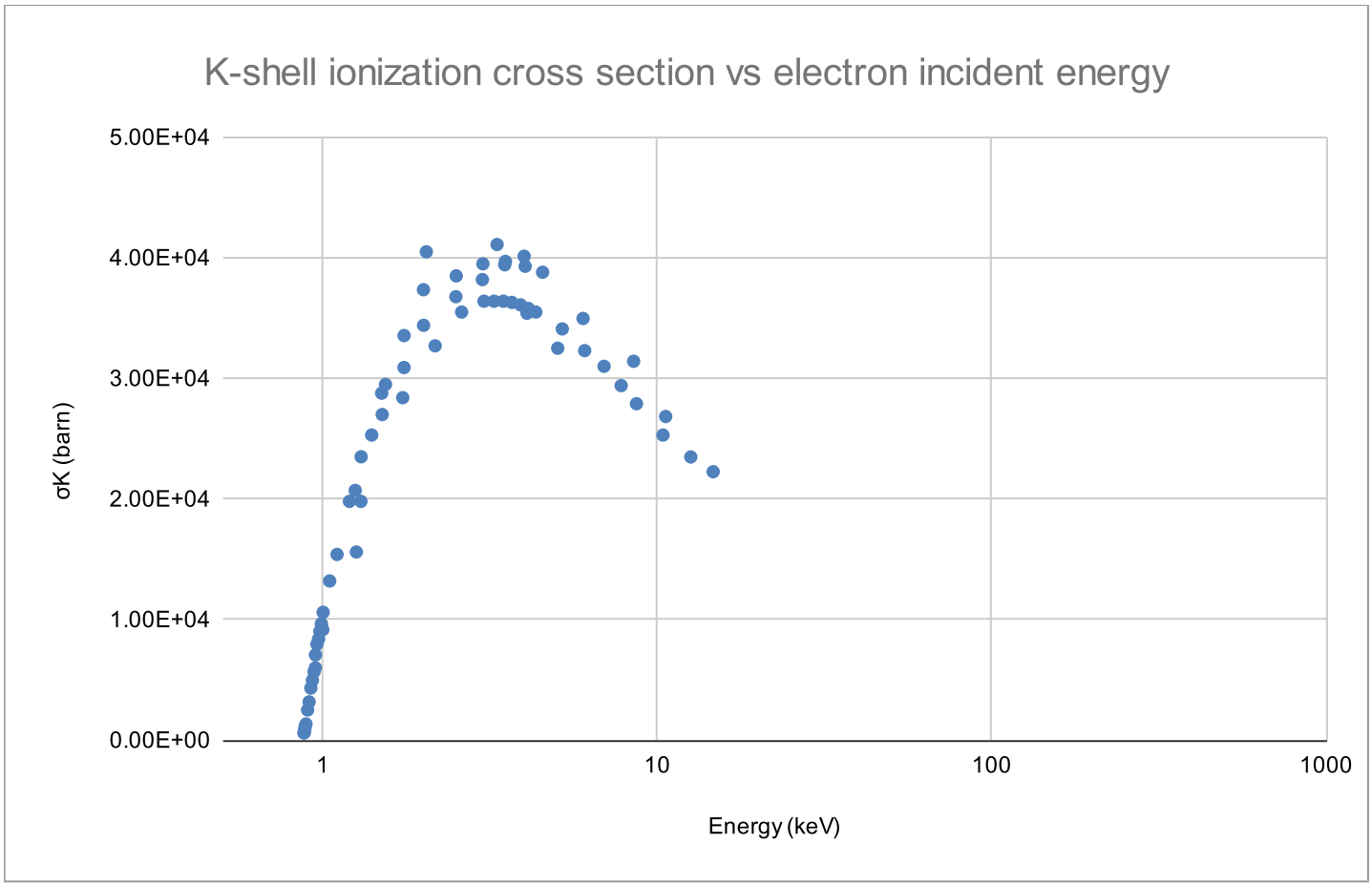
Z = 10

I_K = 0.8701 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
0.878	1.009	5.89E+02	1.3E+02	A	G	1981	ICS	0.0155	Hi81	*
0.880	1.012	6.44E+02	6.4E+01	A	G	1981	ICS	0.0155	Hi81	*
0.883	1.015	9.24E+02	9.2E+01	A	G	1981	ICS	0.0155	Hi81	*
0.885	1.018	1.12E+03	1.1E+02	A	G	1981	ICS	0.0155	Hi81	*
0.891	1.024	1.34E+03	1.3E+02	A	G	1981	ICS	0.0155	Hi81	*
0.901	1.035	2.50E+03	2.5E+02	A	G	1981	ICS	0.0155	Hi81	*
0.910	1.046	3.17E+03	3.2E+02	A	G	1981	ICS	0.0155	Hi81	*
0.921	1.058	4.32E+03	4.3E+02	A	G	1981	ICS	0.0155	Hi81	*
0.931	1.070	4.97E+03	5.0E+02	A	G	1981	ICS	0.0155	Hi81	*
0.942	1.082	5.67E+03	5.7E+02	A	G	1981	ICS	0.0155	Hi81	*
0.95	1.092	6.00E+03	1.1E+03	X	G	1973	XRP	0.0155	Ta73	
0.951	1.093	7.07E+03	7.1E+02	A	G	1981	ICS	0.0155	Hi81	*
0.961	1.104	7.96E+03	8.0E+02	A	G	1981	ICS	0.0155	Hi81	*
0.971	1.116	8.39E+03	8.4E+02	A	G	1981	ICS	0.0155	Hi81	*
0.980	1.127	9.03E+03	9.0E+02	A	G	1981	ICS	0.0155	Hi81	*
0.990	1.138	9.65E+03	9.7E+02	A	G	1981	ICS	0.0155	Hi81	*
1.00	1.149	9.16E+03	1.6E+03	X	G	1973	XRP	0.0155	Ta73	
1.002	1.152	1.06E+04	1.1E+03	A	G	1981	ICS	0.0155	Hi81	*
1.048	1.205	1.32E+04	1.3E+03	A	G	1981	ICS	0.0155	Hi81	*
1.103	1.268	1.54E+04	1.5E+03	A	G	1981	ICS	0.0155	Hi81	*
1.201	1.381	1.98E+04	2.0E+03	A	G	1981	ICS	0.0155	Hi81	*
1.25	1.437	2.07E+04	3.7E+03	X	G	1973	XRP	0.0155	Ta73	
1.26	1.448	1.56E+04	2.7E+03	A	G	1985	ICS		Pl85	
1.300	1.494	1.98E+04	1.8E+03	A	G	1971	ICS	0.025	Gl71	*
1.302	1.497	2.35E+04	2.4E+03	A	G	1981	ICS	0.0155	Hi81	*
1.400	1.609	2.53E+04	2.5E+03	A	G	1981	ICS	0.0155	Hi81	*
1.50	1.724	2.88E+04	5.2E+03	X	G	1973	XRP	0.0155	Ta73	
1.506	1.730	2.70E+04	2.7E+03	A	G	1981	ICS	0.0155	Hi81	*
1.54	1.770	2.95E+04	5.0E+03	A	G	1985	ICS		Pl85	
1.734	1.993	2.84E+04	1.8E+03	A	G	1971	ICS	0.025	Gl71	*
1.749	2.010	3.09E+04	3.1E+03	A	G	1981	ICS	0.0155	Hi81	*
1.75	2.011	3.35E+04	6.0E+03	X	G	1973	XRP	0.0155	Ta73	
2.00	2.299	3.74E+04	6.7E+03	X	G	1973	XRP	0.0155	Ta73	
2.002	2.301	3.44E+04	1.7E+03	A	G	1981	ICS	0.0155	Hi81	*
2.04	2.345	4.05E+04	6.9E+03	A	G	1985	ICS		Pl85	
2.167	2.491	3.27E+04	1.9E+03	A	G	1971	ICS	0.025	Gl71	*
2.50	2.873	3.68E+04	6.6E+03	X	G	1973	XRP	0.0155	Ta73	
2.506	2.881	3.85E+04	1.9E+03	A	G	1981	ICS	0.0155	Hi81	*
2.601	2.989	3.55E+04	1.9E+03	A	G	1971	ICS	0.025	Gl71	*
3.00	3.448	3.82E+04	6.9E+03	X	G	1973	XRP	0.0155	Ta73	

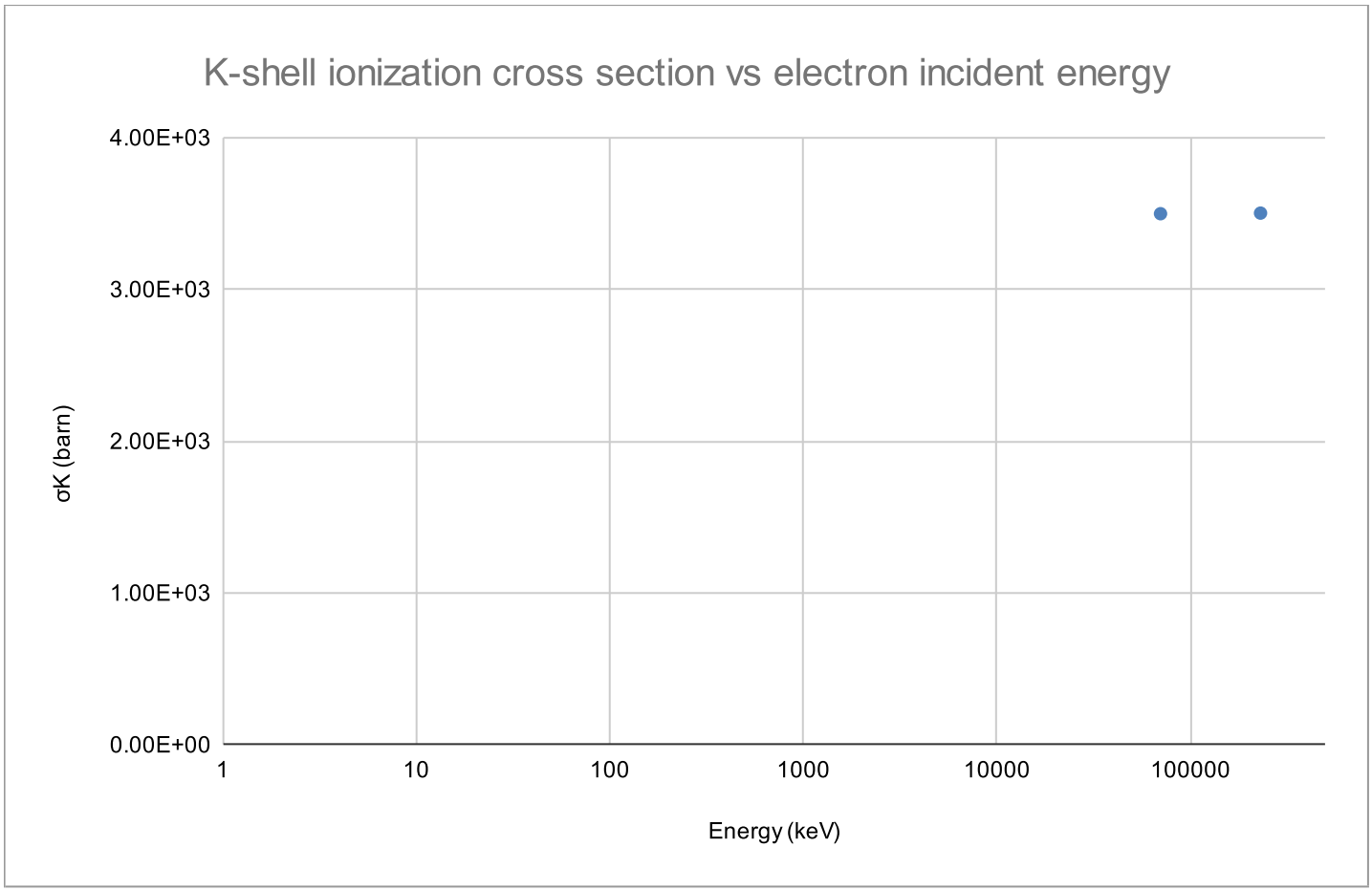
3.011	3.461	3.95E+04	2.0E+03	A	G	1981	ICS	0.0155	Hi81	*
3.034	3.487	3.64E+04	1.9E+03	A	G	1971	ICS	0.025	Gl71	*
3.251	3.736	3.64E+04	1.9E+03	A	G	1971	ICS	0.025	Gl71	*
3.32	3.816	4.11E+04	7.0E+03	A	G	1985	ICS		Pl85	
3.468	3.985	3.64E+04	1.9E+03	A	G	1971	ICS	0.025	Gl71	*
3.50	4.023	3.94E+04	7.1E+03	X	G	1973	XRP	0.0155	Ta73	
3.516	4.041	3.97E+04	2.0E+03	A	G	1981	ICS	0.0155	Hi81	*
3.676	4.224	3.63E+04	1.8E+03	A	G	1971	ICS	0.025	Gl71	*
3.901	4.483	3.61E+04	1.9E+03	A	G	1971	ICS	0.025	Gl71	*
4.00	4.597	4.01E+04	7.2E+03	X	G	1973	XRP	0.0155	Ta73	
4.029	4.631	3.93E+04	2.0E+03	A	G	1981	ICS	0.0155	Hi81	*
4.08	4.689	3.54E+04	6.0E+03	A	G	1985	ICS		Pl85	
4.118	4.733	3.58E+04	1.9E+03	A	G	1971	ICS	0.025	Gl71	*
4.335	4.982	3.55E+04	1.9E+03	A	G	1971	ICS	0.025	Gl71	*
4.543	5.221	3.88E+04	1.9E+03	A	G	1981	ICS	0.0155	Hi81	*
5.04	5.792	3.25E+04	5.5E+03	A	G	1985	ICS		Pl85	
5.201	5.978	3.41E+04	1.7E+03	A	G	1971	ICS	0.025	Gl71	*
6.00	6.896	3.50E+04	6.3E+03	X	G	1973	XRP	0.0155	Ta73	
6.068	6.974	3.23E+04	1.6E+03	A	G	1971	ICS	0.025	Gl71	*
6.935	7.971	3.10E+04	1.5E+03	A	G	1971	ICS	0.025	Gl71	*
7.802	8.967	2.94E+04	1.5E+03	A	G	1971	ICS	0.025	Gl71	*
8.50	9.769	3.14E+04	5.6E+03	X	G	1973	XRP	0.0155	Ta73	
8.669	9.963	2.79E+04	1.4E+03	A	G	1971	ICS	0.025	Gl71	*
10.403	11.956	2.53E+04	1.2E+03	A	G	1971	ICS	0.025	Gl71	*
10.60	12.183	2.68E+04	4.8E+03	X	G	1973	XRP	0.0155	Ta73	
12.60	14.481	2.35E+04	4.2E+03	X	G	1973	XRP	0.0155	Ta73	
14.70	16.895	2.23E+04	4.0E+03	X	G	1973	XRP	0.0155	Ta73	

(*) Digitalized from the original paper


K-shell ionization cross section vs electron incident energy
5.00E+04
4.00E+04
3.00E+04
2.00E+04
1.00E+04
0.00E+00
σK (barn)
1
10
100
1000
Energy (keV)

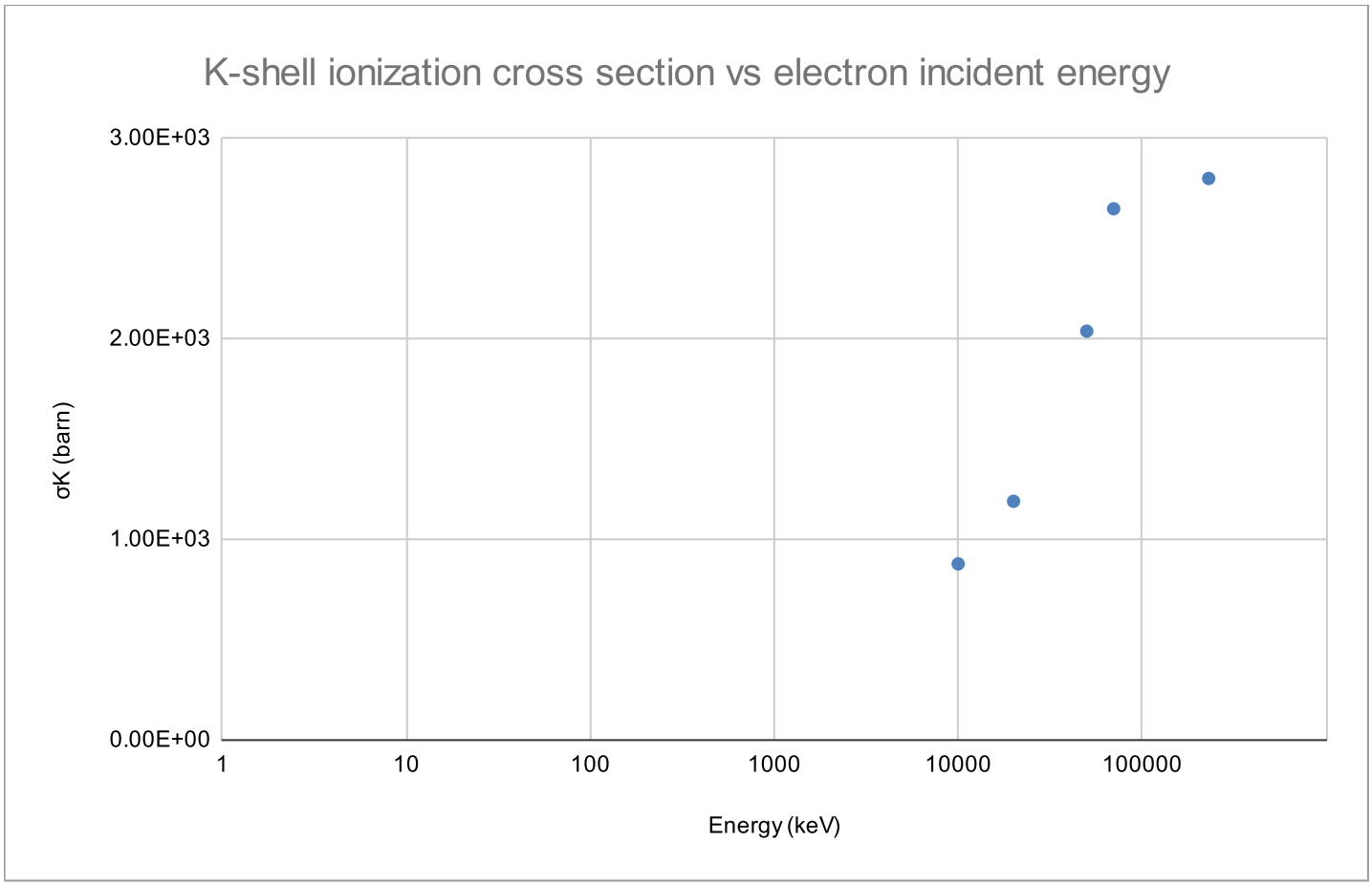
Sodium Na
Z = 11
I_K = 1.0721 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
70000	65292.417	3.50E+03	5.6E+02	X	T	1980	ICS	0.024	Ka80	
230000	214532.226	3.50E+03	5.6E+02	X	T	1980	ICS	0.024	Ka80	



Magnesium Mg
Z = 12
I_K = 1.3050 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
10000	7662.835	8.74E+02	1.4E+02	X	T	1988	ICS	0.0272	Mc88	
20000	15325.670	1.19E+03	1.9E+02	X	T	1988	ICS	0.0272	Mc88	
50000	38314.176	2.03E+03	5.5E+02	X	T	1979	ICS	0.0270	Ho79	
70000	53639.847	2.64E+03	4.2E+02	X	T	1980	ICS	0.0272	Ka80	
230000	176245.211	2.80E+03	4.5E+02	X	T	1980	ICS	0.0272	Ka80	

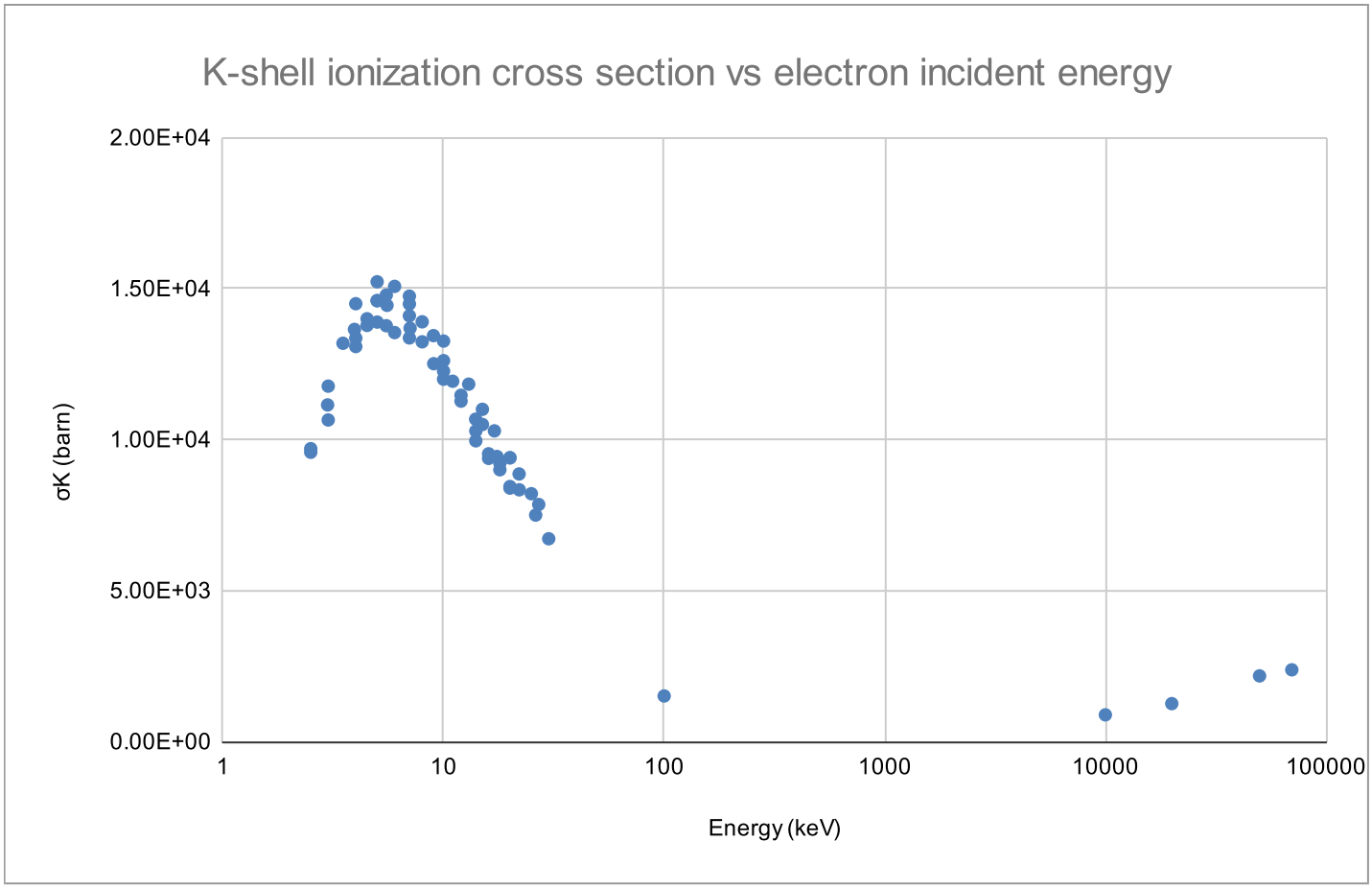


Aluminium Al
Z = 13
I_K = 1.5596 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2.5	1.603	9.70E+03	4.0E+02	X	TS	2012	ICS	0.0371	Li12	
2.5	1.603	9.58E+03	1.2E+03	X	TtS	2016	ICS	0.0371	Me16	
3.0	1.911	1.11E+04	1.2E+03	X	T	1969	ICS	0.038	Hi69	*
3.0	1.924	1.07E+04	5.0E+01	X	TS	2012	ICS	0.0371	Li12	
3.0	1.924	1.18E+04	1.4E+03	X	TtS	2016	ICS	0.0371	Me16	
3.5	2.244	1.32E+04	1.6E+03	X	TtS	2016	ICS	0.0371	Me16	
3.9	2.530	1.36E+04	1.5E+03	X	T	1969	ICS	0.038	Hi69	*
4.0	2.565	1.45E+04	4.0E+02	X	TS	2012	ICS	0.0371	Li12	
4.0	2.565	1.31E+04	1.6E+03	X	TtS	2016	ICS	0.0371	Me16	
4.0	2.565	1.34E+04	1.6E+03	X	TtS	2016	ICS	0.0371	Me16	
4.5	2.885	1.38E+04	1.6E+03	X	TtS	2016	ICS	0.0371	Me16	
4.5	2.885	1.40E+04	1.7E+03	X	TtS	2016	ICS	0.0371	Me16	
5.0	3.206	1.46E+04	7.0E+02	X	TS	2012	ICS	0.0371	Li12	
5.0	3.206	1.46E+04	1.7E+03	X	TtS	2016	ICS	0.0371	Me16	
5.0	3.206	1.39E+04	1.7E+03	X	TtS	2016	ICS	0.0371	Me16	
5	3.206	1.52E+04	1.9E+03	X	S	2020	ICS	0.0387	Li20	
5.5	3.527	1.48E+04	1.8E+03	X	TtS	2016	ICS	0.0371	Me16	
5.5	3.527	1.38E+04	1.7E+03	X	TtS	2016	ICS	0.0371	Me16	
5.5	3.553	1.44E+04	1.6E+03	X	T	1969	ICS	0.038	Hi69	*
6.0	3.847	1.51E+04	1.8E+03	X	TtS	2016	ICS	0.0371	Me16	
6.0	3.847	1.35E+04	1.6E+03	X	TtS	2016	ICS	0.0371	Me16	
7.0	4.488	1.41E+04	5.0E+02	X	TS	2012	ICS	0.0371	Li12	
7.0	4.488	1.45E+04	1.7E+03	X	TtS	2016	ICS	0.0371	Me16	
7.0	4.488	1.34E+04	1.6E+03	X	TtS	2016	ICS	0.0371	Me16	
7	4.488	1.48E+04	1.7E+03	X	S	2020	ICS	0.0387	Li20	
7.1	4.522	1.37E+04	1.2E+03	X	T	1969	ICS	0.038	Hi69	*
8.0	5.130	1.39E+04	1.7E+03	X	TtS	2016	ICS	0.0371	Me16	
8.0	5.130	1.32E+04	1.6E+03	X	TtS	2016	ICS	0.0371	Me16	
9.0	5.771	1.34E+04	1.6E+03	X	TtS	2016	ICS	0.0371	Me16	
9.0	5.787	1.25E+04	1.1E+03	X	T	1969	ICS	0.038	Hi69	*
10.0	6.412	1.20E+04	6.0E+02	X	TS	2012	ICS	0.0371	Li12	
10.0	6.412	1.26E+04	1.5E+03	X	TtS	2016	ICS	0.0371	Me16	
10.0	6.412	1.23E+04	1.5E+03	X	TtS	2016	ICS	0.0371	Me16	
10	6.412	1.33E+04	1.5E+03	X	S	2020	ICS	0.0387	Li20	
11.0	7.052	1.19E+04	1.1E+03	X	T	1969	ICS	0.038	Hi69	*
12.0	7.694	1.15E+04	1.4E+03	X	TtS	2016	ICS	0.0371	Me16	
12.0	7.694	1.13E+04	1.4E+03	X	TtS	2016	ICS	0.0371	Me16	
13	8.335	1.18E+04	1.5E+03	X	S	2020	ICS	0.0387	Li20	
14.0	8.964	1.07E+04	9.6E+02	X	T	1969	ICS	0.038	Hi69	*
14.0	8.977	9.96E+03	1.2E+03	X	TtS	2016	ICS	0.0371	Me16	

14.0	8.977	1.03E+04	1.2E+03	X	TtS	2016	ICS	0.0371	Me16	
15.0	9.618	1.05E+04	6.0E+02	X	TS	2012	ICS	0.0371	Li12	
15	9.618	1.10E+04	1.4E+03	X	S	2020	ICS	0.0387	Li20	
16.0	10.259	9.38E+03	1.1E+03	X	TtS	2016	ICS	0.0371	Me16	
16.0	10.259	9.53E+03	1.2E+03	X	TtS	2016	ICS	0.0371	Me16	
17	10.900	1.03E+04	1.2E+03	X	S	2020	ICS	0.0387	Li20	
17.5	11.198	9.44E+03	1.4E+03	X	T	1969	ICS	0.038	Hi69	*
18.0	11.541	9.00E+03	1.1E+03	X	TtS	2016	ICS	0.0371	Me16	
18.0	11.541	9.22E+03	1.1E+03	X	TtS	2016	ICS	0.0371	Me16	
20.0	12.824	9.40E+03	5.0E+02	X	TS	2012	ICS	0.0371	Li12	
20.0	12.824	8.45E+03	1.0E+03	X	TtS	2016	ICS	0.0371	Me16	
20.0	12.824	8.39E+03	1.1E+03	X	TtS	2016	ICS	0.0371	Me16	
20	12.824	9.40E+03	1.1E+03	X	S	2020	ICS	0.0387	Li20	
22	14.106	8.86E+03	1.1E+03	X	S	2020	ICS	0.0387	Li20	
22.0	14.132	8.34E+03	5.8E+02	X	T	1969	ICS	0.038	Hi69	*
25	16.030	8.21E+03	1.0E+03	X	S	2020	ICS	0.0387	Li20	
26.2	16.770	7.50E+03	5.3E+02	X	T	1969	ICS	0.038	Hi69	*
27	17.312	7.85E+03	1.0E+03	X	S	2020	ICS	0.0387	Li20	
30.0	19.219	6.72E+03	4.7E+02	X	T	1969	ICS	0.038	Hi69	*
100	64.119	1.51E+03	2.3E+02	X	T	1987	ICS	0.0381	We87b	*
10000	6411.900	8.85E+02	1.4E+02	X	T	1988	ICS	0.0357	Mc88	
20000	12823.801	1.26E+03	2.0E+02	X	T	1988	ICS	0.0357	Mc88	
50000	32059.502	2.18E+03	3.0E+02	X	T	1979	ICS	0.036	Ho79	
70000	44883.303	2.38E+03	3.8E+02	X	T	1980	ICS	0.0357	Ka80	
150000	96178.507	2.84E+03	1.1E+03	X	T	1977	ICS	0.038	Is77	*
230000	147473.711	2.55E+03	4.1E+02	X	T	1980	ICS	0.0357	Ka80	

(*) Digitalized from the original paper


K-shell ionization cross section vs electron incident energy
2.00E+04
1.50E+04
1.00E+04
5.00E+03
0.00E+00
σK (barn)
1
10
100
1000
10000
100000
Energy (keV)

Silicon Si

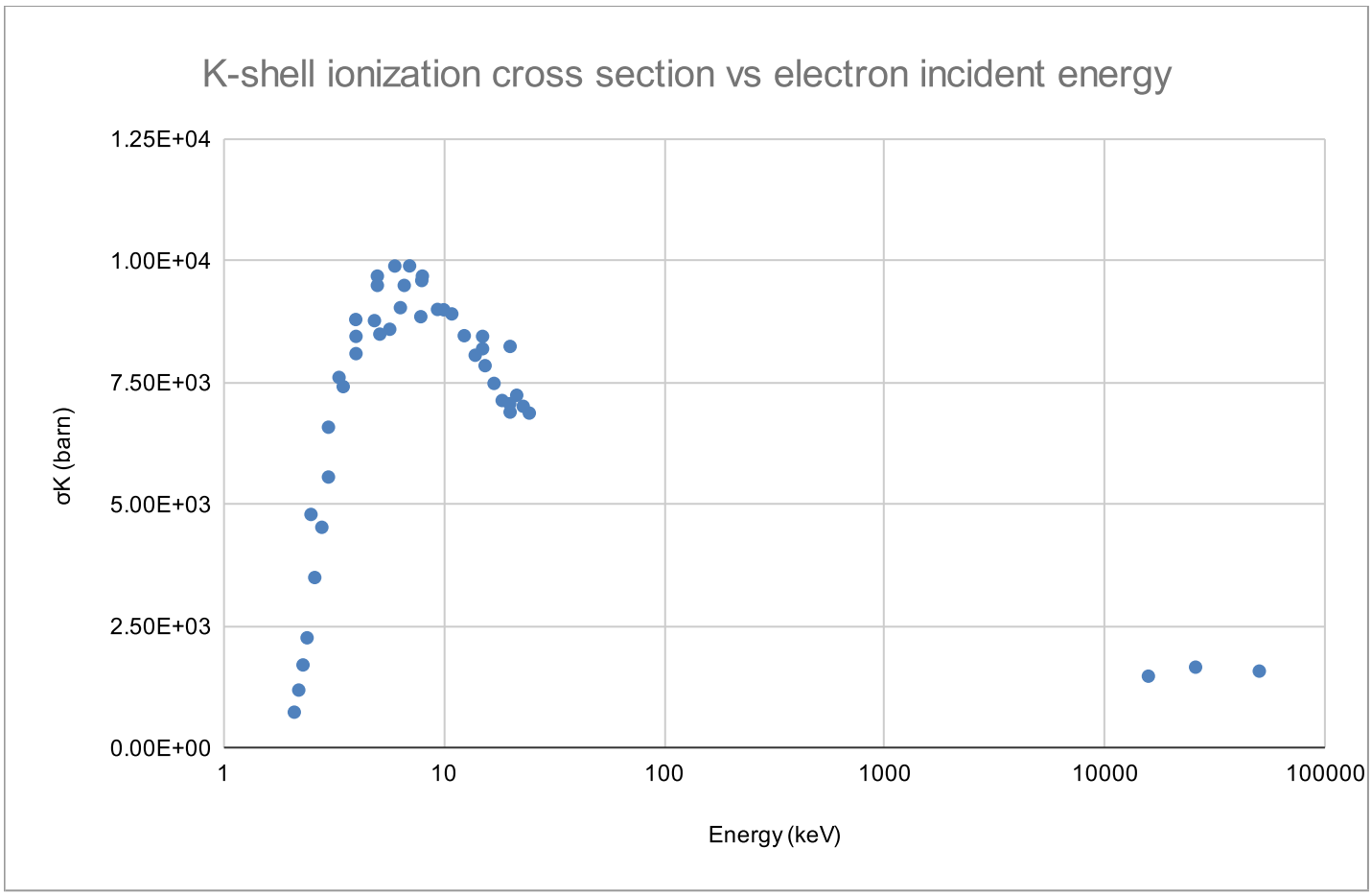
Z = 14

I_K = 1.8389 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2.1	1.142	7.42E+02	1.1E+02	X	S	2015	XRP	0.0485	Pe15	⋈
2.2	1.196	1.20E+03	1.7E+02	X	S	2015	XRP	0.0485	Pe15	⋈
2.3	1.251	1.71E+03	2.5E+02	X	S	2015	XRP	0.0485	Pe15	⋈
2.4	1.305	2.27E+03	3.1E+02	X	S	2015	XRP	0.0485	Pe15	⋈
2.5	1.360	4.80E+03	3.0E+02	X	TS	2012	ICS	0.0485	Li12	
2.6	1.414	3.51E+03	5.4E+02	X	S	2015	XRP	0.0485	Pe15	⋈
2.8	1.523	4.54E+03	6.1E+02	X	S	2015	XRP	0.0485	Pe15	⋈
3.0	1.631	6.59E+03	5.0E+01	X	TS	2012	ICS	0.0485	Li12	
3.0	1.631	5.57E+03	8.3E+02	X	S	2015	XRP	0.0485	Pe15	⋈
3.35	1.822	7.61E+03	1.0E+03	X	T	2009	ICS	0.043	Zh09	
3.5	1.903	7.42E+03	1.1E+03	X	S	2015	XRP	0.0485	Pe15	⋈
3.99	2.170	8.80E+03	8.8E+02	A	G	1985	ICS	0.043	Pl85	
4.0	2.175	8.10E+03	3.0E+02	X	TS	2012	ICS	0.0485	Li12	
4.0	2.175	8.45E+03	1.2E+03	X	S	2015	XRP	0.0485	Pe15	⋈
4.85	2.637	8.78E+03	1.2E+03	X	T	2009	ICS	0.043	Zh09	
5.0	2.719	9.50E+03	1.0E+03	X	TS	2012	ICS	0.0485	Li12	
5.0	2.719	9.69E+03	1.4E+03	X	S	2015	XRP	0.0485	Pe15	⋈
5.13	2.790	8.50E+03	8.5E+02	A	G	1985	ICS	0.043	Pl85	
5.69	3.094	8.60E+03	8.6E+02	A	G	1985	ICS	0.043	Pl85	
6.0	3.263	9.90E+03	1.3E+03	X	S	2015	XRP	0.0485	Pe15	⋈
6.36	3.459	9.04E+03	1.2E+03	X	T	2009	ICS	0.043	Zh09	
6.62	3.600	9.50E+03	9.5E+02	A	G	1985	ICS	0.043	Pl85	
7.0	3.807	9.90E+03	7.0E+02	X	TS	2012	ICS	0.0485	Li12	
7.87	4.280	8.86E+03	1.2E+03	X	T	2009	ICS	0.043	Zh09	
7.95	4.323	9.60E+03	9.6E+02	A	G	1985	ICS	0.043	Pl85	
8.0	4.350	9.69E+03	1.1E+03	X	S	2015	XRP	0.0485	Pe15	⋈
9.37	5.095	9.01E+03	1.2E+03	X	T	2009	ICS	0.043	Zh09	
10.0	5.438	9.00E+03	1.0E+03	X	TS	2012	ICS	0.0485	Li12	
10.88	5.917	8.92E+03	1.2E+03	X	T	2009	ICS	0.043	Zh09	
12.39	6.738	8.47E+03	1.2E+03	X	T	2009	ICS	0.043	Zh09	
13.89	7.553	8.07E+03	1.1E+03	X	T	2009	ICS	0.043	Zh09	
15.0	8.157	8.20E+03	5.0E+02	X	TS	2012	ICS	0.0485	Li12	
15.0	8.157	8.45E+03	1.0E+03	X	S	2015	XRP	0.0485	Pe15	⋈
15.4	8.375	7.85E+03	1.1E+03	X	T	2009	ICS	0.043	Zh09	
16.91	9.196	7.49E+03	1.0E+03	X	T	2009	ICS	0.043	Zh09	
18.41	10.011	7.14E+03	9.8E+02	X	T	2009	ICS	0.043	Zh09	
19.92	10.833	7.07E+03	9.8E+02	X	T	2009	ICS	0.043	Zh09	
20.0	10.876	6.90E+03	6.0E+02	X	TS	2012	ICS	0.0485	Li12	
20.0	10.876	8.25E+03	9.2E+02	X	S	2015	XRP	0.0485	Pe15	⋈
21.43	11.654	7.25E+03	1.0E+03	X	T	2009	ICS	0.043	Zh09	

22.93	12.469	7.02E+03	9.7E+02	X	T	2009	ICS	0.043	Zh09
24.44	13.291	6.88E+03	9.6E+02	X	T	2009	ICS	0.043	Zh09
15700	8537.713	1.48E+03	3.4E+02	X	T	1994	ICS-XRP	0.047	Sh94
25700	13975.746	1.67E+03	3.8E+02	X	T	1994	ICS-XRP	0.047	Sh94
50000	27190.168	1.59E+03	2.3E+02	X	T	1979	ICS	0.047	Ho79
150000	81570.504	2.25E+03	9.0E+02	X	T	1977	ICS	0.043	Is77

(⋈) ω_K taken from LLNL EADL report (Pe91)

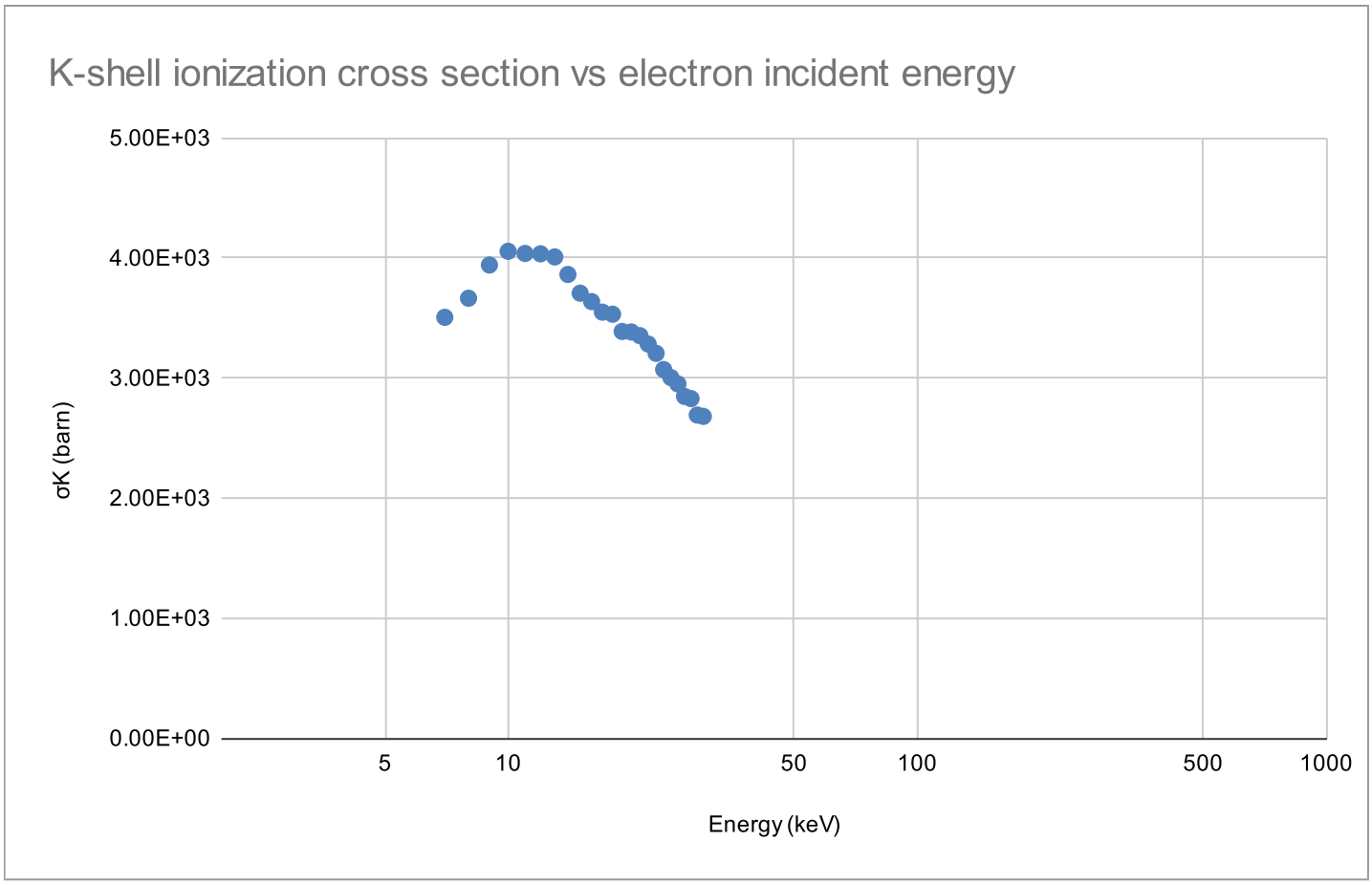


Sulfur S

Z = 16

I_K = 2.4720 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
7	2.832	3.51E+03	4.6E+02	X	TS	2010	ICS	0.0788	Wu10	
8	3.236	3.67E+03	4.8E+02	X	TS	2010	ICS	0.0788	Wu10	
9	3.641	3.94E+03	5.1E+02	X	TS	2010	ICS	0.0788	Wu10	
10	4.045	4.06E+03	5.3E+02	X	TS	2010	ICS	0.0788	Wu10	
11	4.450	4.04E+03	5.2E+02	X	TS	2010	ICS	0.0788	Wu10	
12	4.854	4.04E+03	5.2E+02	X	TS	2010	ICS	0.0788	Wu10	
13	5.259	4.01E+03	5.2E+02	X	TS	2010	ICS	0.0788	Wu10	
14	5.663	3.86E+03	5.0E+02	X	TS	2010	ICS	0.0788	Wu10	
15	6.068	3.71E+03	4.8E+02	X	TS	2010	ICS	0.0788	Wu10	
16	6.472	3.64E+03	4.7E+02	X	TS	2010	ICS	0.0788	Wu10	
17	6.877	3.55E+03	4.6E+02	X	TS	2010	ICS	0.0788	Wu10	
18	7.282	3.53E+03	4.6E+02	X	TS	2010	ICS	0.0788	Wu10	
19	7.686	3.39E+03	4.4E+02	X	TS	2010	ICS	0.0788	Wu10	
20	8.091	3.38E+03	4.4E+02	X	TS	2010	ICS	0.0788	Wu10	
21	8.495	3.35E+03	4.4E+02	X	TS	2010	ICS	0.0788	Wu10	
22	8.900	3.28E+03	4.3E+02	X	TS	2010	ICS	0.0788	Wu10	
23	9.304	3.21E+03	4.2E+02	X	TS	2010	ICS	0.0788	Wu10	
24	9.709	3.07E+03	4.0E+02	X	TS	2010	ICS	0.0788	Wu10	
25	10.113	3.00E+03	3.9E+02	X	TS	2010	ICS	0.0788	Wu10	
26	10.518	2.95E+03	3.8E+02	X	TS	2010	ICS	0.0788	Wu10	
27	10.922	2.85E+03	3.7E+02	X	TS	2010	ICS	0.0788	Wu10	
28	11.327	2.83E+03	3.7E+02	X	TS	2010	ICS	0.0788	Wu10	
29	11.731	2.69E+03	3.5E+02	X	TS	2010	ICS	0.0788	Wu10	
30	12.136	2.68E+03	3.5E+02	X	TS	2010	ICS	0.0788	Wu10	

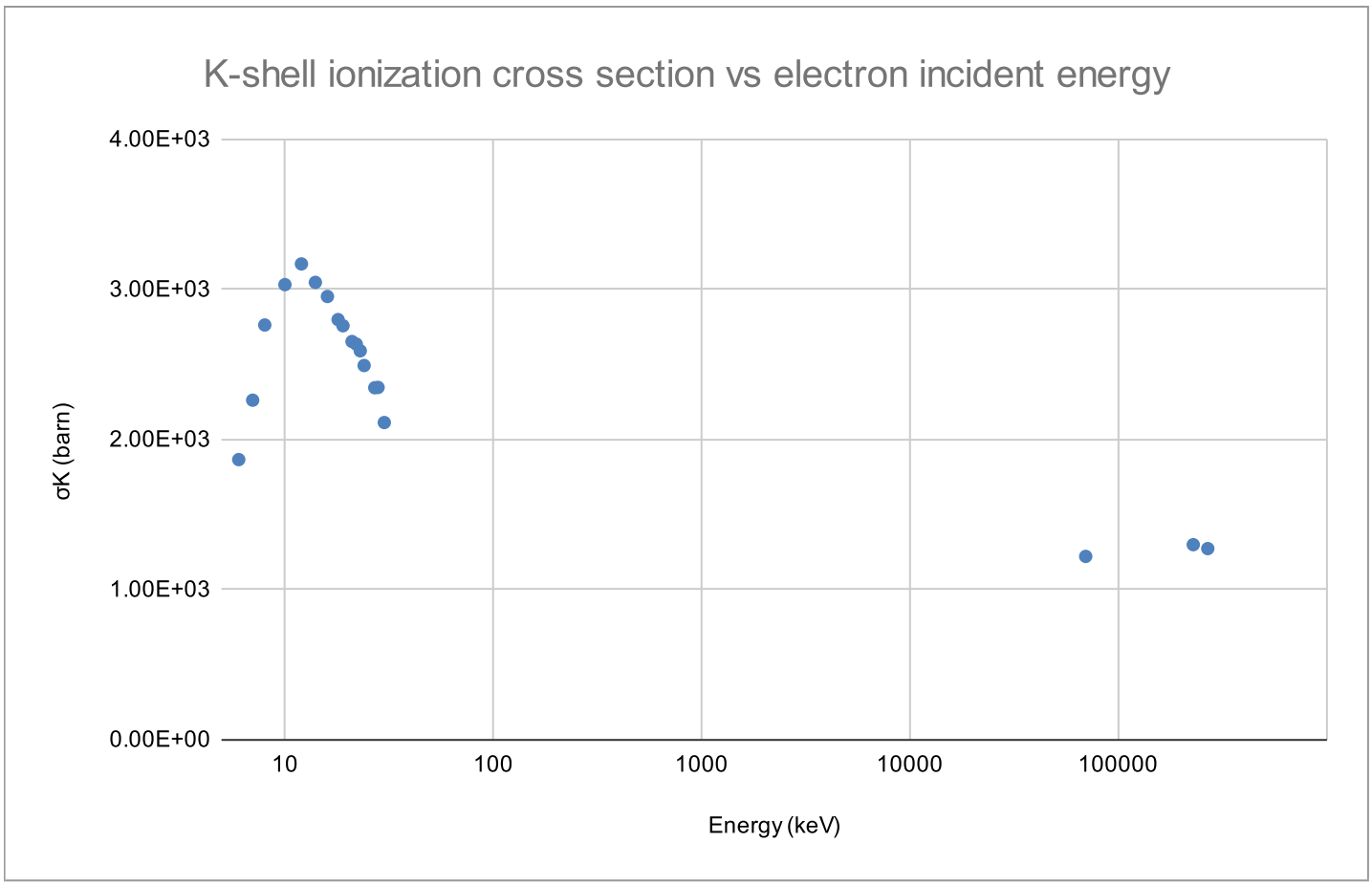

K-shell ionization cross section vs electron incident energy
5.00E+03
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
σK (barn)
5
10
50
100
500
1000
Energy (keV)

Chlorine Cl

Z = 17

I_K = 2.8224 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
6	2.126	1.86E+03	3.0E+02	X	TS	2011	ICS	0.0873	Wu11	
7	2.480	2.26E+03	3.6E+02	X	TS	2011	ICS	0.0873	Wu11	
8	2.834	2.76E+03	4.4E+02	X	TS	2011	ICS	0.0873	Wu11	
10	3.543	3.03E+03	4.8E+02	X	TS	2011	ICS	0.0873	Wu11	
12	4.252	3.17E+03	5.1E+02	X	TS	2011	ICS	0.0873	Wu11	
14	4.960	3.04E+03	4.9E+02	X	TS	2011	ICS	0.0873	Wu11	
16	5.669	2.95E+03	4.7E+02	X	TS	2011	ICS	0.0873	Wu11	
18	6.378	2.80E+03	4.5E+02	X	TS	2011	ICS	0.0873	Wu11	
19	6.732	2.76E+03	4.4E+02	X	TS	2011	ICS	0.0873	Wu11	
21	7.440	2.65E+03	4.2E+02	X	TS	2011	ICS	0.0873	Wu11	
22	7.795	2.63E+03	4.2E+02	X	TS	2011	ICS	0.0873	Wu11	
23	8.149	2.59E+03	4.1E+02	X	TS	2011	ICS	0.0873	Wu11	
24	8.503	2.49E+03	4.0E+02	X	TS	2011	ICS	0.0873	Wu11	
27	9.566	2.34E+03	3.7E+02	X	TS	2011	ICS	0.0873	Wu11	
28	9.921	2.34E+03	3.8E+02	X	TS	2011	ICS	0.0873	Wu11	
30	10.629	2.11E+03	3.4E+02	X	TS	2011	ICS	0.0873	Wu11	
70000	24801.587	1.22E+03	1.9E+02	X	T	1980	ICS	0.0942	Ka80	
230000	81490.930	1.30E+03	2.1E+02	X	T	1980	ICS	0.0942	Ka80	
270000	95663.265	1.27E+03	5.1E+02	X	T	1977	ICS	0.0955	Is77	


K-shell ionization cross section vs electron incident energy
4.00E+03
3.00E+03
2.00E+03
1.00E+03
0.00E+00
σK (barn)
10
100
1000
10000
100000
Energy (keV)

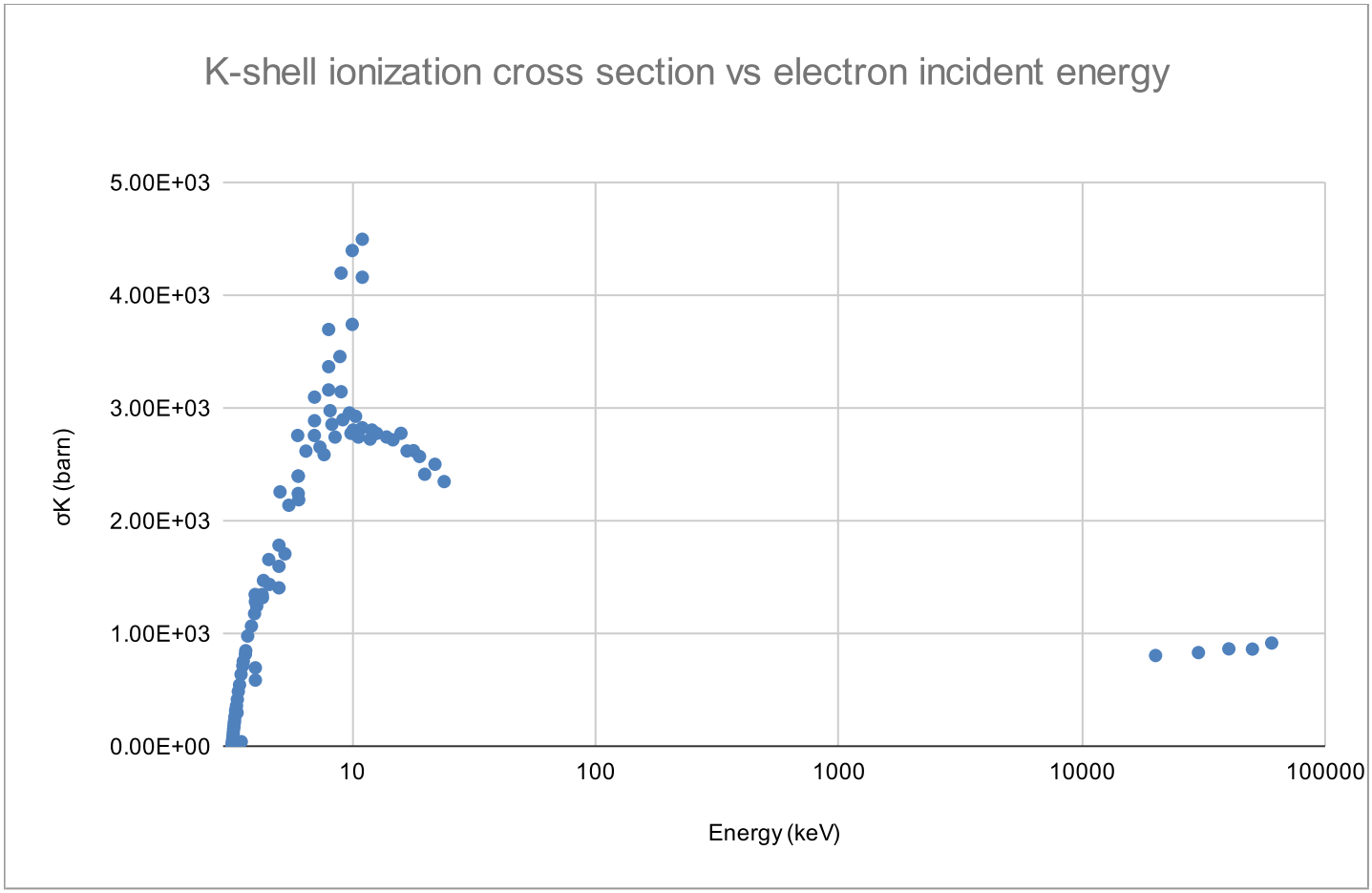
Argon Ar
Z = 18
I_K = 3.2060 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
3.205		5.98E+00	1.5E+00	X	G	1983	ICS		Hi83	*, ⫽
3.210	1.001	1.86E+01	3.1E+00	X	G	1983	ICS		Hi83	*
3.216	1.003	3.14E+01	4.3E+00	X	G	1983	ICS		Hi83	*
3.221	1.005	4.87E+01	3.6E+00	X	G	1983	ICS		Hi83	*
3.226	1.006	6.28E+01	3.7E+00	X	G	1983	ICS		Hi83	*
3.236	1.009	9.48E+01	7.0E+00	X	G	1983	ICS		Hi83	*
3.244	1.012	1.26E+02	9.2E+00	X	G	1983	ICS		Hi83	*
3.255	1.015	1.58E+02	6.9E+00	X	G	1983	ICS		Hi83	*
3.265	1.018	1.79E+02	7.8E+00	X	G	1983	ICS		Hi83	*
3.274	1.021	2.07E+02	1.2E+01	X	G	1983	ICS		Hi83	*
3.284	1.024	2.28E+02	1.3E+01	X	G	1983	ICS		Hi83	*
3.295	1.028	2.67E+02	1.6E+01	X	G	1983	ICS		Hi83	*
3.317	1.035	3.16E+02	1.8E+01	X	G	1983	ICS		Hi83	*
3.331	1.039	3.34E+02	2.0E+01	X	G	1983	ICS		Hi83	*
3.346	1.044	3.64E+02	2.1E+01	X	G	1983	ICS		Hi83	*
3.364	1.049	3.02E+02	6.6E+01	X	G	1982	ICS	0.118	Hi82	*
3.372	1.052	4.20E+02	2.4E+01	X	G	1983	ICS		Hi83	*
3.404	1.062	4.90E+02	2.1E+01	X	G	1983	ICS		Hi83	*
3.444	1.074	5.49E+02	3.2E+01	X	G	1983	ICS		Hi83	*
3.493	1.089	6.42E+02	4.7E+01	X	G	1983	ICS		Hi83	*
3.5	1.092	4.50E+01	9.0E+00	X	G	2007	ICS-XRP	0.11	Ay07	
3.551	1.108	7.19E+02	3.1E+01	X	G	1983	ICS		Hi83	*
3.567	1.113	7.57E+02	1.1E+02	X	G	1982	ICS	0.118	Hi82	*
3.640	1.135	8.20E+02	1.6E+02	A	G	1985	ICS	0.122	Pl85	
3.651	1.139	8.52E+02	5.0E+01	X	G	1983	ICS		Hi83	*
3.719	1.160	9.82E+02	4.3E+01	X	G	1983	ICS		Hi83	*
3.854	1.202	1.07E+03	1.6E+02	X	G	1982	ICS	0.118	Hi82	*
3.969	1.238	1.18E+03	6.9E+01	X	G	1983	ICS		Hi83	*
3.990	1.245	1.35E+03	2.7E+02	A	G	1985	ICS	0.122	Pl85	
4.0	1.248	1.29E+03	2.8E+02	X	G	1973	XRP	0.122	Ta73	
4.0	1.248	5.91E+02	1.2E+02	X	G	2007	ICS-XRP	0.11	Ay07	
4.0	1.248	7.00E+02		X	G	1970	ICS		Do70	◊
4.051	1.263	1.25E+03	1.8E+02	X	G	1982	ICS	0.118	Hi82	*
4.3	1.330	1.35E+03	2.4E+02	X	G	1982	ICS	0.1214	Qu82	*
4.278	1.334	1.32E+03	5.7E+01	X	G	1983	ICS		Hi83	*
4.317	1.346	1.47E+03	2.1E+02	X	G	1982	ICS	0.118	Hi82	*
4.540	1.416	1.66E+03	3.3E+02	A	G	1985	ICS	0.122	Pl85	
4.569	1.425	1.44E+03	8.4E+01	X	G	1983	ICS		Hi83	*
5.0	1.560	1.79E+03	3.9E+02	X	G	1973	XRP	0.122	Ta73	
5.0	1.560	1.41E+03	2.8E+02	X	G	2007	ICS-XRP	0.11	Ay07	

5	1.560	1.60E+03		X	G	1970	ICS		Do70	◊
5.050	1.575	2.26E+03	4.5E+02	A	G	1985	ICS	0.122	Pl85	
5.3	1.650	1.71E+03	2.7E+02	X	G	1982	ICS	0.1214	Qu82	*
5.491	1.713	2.14E+03	2.6E+02	X	G	1982	ICS	0.118	Hi82	*
5.970	1.862	2.76E+03	5.5E+02	A	G	1985	ICS	0.122	Pl85	
6.0	1.871	2.25E+03	4.8E+02	X	G	1973	XRP	0.122	Ta73	
6.0	1.871	2.40E+03	4.8E+02	X	G	2007	ICS-XRP	0.11	Ay07	
6	1.871	2.40E+03		X	G	1970	ICS		Do70	◊
6.0	1.880	2.19E+03	2.8E+02	X	G	1982	ICS	0.1214	Qu82	*
6.454	2.013	2.62E+03	3.9E+02	X	G	1982	ICS	0.118	Hi82	*
6.990	2.180	2.76E+03	5.5E+02	A	G	1985	ICS	0.122	Pl85	
7.0	2.183	2.89E+03	5.8E+02	X	G	2007	ICS-XRP	0.11	Ay07	
7	2.183	3.10E+03		X	G	1970	ICS		Do70	◊
7.367	2.298	2.66E+03	4.2E+02	X	G	1982	ICS	0.118	Hi82	*
7.7	2.390	2.59E+03	4.2E+02	X	G	1982	ICS	0.1214	Qu82	*
8.000	2.495	3.37E+03	6.7E+02	A	G	1985	ICS	0.122	Pl85	
8.0	2.495	3.16E+03	6.3E+02	X	G	2007	ICS-XRP	0.11	Ay07	
8	2.495	3.70E+03		X	G	1970	ICS		Do70	◊
8.1	2.530	2.98E+03	4.3E+02	X	G	1982	ICS	0.1214	Qu82	*
8.252	2.574	2.86E+03	4.1E+02	X	G	1982	ICS	0.118	Hi82	*
8.5	2.651	2.75E+03	5.9E+02	X	G	1973	XRP	0.122	Ta73	
8.900	2.776	3.46E+03	6.9E+02	A	G	1985	ICS	0.122	Pl85	
9.0	2.807	3.15E+03	6.3E+02	X	G	2007	ICS-XRP	0.11	Ay07	
9	2.807	4.20E+03		X	G	1970	ICS		Do70	◊
9.149	2.854	2.90E+03	4.6E+02	X	G	1982	ICS	0.118	Hi82	*
9.740	3.038	2.96E+03	5.9E+02	A	G	1985	ICS	0.122	Pl85	
9.881	3.082	2.78E+03	3.6E+02	X	G	2003	ICS	0.118	Si03	*
10.0	3.119	3.75E+03	7.5E+02	X	G	2007	ICS-XRP	0.11	Ay07	
10	3.119	4.40E+03		X	G	1970	ICS		Do70	◊
10.091	3.147	2.81E+03	4.1E+02	X	G	1982	ICS	0.118	Hi82	*
10.3	3.220	2.93E+03	3.9E+02	X	G	1982	ICS	0.1214	Qu82	*
10.6	3.306	2.75E+03	5.9E+02	X	G	1973	XRP	0.122	Ta73	
10.996	3.430	2.83E+03	4.5E+02	X	G	1982	ICS	0.118	Hi82	*
11.0	3.431	4.16E+03	8.3E+02	X	G	2007	ICS-XRP	0.11	Ay07	
11	3.431	4.50E+03		X	G	1970	ICS		Do70	◊
11.843	3.694	2.73E+03	3.4E+02	X	G	2003	ICS	0.118	Si03	*
12.045	3.757	2.81E+03	4.6E+02	X	G	1982	ICS	0.118	Hi82	*
12.6	3.930	2.78E+03	6.0E+02	X	G	1973	XRP	0.122	Ta73	
13.836	4.316	2.75E+03	3.5E+02	X	G	2003	ICS	0.118	Si03	*
14.7	4.585	2.72E+03	5.9E+02	X	G	1973	XRP	0.122	Ta73	
15.861	4.947	2.78E+03	3.5E+02	X	G	2003	ICS	0.118	Si03	*
16.8	5.240	2.62E+03	5.7E+02	X	G	1973	XRP	0.122	Ta73	
17.855	5.569	2.63E+03	3.3E+02	X	G	2003	ICS	0.118	Si03	*
18.9	5.895	2.57E+03	5.6E+02	X	G	1973	XRP	0.122	Ta73	
19.848	6.191	2.42E+03	3.0E+02	X	G	2003	ICS	0.118	Si03	*
21.873	6.823	2.50E+03	3.1E+02	X	G	2003	ICS	0.118	Si03	*
23.867	7.444	2.35E+03	2.8E+02	X	G	2003	ICS	0.118	Si03	*
20000	6238.303	8.09E+02	9.7E+01	X	T	1979	ICS	0.115	Ho79	
30000	9357.455	8.35E+02	1.0E+02	X	T	1979	ICS	0.115	Ho79	
40000	12476.606	8.68E+02	1.0E+02	X	T	1979	ICS	0.115	Ho79	

50000	15595.758	8.66E+02	1.0E+02	X	T	1979	ICS	0.115	Ho79
60000	18714.910	9.20E+02	1.1E+02	X	T	1979	ICS	0.115	Ho79

(*) Digitalized from the original paper
(◊) Taken from the data tabulated in Ay07
(⫽) Estimated energy below K binding energy

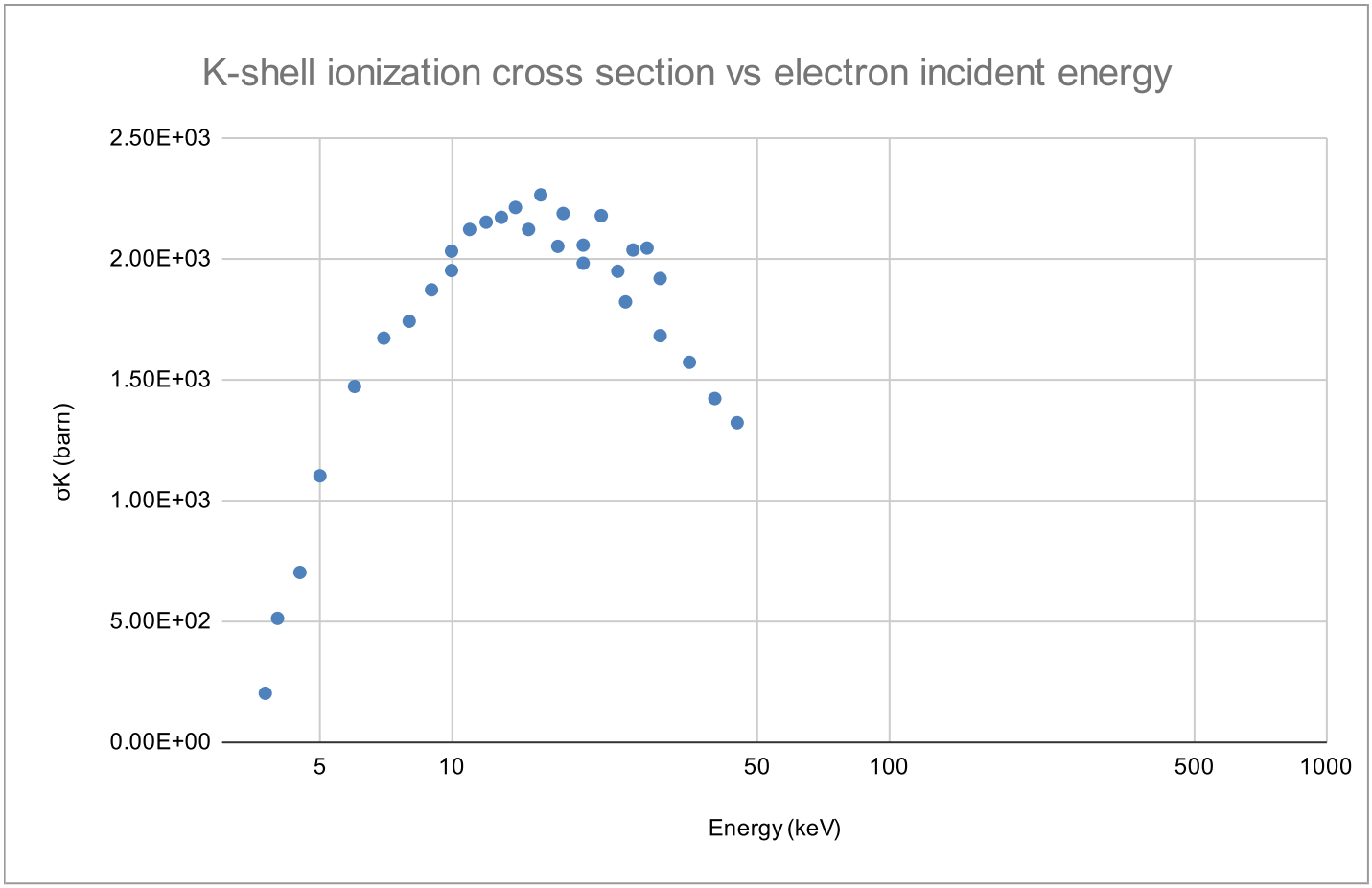


Potassium K

Z = 19

I_K = 3.6074 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
3.75	1.040	2.00E+02	3.0E+01	X	G	1991	ICS	0.14	Sh91	
4.00	1.109	5.10E+02	7.7E+01	X	G	1991	ICS	0.14	Sh91	
4.50	1.247	7.00E+02	1.1E+02	X	G	1991	ICS	0.14	Sh91	
5.00	1.386	1.10E+03	1.7E+02	X	G	1991	ICS	0.14	Sh91	
6.00	1.663	1.47E+03	2.2E+02	X	G	1991	ICS	0.14	Sh91	
7.00	1.940	1.67E+03	2.5E+02	X	G	1991	ICS	0.14	Sh91	
8.00	2.218	1.74E+03	2.6E+02	X	G	1991	ICS	0.14	Sh91	
9.00	2.495	1.87E+03	2.8E+02	X	G	1991	ICS	0.14	Sh91	
10.00	2.772	2.03E+03	3.0E+02	X	G	1991	ICS	0.14	Sh91	
10	2.772	1.95E+03	3.0E+02	X	TS	2012	ICS	0.1402	Wu12	
11.00	3.049	2.12E+03	3.2E+02	X	G	1991	ICS	0.14	Sh91	
12.00	3.326	2.15E+03	3.2E+02	X	G	1991	ICS	0.14	Sh91	
13.00	3.604	2.17E+03	3.3E+02	X	G	1991	ICS	0.14	Sh91	
14	3.881	2.21E+03	3.5E+02	X	TS	2012	ICS	0.1402	Wu12	
15.00	4.158	2.12E+03	3.2E+02	X	G	1991	ICS	0.14	Sh91	
16	4.435	2.26E+03	3.5E+02	X	TS	2012	ICS	0.1402	Wu12	
17.50	4.851	2.05E+03	3.1E+02	X	G	1991	ICS	0.14	Sh91	
18	4.990	2.19E+03	3.6E+02	X	TS	2012	ICS	0.1402	Wu12	
20.00	5.544	1.98E+03	3.0E+02	X	G	1991	ICS	0.14	Sh91	
20	5.544	2.06E+03	3.2E+02	X	TS	2012	ICS	0.1402	Wu12	
22	6.099	2.18E+03	3.5E+02	X	TS	2012	ICS	0.1402	Wu12	
24	6.653	1.95E+03	2.9E+02	X	TS	2012	ICS	0.1402	Wu12	
25.00	6.930	1.82E+03	2.7E+02	X	G	1991	ICS	0.14	Sh91	
26	7.207	2.04E+03	3.3E+02	X	TS	2012	ICS	0.1402	Wu12	
28	7.762	2.04E+03	3.5E+02	X	TS	2012	ICS	0.1402	Wu12	
30.00	8.316	1.68E+03	2.5E+02	X	G	1991	ICS	0.14	Sh91	
30	8.316	1.92E+03	3.3E+02	X	TS	2012	ICS	0.1402	Wu12	
35.00	9.702	1.57E+03	2.4E+02	X	G	1991	ICS	0.14	Sh91	
40.00	11.088	1.42E+03	2.1E+02	X	G	1991	ICS	0.14	Sh91	
45.00	12.474	1.32E+03	2.0E+02	X	G	1991	ICS	0.14	Sh91	

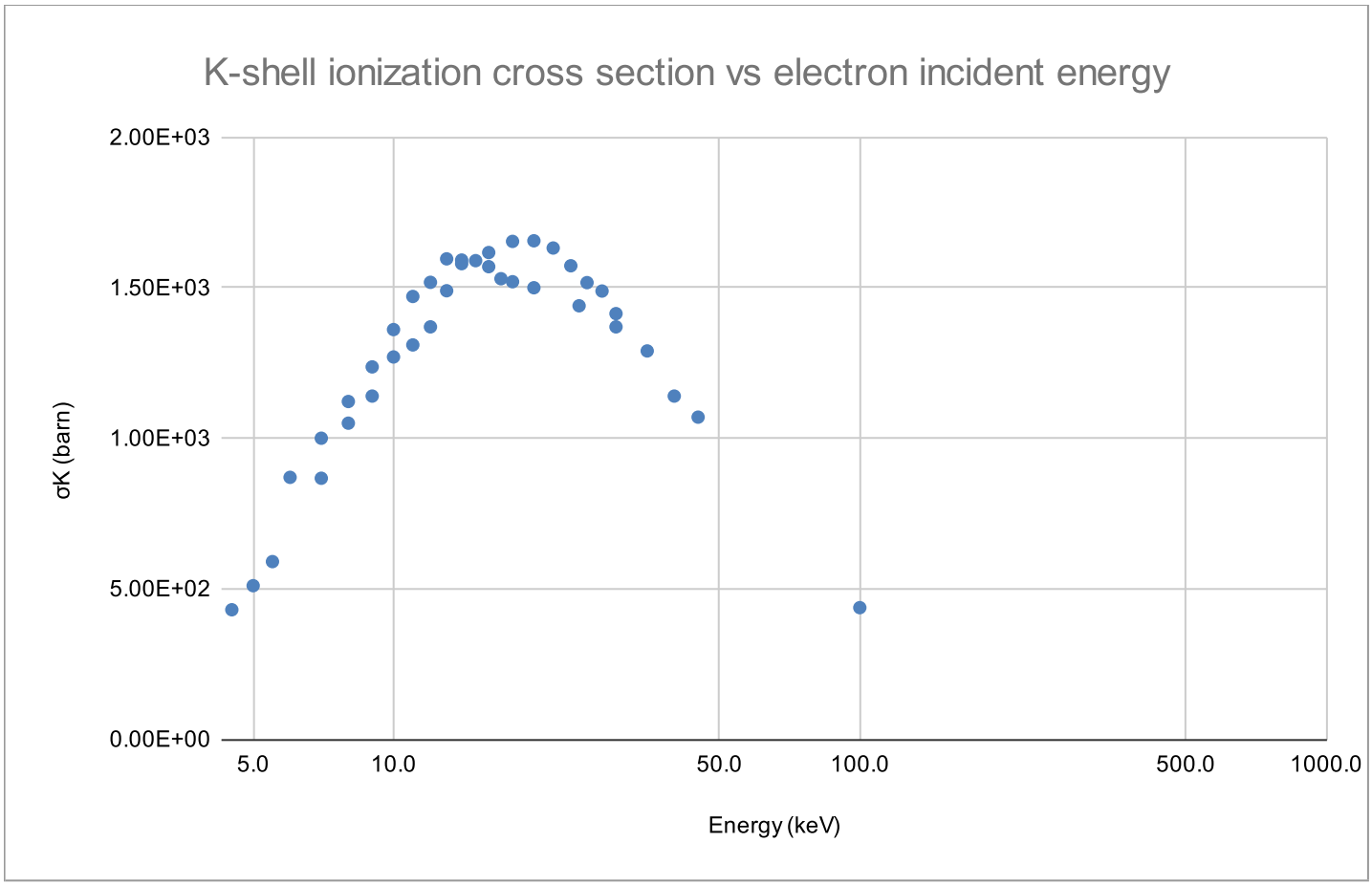

K-shell ionization cross section vs electron incident energy
2.50E+03
2.00E+03
1.50E+03
1.00E+03
5.00E+02
0.00E+00
σK (barn)
5
10
50
100
500
1000
Energy (keV)

Calcium Ca
Z = 20
I_K = 4.0381 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
4.5	1.114	4.30E+02	6.5E+01	X	G	1991	ICS	0.163	Sh91	
5.0	1.238	5.10E+02	7.7E+01	X	G	1991	ICS	0.163	Sh91	
5.5	1.362	5.90E+02	8.9E+01	X	G	1991	ICS	0.163	Sh91	
6.0	1.486	8.70E+02	1.3E+02	X	G	1991	ICS	0.163	Sh91	
7.0	1.733	1.00E+03	1.5E+02	X	G	1991	ICS	0.163	Sh91	
7	1.733	8.67E+02	1.3E+02	X	TS	2010	ICS	0.1744	Wu10	
8.0	1.981	1.05E+03	1.6E+02	X	G	1991	ICS	0.163	Sh91	
8	1.981	1.12E+03	1.7E+02	X	TS	2010	ICS	0.1744	Wu10	
9.0	2.229	1.14E+03	1.7E+02	X	G	1991	ICS	0.163	Sh91	
9	2.229	1.24E+03	1.9E+02	X	TS	2010	ICS	0.1744	Wu10	
10.0	2.476	1.27E+03	1.9E+02	X	G	1991	ICS	0.163	Sh91	
10	2.476	1.36E+03	2.0E+02	X	TS	2010	ICS	0.1744	Wu10	
11.0	2.724	1.31E+03	2.0E+02	X	G	1991	ICS	0.163	Sh91	
11	2.724	1.47E+03	2.2E+02	X	TS	2010	ICS	0.1744	Wu10	
12.0	2.972	1.37E+03	2.1E+02	X	G	1991	ICS	0.163	Sh91	
12	2.972	1.52E+03	2.3E+02	X	TS	2010	ICS	0.1744	Wu10	
13.0	3.219	1.49E+03	2.2E+02	X	G	1991	ICS	0.163	Sh91	
13	3.219	1.60E+03	2.4E+02	X	TS	2010	ICS	0.1744	Wu10	
14.0	3.467	1.58E+03	2.4E+02	X	G	1991	ICS	0.163	Sh91	
14	3.467	1.59E+03	2.4E+02	X	TS	2010	ICS	0.1744	Wu10	
15.0	3.715	1.59E+03	2.4E+02	X	G	1991	ICS	0.163	Sh91	
16.0	3.962	1.57E+03	2.4E+02	X	G	1991	ICS	0.163	Sh91	
16	3.962	1.62E+03	2.4E+02	X	TS	2010	ICS	0.1744	Wu10	
17.0	4.210	1.53E+03	2.3E+02	X	G	1991	ICS	0.163	Sh91	
18.0	4.458	1.52E+03	2.3E+02	X	G	1991	ICS	0.163	Sh91	
18	4.458	1.65E+03	2.5E+02	X	TS	2010	ICS	0.1744	Wu10	
20.0	4.953	1.50E+03	2.3E+02	X	G	1991	ICS	0.163	Sh91	
20	4.953	1.66E+03	2.5E+02	X	TS	2010	ICS	0.1744	Wu10	
22	5.448	1.63E+03	2.4E+02	X	TS	2010	ICS	0.1744	Wu10	
24	5.943	1.57E+03	2.4E+02	X	TS	2010	ICS	0.1744	Wu10	
25.0	6.191	1.44E+03	2.2E+02	X	G	1991	ICS	0.163	Sh91	
26	6.439	1.52E+03	2.3E+02	X	TS	2010	ICS	0.1744	Wu10	
28	6.934	1.49E+03	2.2E+02	X	TS	2010	ICS	0.1744	Wu10	
30.0	7.429	1.37E+03	2.1E+02	X	G	1991	ICS	0.163	Sh91	
30	7.429	1.41E+03	2.1E+02	X	TS	2010	ICS	0.1744	Wu10	
35.0	8.667	1.29E+03	1.9E+02	X	G	1991	ICS	0.163	Sh91	
40.0	9.906	1.14E+03	1.7E+02	X	G	1991	ICS	0.163	Sh91	
45.0	11.144	1.07E+03	1.6E+02	X	G	1991	ICS	0.163	Sh91	
100	24.764	4.37E+02	6.6E+01	X	T	1987	ICS	0.163	We87b	*
20000	4952.824	6.09E+02	7.9E+01	X	T	1979	ICS	0.163	Ho79	

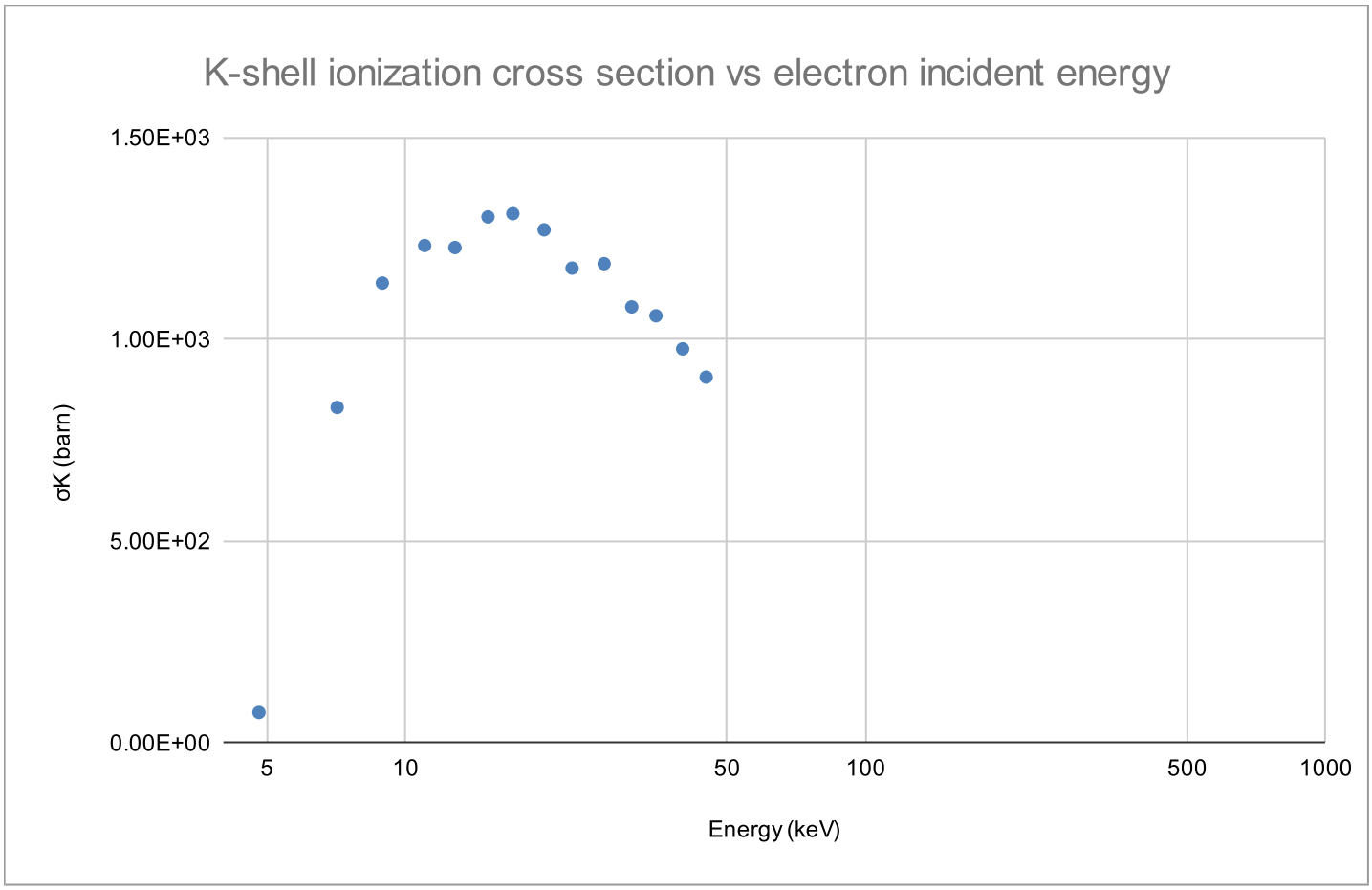
35000	8667.443	6.52E+02	8.5E+01	X	T	1979	ICS	0.163	Ho79
50000	12382.061	6.95E+02	9.0E+01	X	T	1979	ICS	0.163	Ho79
60000	14858.473	7.12E+02	9.3E+01	X	T	1979	ICS	0.163	Ho79
70000	17334.885	8.89E+02	3.6E+02	X	T	1977	ICS	0.163	Is77
150000	37146.183	9.08E+02	3.6E+02	X	T	1977	ICS	0.163	Is77
270000	66863.129	1.05E+03	4.2E+02	X	T	1977	ICS	0.163	Is77

(*) Digitalized from the original paper.



Scandium Sc
Z = 21
I_K = 4.4928 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
4.8	1.0684	7.60E+01	1.4E+01	X	TS	2000	ICS	0.19	An00	
7.1	1.5803	8.32E+02	1.4E+02	X	TS	2000	ICS	0.19	An00	
8.9	1.9809	1.14E+03	2.0E+02	X	TS	2000	ICS	0.19	An00	
11.0	2.4484	1.23E+03	2.2E+02	X	TS	2000	ICS	0.19	An00	
12.8	2.8490	1.23E+03	2.3E+02	X	TS	2000	ICS	0.19	An00	
15.1	3.3609	1.30E+03	2.4E+02	X	TS	2000	ICS	0.19	An00	
17.1	3.8061	1.31E+03	2.5E+02	X	TS	2000	ICS	0.19	An00	
20.0	4.4516	1.27E+03	2.5E+02	X	TS	2000	ICS	0.19	An00	
23.0	5.1193	1.18E+03	2.4E+02	X	TS	2000	ICS	0.19	An00	
27.0	6.0096	1.19E+03	2.4E+02	X	TS	2000	ICS	0.19	An00	
31.0	6.8999	1.08E+03	2.2E+02	X	TS	2000	ICS	0.19	An00	
35.0	7.7902	1.06E+03	2.3E+02	X	TS	2000	ICS	0.19	An00	
40.0	8.9031	9.77E+02	2.2E+02	X	TS	2000	ICS	0.19	An00	
45.0	10.0160	9.07E+02	2.9E+02	X	TS	2000	ICS	0.19	An00	

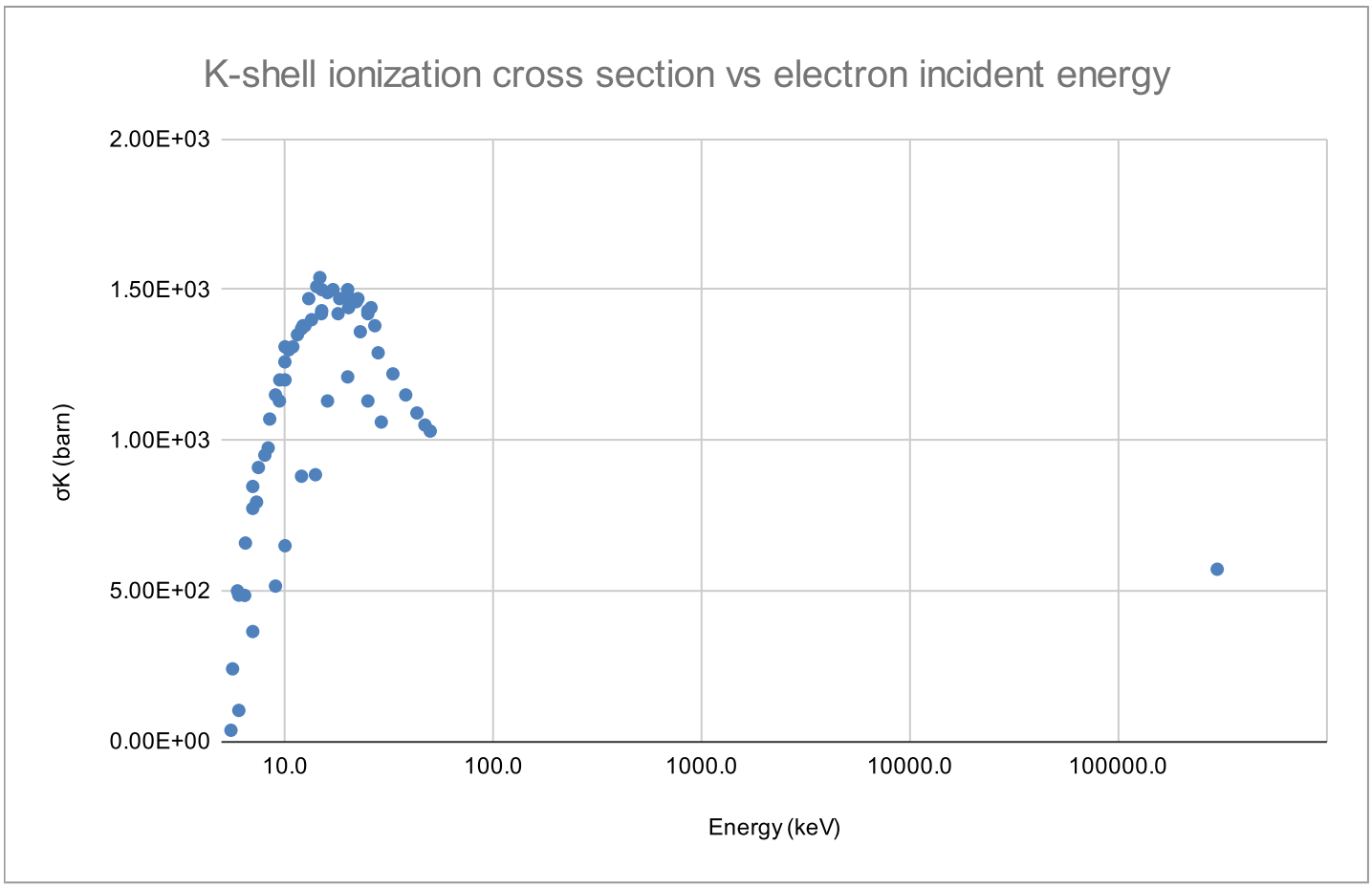


Titanium Ti
Z = 22
I_K = 4.9664 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
5.5	1.107	3.60E+01	5.0E+00	X	TS	1997	ICS		He97	
5.6	1.128	2.40E+02	2.4E+01	X	TS	2003	ICS	0.218	An03	
5.91	1.190	4.99E+02	3.0E+01	X	T	1975	ICS	0.22	Je75	
6	1.208	4.85E+02	5.0E+00	X	TS	2012	ICS	0.214	Li12	
6.0	1.208	1.02E+02	1.3E+01	X	TS	1997	ICS		He97	
6.4	1.289	4.84E+02	4.8E+01	X	TS	2003	ICS	0.218	An03	
6.46	1.300	6.58E+02	4.0E+01	X	T	1975	ICS	0.22	Je75	
7	1.409	7.73E+02	5.0E+00	X	TS	2012	ICS	0.214	Li12	
7.0	1.409	3.64E+02	4.0E+01	X	TS	1997	ICS		He97	
7	1.409	8.46E+02	4.7E+01	X	S	2020	ICS	0.218	Li20	
7.3	1.470	7.94E+02	7.9E+01	X	TS	2003	ICS	0.218	An03	
7.45	1.500	9.09E+02	5.5E+01	X	T	1975	ICS	0.22	Je75	
8	1.611	9.50E+02	2.0E+01	X	TS	2012	ICS	0.214	Li12	
8.3	1.671	9.74E+02	9.7E+01	X	TS	2003	ICS	0.218	An03	
8.44	1.700	1.07E+03	6.4E+01	X	T	1975	ICS	0.22	Je75	
9	1.812	1.15E+03	5.0E+01	X	TS	2012	ICS	0.214	Li12	
9.0	1.812	5.15E+02	5.5E+01	X	TS	1997	ICS		He97	
9.4	1.893	1.13E+03	1.1E+02	X	TS	2003	ICS	0.218	An03	
9.44	1.900	1.20E+03	7.2E+01	X	T	1975	ICS	0.22	Je75	
9.98	2.010	1.26E+03	7.6E+01	X	T	1975	ICS	0.22	Je75	
10	2.014	1.20E+03	2.0E+01	X	TS	2012	ICS	0.214	Li12	
10.0	2.014	6.49E+02	6.9E+01	X	TS	1997	ICS		He97	
10	2.014	1.31E+03	7.1E+01	X	S	2020	ICS	0.218	Li20	
10.43	2.100	1.30E+03	7.8E+01	X	T	1975	ICS	0.22	Je75	
10.9	2.195	1.31E+03	1.3E+02	X	TS	2003	ICS	0.218	An03	
11.47	2.310	1.35E+03	8.1E+01	X	T	1975	ICS	0.22	Je75	
12	2.416	1.37E+03	5.0E+01	X	TS	2012	ICS	0.214	Li12	
12.0	2.416	8.80E+02	9.4E+01	X	TS	1997	ICS		He97	
12.2	2.457	1.38E+03	1.4E+02	X	TS	2003	ICS	0.218	An03	
12.47	2.510	1.38E+03	8.3E+01	X	T	1975	ICS	0.22	Je75	
13	2.618	1.47E+03	8.3E+01	X	S	2020	ICS	0.218	Li20	
13.41	2.700	1.40E+03	8.4E+01	X	T	1975	ICS	0.22	Je75	
14.0	2.819	8.85E+02	9.5E+01	X	TS	1997	ICS		He97	
14.2	2.859	1.51E+03	1.5E+02	X	TS	2003	ICS	0.218	An03	
14.7	2.960	1.54E+03	1.5E+02	X	TS	2003	ICS	0.218	An03	
14.95	3.010	1.42E+03	8.5E+01	X	T	1975	ICS	0.22	Je75	
15	3.020	1.43E+03	4.0E+01	X	TS	2012	ICS	0.214	Li12	
15	3.020	1.50E+03	8.3E+01	X	S	2020	ICS	0.218	Li20	
16.0	3.222	1.13E+03	1.2E+02	X	TS	1997	ICS		He97	
16.0	3.222	1.49E+03	1.5E+02	X	TS	2003	ICS	0.218	An03	

17	3.423	1.50E+03	8.9E+01	X	S	2020	ICS	0.218	Li20	
17.98	3.620	1.42E+03	8.5E+01	X	T	1975	ICS	0.22	Je75	
18.3	3.685	1.47E+03	1.5E+02	X	TS	2003	ICS	0.218	An03	
20	4.027	1.50E+03	9.0E+01	X	TS	2012	ICS	0.214	Li12	
20.0	4.027	1.21E+03	1.3E+02	X	TS	1997	ICS		He97	
20	4.027	1.48E+03	8.3E+01	X	S	2020	ICS	0.218	Li20	
20.2	4.067	1.44E+03	1.4E+02	X	TS	2003	ICS	0.218	An03	
22	4.430	1.46E+03	8.3E+01	X	S	2020	ICS	0.218	Li20	
22.4	4.510	1.47E+03	1.5E+02	X	TS	2003	ICS	0.218	An03	
22.99	4.630	1.36E+03	8.2E+01	X	T	1975	ICS	0.22	Je75	
25	5.034	1.43E+03	5.0E+01	X	TS	2012	ICS	0.214	Li12	
25.0	5.034	1.13E+03	1.2E+02	X	TS	1997	ICS		He97	
25	5.034	1.42E+03	7.7E+01	X	S	2020	ICS	0.218	Li20	
25.9	5.215	1.44E+03	1.4E+02	X	TS	2003	ICS	0.218	An03	
27	5.437	1.38E+03	7.7E+01	X	S	2020	ICS	0.218	Li20	
28.01	5.640	1.29E+03	7.8E+01	X	T	1975	ICS	0.22	Je75	
29.0	5.839	1.06E+03	1.1E+02	X	TS	1997	ICS		He97	
32.98	6.640	1.22E+03	7.3E+01	X	T	1975	ICS	0.22	Je75	
37.99	7.650	1.15E+03	6.9E+01	X	T	1975	ICS	0.22	Je75	
43.01	8.660	1.09E+03	6.5E+01	X	T	1975	ICS	0.22	Je75	
46.98	9.460	1.05E+03	6.3E+01	X	T	1975	ICS	0.22	Je75	
49.81	10.030	1.03E+03	6.2E+01	X	T	1975	ICS	0.22	Je75	
300000	60405.928	5.71E+02	5.2E+01	X	T	1987	ICS		Wa87	*

(*) Digitalized from the original paper.


K-shell ionization cross section vs electron incident energy
2.00E+03
1.50E+03
1.00E+03
5.00E+02
0.00E+00
σK (barn)
10.0
100.0
1000.0
10000.0
100000.0
Energy (keV)

Vanadium V

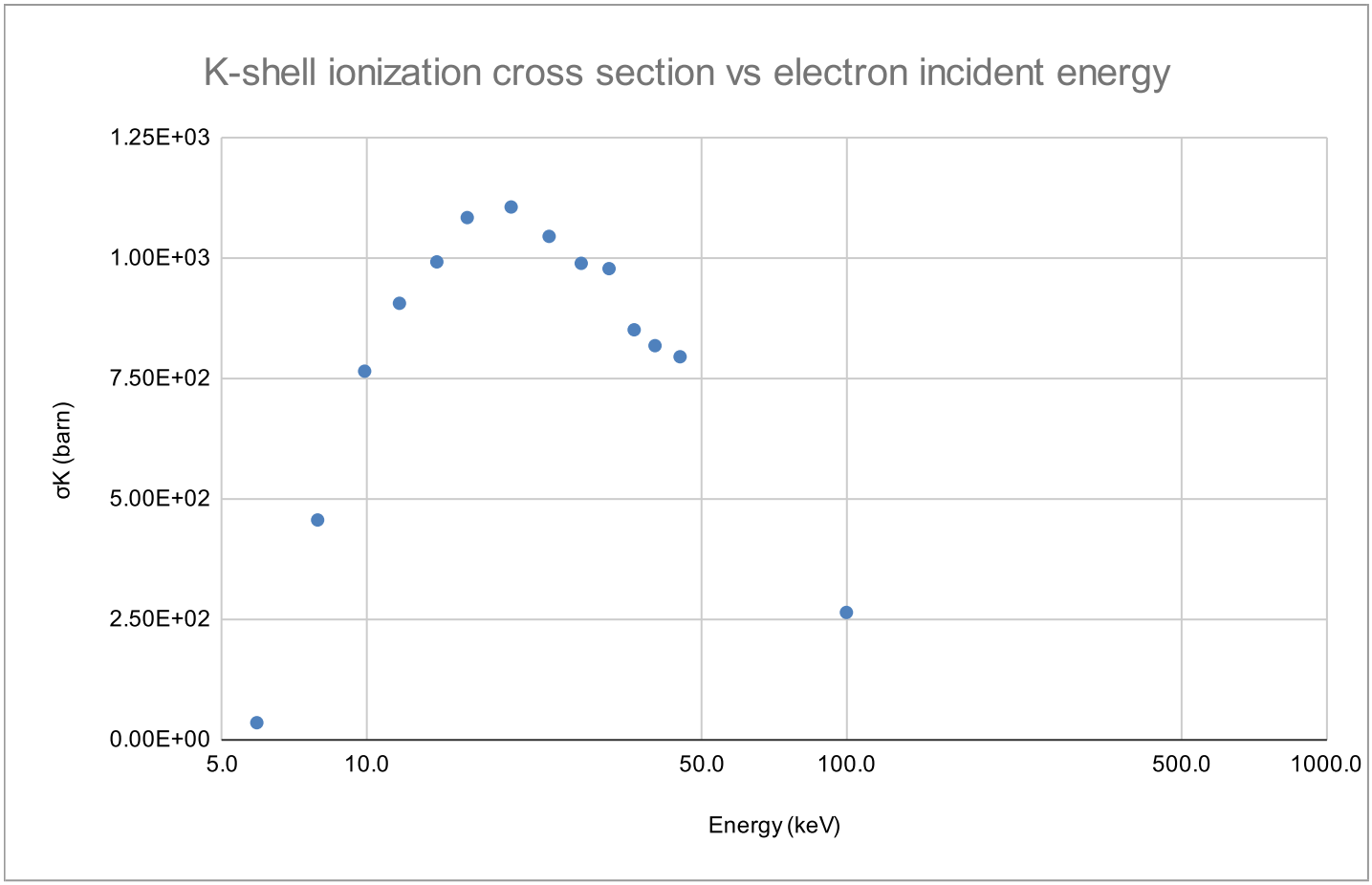
Z = 23

I_K = 5.4651 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
5.9	1.080	3.40E+01	5.0E+00	X	TS	2000	ICS	0.25	An00	
7.9	1.446	4.55E+02	1.0E+02	X	TS	2000	ICS	0.25	An00	
9.9	1.811	7.64E+02	1.3E+02	X	TS	2000	ICS	0.25	An00	
11.7	2.141	9.05E+02	1.4E+02	X	TS	2000	ICS	0.25	An00	
14.0	2.562	9.91E+02	1.6E+02	X	TS	2000	ICS	0.25	An00	
16.2	2.964	1.08E+03	1.7E+02	X	TS	2000	ICS	0.25	An00	
20.0	3.660	1.11E+03	1.7E+02	X	TS	2000	ICS	0.25	An00	
24.0	4.392	1.04E+03	1.6E+02	X	TS	2000	ICS	0.25	An00	
28.0	5.123	9.88E+02	1.6E+02	X	TS	2000	ICS	0.25	An00	
32.0	5.855	9.77E+02	1.5E+02	X	TS	2000	ICS	0.25	An00	
36.1	6.606	8.50E+02	1.5E+02	X	TS	2000	ICS	0.25	An00	
39.9	7.301	8.17E+02	1.5E+02	X	TS	2000	ICS	0.25	An00	
45.0	8.234	7.94E+02	1.6E+02	X	TS	2000	ICS	0.25	An00	
100	18.298	2.63E+02	3.9E+01	X	T	1987	ICS	0.25	We87b	*
2040	373.278	3.47E+02	1.7E+01	X	T	1972	ICS	0.25	Sc72	⁋

(*) Digitalized from the original paper.

(⁋) Taken from table given in Lo90.

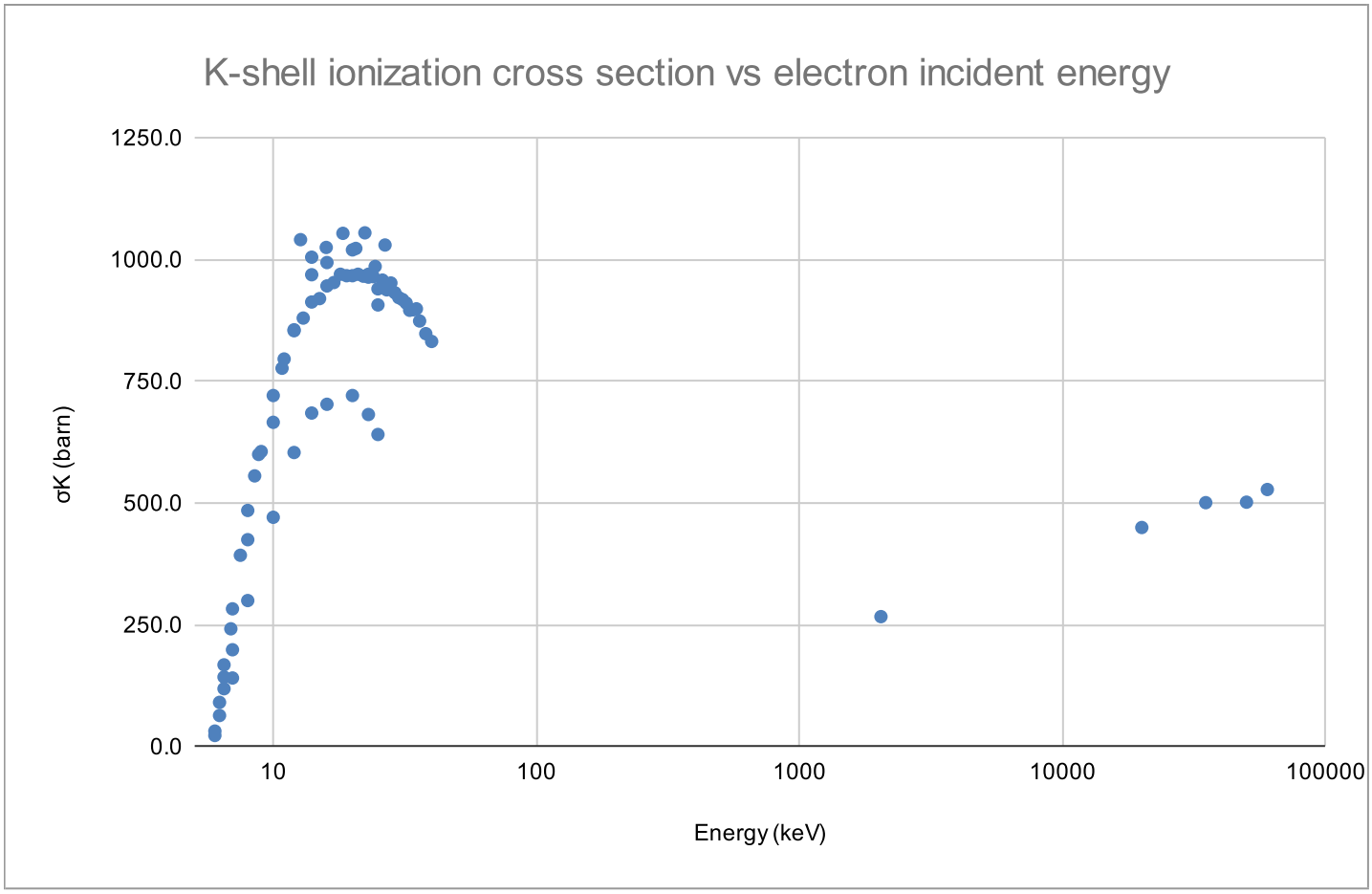

K-shell ionization cross section vs electron incident energy
1.25E+03
1.00E+03
7.50E+02
5.00E+02
2.50E+02
0.00E+00
σK (barn)
5.0
10.0
50.0
100.0
500.0
1000.0
Energy (keV)

Chromium Cr
Z = 24
I_K = 5.9892 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
6.00	1.002	32.0	4.0	X	TS	1996	ICS		Lu96	
6.00	1.002	23.0	3.0	X	TS	1997	ICS		He97	
6.25	1.044	91	11	X	TS	1996	ICS		Lu96	
6.25	1.044	64.0	8.0	X	TS	1997	ICS		He97	
6.50	1.085	168	18	X	TS	1996	ICS		Lu96	
6.50	1.085	119	13	X	TS	1997	ICS		He97	
6.5	1.085	143	14	X	T	2000	ICS	0.286	LI00	
6.9	1.152	242	24	X	TS	2003	ICS	0.286	An03	
7.00	1.169	199	22	X	TS	1996	ICS		Lu96	
7.00	1.169	141	14	X	TS	1997	ICS		He97	
7.0	1.169	283	28	X	T	2000	ICS	0.286	LI00	
7.5	1.252	393	39	X	T	2000	ICS	0.286	LI00	
8.00	1.336	425	49	X	TS	1996	ICS		Lu96	
8.00	1.336	300	29	X	TS	1997	ICS		He97	
8.0	1.336	485	49	X	T	2000	ICS	0.286	LI00	
8.5	1.419	556	56	X	T	2000	ICS	0.286	LI00	
8.8	1.469	600	60	X	TS	2003	ICS	0.286	An03	
9.0	1.503	606	61	X	T	2000	ICS	0.286	LI00	
10.00	1.670	666	80	X	TS	1996	ICS		Lu96	
10.00	1.670	471	43	X	TS	1997	ICS		He97	
10.0	1.670	721	72	X	T	2000	ICS	0.286	LI00	
10.8	1.803	777	78	X	TS	2003	ICS	0.286	An03	
11.0	1.837	796	80	X	T	2000	ICS	0.286	LI00	
12.00	2.004	854	107	X	TS	1996	ICS		Lu96	
12.00	2.004	604	53	X	TS	1997	ICS		He97	
12.0	2.004	856	86	X	T	2000	ICS	0.286	LI00	
12.7	2.120	1041	104	X	TS	2003	ICS	0.286	An03	
13.0	2.171	880	88	X	T	2000	ICS	0.286	LI00	
14.00	2.338	969	125	X	TS	1996	ICS		Lu96	
14.00	2.338	685	58	X	TS	1997	ICS		He97	
14.0	2.338	913	91	X	T	2000	ICS	0.286	LI00	
14.0	2.338	1005	101	X	TS	2003	ICS	0.286	An03	
15.0	2.505	920	92	X	T	2000	ICS	0.286	LI00	
15.9	2.655	1025	103	X	TS	2003	ICS	0.286	An03	
16.00	2.671	994	132	X	TS	1996	ICS		Lu96	
16.00	2.671	703	58	X	TS	1997	ICS		He97	
16.0	2.671	946	95	X	T	2000	ICS	0.286	LI00	
17.0	2.838	953	95	X	T	2000	ICS	0.286	LI00	
18.0	3.005	970	97	X	T	2000	ICS	0.286	LI00	
18.4	3.072	1054	105	X	TS	2003	ICS	0.286	An03	

19.0	3.172	967	97	X	T	2000	ICS	0.286	Ll00	
20.00	3.339	1020	144	X	TS	1996	ICS		Lu96	
20.00	3.339	721	59	X	TS	1997	ICS		He97	
20.0	3.339	967	97	X	T	2000	ICS	0.286	Ll00	
20.6	3.440	1023	102	X	TS	2003	ICS	0.286	An03	
21.0	3.506	970	97	X	T	2000	ICS	0.286	Ll00	
22.0	3.673	966	97	X	T	2000	ICS	0.286	Ll00	
22.3	3.723	1055	106	X	TS	2003	ICS	0.286	An03	
23.00	3.840	964	133	X	TS	1996	ICS		Lu96	
23.00	3.840	682	51	X	TS	1997	ICS		He97	
23.0	3.840	970	97	X	T	2000	ICS	0.286	Ll00	
24.0	4.007	965	97	X	T	2000	ICS	0.286	Ll00	
24.4	4.074	986	99	X	TS	2003	ICS	0.286	An03	
25.00	4.174	907	125	X	TS	1996	ICS		Lu96	
25.00	4.174	641	44	X	TS	1997	ICS		He97	
25.0	4.174	940	94	X	T	2000	ICS	0.286	Ll00	
26.0	4.341	958	96	X	T	2000	ICS	0.286	Ll00	
26.6	4.441	1030	103	X	TS	2003	ICS	0.286	An03	
27.0	4.508	938	94	X	T	2000	ICS	0.286	Ll00	
28.0	4.675	952	95	X	T	2000	ICS	0.286	Ll00	
29.0	4.842	932	93	X	T	2000	ICS	0.286	Ll00	
30.0	5.009	922	92	X	T	2000	ICS	0.286	Ll00	
31.0	5.176	918	92	X	T	2000	ICS	0.286	Ll00	
32.0	5.343	911	91	X	T	2000	ICS	0.286	Ll00	
33.0	5.510	896	90	X	T	2000	ICS	0.286	Ll00	
34.0	5.677	897	90	X	T	2000	ICS	0.286	Ll00	
35.0	5.844	899	90	X	T	2000	ICS	0.286	Ll00	
36.0	6.011	874	87	X	T	2000	ICS	0.286	Ll00	
38.0	6.345	848	85	X	T	2000	ICS	0.286	Ll00	
40.0	6.679	832	83	X	T	2000	ICS	0.286	Ll00	
2040	340.613	267	13	X	T	1972	ICS	0.282	Sc72	⁋
20000	3339.344	450	45	X	T	1979	ICS	0.282	Ho79	
35000	5843.852	501	50	X	T	1979	ICS	0.282	Ho79	
50000	8348.360	502	50	X	T	1979	ICS	0.282	Ho79	
60000	10018.032	528	53	X	T	1979	ICS	0.282	Ho79	

(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
1250.0
1000.0
750.0
500.0
250.0
0.0
σK (barn)
10
100
1000
10000
100000
Energy (keV)

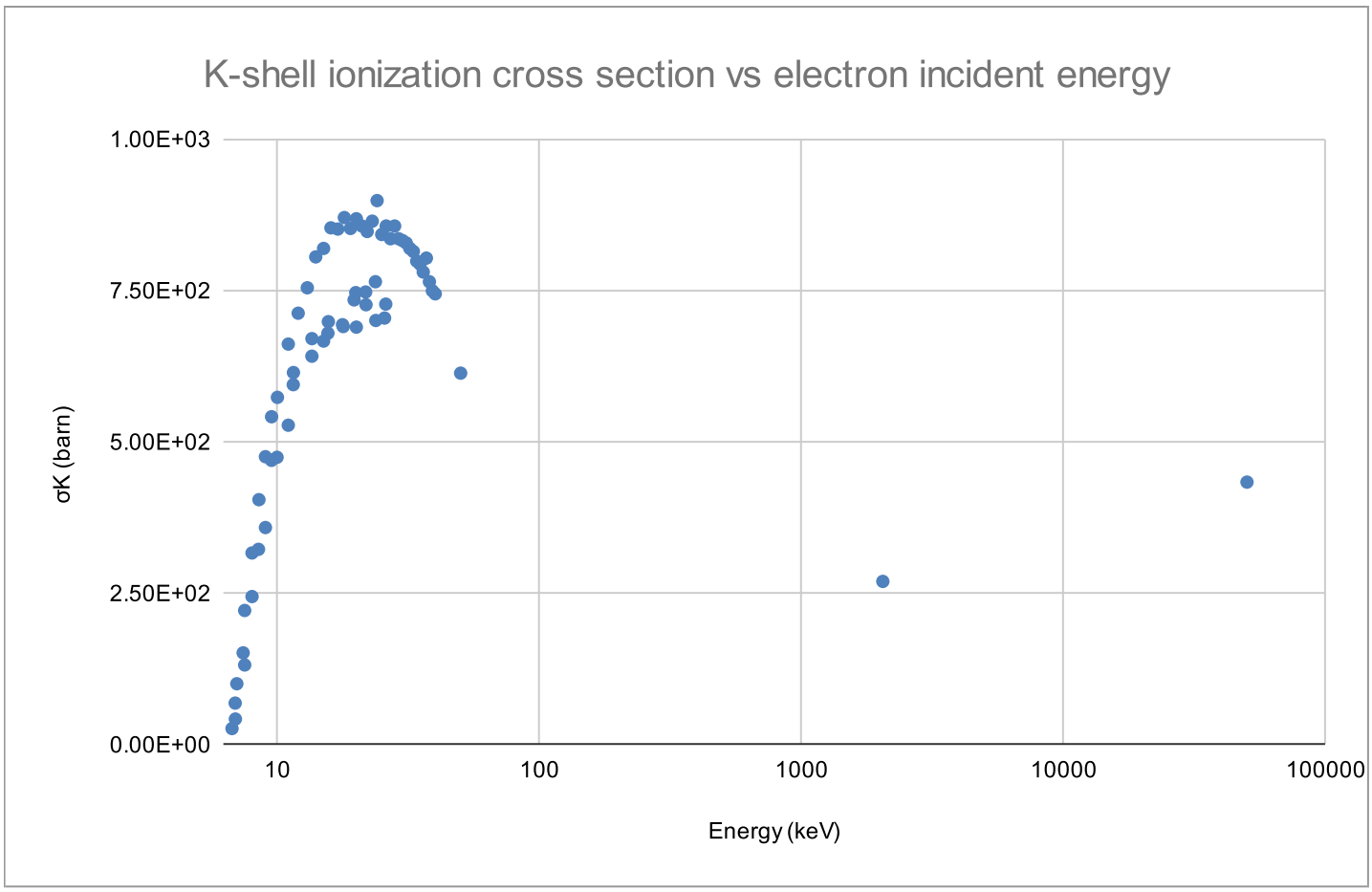
Manganese Mn
Z = 25
I_K = 6.5390 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
6.71	1.026	2.70E+01	6.0E+00	X	T	1980	ICS	0.308	Sh80	
6.90	1.055	6.90E+01	1.3E+01	X	T	1980	ICS	0.308	Sh80	
6.912	1.057	4.27E+01	6.1E+00	X	TS	1999	ICS	0.314	Ta99b	
7.0	1.071	1.01E+02	1.0E+01	X	T	2002	ICS	0.319	LI02	
7.40	1.132	1.52E+02	3.0E+01	X	T	1980	ICS	0.308	Sh80	
7.50	1.147	1.32E+02	1.8E+01	X	TS	1997	ICS	0.314	Lu97	
7.5	1.147	2.22E+02	2.2E+01	X	T	2002	ICS	0.319	LI02	
8.00	1.223	2.45E+02	3.1E+01	X	T	1980	ICS	0.308	Sh80	
8.0	1.223	3.17E+02	3.2E+01	X	T	2002	ICS	0.319	LI02	
8.468	1.295	3.23E+02	4.4E+01	X	TS	1999	ICS	0.314	Ta99b	
8.5	1.300	4.05E+02	4.1E+01	X	T	2002	ICS	0.319	LI02	
9.00	1.376	3.59E+02	3.9E+01	X	T	1980	ICS	0.308	Sh80	
9.0	1.376	4.76E+02	4.8E+01	X	T	2002	ICS	0.319	LI02	
9.49	1.451	4.70E+02	6.6E+01	X	TS	1997	ICS	0.314	Lu97	
9.5	1.453	5.42E+02	5.4E+01	X	T	2002	ICS	0.319	LI02	
9.965	1.524	4.75E+02	6.6E+01	X	TS	1999	ICS	0.314	Ta99b	
10.0	1.529	5.74E+02	5.7E+01	X	T	2002	ICS	0.319	LI02	
11.00	1.682	5.28E+02	5.5E+01	X	T	1980	ICS	0.308	Sh80	
11.0	1.682	6.62E+02	6.6E+01	X	T	2002	ICS	0.319	LI02	
11.492	1.757	5.95E+02	8.6E+01	X	TS	1999	ICS	0.314	Ta99b	
11.51	1.760	6.15E+02	8.9E+01	X	TS	1997	ICS	0.314	Lu97	
12.0	1.835	7.13E+02	7.1E+01	X	T	2002	ICS	0.319	LI02	
13.0	1.988	7.55E+02	7.6E+01	X	T	2002	ICS	0.319	LI02	
13.536	2.070	6.42E+02	9.6E+01	X	TS	1999	ICS	0.314	Ta99b	
13.54	2.071	6.71E+02	1.0E+02	X	TS	1997	ICS	0.314	Lu97	
14.0	2.141	8.06E+02	8.1E+01	X	T	2002	ICS	0.319	LI02	
15.00	2.294	6.67E+02	7.0E+01	X	T	1980	ICS	0.308	Sh80	
15.0	2.294	8.20E+02	8.2E+01	X	T	2002	ICS	0.319	LI02	
15.581	2.383	6.80E+02	1.0E+02	X	TS	1999	ICS	0.314	Ta99b	
15.64	2.392	6.99E+02	1.1E+02	X	TS	1997	ICS	0.314	Lu97	
16.0	2.447	8.54E+02	8.5E+01	X	T	2002	ICS	0.319	LI02	
17.0	2.600	8.52E+02	8.5E+01	X	T	2002	ICS	0.319	LI02	
17.712	2.709	6.94E+02	1.1E+02	X	TS	1999	ICS	0.314	Ta99b	
17.82	2.725	6.91E+02	1.1E+02	X	TS	1997	ICS	0.314	Lu97	
18.0	2.753	8.71E+02	8.7E+01	X	T	2002	ICS	0.319	LI02	
19.0	2.906	8.53E+02	8.5E+01	X	T	2002	ICS	0.319	LI02	
19.613	2.999	7.35E+02	1.2E+02	X	TS	1999	ICS	0.314	Ta99b	
19.90	3.043	7.47E+02	1.2E+02	X	TS	1997	ICS	0.314	Lu97	
20.00	3.059	6.90E+02	7.1E+01	X	T	1980	ICS	0.308	Sh80	
20.0	3.059	8.69E+02	8.7E+01	X	T	2002	ICS	0.319	LI02	

21.0	3.212	8.57E+02	8.6E+01	X	T	2002	ICS	0.319	Ll02	
21.71	3.320	7.48E+02	1.2E+02	X	TS	1997	ICS	0.314	Lu97	
21.773	3.330	7.27E+02	1.2E+02	X	TS	1999	ICS	0.314	Ta99b	
22.0	3.364	8.48E+02	8.5E+01	X	T	2002	ICS	0.319	Ll02	
23.0	3.517	8.65E+02	8.7E+01	X	T	2002	ICS	0.319	Ll02	
23.65	3.617	7.65E+02	1.3E+02	X	TS	1997	ICS	0.314	Lu97	
23.732	3.629	7.01E+02	1.2E+02	X	TS	1999	ICS	0.314	Ta99b	
24.0	3.670	8.99E+02	9.0E+01	X	T	2002	ICS	0.319	Ll02	
25.0	3.823	8.43E+02	8.4E+01	X	T	2002	ICS	0.319	Ll02	
25.632	3.920	7.05E+02	1.2E+02	X	TS	1999	ICS	0.314	Ta99b	
25.90	3.961	7.28E+02	1.3E+02	X	TS	1997	ICS	0.314	Lu97	
26.0	3.976	8.57E+02	8.6E+01	X	T	2002	ICS	0.319	Ll02	
27.0	4.129	8.36E+02	8.4E+01	X	T	2002	ICS	0.319	Ll02	
28.0	4.282	8.57E+02	8.6E+01	X	T	2002	ICS	0.319	Ll02	
29.0	4.435	8.36E+02	8.4E+01	X	T	2002	ICS	0.319	Ll02	
30.0	4.588	8.33E+02	8.3E+01	X	T	2002	ICS	0.319	Ll02	
31.0	4.741	8.29E+02	8.3E+01	X	T	2002	ICS	0.319	Ll02	
32.0	4.894	8.20E+02	8.2E+01	X	T	2002	ICS	0.319	Ll02	
33.0	5.047	8.15E+02	8.2E+01	X	T	2002	ICS	0.319	Ll02	
34.0	5.200	7.99E+02	8.0E+01	X	T	2002	ICS	0.319	Ll02	
35.0	5.353	7.94E+02	7.9E+01	X	T	2002	ICS	0.319	Ll02	
36.0	5.505	7.81E+02	7.8E+01	X	T	2002	ICS	0.319	Ll02	
37.0	5.658	8.04E+02	8.0E+01	X	T	2002	ICS	0.319	Ll02	
38.0	5.811	7.65E+02	7.7E+01	X	T	2002	ICS	0.319	Ll02	
39.0	5.964	7.50E+02	7.5E+01	X	T	2002	ICS	0.319	Ll02	
40.0	6.117	7.45E+02	7.5E+01	X	T	2002	ICS	0.319	Ll02	
50	7.646	6.14E+02	1.4E+02	X	T	1967	ICS	0.291	Fi67	
2040	311.974	2.70E+02	3.2E+01	X	T	1972	ICS	0.314	Sc72	⁋
50000	7646.429	4.34E+02	3.9E+01	X	T	1979	ICS	0.314	Ho79	
300000	45878.575	5.22E+02	4.9E+01	X	T	1987	ICS	0.313	Wa87	*
350000	53525.004	4.49E+02	4.7E+01	X	T	1987	ICS	0.313	Wa87	*

(*) Digitalized from the original paper.

(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
1.00E+03
7.50E+02
5.00E+02
2.50E+02
0.00E+00
σK (barn)
10
100
1000
10000
100000
Energy (keV)

Iron Fe

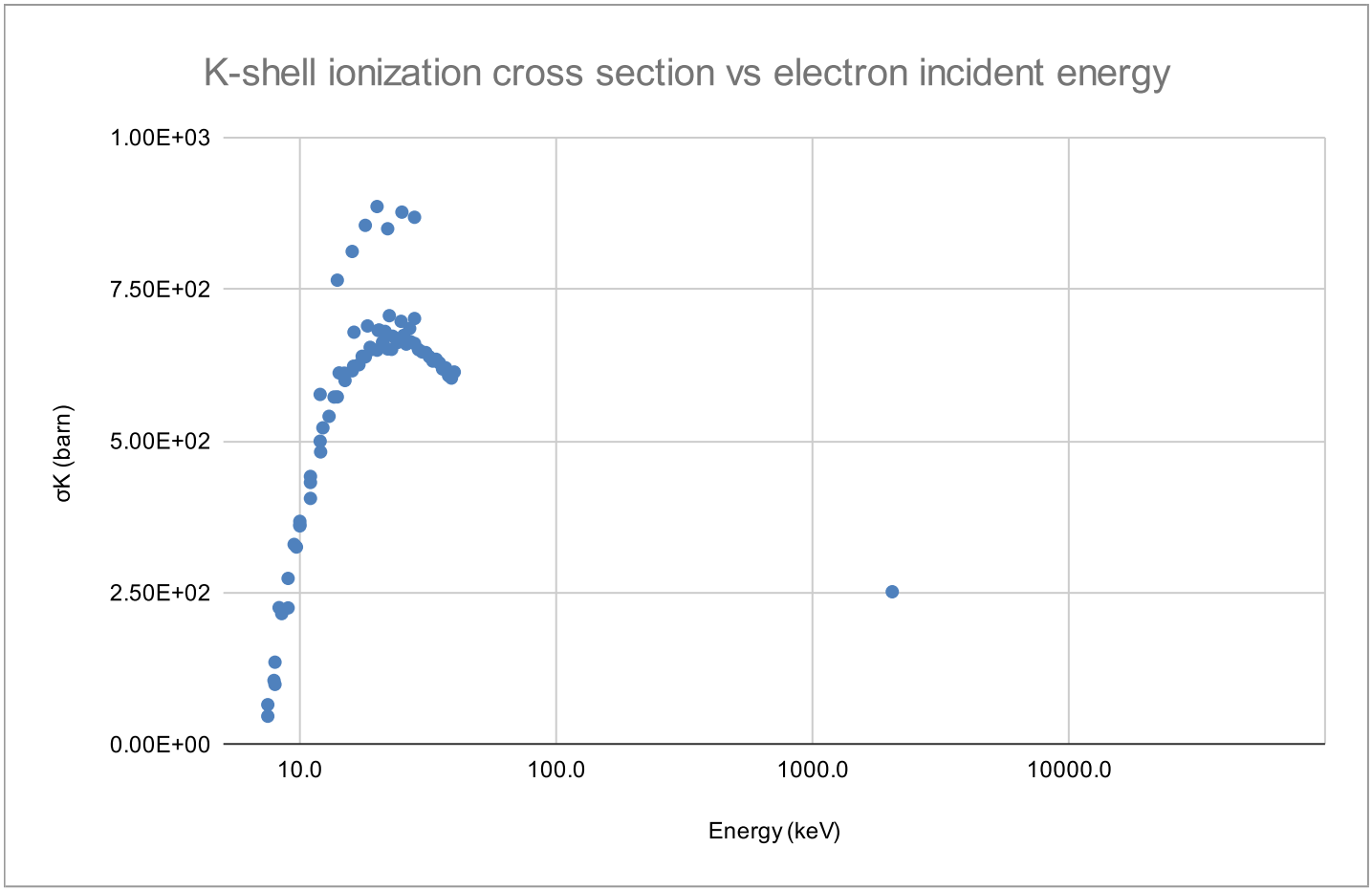
Z = 26

I_K = 7.1120 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
7.5	1.055	6.60E+01	7.7E+00	X	TS	1996	ICS	0.374	He96a	
7.5	1.055	4.70E+01	4.7E+00	X	T	2002	ICS	0.351	LI02	
7.93	1.115	1.06E+02	1.2E+01	X	TS	1997	ICS	0.374	Lu97	
8.0	1.125	9.94E+01	9.8E+00	X	TS	1996	ICS	0.374	He96a	
8.0	1.125	1.36E+02	1.4E+01	X	T	2002	ICS	0.351	LI02	
8.3	1.167	2.26E+02	2.9E+01	X	T	2020	ICS	0.336	Ti20	
8.5	1.195	2.16E+02	2.2E+01	X	T	2002	ICS	0.351	LI02	
9.0	1.265	2.25E+02	1.7E+01	X	TS	1996	ICS	0.374	He96a	
9.0	1.265	2.74E+02	2.7E+01	X	T	2002	ICS	0.351	LI02	
9.5	1.336	3.30E+02	3.3E+01	X	T	2002	ICS	0.351	LI02	
9.7	1.364	3.26E+02	4.2E+01	X	T	2020	ICS	0.336	Ti20	
10.00	1.406	3.63E+02	4.2E+01	X	TS	1997	ICS	0.374	Lu97	
10.0	1.406	3.61E+02	2.4E+01	X	TS	1996	ICS	0.374	He96a	
10.0	1.406	3.68E+02	3.7E+01	X	T	2002	ICS	0.351	LI02	
11.0	1.547	4.06E+02	2.6E+01	X	TS	1996	ICS	0.374	He96a	
11.0	1.547	4.42E+02	4.4E+01	X	T	2002	ICS	0.351	LI02	
11.0	1.547	4.32E+02	5.6E+01	X	T	2020	ICS	0.336	Ti20	
12.0	1.687	5.77E+02	3.8E+01	X	TS	1996	ICS	0.374	He96a	
12.0	1.687	5.00E+02	5.0E+01	X	T	2002	ICS	0.351	LI02	
12.05	1.694	4.82E+02	5.9E+01	X	TS	1997	ICS	0.374	Lu97	
12.3	1.729	5.22E+02	6.8E+01	X	T	2020	ICS	0.336	Ti20	
13.0	1.828	5.41E+02	5.4E+01	X	T	2002	ICS	0.351	LI02	
13.6	1.912	5.73E+02	7.4E+01	X	T	2020	ICS	0.336	Ti20	
14.0	1.969	7.65E+02	5.0E+01	X	TS	1996	ICS	0.374	He96a	
14.0	1.969	5.73E+02	5.7E+01	X	T	2002	ICS	0.351	LI02	
14.23	2.001	6.13E+02	7.8E+01	X	TS	1997	ICS	0.374	Lu97	
14.9	2.095	6.12E+02	8.0E+01	X	T	2020	ICS	0.336	Ti20	
15.0	2.109	6.00E+02	6.0E+01	X	T	2002	ICS	0.351	LI02	
16.0	2.250	8.13E+02	5.2E+01	X	TS	1996	ICS	0.374	He96a	
16.0	2.250	6.16E+02	6.2E+01	X	T	2002	ICS	0.351	LI02	
16.2	2.278	6.24E+02	8.1E+01	X	T	2020	ICS	0.336	Ti20	
16.26	2.286	6.80E+02	8.8E+01	X	TS	1997	ICS	0.374	Lu97	
17.0	2.390	6.26E+02	6.3E+01	X	T	2002	ICS	0.351	LI02	
17.5	2.461	6.40E+02	8.3E+01	X	T	2020	ICS	0.336	Ti20	
18.0	2.531	8.56E+02	5.5E+01	X	TS	1996	ICS	0.374	He96a	
18.0	2.531	6.39E+02	6.4E+01	X	T	2002	ICS	0.351	LI02	
18.36	2.582	6.90E+02	9.1E+01	X	TS	1997	ICS	0.374	Lu97	
18.8	2.643	6.55E+02	8.5E+01	X	T	2020	ICS	0.336	Ti20	
19.0	2.672	6.51E+02	6.5E+01	X	T	2002	ICS	0.351	LI02	
20.0	2.812	8.87E+02	5.5E+01	X	TS	1996	ICS	0.374	He96a	

20.0	2.812	6.50E+02	6.5E+01	X	T	2002	ICS	0.351	LI02	
20.2	2.840	6.82E+02	8.9E+01	X	T	2020	ICS	0.336	Ti20	
20.38	2.866	6.83E+02	9.3E+01	X	TS	1997	ICS	0.374	Lu97	
21.0	2.953	6.63E+02	6.6E+01	X	T	2002	ICS	0.351	LI02	
21.5	3.023	6.81E+02	8.9E+01	X	T	2020	ICS	0.336	Ti20	
22.0	3.093	8.50E+02	5.9E+01	X	TS	1996	ICS	0.374	He96a	
22.0	3.093	6.52E+02	6.5E+01	X	T	2002	ICS	0.351	LI02	
22.33	3.140	7.07E+02	1.0E+02	X	TS	1997	ICS	0.374	Lu97	
22.8	3.206	6.51E+02	8.5E+01	X	T	2020	ICS	0.336	Ti20	
23.0	3.234	6.73E+02	6.7E+01	X	T	2002	ICS	0.351	LI02	
24.0	3.375	6.67E+02	6.7E+01	X	T	2002	ICS	0.351	LI02	
24.1	3.389	6.63E+02	8.6E+01	X	T	2020	ICS	0.336	Ti20	
24.82	3.490	6.98E+02	9.8E+01	X	TS	1997	ICS	0.374	Lu97	
25.0	3.515	8.77E+02	5.7E+01	X	TS	1996	ICS	0.374	He96a	
25.0	3.515	6.65E+02	6.7E+01	X	T	2002	ICS	0.351	LI02	
25.4	3.571	6.74E+02	8.8E+01	X	T	2020	ICS	0.336	Ti20	
26.0	3.656	6.60E+02	6.6E+01	X	T	2002	ICS	0.351	LI02	
26.8	3.768	6.86E+02	8.9E+01	X	T	2020	ICS	0.336	Ti20	
27.0	3.796	6.64E+02	6.6E+01	X	T	2002	ICS	0.351	LI02	
28.0	3.937	8.69E+02	5.8E+01	X	TS	1996	ICS	0.374	He96a	
28.0	3.937	6.61E+02	6.6E+01	X	T	2002	ICS	0.351	LI02	
28.0	3.937	7.02E+02	9.1E+01	X	T	2020	ICS	0.336	Ti20	
29.0	4.078	6.51E+02	6.5E+01	X	T	2002	ICS	0.351	LI02	
30.0	4.218	6.47E+02	6.5E+01	X	T	2002	ICS	0.351	LI02	
31.0	4.359	6.46E+02	6.5E+01	X	T	2002	ICS	0.351	LI02	
32.0	4.499	6.39E+02	6.4E+01	X	T	2002	ICS	0.351	LI02	
33.0	4.640	6.32E+02	6.3E+01	X	T	2002	ICS	0.351	LI02	
34.0	4.781	6.35E+02	6.4E+01	X	T	2002	ICS	0.351	LI02	
35.0	4.921	6.29E+02	6.3E+01	X	T	2002	ICS	0.351	LI02	
36.0	5.062	6.19E+02	6.2E+01	X	T	2002	ICS	0.351	LI02	
37.0	5.202	6.21E+02	6.2E+01	X	T	2002	ICS	0.351	LI02	
38.0	5.343	6.08E+02	6.1E+01	X	T	2002	ICS	0.351	LI02	
39.0	5.484	6.04E+02	6.0E+01	X	T	2002	ICS	0.351	LI02	
40.0	5.624	6.14E+02	6.1E+01	X	T	2002	ICS	0.351	LI02	
2040	286.839	2.52E+02	1.3E+01	X	T	1972	ICS	0.347	Sc72	⁋

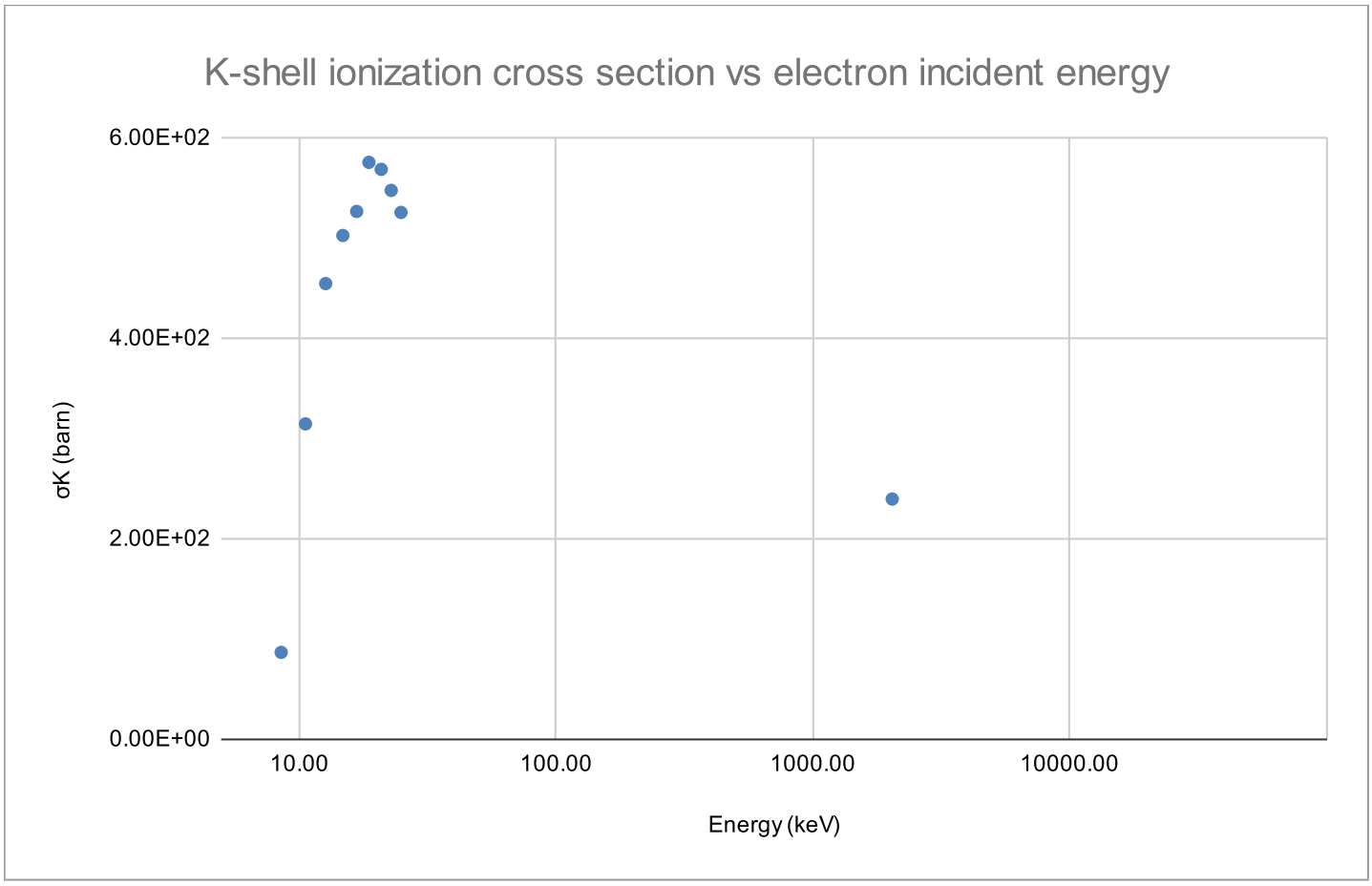
(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
1.00E+03
7.50E+02
5.00E+02
2.50E+02
0.00E+00
σK (barn)
10.0
100.0
1000.0
10000.0
Energy (keV)

Cobalt Co
Z = 27
I_K = 7.7089 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
8.50	1.103	8.60E+01	1.1E+01	X	TS	1996	ICS	0.381	An96	
10.57	1.371	3.14E+02	4.0E+01	X	TS	1996	ICS	0.381	An96	
12.67	1.644	4.54E+02	5.7E+01	X	TS	1996	ICS	0.381	An96	
14.78	1.917	5.02E+02	6.8E+01	X	TS	1996	ICS	0.381	An96	
16.73	2.170	5.26E+02	6.9E+01	X	TS	1996	ICS	0.381	An96	
18.67	2.422	5.75E+02	7.7E+01	X	TS	1996	ICS	0.381	An96	
20.85	2.705	5.68E+02	7.6E+01	X	TS	1996	ICS	0.381	An96	
22.80	2.958	5.47E+02	7.4E+01	X	TS	1996	ICS	0.381	An96	
24.90	3.230	5.25E+02	7.6E+01	X	TS	1996	ICS	0.381	An96	
2040	264.629	2.39E+02	2.0E+01	X	T	1972	ICS	0.381	Sc72	⁋

(⁋) Taken from table given in Lo90.



Nickel Ni

Z = 28

I_K = 8.3328 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
8.916	1.070	1.05E+02	9.1E+00	X	T	1975	ICS	0.419	Je75	
9	1.080	8.00E+01	8.0E+00	X	TS	1996	ICS		Lu96	
9	1.080	5.70E+01	6.0E+00	X	TS	1997	ICS		He97	
9.0	1.080	7.70E+01	7.7E+00	X	T	2000	ICS	0.412	Ll00	
9.3	1.120	1.15E+02	1.2E+01	X	T	2000	ICS	0.412	Ll00	
9.3	1.111	9.78E+01	1.3E+01	X	T	2020	ICS	0.401	Ti20	
9.5	1.140	1.34E+02	1.3E+01	X	T	2000	ICS	0.412	Ll00	
9.7	1.160	1.56E+02	1.6E+01	X	T	2000	ICS	0.412	Ll00	
9.833	1.180	1.93E+02	1.6E+01	X	T	1975	ICS	0.419	Je75	§
10	1.200	1.05E+02	1.2E+01	X	TS	1996	ICS		Lu96	
10	1.200	7.40E+01	8.0E+00	X	TS	1997	ICS		He97	
10.0	1.200	1.81E+02	1.8E+01	X	T	2000	ICS	0.412	Ll00	
10.5	1.260	2.20E+02	2.2E+01	X	T	2000	ICS	0.412	Ll00	
10.5	1.260	2.36E+02	3.1E+01	X	T	2020	ICS	0.401	Ti20	
10.9	1.300	3.01E+02	2.4E+01	X	S	2006	ICS	0.401	An06	
11.0	1.320	2.62E+02	2.6E+01	X	T	2000	ICS	0.412	Ll00	
11.5	1.380	2.84E+02	2.8E+01	X	T	2000	ICS	0.412	Ll00	
11.8	1.413	2.75E+02	3.6E+01	X	T	2020	ICS	0.401	Ti20	
12	1.440	3.50E+02	4.5E+01	X	TS	1996	ICS		Lu96	
12	1.440	2.47E+02	3.0E+01	X	TS	1997	ICS		He97	
12.0	1.440	3.13E+02	3.1E+01	X	T	2000	ICS	0.412	Ll00	
12.0	1.440	3.37E+02	2.8E+01	X	S	2006	ICS	0.401	An06	
12.333	1.480	3.51E+02	2.8E+01	X	T	1975	ICS	0.419	Je75	§
13.0	1.560	3.57E+02	3.6E+01	X	T	2000	ICS	0.412	Ll00	
13.0	1.560	3.66E+02	3.4E+01	X	S	2006	ICS	0.401	An06	
13.0	1.565	3.20E+02	4.2E+01	X	T	2020	ICS	0.401	Ti20	
14.0	1.680	3.96E+02	4.0E+01	X	T	2000	ICS	0.412	Ll00	
14.0	1.680	3.92E+02	3.6E+01	X	S	2006	ICS	0.401	An06	
14.3	1.718	3.52E+02	4.6E+01	X	T	2020	ICS	0.401	Ti20	
14.749	1.770	4.46E+02	3.3E+01	X	T	1975	ICS	0.419	Je75	§
14.8	1.776	3.40E+02	3.4E+01	X	T	1947	ICS		Po47	
15.0	1.800	4.27E+02	4.3E+01	X	T	2000	ICS	0.412	Ll00	
15.0	1.790	4.14E+02	3.3E+01	X	S	2006	ICS	0.401	An06	
15.6	1.870	4.13E+02	5.4E+01	X	T	2020	ICS	0.401	Ti20	
16	1.920	4.80E+02	5.4E+01	X	TS	1996	ICS		Lu96	
16	1.920	3.39E+02	3.4E+01	X	TS	1997	ICS		He97	
16.0	1.920	4.52E+02	4.5E+01	X	T	2000	ICS	0.412	Ll00	
16.9	2.030	4.52E+02	3.6E+01	X	S	2006	ICS	0.401	An06	
16.9	2.022	4.27E+02	5.6E+01	X	T	2020	ICS	0.401	Ti20	
17.0	2.040	4.72E+02	4.7E+01	X	T	2000	ICS	0.412	Ll00	

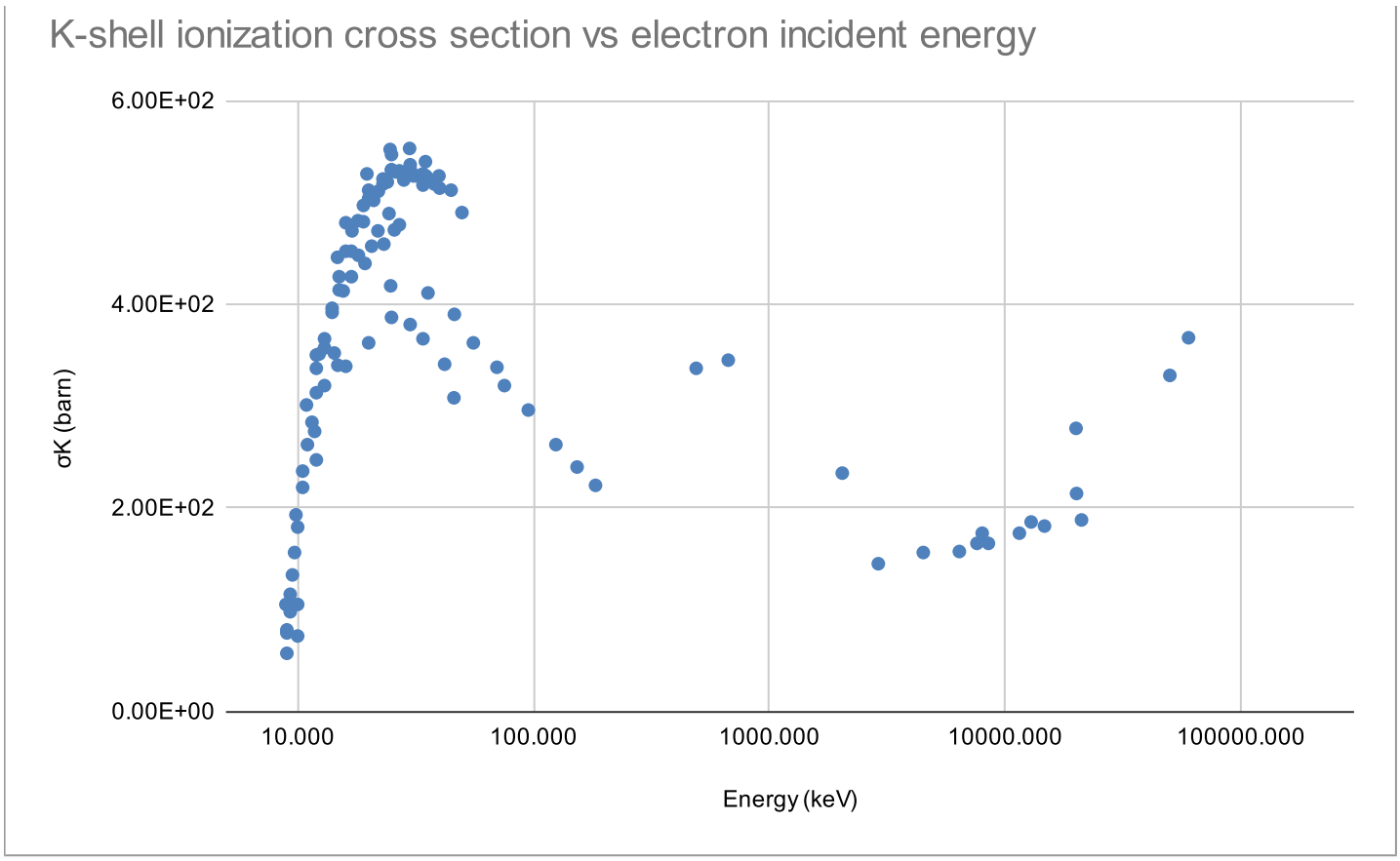
18.0	2.160	4.82E+02	4.8E+01	X	T	2000	ICS	0.412	Ll00	
18.1	2.172	4.48E+02	5.8E+01	X	T	2020	ICS	0.401	Ti20	
19.0	2.280	4.97E+02	5.0E+01	X	T	2000	ICS	0.412	Ll00	
19.0	2.280	4.81E+02	3.7E+01	X	S	2006	ICS	0.401	An06	
19.3	2.321	4.40E+02	5.7E+01	X	T	2020	ICS	0.401	Ti20	
19.665	2.360	5.28E+02	3.3E+01	X	T	1975	ICS	0.419	Je75	§
20	2.400	5.12E+02	6.0E+01	X	TS	1996	ICS		Lu96	
20	2.400	3.62E+02	3.5E+01	X	TS	1997	ICS		He97	
20.0	2.400	5.04E+02	5.0E+01	X	T	2000	ICS	0.412	Ll00	
20.6	2.476	4.57E+02	5.9E+01	X	T	2020	ICS	0.401	Ti20	
21.0	2.520	5.07E+02	5.1E+01	X	T	2000	ICS	0.412	Ll00	
21.0	2.520	5.02E+02	3.9E+01	X	S	2006	ICS	0.401	An06	
21.9	2.629	4.72E+02	6.1E+01	X	T	2020	ICS	0.401	Ti20	
22.0	2.640	5.11E+02	5.1E+01	X	T	2000	ICS	0.412	Ll00	
23.0	2.760	5.23E+02	5.2E+01	X	T	2000	ICS	0.412	Ll00	
23.0	2.760	5.18E+02	3.9E+01	X	S	2006	ICS	0.401	An06	
23.2	2.781	4.59E+02	6.0E+01	X	T	2020	ICS	0.401	Ti20	
24.0	2.880	5.20E+02	5.2E+01	X	T	2000	ICS	0.412	Ll00	
24.4	2.930	4.89E+02	6.4E+01	X	T	2020	ICS	0.401	Ti20	
24.665	2.960	5.52E+02	2.8E+01	X	T	1975	ICS	0.419	Je75	
24.8	2.976	4.18E+02	4.2E+01	X	T	1947	ICS		Po47	
25	3.000	5.47E+02	7.5E+01	X	TS	1996	ICS		Lu96	
25	3.000	3.87E+02	4.3E+01	X	TS	1997	ICS		He97	
25.0	3.000	5.32E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
25.0	3.000	5.32E+02	4.0E+01	X	S	2006	ICS	0.401	An06	
25.7	3.083	4.73E+02	6.2E+01	X	T	2020	ICS	0.401	Ti20	
26.0	3.120	5.30E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
27.0	3.240	5.31E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
27.0	3.235	4.78E+02	6.2E+01	X	T	2020	ICS	0.401	Ti20	
28.0	3.360	5.26E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
28.0	3.360	5.26E+02	5.3E+01	X	S	2006	ICS	0.401	An06	
28.2	3.387	5.22E+02	6.8E+01	X	T	2020	ICS	0.401	Ti20	
29.0	3.480	5.28E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
29.831	3.580	5.53E+02	2.7E+01	X	T	1975	ICS	0.419	Je75	§
30	3.600	5.37E+02	7.2E+01	X	TS	1996	ICS		Lu96	
30	3.600	3.80E+02	3.9E+01	X	TS	1997	ICS		He97	
30.0	3.600	5.33E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
31.0	3.720	5.26E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
32.0	3.840	5.26E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
33.0	3.960	5.26E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
34	4.080	5.17E+02	7.3E+01	X	TS	1996	ICS		Lu96	
34	4.080	3.66E+02	3.9E+01	X	TS	1997	ICS		He97	
34.0	4.080	5.28E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
34.831	4.180	5.40E+02	2.5E+01	X	T	1975	ICS	0.419	Je75	§
35.0	4.200	5.26E+02	5.3E+01	X	T	2000	ICS	0.412	Ll00	
35.7	4.284	4.11E+02	4.1E+01	X	T	1947	ICS		Po47	
36.0	4.320	5.23E+02	5.2E+01	X	T	2000	ICS	0.412	Ll00	
38.0	4.560	5.18E+02	5.2E+01	X	T	2000	ICS	0.412	Ll00	
39.747	4.770	5.26E+02	2.3E+01	X	T	1975	ICS	0.419	Je75	§
40.0	4.800	5.14E+02	5.1E+01	X	T	2000	ICS	0.412	Ll00	

42	5.040	3.41E+02	5.2E+01	X	TS	1997	ICS		He97	
44.747	5.370	5.12E+02	2.2E+01	X	T	1975	ICS	0.419	Je75	
46	5.520	3.08E+02	5.8E+01	X	TS	1997	ICS		He97	
46.2	5.544	3.90E+02	3.9E+01	X	T	1947	ICS		Po47	
49.747	5.970	4.90E+02	2.1E+01	X	T	1975	ICS	0.419	Je75	§
55.6	6.672	3.62E+02	3.6E+01	X	T	1947	ICS		Po47	
70	8.4005	3.38E+02	2.0E+01	X	T	1945	ICS	0.385	Sm45	
75.3	9.037	3.20E+02	3.2E+01	X	T	1947	ICS		Po47	
95.1	11.413	2.96E+02	3.0E+01	X	T	1947	ICS		Po47	
124.5	14.941	2.62E+02	2.6E+01	X	T	1947	ICS		Po47	
153.1	18.373	2.40E+02	2.4E+01	X	T	1947	ICS		Po47	
183.3	21.997	2.22E+02	2.2E+01	X	T	1947	ICS		Po47	
490	58.804	3.37E+02	8.4E+01	X	T	1974	ICS	0.414	Se74	
670	80.405	3.45E+02	8.6E+01	X	T	1974	ICS	0.414	Se74	
2040	244.816	2.34E+02	2.7E+01	X	T	1972	ICS	0.414	Sc72	⁋
2900	348.022	1.45E+02	1.1E+01	X	T	1975	ICS		Da75	*
4500	540.035	1.56E+02	1.2E+01	X	T	1975	ICS		Da75	*
6400	768.049	1.57E+02	1.8E+01	X	T	1975	ICS		Da75	*
7600	912.058	1.65E+02	1.3E+01	X	T	1975	ICS		Da75	*
8000	960.061	1.75E+02	2.3E+01	X	T	1975	ICS		Da75	*
8500	1020.065	1.65E+02	9.0E+00	X	T	1975	ICS		Da75	*
11500	1380.088	1.75E+02	1.2E+01	X	T	1975	ICS		Da75	*
12900	1548.099	1.86E+02	2.1E+01	X	T	1975	ICS		Da75	*
14700	1764.113	1.82E+02	1.6E+01	X	T	1975	ICS		Da75	*
20000	2400.154	2.78E+02	2.2E+01	X	T	1979	ICS	0.414	Ho79	
20100	2412.154	2.14E+02	2.2E+01	X	T	1975	ICS		Da75	*
21100	2532.162	1.88E+02	1.5E+01	X	T	1975	ICS		Da75	*
50000	6000.384	3.30E+02	2.6E+01	X	T	1979	ICS	0.414	Ho79	
60000	7200.461	3.67E+02	2.9E+01	X	T	1979	ICS	0.414	Ho79	
900000	108006.912	4.92E+02	3.9E+01	X	T	1982	ICS	0.414	Ge82	
1500000	180011.521	5.96E+02	4.8E+01	X	T	1982	ICS	0.414	Ge82	
2000000	240015.361	6.20E+02	5.0E+01	X	T	1982	ICS	0.414	Ge82	

(*) Digitalized from the original paper

(⁋) Taken from table given in Lo90.

(§) Uncertainties interpolated from those given by the author


K-shell ionization cross section vs electron incident energy
6.00E+02
4.00E+02
2.00E+02
0.00E+00
σK (barn)
10.000
100.000
1000.000
10000.000
100000.000
Energy (keV)

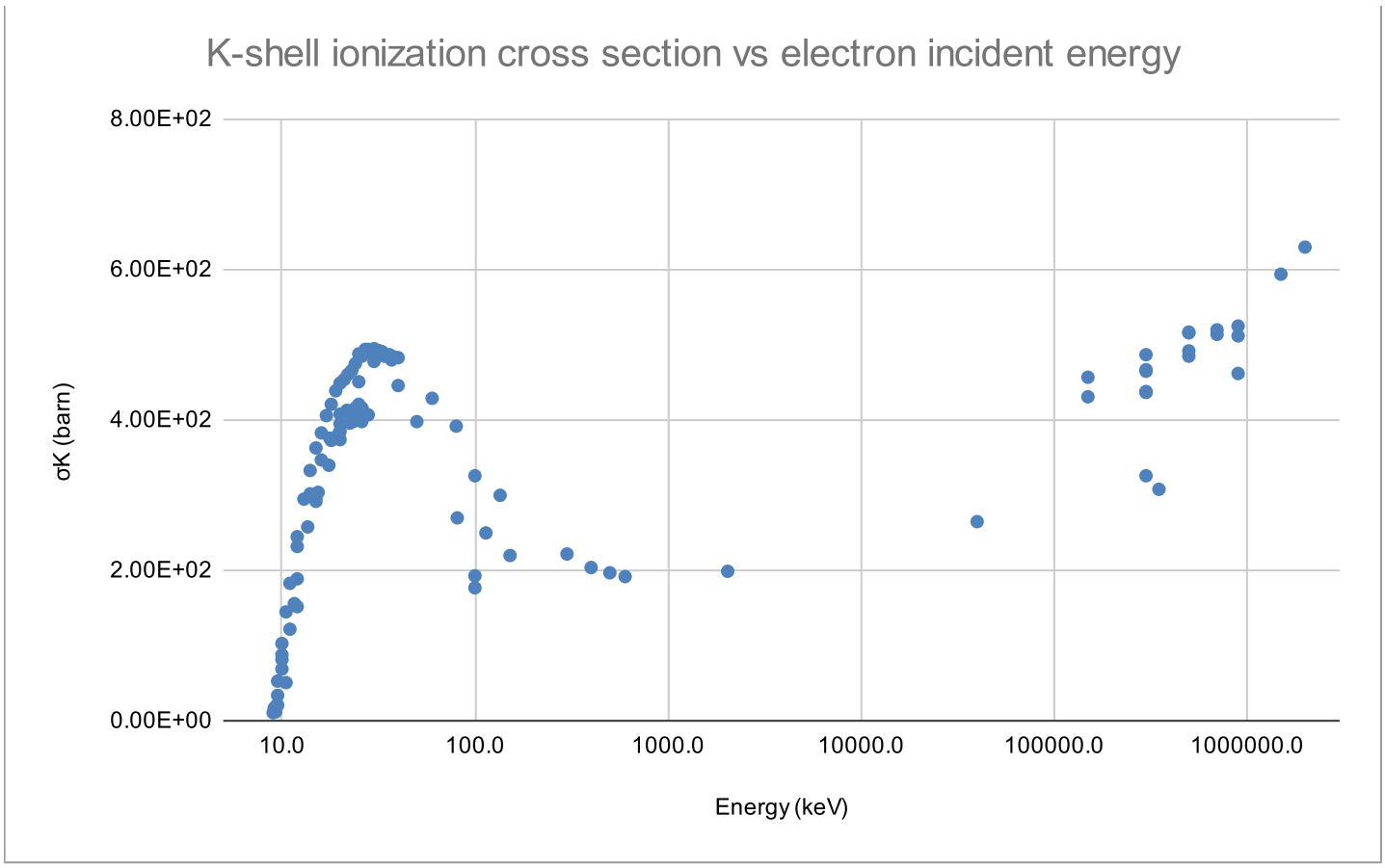
Cooper Cu
Z = 29
I_K = 8.9789 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
9.0	1.002	1.00E+01	1.0E+00	X	TS	1997	ICS		He97	
9.12	1.016	1.61E+01	3.6E+00	X	T	1981	ICS	0.44	Sh81	
9.27	1.032	1.10E+01	2.0E+00	X	T	1980	ICS	0.44	Sh80	
9.4	1.047	2.00E+01	2.0E+00	X	TS	1996	ICS	0.445	An96	
9.50	1.058	3.30E+01	6.0E+00	X	T	1980	ICS	0.44	Sh80	
9.5	1.058	2.00E+01	2.0E+00	X	TS	1997	ICS		He97	
9.5	1.058	5.20E+01	5.2E+00	X	T	2000	ICS	0.441	Ll00	
10.00	1.114	6.80E+01	1.1E+01	X	T	1980	ICS	0.44	Sh80	
10.00	1.114	8.70E+01	1.7E+01	X	T	1981	ICS	0.44	Sh81	
10.0	1.114	1.02E+02	1.0E+01	X	T	2000	ICS	0.441	Ll00	
10.0	1.114	8.08E+01	8.6E+00	X	TS	2001	ICS		Zh01	
10.5	1.169	5.00E+01	5.0E+00	X	TS	1997	ICS		He97	
10.5	1.169	1.44E+02	1.4E+01	X	T	2000	ICS	0.441	Ll00	
11.00	1.225	1.21E+02	1.8E+01	X	T	1980	ICS	0.44	Sh80	
11.0	1.225	1.82E+02	1.8E+01	X	T	2000	ICS	0.441	Ll00	
11.6	1.292	1.55E+02	1.8E+01	X	TS	1996	ICS	0.445	An96	
12.00	1.336	1.88E+02	2.1E+01	X	T	1980	ICS	0.44	Sh80	
12.0	1.336	1.51E+02	1.1E+01	X	TS	1997	ICS		He97	
12.0	1.336	2.44E+02	2.4E+01	X	T	2000	ICS	0.441	Ll00	
12.0	1.336	2.31E+02	2.6E+01	X	TS	2001	ICS		Zh01	
13.0	1.448	2.94E+02	2.9E+01	X	T	2000	ICS	0.441	Ll00	
13.6	1.515	2.57E+02	2.9E+01	X	TS	1996	ICS	0.445	An96	
14.0	1.559	3.32E+02	3.3E+01	X	T	2000	ICS	0.441	Ll00	
14.0	1.559	3.01E+02	3.5E+01	X	TS	2001	ICS		Zh01	
15.00	1.671	2.97E+02	3.1E+01	X	T	1980	ICS	0.44	Sh80	
15.00	1.671	2.97E+02	3.6E+01	X	T	1981	ICS	0.44	Sh81	
15.0	1.671	2.91E+02	2.1E+01	X	TS	1997	ICS		He97	
15.0	1.671	3.62E+02	3.6E+01	X	T	2000	ICS	0.441	Ll00	
15.4	1.715	3.03E+02	3.4E+01	X	TS	1996	ICS	0.445	An96	
16.0	1.782	3.82E+02	3.8E+01	X	T	2000	ICS	0.441	Ll00	
16.0	1.782	3.46E+02	4.0E+01	X	TS	2001	ICS		Zh01	
17.0	1.893	4.05E+02	4.1E+01	X	T	2000	ICS	0.441	Ll00	
17.5	1.949	3.39E+02	2.5E+01	X	TS	1997	ICS		He97	
17.7	1.971	3.75E+02	4.1E+01	X	TS	1996	ICS	0.445	An96	
18.0	2.005	4.20E+02	4.2E+01	X	T	2000	ICS	0.441	Ll00	
18.0	2.005	3.72E+02	4.3E+01	X	TS	2001	ICS		Zh01	
19.0	2.116	4.38E+02	4.4E+01	X	T	2000	ICS	0.441	Ll00	
19.7	2.194	3.81E+02	4.2E+01	X	TS	1996	ICS	0.445	An96	
20.00	2.227	4.07E+02	4.0E+01	X	T	1980	ICS	0.44	Sh80	
20.00	2.227	3.84E+02	4.1E+01	X	T	1981	ICS	0.44	Sh81	

20.0	2.227	3.73E+02	2.7E+01	X	TS	1997	ICS		He97	
20.0	2.227	4.48E+02	4.5E+01	X	T	2000	ICS	0.441	Ll00	
20.0	2.227	3.94E+02	4.6E+01	X	TS	2001	ICS		Zh01	
21.0	2.339	4.53E+02	4.5E+01	X	T	2000	ICS	0.441	Ll00	
21.7	2.417	4.12E+02	4.4E+01	X	TS	1996	ICS	0.445	An96	
22.0	2.450	4.60E+02	4.6E+01	X	T	2000	ICS	0.441	Ll00	
22.0	2.450	4.10E+02	5.5E+01	X	TS	2001	ICS		Zh01	
22.5	2.506	3.95E+02	2.8E+01	X	TS	1997	ICS		He97	
23.0	2.562	4.65E+02	4.7E+01	X	T	2000	ICS	0.441	Ll00	
23.9	2.662	3.98E+02	4.8E+01	X	TS	1996	ICS	0.445	An96	
24.0	2.673	4.74E+02	4.7E+01	X	T	2000	ICS	0.441	Ll00	
24.0	2.673	4.15E+02	5.7E+01	X	TS	2001	ICS		Zh01	
25	2.784	4.50E+02	7.0E+00	X	T	1972	ICS	0.545	Da72	
25.00	2.784	4.20E+02	4.0E+01	X	T	1980	ICS	0.44	Sh80	
25.00	2.784	4.01E+02	4.5E+01	X	T	1981	ICS	0.44	Sh81	
25.0	2.784	4.10E+02	3.0E+01	X	TS	1997	ICS		He97	
25.0	2.784	4.87E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
25.9	2.885	3.97E+02	4.3E+01	X	TS	1996	ICS	0.445	An96	
26.0	2.896	4.84E+02	4.8E+01	X	T	2000	ICS	0.441	Ll00	
26.0	2.896	4.15E+02	5.1E+01	X	TS	2001	ICS		Zh01	
27.0	3.007	4.93E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
28.0	3.118	4.06E+02	2.8E+01	X	TS	1997	ICS		He97	
28.0	3.118	4.93E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
29.0	3.230	4.88E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
30	3.341	4.77E+02	6.0E+00	X	T	1972	ICS	0.545	Da72	
30.0	3.341	4.94E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
31.0	3.453	4.92E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
32.0	3.564	4.91E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
33.0	3.675	4.90E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
34.0	3.787	4.84E+02	4.8E+01	X	T	2000	ICS	0.441	Ll00	
35.0	3.898	4.84E+02	4.8E+01	X	T	2000	ICS	0.441	Ll00	
36.0	4.009	4.86E+02	4.9E+01	X	T	2000	ICS	0.441	Ll00	
37.0	4.121	4.79E+02	4.8E+01	X	T	2000	ICS	0.441	Ll00	
38.0	4.232	4.83E+02	4.8E+01	X	T	2000	ICS	0.441	Ll00	
40	4.455	4.45E+02	4.0E+00	X	T	1972	ICS	0.545	Da72	
40.0	4.455	4.82E+02	4.8E+01	X	T	2000	ICS	0.441	Ll00	
50	5.569	3.97E+02	1.0E+02	X	T	1967	ICS	0.407	Fi67	*
60	6.682	4.28E+02	1.3E+01	X	T	1972	ICS	0.545	Da72	
80	8.910	3.91E+02	3.0E+00	X	T	1972	ICS	0.545	Da72	
81	9.021	2.69E+02	2.7E+01	X	T	1972	ICS		Hu72	
100	11.137	3.25E+02	4.0E+00	X	T	1972	ICS	0.545	Da72	
100	11.137	1.92E+02	2.9E+01	X	T	1987	ICS	0.443	We87b	*
100	11.137	1.76E+02	2.6E+01	X	T	1987	ICS	0.443	We87b	*
114	12.696	2.49E+02	2.5E+01	X	T	1972	ICS		Hu72	
135	15.035	2.99E+02	2.0E+00	X	T	1972	ICS	0.545	Da72	
152	16.929	2.19E+02	1.8E+01	X	T	1972	ICS		Hu72	
300	33.412	2.21E+02	2.0E+01	X	T	1978	ICS		Be78	
400	44.549	2.03E+02	1.8E+01	X	T	1978	ICS		Be78	
500	55.686	1.96E+02	1.8E+01	X	T	1978	ICS		Be78	
600	66.823	1.91E+02	1.7E+01	X	T	1978	ICS		Be78	

2040	227.199	1.98E+02	1.9E+01	X	T	1972	ICS	0.445	Sc72	⁋
40000	4454.889	2.64E+02	1.8E+01	X	T	1979	ICS	0.443	Ho79	
150000	16705.833	4.30E+02	6.3E+00	X	T	1970	DICS	0.407	Mi70	
150000	16705.833	4.56E+02	6.8E+01	X	T	1977	ICS	0.443	Is77	
300000	33411.665	4.66E+02	5.7E+00	X	T	1970	DICS	0.407	Mi70	
300000	33411.665	4.64E+02	6.3E+00	X	T	1970	DICS	0.407	Mi70	
300000	33411.665	4.86E+02	6.3E+00	X	T	1970	DICS	0.407	Mi70	
300000	33411.665	4.37E+02	6.3E+00	X	T	1970	DICS	0.407	Mi70	
300000	33411.665	4.36E+02	6.3E+00	X	T	1970	DICS	0.407	Mi70	
300000	33411.665	4.36E+02	6.3E+00	X	T	1970	DICS	0.407	Mi70	
300000	33411.665	3.25E+02	3.6E+01	X	T	1987	ICS	0.444	Wa87	*
350000	38980.276	3.07E+02	3.2E+01	X	T	1987	ICS	0.444	Wa87	*
500000	55686.109	4.91E+02	7.5E+00	X	T	1970	DICS	0.407	Mi70	
500000	55686.109	4.84E+02	7.5E+00	X	T	1970	DICS	0.407	Mi70	
500000	55686.109	5.16E+02	6.9E+00	X	T	1970	DICS	0.407	Mi70	
500000	55686.109	5.15E+02	6.9E+00	X	T	1970	DICS	0.407	Mi70	
700000	77960.552	5.19E+02	7.5E+00	X	T	1970	DICS	0.407	Mi70	
700000	77960.552	5.13E+02	6.3E+00	X	T	1970	DICS	0.407	Mi70	
900000	100234.995	5.24E+02	7.5E+00	X	T	1970	DICS	0.407	Mi70	
900000	100234.995	5.11E+02	7.5E+00	X	T	1970	DICS	0.407	Mi70	
900000	100234.995	4.61E+02	3.0E+01	X	T	1982	ICS	0.443	Ge82	
1500000	167058.326	5.93E+02	4.1E+01	X	T	1982	ICS	0.443	Ge82	
2000000	222744.434	6.29E+02	4.1E+01	X	T	1982	ICS	0.443	Ge82	

(*) Digitalized from the original paper
(⁋) Taken from table given in Lo90.

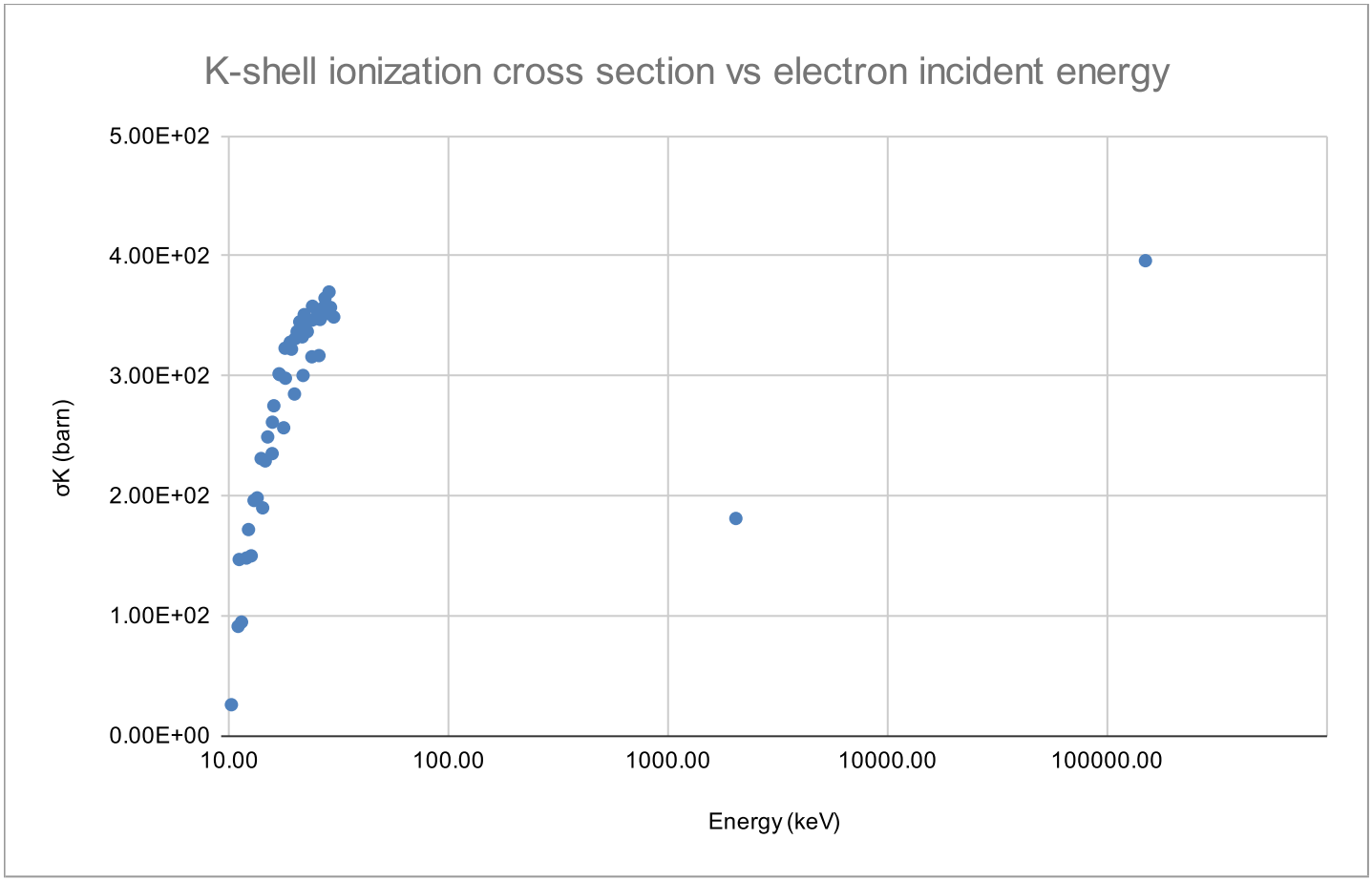

K-shell ionization cross section vs electron incident energy
8.00E+02
6.00E+02
4.00E+02
2.00E+02
0.00E+00
σK (barn)
10.0
100.0
1000.0
10000.0
100000.0
1000000.0
Energy (keV)

Zinc Zn
Z = 30
I_K = 9.6586 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
10.25	1.061	2.57E+01	3.1E+00	X	TS	1999	ICS	0.479	Ta99a	
11	1.139	9.10E+01	1.1E+01	X	TS	2010	ICS	0.477	Wu10	
11.13	1.152	1.47E+02	1.9E+01	X	T	2020	ICS	0.466	Ti20	
11.40	1.180	9.46E+01	9.5E+00	X	TS	1999	ICS	0.479	Ta99a	
12	1.242	1.48E+02	1.8E+01	X	TS	2010	ICS	0.477	Wu10	
12.26	1.270	1.72E+02	2.2E+01	X	T	2020	ICS	0.466	Ti20	
12.62	1.307	1.50E+02	1.5E+01	X	TS	1999	ICS	0.479	Ta99a	
13	1.346	1.96E+02	2.4E+01	X	TS	2010	ICS	0.477	Wu10	
13.43	1.390	1.98E+02	2.6E+01	X	T	2020	ICS	0.466	Ti20	
14	1.449	2.31E+02	2.8E+01	X	TS	2010	ICS	0.477	Wu10	
14.23	1.473	1.90E+02	2.0E+01	X	TS	1999	ICS	0.479	Ta99a	
14.62	1.514	2.29E+02	3.0E+01	X	T	2020	ICS	0.466	Ti20	
15	1.553	2.49E+02	3.0E+01	X	TS	2010	ICS	0.477	Wu10	
15.72	1.628	2.35E+02	2.6E+01	X	TS	1999	ICS	0.479	Ta99a	
15.76	1.632	2.61E+02	3.4E+01	X	T	2020	ICS	0.466	Ti20	
16	1.657	2.75E+02	3.3E+01	X	TS	2010	ICS	0.477	Wu10	
16.90	1.750	3.02E+02	3.9E+01	X	T	2020	ICS	0.466	Ti20	
17	1.760	3.01E+02	3.6E+01	X	TS	2010	ICS	0.477	Wu10	
17.74	1.837	2.57E+02	2.8E+01	X	TS	1999	ICS	0.479	Ta99a	
18	1.864	3.23E+02	3.9E+01	X	TS	2010	ICS	0.477	Wu10	
18.07	1.870	2.98E+02	3.9E+01	X	T	2020	ICS	0.466	Ti20	
19	1.967	3.28E+02	3.9E+01	X	TS	2010	ICS	0.477	Wu10	
19.26	1.994	3.22E+02	4.2E+01	X	T	2020	ICS	0.466	Ti20	
19.87	2.057	2.85E+02	3.3E+01	X	TS	1999	ICS	0.479	Ta99a	
20	2.071	3.31E+02	4.0E+01	X	TS	2010	ICS	0.477	Wu10	
20.42	2.114	3.37E+02	4.4E+01	X	T	2020	ICS	0.466	Ti20	
21	2.174	3.45E+02	4.1E+01	X	TS	2010	ICS	0.477	Wu10	
21.56	2.232	3.32E+02	4.3E+01	X	T	2020	ICS	0.466	Ti20	
21.74	2.251	3.00E+02	3.4E+01	X	TS	1999	ICS	0.479	Ta99a	
22	2.278	3.51E+02	4.2E+01	X	TS	2010	ICS	0.477	Wu10	
22.73	2.353	3.37E+02	4.4E+01	X	T	2020	ICS	0.466	Ti20	
23	2.381	3.46E+02	4.2E+01	X	TS	2010	ICS	0.477	Wu10	
23.85	2.469	3.16E+02	3.8E+01	X	TS	1999	ICS	0.479	Ta99a	
23.89	2.474	3.46E+02	4.5E+01	X	T	2020	ICS	0.466	Ti20	
24	2.485	3.58E+02	4.3E+01	X	TS	2010	ICS	0.477	Wu10	
25	2.588	3.48E+02	4.2E+01	X	TS	2010	ICS	0.477	Wu10	
25.06	2.594	3.55E+02	4.6E+01	X	T	2020	ICS	0.466	Ti20	
25.69	2.660	3.17E+02	4.0E+01	X	TS	1999	ICS	0.479	Ta99a	
26	2.692	3.47E+02	4.2E+01	X	TS	2010	ICS	0.477	Wu10	
26.23	2.715	3.49E+02	4.5E+01	X	T	2020	ICS	0.466	Ti20	

27	2.795	3.57E+02	4.3E+01	X	TS	2010	ICS	0.477	Wu10
27.36	2.833	3.65E+02	4.7E+01	X	T	2020	ICS	0.466	Ti20
28	2.899	3.52E+02	4.2E+01	X	TS	2010	ICS	0.477	Wu10
28.56	2.957	3.70E+02	4.8E+01	X	T	2020	ICS	0.466	Ti20
29	3.003	3.57E+02	4.3E+01	X	TS	2010	ICS	0.477	Wu10
30	3.106	3.49E+02	4.2E+01	X	TS	2010	ICS	0.477	Wu10
2040	211.211	1.81E+02	1.3E+01	X	T	1972	ICS	0.479	Sc72 ⁋
150000	15530.201	3.96E+02	2.7E+01	X	T	1977	ICS	0.479	Is77

(⁋) Taken from table given in Lo90.



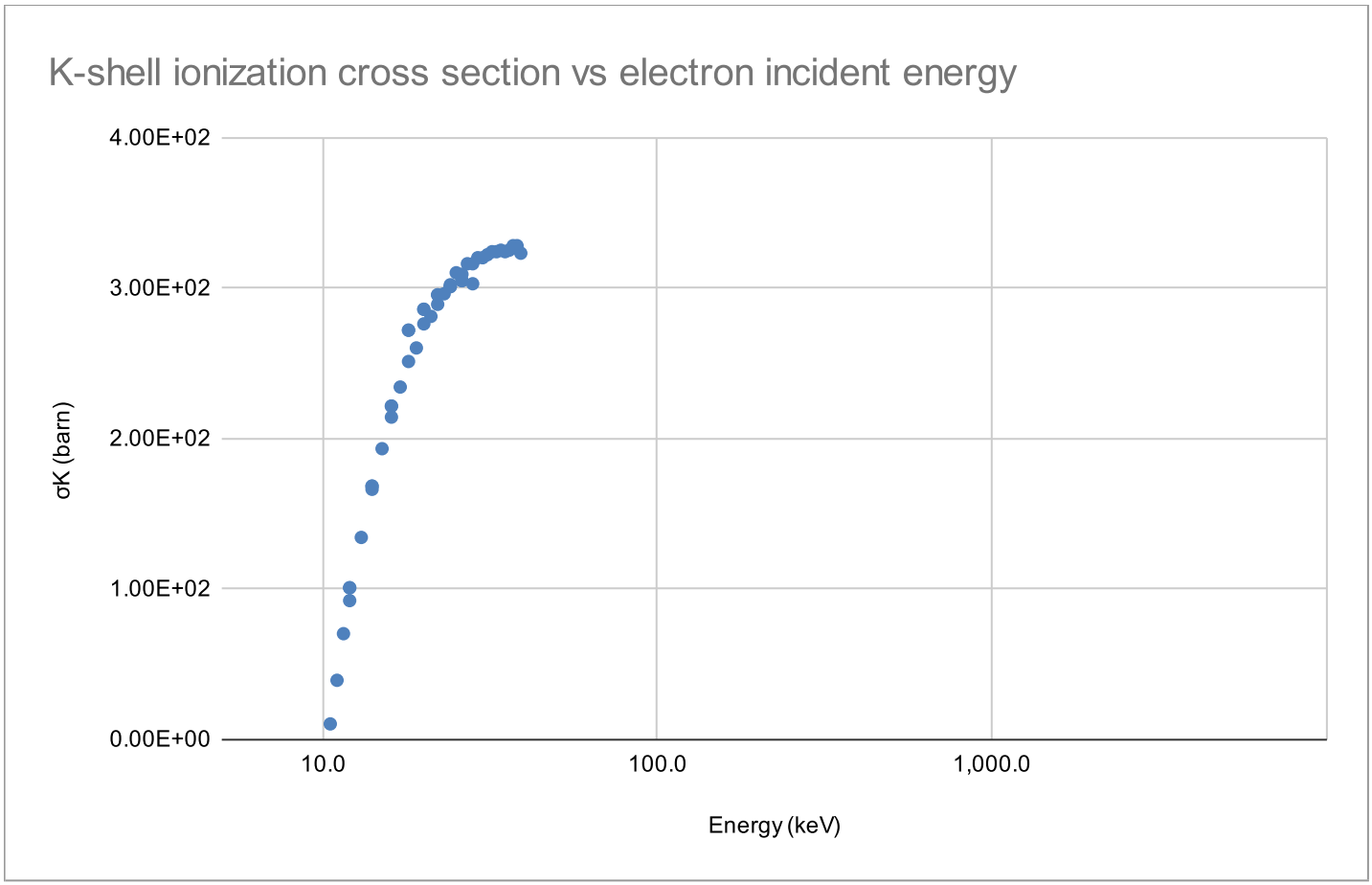
Gallium Ga

Z = 31

I_K = 10.3671 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
10.5	1.013	1.00E+01	1.2E+00	X	T	2006	ICS	0.496	Me06	
11.0	1.061	3.90E+01	4.7E+00	X	T	2006	ICS	0.496	Me06	
11.5	1.109	7.00E+01	8.4E+00	X	T	2006	ICS	0.496	Me06	
12	1.158	1.01E+02	1.5E+01	X	TS	2001	ICS		Zh01	
12	1.158	1.01E+02	1.5E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
12.0	1.158	9.20E+01	1.1E+01	X	T	2006	ICS	0.496	Me06	
13.0	1.254	1.34E+02	1.6E+01	X	T	2006	ICS	0.496	Me06	
14	1.350	1.68E+02	2.3E+01	X	TS	2001	ICS		Zh01	
14	1.350	1.68E+02	2.4E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
14.0	1.350	1.66E+02	2.0E+01	X	T	2006	ICS	0.496	Me06	
15.0	1.447	1.93E+02	2.3E+01	X	T	2006	ICS	0.496	Me06	
16	1.543	2.21E+02	3.1E+01	X	TS	2001	ICS		Zh01	
16	1.543	2.21E+02	3.2E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
16.0	1.543	2.14E+02	2.6E+01	X	T	2006	ICS	0.496	Me06	
17.0	1.640	2.34E+02	2.8E+01	X	T	2006	ICS	0.496	Me06	
18	1.736	2.72E+02	3.7E+01	X	TS	2001	ICS		Zh01	
18	1.736	2.72E+02	3.7E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
18.0	1.736	2.51E+02	3.0E+01	X	T	2006	ICS	0.496	Me06	
19.0	1.833	2.60E+02	3.1E+01	X	T	2006	ICS	0.496	Me06	
20	1.929	2.86E+02	3.9E+01	X	TS	2001	ICS		Zh01	
20	1.929	2.86E+02	3.9E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
20.0	1.929	2.76E+02	3.3E+01	X	T	2006	ICS	0.496	Me06	
21.0	2.026	2.81E+02	3.4E+01	X	T	2006	ICS	0.496	Me06	
22	2.122	2.95E+02	4.2E+01	X	TS	2001	ICS		Zh01	
22	2.122	2.95E+02	4.2E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
22.0	2.122	2.89E+02	3.5E+01	X	T	2006	ICS	0.496	Me06	
23.0	2.219	2.96E+02	3.6E+01	X	T	2006	ICS	0.496	Me06	
24	2.315	3.01E+02	4.5E+01	X	TS	2001	ICS		Zh01	
24	2.315	3.01E+02	4.5E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
24.0	2.315	3.02E+02	3.6E+01	X	T	2006	ICS	0.496	Me06	
25.0	2.411	3.10E+02	3.7E+01	X	T	2006	ICS	0.496	Me06	
26	2.508	3.05E+02	4.4E+01	X	TS	2001	ICS		Zh01	
26	2.508	3.05E+02	4.4E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
26.0	2.508	3.09E+02	3.7E+01	X	T	2006	ICS	0.496	Me06	
27.0	2.604	3.16E+02	3.8E+01	X	T	2006	ICS	0.496	Me06	
28	2.701	3.03E+02	4.3E+01	X	TS	2002	ICS-XRP	0.51	Zh02	
28.0	2.701	3.16E+02	3.8E+01	X	T	2006	ICS	0.496	Me06	
29.0	2.797	3.20E+02	3.8E+01	X	T	2006	ICS	0.496	Me06	
30.0	2.894	3.20E+02	3.8E+01	X	T	2006	ICS	0.496	Me06	
31.0	2.990	3.22E+02	3.9E+01	X	T	2006	ICS	0.496	Me06	

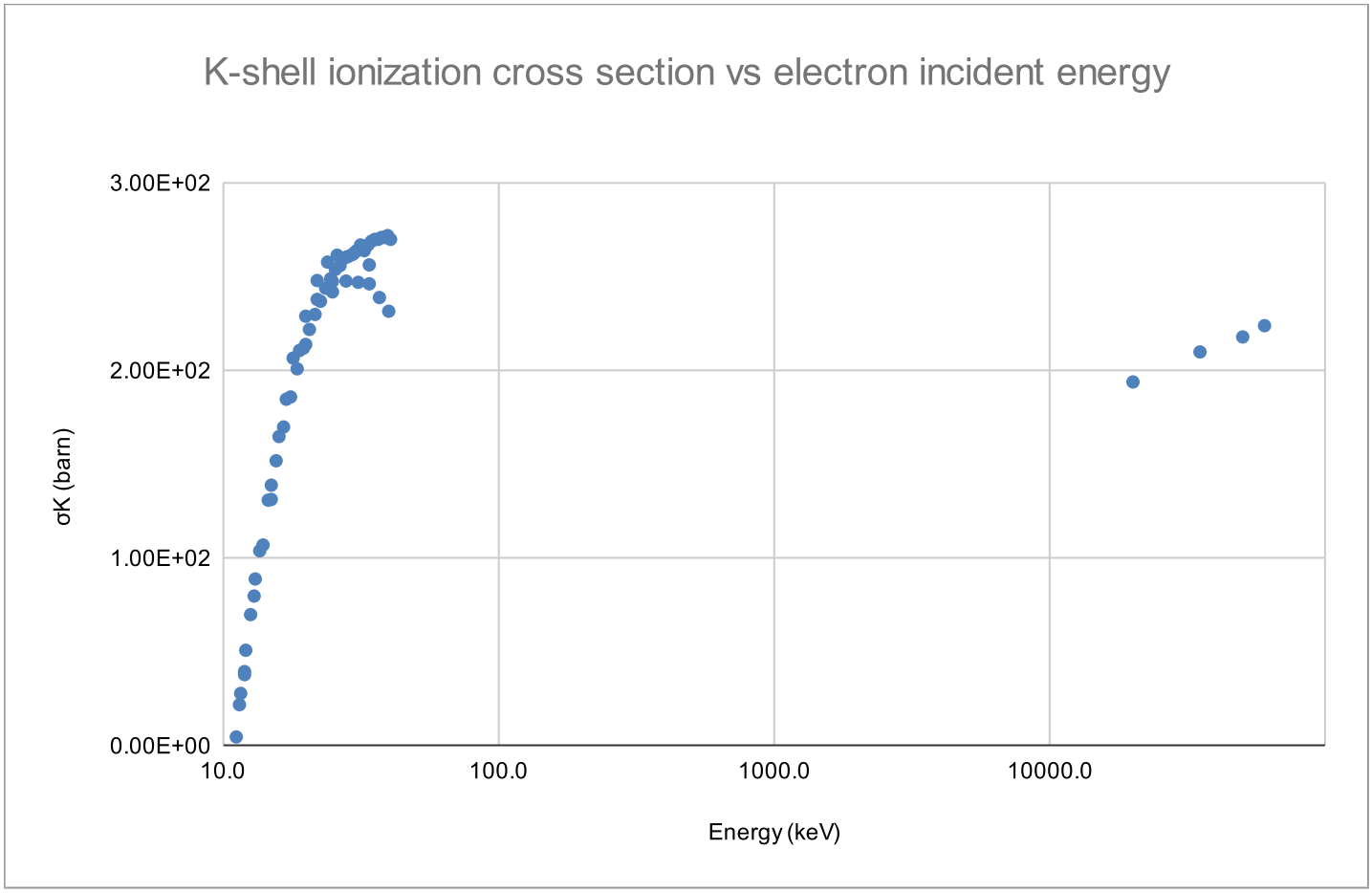
32.0	3.087	3.24E+02	3.9E+01	X	T	2006	ICS	0.496	Me06
33.0	3.183	3.24E+02	3.9E+01	X	T	2006	ICS	0.496	Me06
34.0	3.280	3.25E+02	3.9E+01	X	T	2006	ICS	0.496	Me06
35.0	3.376	3.24E+02	3.9E+01	X	T	2006	ICS	0.496	Me06
36.0	3.473	3.25E+02	3.9E+01	X	T	2006	ICS	0.496	Me06
37.0	3.569	3.28E+02	3.9E+01	X	T	2006	ICS	0.496	Me06
38.0	3.665	3.28E+02	3.9E+01	X	T	2006	ICS	0.496	Me06
39.0	3.762	3.23E+02	3.9E+01	X	T	2006	ICS	0.496	Me06



Germanium Ge
Z = 32
I_K = 11.1031 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
11.2	1.009	4.80E+00	1.0E+00	X	T	1981	ICS	0.535	Sh81	
11.5	1.036	2.20E+01	2.9E+00	X	TS	2002	ICS	0.54	Ta02	
11.62	1.047	2.80E+01	2.5E+00	X	T	2004	ICS	0.523	Me04	
12.0	1.081	3.80E+01	6.0E+00	X	T	1981	ICS	0.535	Sh81	
12	1.081	3.96E+01	4.4E+00	X	TS	2002	ICS-XRP	0.54	Zh02	
12.12	1.092	5.10E+01	4.6E+00	X	T	2004	ICS	0.523	Me04	
12.62	1.137	7.00E+01	6.3E+00	X	T	2004	ICS	0.523	Me04	
13.0	1.171	7.99E+01	1.0E+01	X	TS	2002	ICS	0.54	Ta02	
13.12	1.182	8.90E+01	8.0E+00	X	T	2004	ICS	0.523	Me04	
13.62	1.227	1.04E+02	9.4E+00	X	T	2004	ICS	0.523	Me04	
14	1.261	1.07E+02	1.3E+01	X	TS	2002	ICS-XRP	0.54	Zh02	
14.62	1.317	1.31E+02	1.2E+01	X	T	2004	ICS	0.523	Me04	
15.0	1.351	1.39E+02	1.4E+01	X	T	1981	ICS	0.535	Sh81	
15.0	1.351	1.31E+02	1.8E+01	X	TS	2002	ICS	0.54	Ta02	
15.62	1.407	1.52E+02	1.4E+01	X	T	2004	ICS	0.523	Me04	
16	1.441	1.65E+02	1.9E+01	X	TS	2002	ICS-XRP	0.54	Zh02	
16.62	1.497	1.70E+02	1.5E+01	X	T	2004	ICS	0.523	Me04	
17.0	1.531	1.85E+02	2.5E+01	X	TS	2002	ICS	0.54	Ta02	
17.62	1.587	1.86E+02	1.7E+01	X	T	2004	ICS	0.523	Me04	
18	1.621	2.07E+02	2.4E+01	X	TS	2002	ICS-XRP	0.54	Zh02	
18.62	1.677	2.01E+02	1.8E+01	X	T	2004	ICS	0.523	Me04	
19.0	1.711	2.11E+02	3.0E+01	X	TS	2002	ICS	0.54	Ta02	
19.62	1.767	2.12E+02	1.9E+01	X	T	2004	ICS	0.523	Me04	
20.0	1.801	2.14E+02	2.2E+01	X	T	1981	ICS	0.535	Sh81	
20	1.801	2.29E+02	2.6E+01	X	TS	2002	ICS-XRP	0.54	Zh02	
20.62	1.857	2.22E+02	2.0E+01	X	T	2004	ICS	0.523	Me04	
21.62	1.947	2.30E+02	2.1E+01	X	T	2004	ICS	0.523	Me04	
22.0	1.981	2.38E+02	3.5E+01	X	TS	2002	ICS	0.54	Ta02	
22	1.981	2.48E+02	2.8E+01	X	TS	2002	ICS-XRP	0.54	Zh02	
22.62	2.037	2.37E+02	2.1E+01	X	T	2004	ICS	0.523	Me04	
23.62	2.127	2.44E+02	2.2E+01	X	T	2004	ICS	0.523	Me04	
24	2.162	2.58E+02	3.0E+01	X	TS	2002	ICS-XRP	0.54	Zh02	
24.62	2.217	2.49E+02	2.2E+01	X	T	2004	ICS	0.523	Me04	
25.0	2.252	2.42E+02	2.4E+01	X	T	1981	ICS	0.535	Sh81	
25.0	2.252	2.48E+02	3.8E+01	X	TS	2002	ICS	0.54	Ta02	
25.62	2.307	2.54E+02	2.3E+01	X	T	2004	ICS	0.523	Me04	
26	2.342	2.62E+02	4.1E+01	X	TS	2002	ICS-XRP	0.54	Zh02	
26.62	2.398	2.56E+02	2.3E+01	X	T	2004	ICS	0.523	Me04	
27.62	2.488	2.60E+02	2.3E+01	X	T	2004	ICS	0.523	Me04	
28.0	2.522	2.48E+02	3.9E+01	X	TS	2002	ICS	0.54	Ta02	

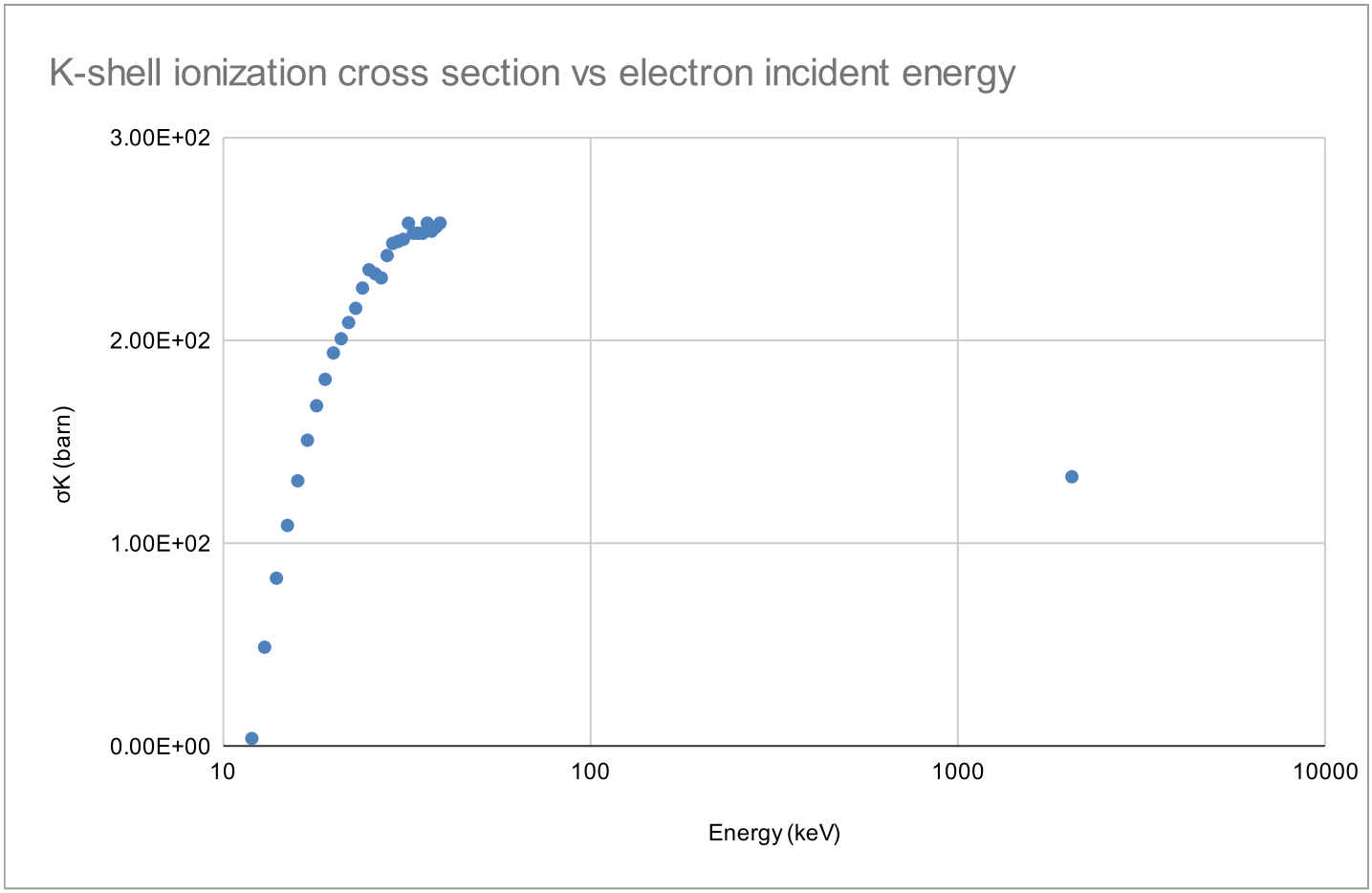
28	2.522	2.60E+02	3.2E+01	X	TS	2002	ICS-XRP	0.54	Zh02
28.62	2.578	2.61E+02	2.3E+01	X	T	2004	ICS	0.523	Me04
29.62	2.668	2.62E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
30	2.702	2.63E+02	3.4E+01	X	TS	2002	ICS-XRP	0.54	Zh02
30.62	2.758	2.64E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
31.0	2.792	2.47E+02	4.0E+01	X	TS	2002	ICS	0.54	Ta02
31.62	2.848	2.67E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
32.62	2.938	2.64E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
33.62	3.028	2.67E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
34.0	3.062	2.46E+02	4.1E+01	X	TS	2002	ICS	0.54	Ta02
34	3.062	2.56E+02	3.3E+01	X	TS	2002	ICS-XRP	0.54	Zh02
34.62	3.118	2.69E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
35.62	3.208	2.70E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
36.62	3.298	2.70E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
37.0	3.332	2.39E+02	4.3E+01	X	TS	2002	ICS	0.54	Ta02
37.62	3.388	2.71E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
38.62	3.478	2.71E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
39.62	3.568	2.72E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
40.0	3.603	2.32E+02	4.7E+01	X	TS	2002	ICS	0.54	Ta02
40.62	3.658	2.70E+02	2.4E+01	X	T	2004	ICS	0.523	Me04
20000	1801.299	1.94E+02	1.6E+01	X	T	1979	ICS	0.54	Ho79
35000	3152.273	2.10E+02	1.7E+01	X	T	1979	ICS	0.54	Ho79
50000	4503.247	2.18E+02	1.7E+01	X	T	1979	ICS	0.54	Ho79
60000	5403.896	2.24E+02	1.8E+01	X	T	1979	ICS	0.54	Ho79



Arsenic As
Z = 33
I_K = 11.8667 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
12	1.011	4.00E+00	4.8E-01	X	T	2006	ICS	0.549	Me06	
13	1.096	4.90E+01	5.9E+00	X	T	2006	ICS	0.549	Me06	
14	1.180	8.30E+01	1.0E+01	X	T	2006	ICS	0.549	Me06	
15	1.264	1.09E+02	1.3E+01	X	T	2006	ICS	0.549	Me06	
16	1.348	1.31E+02	1.6E+01	X	T	2006	ICS	0.549	Me06	
17	1.433	1.51E+02	1.8E+01	X	T	2006	ICS	0.549	Me06	
18	1.517	1.68E+02	2.0E+01	X	T	2006	ICS	0.549	Me06	
19	1.601	1.81E+02	2.2E+01	X	T	2006	ICS	0.549	Me06	
20	1.685	1.94E+02	2.3E+01	X	T	2006	ICS	0.549	Me06	
21	1.770	2.01E+02	2.4E+01	X	T	2006	ICS	0.549	Me06	
22	1.854	2.09E+02	2.5E+01	X	T	2006	ICS	0.549	Me06	
23	1.938	2.16E+02	2.6E+01	X	T	2006	ICS	0.549	Me06	
24	2.022	2.26E+02	2.7E+01	X	T	2006	ICS	0.549	Me06	
25	2.107	2.35E+02	2.8E+01	X	T	2006	ICS	0.549	Me06	
26	2.191	2.33E+02	2.8E+01	X	T	2006	ICS	0.549	Me06	
27	2.275	2.31E+02	2.8E+01	X	T	2006	ICS	0.549	Me06	
28	2.360	2.42E+02	2.9E+01	X	T	2006	ICS	0.549	Me06	
29	2.444	2.48E+02	3.0E+01	X	T	2006	ICS	0.549	Me06	
30	2.528	2.49E+02	3.0E+01	X	T	2006	ICS	0.549	Me06	
31	2.612	2.50E+02	3.0E+01	X	T	2006	ICS	0.549	Me06	
32	2.697	2.58E+02	3.1E+01	X	T	2006	ICS	0.549	Me06	
33	2.781	2.53E+02	3.0E+01	X	T	2006	ICS	0.549	Me06	
34	2.865	2.53E+02	3.0E+01	X	T	2006	ICS	0.549	Me06	
35	2.949	2.53E+02	3.0E+01	X	T	2006	ICS	0.549	Me06	
36	3.034	2.58E+02	3.1E+01	X	T	2006	ICS	0.549	Me06	
37	3.118	2.54E+02	3.0E+01	X	T	2006	ICS	0.549	Me06	
38	3.202	2.56E+02	3.1E+01	X	T	2006	ICS	0.549	Me06	
39	3.287	2.58E+02	3.1E+01	X	T	2006	ICS	0.549	Me06	
2040	171.910	1.33E+02	1.0E+01	X	T	1972	ICS	0.567	Sc72	⁋

(⁋) Taken from table given in Lo90.

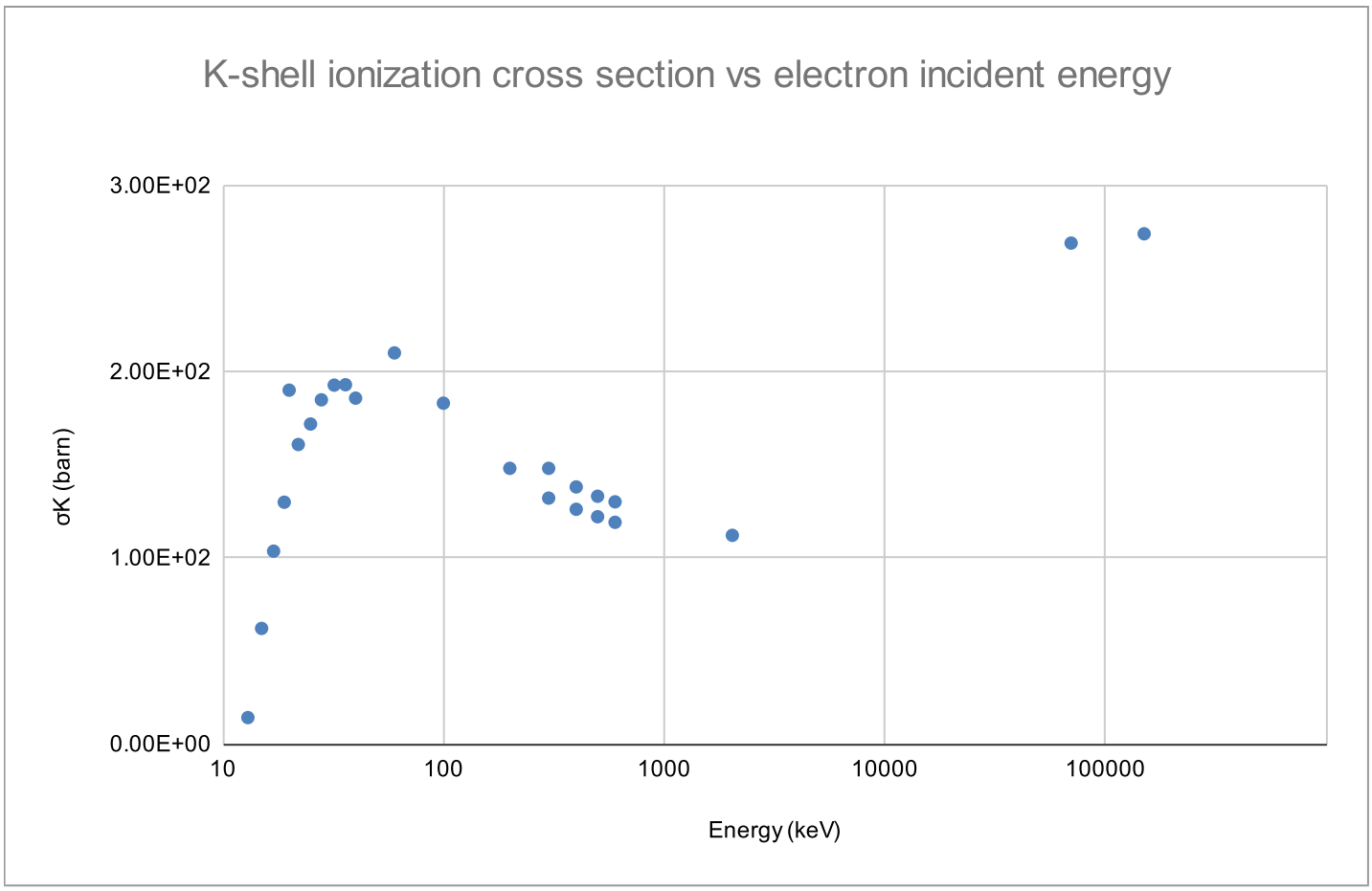

K-shell ionization cross section vs electron incident energy
3.00E+02
2.00E+02
1.00E+02
0.00E+00
σK (barn)
10
100
1000
10000
Energy (keV)

Selenium Se
Z = 34
I_K = 12.6578 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
13	1.027	1.41E+01	2.0E+00	X	TS	2001	ICS	0.596	Lu01	
15	1.185	6.20E+01	8.3E+00	X	TS	2001	ICS	0.596	Lu01	
17	1.343	1.04E+02	1.4E+01	X	TS	2001	ICS	0.596	Lu01	
19	1.501	1.30E+02	1.9E+01	X	TS	2001	ICS	0.596	Lu01	
20	1.580	1.90E+02	4.7E+01	X	T	1967	ICS	0.585	Fi67	*
22	1.738	1.61E+02	2.4E+01	X	TS	2001	ICS	0.596	Lu01	
25	1.975	1.72E+02	2.6E+01	X	TS	2001	ICS	0.596	Lu01	
28	2.212	1.85E+02	2.9E+01	X	TS	2001	ICS	0.596	Lu01	
32	2.528	1.93E+02	3.2E+01	X	TS	2001	ICS	0.596	Lu01	
36	2.844	1.93E+02	3.5E+01	X	TS	2001	ICS	0.596	Lu01	
40	3.160	1.86E+02	3.9E+01	X	TS	2001	ICS	0.596	Lu01	
60	4.740	2.10E+02	1.9E+01	X	T	1981	ICS	0.589	Ki81	
100	7.900	1.83E+02	1.7E+01	X	T	1981	ICS	0.589	Ki81	
200	15.801	1.48E+02	1.3E+01	X	T	1981	ICS	0.589	Ki81	
300	23.701	1.48E+02	1.3E+01	X	T	1978	ICS		Be78	
300	23.701	1.32E+02	1.2E+01	X	T	1981	ICS	0.589	Ki81	
400	31.601	1.38E+02	1.2E+01	X	T	1978	ICS		Be78	
400	31.601	1.26E+02	1.1E+01	X	T	1981	ICS	0.589	Ki81	
500	39.501	1.33E+02	1.2E+01	X	T	1978	ICS		Be78	
500	39.501	1.22E+02	1.1E+01	X	T	1981	ICS	0.589	Ki81	
600	47.402	1.30E+02	1.2E+01	X	T	1978	ICS		Be78	
600	47.402	1.19E+02	1.1E+01	X	T	1981	ICS	0.589	Ki81	
2040	161.165	1.12E+02	7.5E+00	X	T	1972	ICS	0.596	Sc72	⁋
70000	5530.187	2.69E+02	4.0E+01	X	T	1977	ICS	0.596	Is77	
150000	11850.401	2.74E+02	4.1E+01	X	T	1977	ICS	0.596	Is77	

(*) Digitalized from the original paper

(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
3.00E+02
2.00E+02
1.00E+02
0.00E+00
σK (barn)
10
100
1000
10000
100000
Energy (keV)

Bromine Br

Z = 35

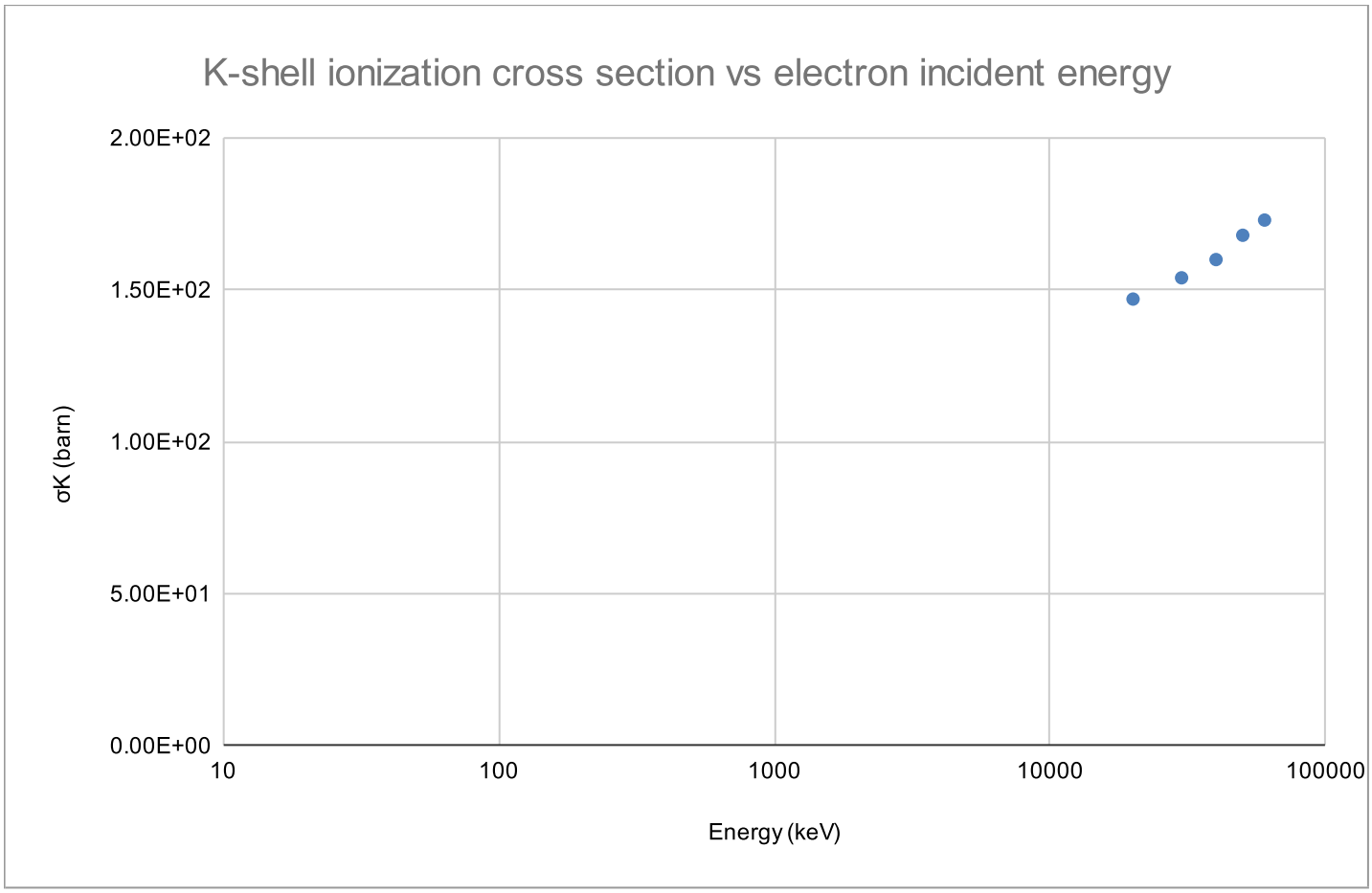
I_K = 13.4737 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	151.406	117.0	9.0	X	T	1972	ICS	0.622	Sc72	⁋

(⁋) Taken from table given in Lo90.

Krypton Kr
Z = 36
I_K = 14.3256 keV

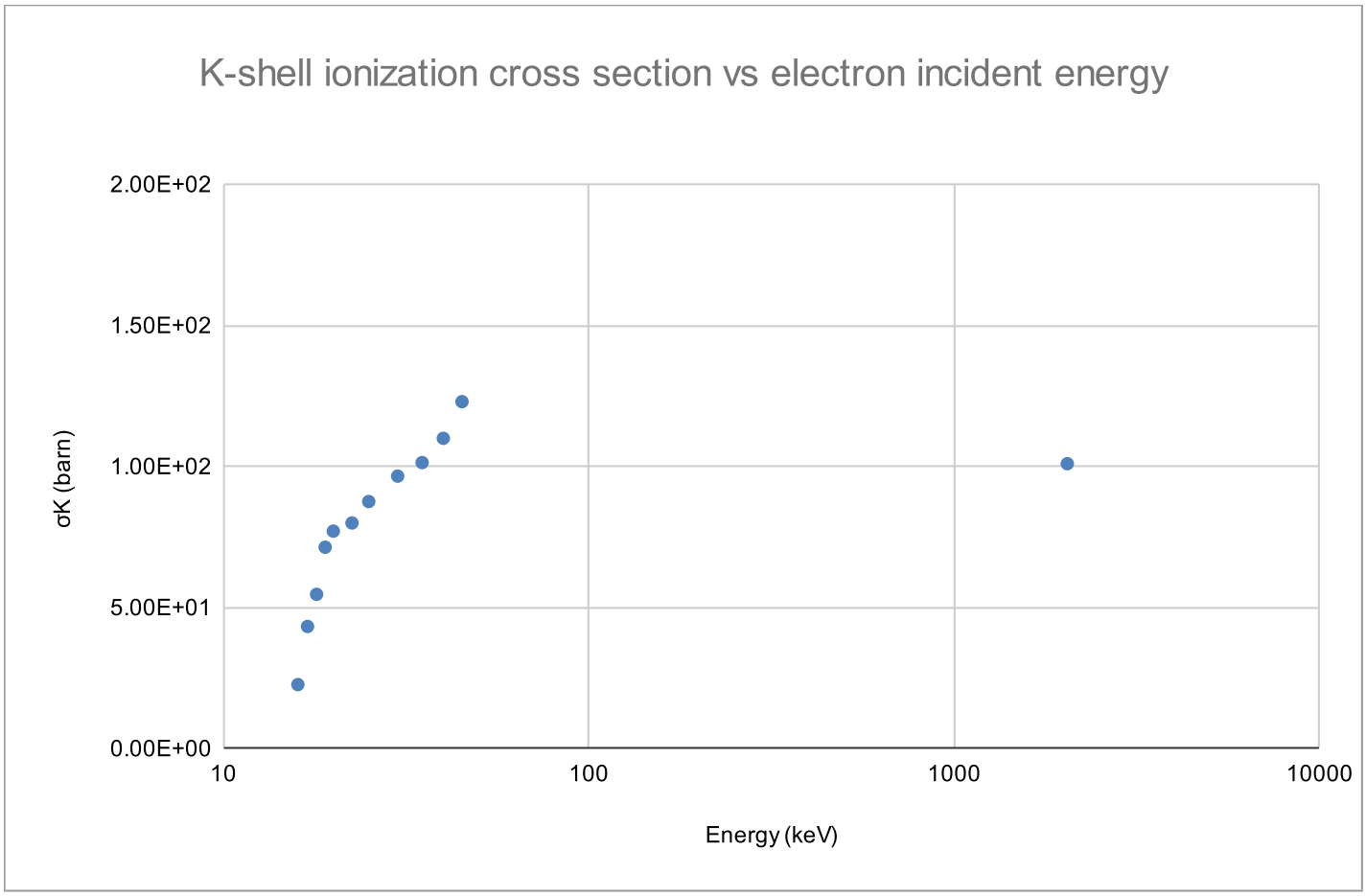
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
20000	1396.102	1.47E+02	6.0E+00	X	T	1979	ICS	0.646	Ho79	
30000	2094.153	1.54E+02	6.0E+00	X	T	1979	ICS	0.646	Ho79	
40000	2792.204	1.60E+02	6.0E+00	X	T	1979	ICS	0.646	Ho79	
50000	3490.255	1.68E+02	7.0E+00	X	T	1979	ICS	0.646	Ho79	
60000	4188.306	1.73E+02	7.0E+00	X	T	1979	ICS	0.646	Ho79	



Rubidium Rb
Z = 37
I_K = 15.1997 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
16	1.053	2.27E+01	3.4E+00	X	G	1991	ICS	0.667	Sh91	
17	1.118	4.33E+01	6.5E+00	X	G	1991	ICS	0.667	Sh91	
18	1.184	5.47E+01	8.2E+00	X	G	1991	ICS	0.667	Sh91	
19	1.250	7.14E+01	1.1E+01	X	G	1991	ICS	0.667	Sh91	
20	1.316	7.71E+01	1.2E+01	X	G	1991	ICS	0.667	Sh91	
23	1.480	8.00E+01	1.2E+01	X	G	1991	ICS	0.667	Sh91	
25	1.645	8.76E+01	1.3E+01	X	G	1991	ICS	0.667	Sh91	
30	1.974	9.66E+01	1.4E+01	X	G	1991	ICS	0.667	Sh91	
35	2.303	1.01E+02	1.5E+01	X	G	1991	ICS	0.667	Sh91	
40	2.632	1.10E+02	1.7E+01	X	G	1991	ICS	0.667	Sh91	
45	2.961	1.23E+02	1.8E+01	X	G	1991	ICS	0.667	Sh91	
2040	134.213	1.01E+02	3.8E+00	X	T	1972	ICS	0.669	Sc72	⁋

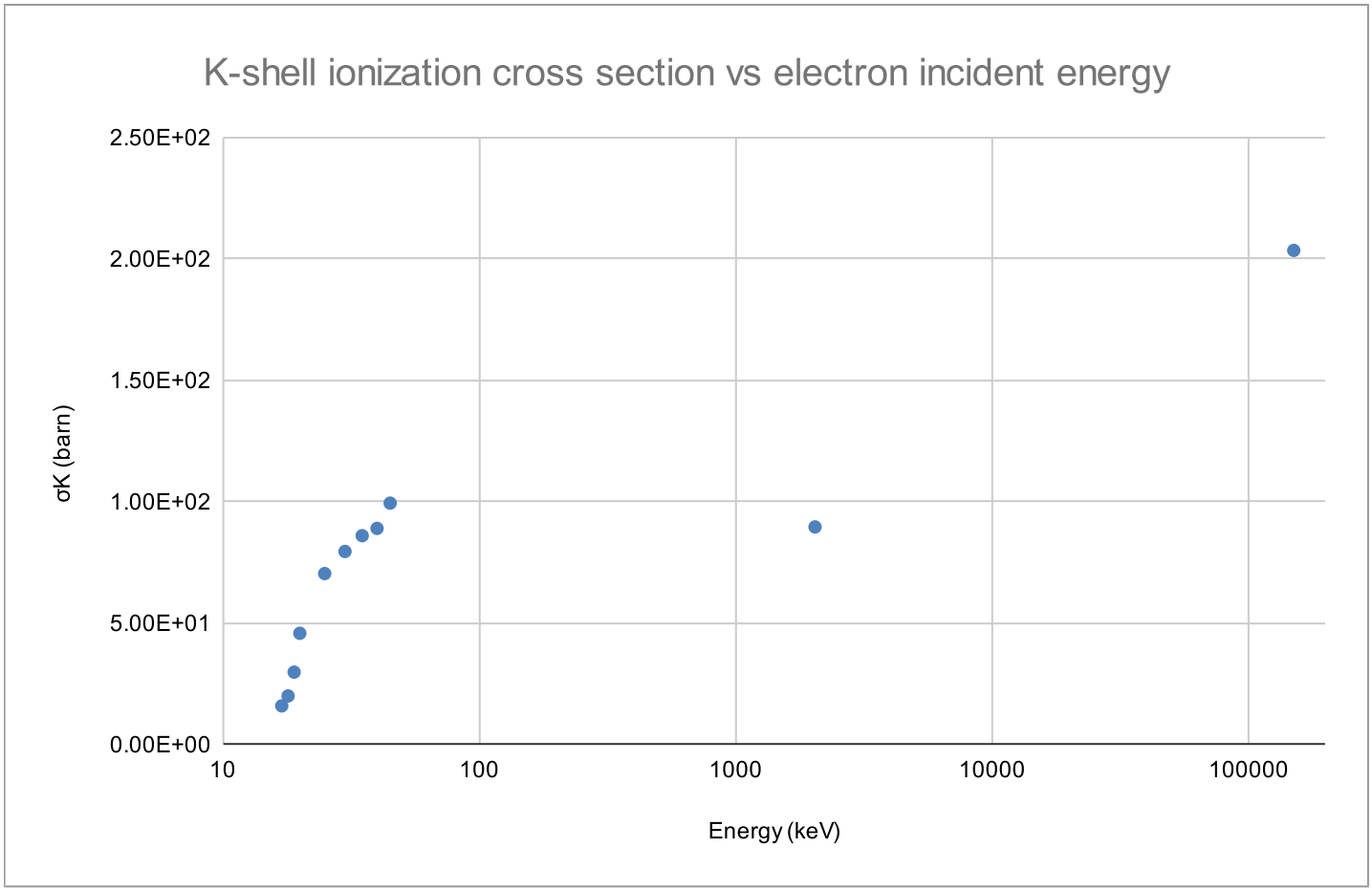
(⁋) Taken from table given in Lo90.



Strontium Sr
Z = 38
I_K = 16.1046 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
17	1.056	1.60E+01	2.4E+00	X	G	1991	ICS	0.69	Sh91	
18	1.118	2.01E+01	3.0E+00	X	G	1991	ICS	0.69	Sh91	
19	1.180	2.99E+01	4.5E+00	X	G	1991	ICS	0.69	Sh91	
20	1.242	4.59E+01	6.9E+00	X	G	1991	ICS	0.69	Sh91	
25	1.552	7.05E+01	1.1E+01	X	G	1991	ICS	0.69	Sh91	
30	1.863	7.96E+01	1.2E+01	X	G	1991	ICS	0.69	Sh91	
35	2.173	8.61E+01	1.3E+01	X	G	1991	ICS	0.69	Sh91	
40	2.484	8.91E+01	1.3E+01	X	G	1991	ICS	0.69	Sh91	
45	2.794	9.95E+01	1.5E+01	X	G	1991	ICS	0.69	Sh91	
2040	126.672	8.97E+01	4.7E+00	X	T	1972	ICS	0.691	Sc72	⁋
150000	9314.109	2.04E+02	3.8E+00	X	T	1970	DICS		Mi70	
300000	18628.218	2.12E+02	2.5E+00	X	T	1970	DICS		Mi70	
500000	31047.030	2.36E+02	3.8E+00	X	T	1970	DICS		Mi70	
500000	31047.030	2.27E+02	3.8E+00	X	T	1970	DICS		Mi70	
500000	31047.030	2.30E+02	3.8E+00	X	T	1970	DICS		Mi70	
700000	43465.842	2.48E+02	3.8E+00	X	T	1970	DICS		Mi70	
900000	55884.654	2.51E+02	3.8E+00	X	T	1970	DICS		Mi70	

(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
2.50E+02
2.00E+02
1.50E+02
1.00E+02
5.00E+01
0.00E+00
σK (barn)
10
100
1000
10000
100000
Energy (keV)

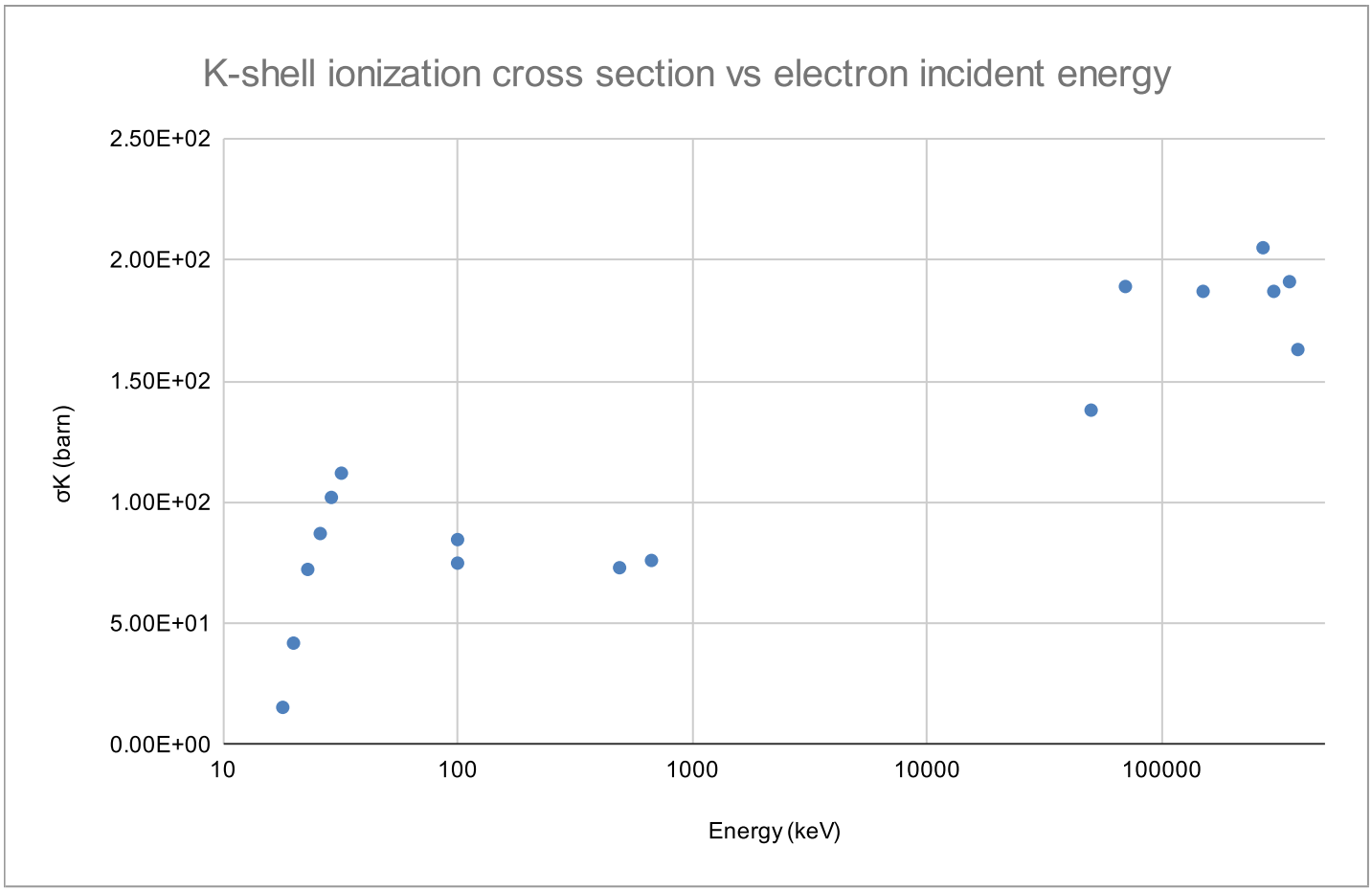
Yttrium Y

Z = 39

I_K = 17.0384 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
18	1.056	1.54E+01	2.6E+00	X	TS	2001	ICS	0.711	Lu01	
20	1.174	4.19E+01	6.0E+00	X	TS	2001	ICS	0.711	Lu01	
23	1.350	7.23E+01	1.1E+01	X	TS	2001	ICS	0.711	Lu01	
26	1.526	8.71E+01	1.3E+01	X	TS	2001	ICS	0.711	Lu01	
29	1.702	1.02E+02	1.6E+01	X	TS	2001	ICS	0.711	Lu01	
32	1.878	1.12E+02	1.9E+01	X	TS	2001	ICS	0.711	Lu01	
100	5.869	7.49E+01	1.1E+01	X	T	1987	ICS	0.711	We87b	*
100	5.869	8.46E+01	1.3E+01	X	T	1987	ICS	0.711	We87b	*
490	28.759	7.30E+01	1.8E+01	X	T	1974	ICS	0.711	Se74	*
670	39.323	7.60E+01	1.9E+01	X	T	1974	ICS	0.711	Se74	*
50000	2934.548	1.38E+02	1.4E+01	X	T	1979	ICS	0.711	Ho79	
70000	4108.367	1.89E+02	2.8E+01	X	T	1977	ICS	0.711	Is77	
150000	8803.644	1.87E+02	2.8E+01	X	T	1977	ICS	0.711	Is77	
270000	15846.558	2.05E+02	3.1E+01	X	T	1977	ICS	0.711	Is77	
300000	17607.287	1.87E+02	1.1E+01	X	TS	1987	ICS	0.711	Wa87	*
350000	20541.835	1.91E+02	1.0E+01	X	TS	1987	ICS	0.711	Wa87	*
380000	22302.564	1.63E+02	9.0E+00	X	TS	1987	ICS	0.711	Wa87	*

(*) Digitalized from the original paper.

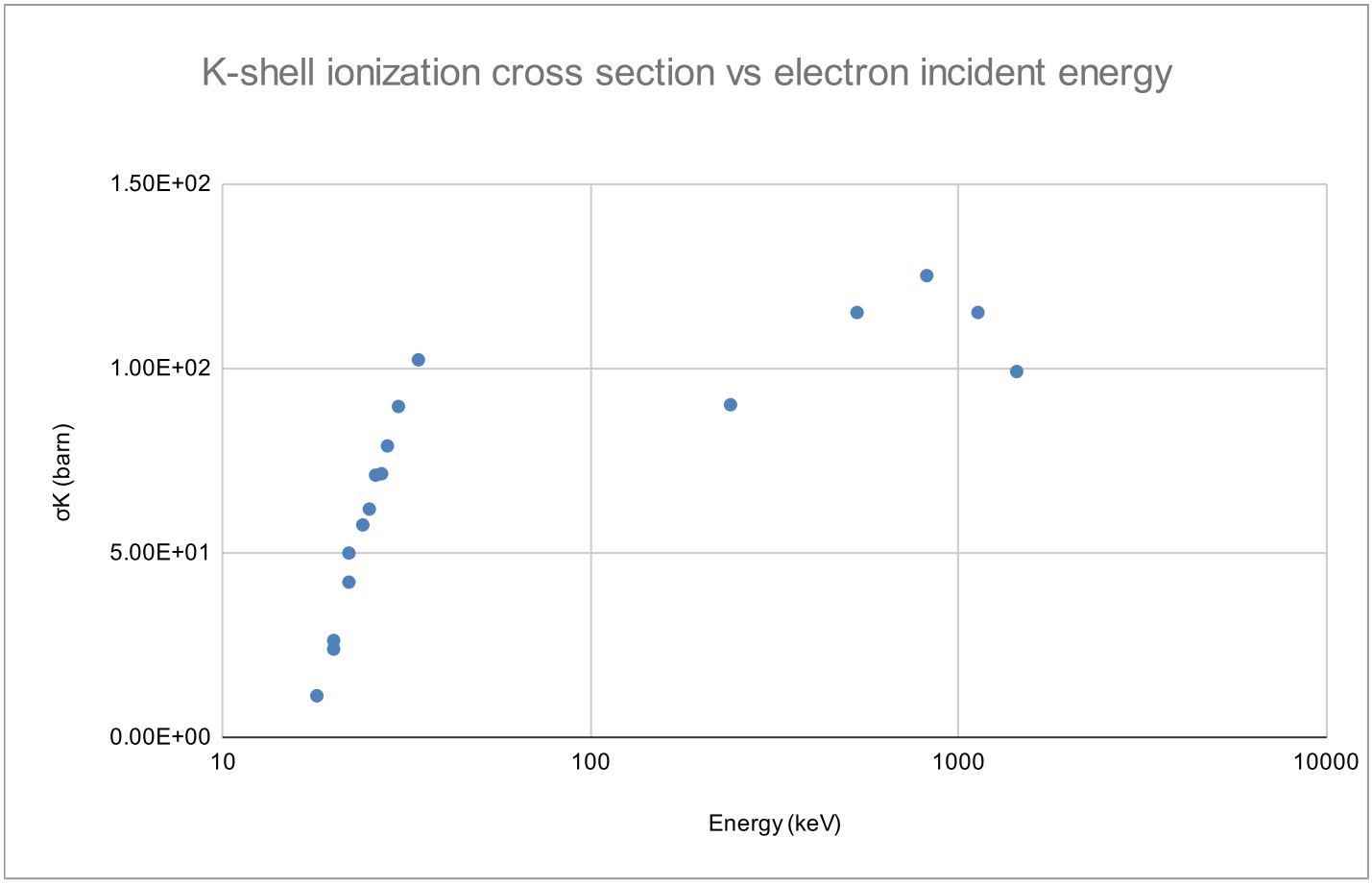

K-shell ionization cross section vs electron incident energy
2.50E+02
2.00E+02
1.50E+02
1.00E+02
5.00E+01
0.00E+00
σK (barn)
10
100
1000
10000
100000
Energy (keV)

Zirconium Zr

Z = 40

I_K = 17.9976 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
18	1.000	1.11E+01	2.2E+00	X	TS	2002	ICS-XRP	0.730	Zh02	
20	1.111	2.61E+01	4.1E+00	X	TS	2002	ICS-XRP	0.730	Zh02	
20	1.111	2.38E+01	3.1E+00	X	TS	2020	ICS		Li20	
22	1.222	4.98E+01	8.0E+00	X	TS	2002	ICS-XRP	0.730	Zh02	
22	1.222	4.19E+01	2.9E+00	X	TS	2020	ICS		Li20	
24	1.334	5.74E+01	9.4E+00	X	TS	2002	ICS-XRP	0.730	Zh02	
25	1.389	6.17E+01	4.3E+00	X	TS	2020	ICS		Li20	
26	1.445	7.09E+01	1.2E+00	X	TS	2002	ICS-XRP	0.730	Zh02	
27	1.500	7.13E+01	5.0E+00	X	TS	2020	ICS		Li20	
28	1.556	7.88E+01	1.3E+00	X	TS	2002	ICS-XRP	0.730	Zh02	
30	1.667	8.95E+01	1.5E+00	X	TS	2002	ICS-XRP	0.730	Zh02	
34	1.889	1.02E+02	1.8E+00	X	TS	2002	ICS-XRP	0.730	Zh02	
240	13.335	9.00E+01	5.0E+00	X	T	1964	ICS		Ha64	
530	29.448	1.15E+02	8.0E+00	X	T	1964	ICS		Ha64	
820	45.562	1.25E+02	9.0E+00	X	T	1964	ICS		Ha64	
1130	62.786	1.15E+02	9.0E+00	X	T	1964	ICS		Ha64	
1440	80.011	9.90E+01	1.0E+01	X	T	1964	ICS		Ha64	

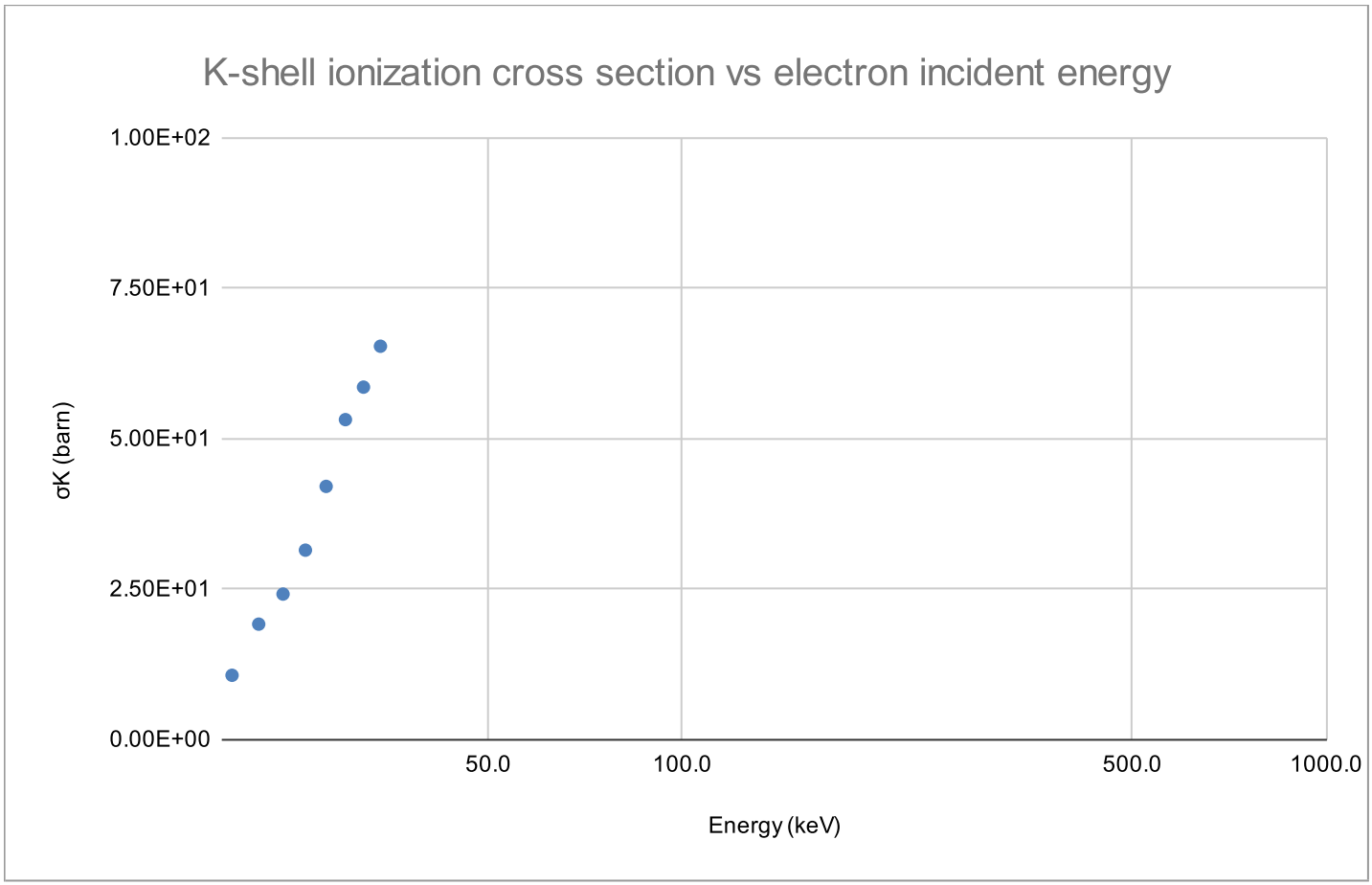

K-shell ionization cross section vs electron incident energy
1.50E+02
1.00E+02
5.00E+01
0.00E+00
σK (barn)
10
100
1000
10000
Energy (keV)

Niobium Nb

Z = 41

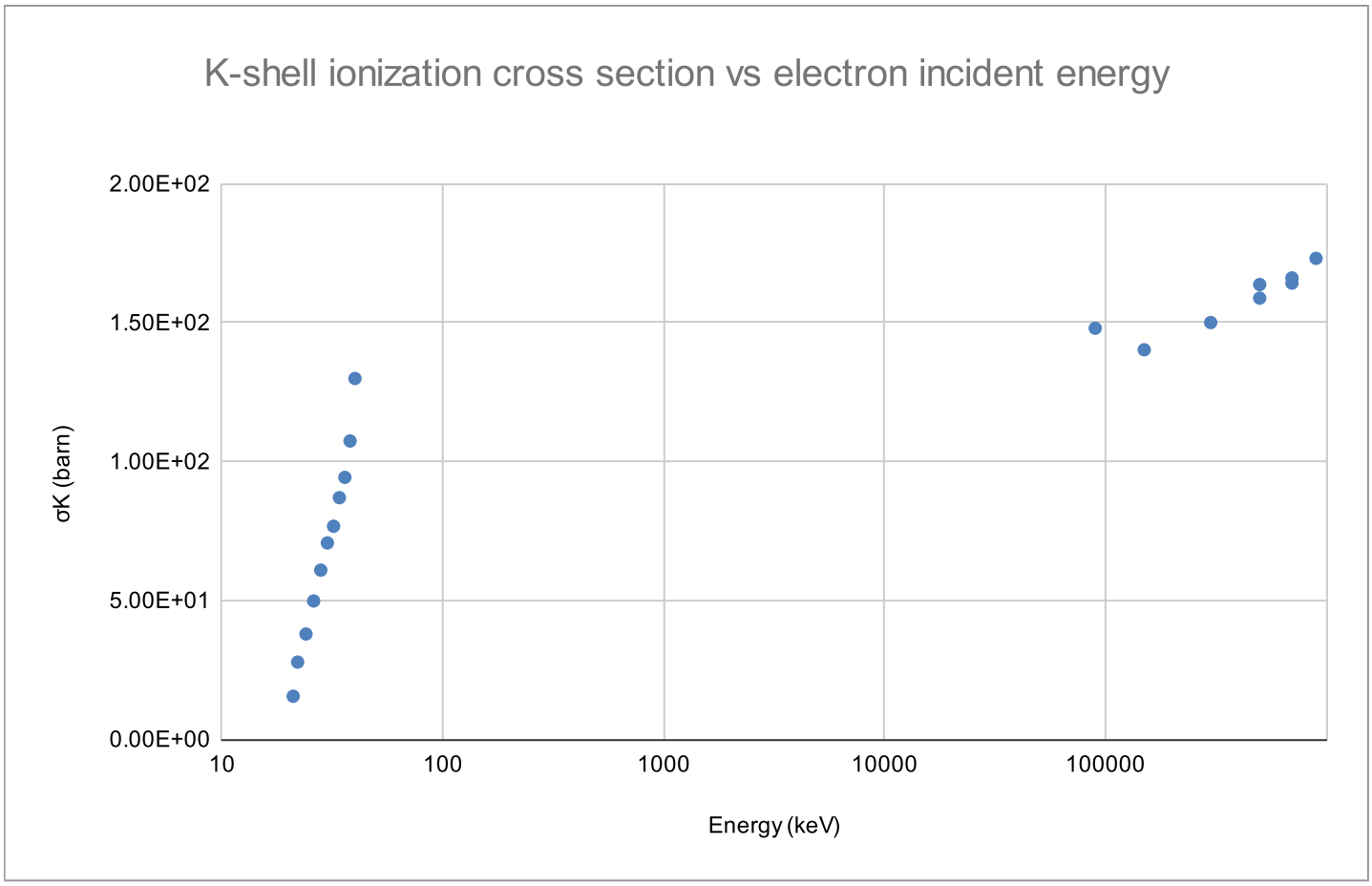
I_K = 18.9856 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
20.0	1.053	1.06E+01	1.4E+00	X	TS	1998	ICS	0.748	Pe98	
22.0	1.159	1.91E+01	2.0E+00	X	TS	1998	ICS	0.748	Pe98	
24.0	1.264	2.41E+01	2.4E+00	X	TS	1998	ICS	0.748	Pe98	
26.0	1.369	3.14E+01	2.9E+00	X	TS	1998	ICS	0.748	Pe98	
28.0	1.475	4.20E+01	4.7E+00	X	TS	1998	ICS	0.748	Pe98	
30.0	1.580	5.31E+01	5.8E+00	X	TS	1998	ICS	0.748	Pe98	
32.0	1.685	5.85E+01	7.7E+00	X	TS	1998	ICS	0.748	Pe98	
34.0	1.791	6.53E+01	8.8E+00	X	TS	1998	ICS	0.748	Pe98	



Molybdenum Mo
Z = 42
I_K = 19.9995 keV

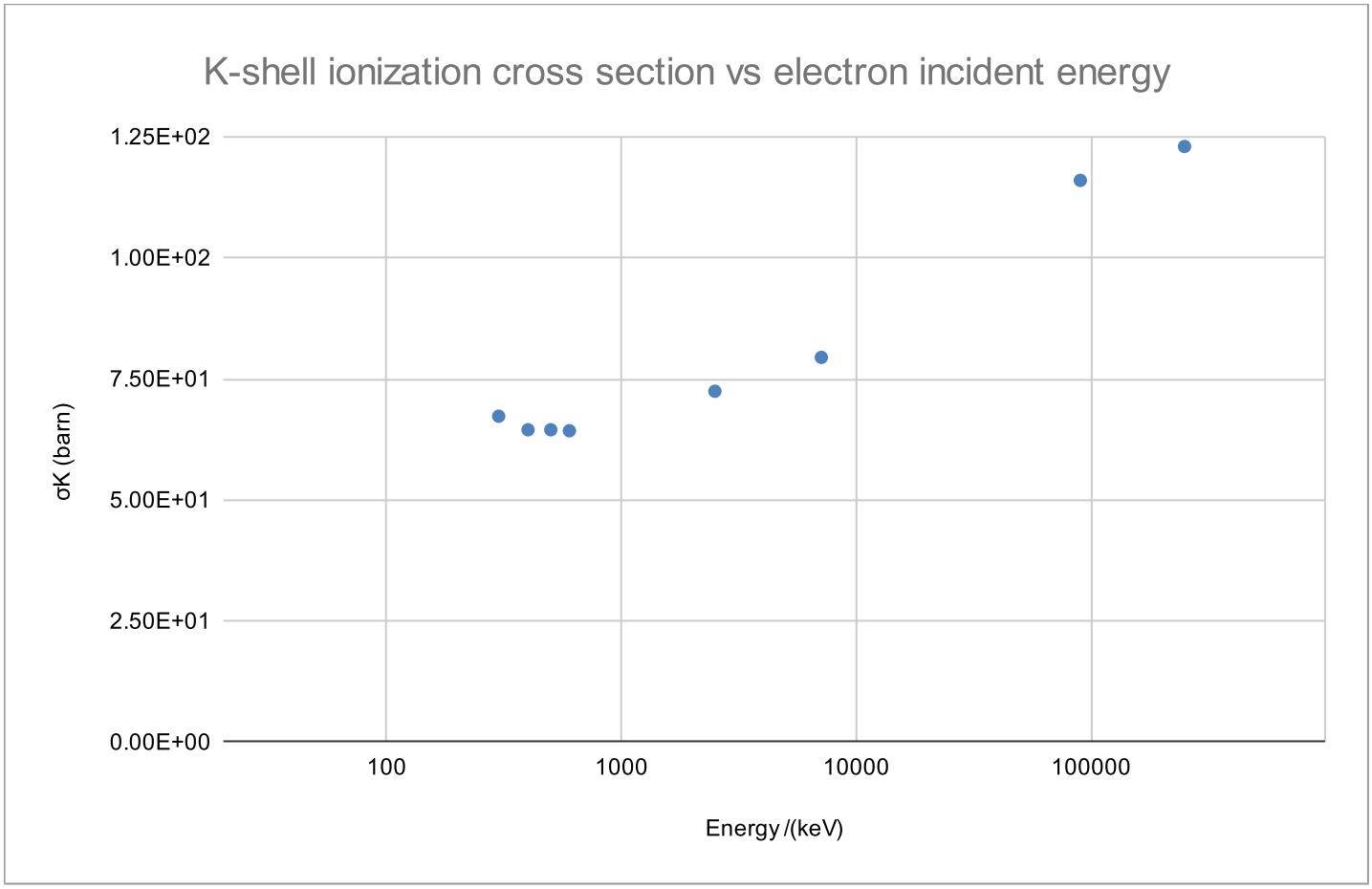
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
21	1.050	1.55E+01	1.4E+00	X	TS	1996	ICS		He96b	
22	1.100	2.78E+01	2.7E+00	X	TS	1996	ICS		He96b	
24	1.200	3.79E+01	3.4E+00	X	TS	1996	ICS		He96b	
26	1.300	4.98E+01	4.1E+00	X	TS	1996	ICS		He96b	
28	1.400	6.09E+01	5.2E+00	X	TS	1996	ICS		He96b	
30	1.500	7.07E+01	6.6E+00	X	TS	1996	ICS		He96b	
32	1.600	7.67E+01	8.1E+00	X	TS	1996	ICS		He96b	
34	1.700	8.70E+01	8.6E+00	X	TS	1996	ICS		He96b	
36	1.800	9.43E+01	1.0E+01	X	TS	1996	ICS		He96b	
38	1.900	1.07E+02	1.2E+01	X	TS	1996	ICS		He96b	
40	2.000	1.30E+02	1.7E+01	X	TS	1996	ICS		He96b	
90000	4500.113	1.48E+02	2.2E+01	X	T	1977	ICS	0.764	Is77	
150000	7500.188	1.40E+02	2.0E+00	X	T	1970	DICS		Mi70	
300000	15000.375	1.50E+02	2.0E+00	X	T	1970	DICS		Mi70	
500000	25000.625	1.64E+02	2.1E+00	X	T	1970	DICS		Mi70	
500000	25000.625	1.59E+02	2.1E+00	X	T	1970	DICS		Mi70	
700000	35000.875	1.66E+02	2.5E+00	X	T	1970	DICS		Mi70	
700000	35000.875	1.64E+02	2.1E+00	X	T	1970	DICS		Mi70	
900000	45001.125	1.73E+02	2.1E+00	X	T	1970	DICS		Mi70	


K-shell ionization cross section vs electron incident energy
2.00E+02
1.50E+02
1.00E+02
5.00E+01
0.00E+00
σK (barn)
10
100
1000
10000
100000
Energy (keV)

Palladium Pd
Z = 46
I_K = 24.3503 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
300	12.320	6.73E+01	6.0E+00	X	T	1977	ICS	0.819	Ri77	
400	16.427	6.45E+01	6.0E+00	X	T	1977	ICS	0.819	Ri77	
500	20.534	6.45E+01	6.0E+00	X	T	1977	ICS	0.819	Ri77	
600	24.640	6.43E+01	6.0E+00	X	T	1977	ICS	0.819	Ri77	
2500	102.668	7.25E+01	7.0E+00	X	T	1970	ICS		Be70	⁋
7100	291.578	7.94E+01	7.9E+00	X	T	1970	ICS		Be70	⁋
90000	3696.053	1.16E+02	1.7E+01	X	T	1977	ICS	0.819	Is77	
250000	10266.814	1.23E+02	1.8E+01	X	T	1977	ICS	0.819	Is77	

(⁋) Taken from table given in Lo90.



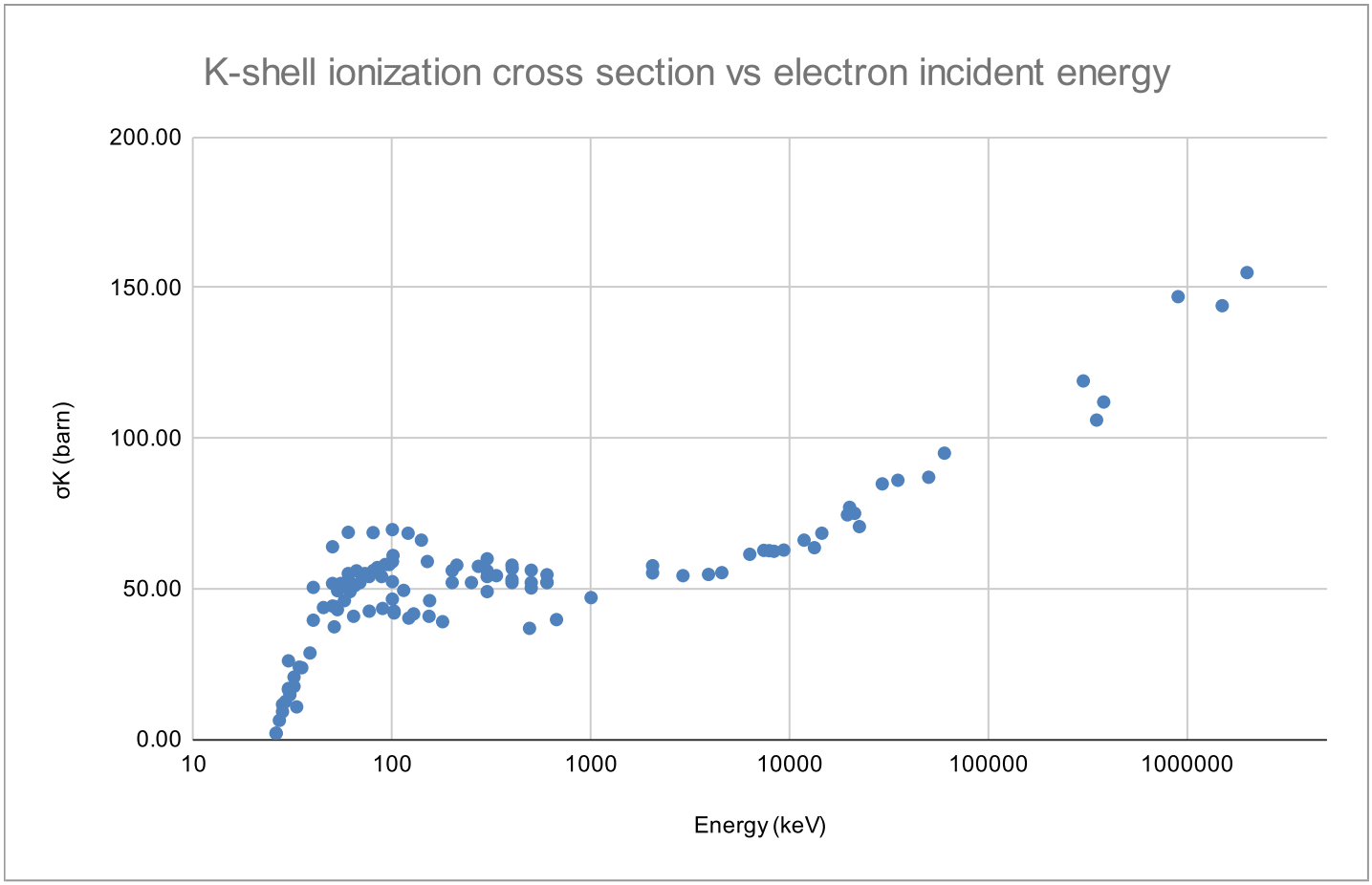
Silver Ag
Z = 47
I_K = 25.5140 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
26	1.019	1.90	0.30	X	T	1981	ICS	0.831	Sh81	
26	1.019	2.0	0.5	X	TS	2001	ICS		Zh01	
27	1.058	6.20	0.90	X	T	1981	ICS	0.831	Sh81	
28	1.097	9.1	1.1	X	T	1981	ICS	0.831	Sh81	
28	1.097	11.5	1.7	X	TS	2001	ICS		Zh01	
29	1.137	12.5	1.6	X	T	1981	ICS	0.831	Sh81	
30	1.176	26.00	0.60	X	T	1972	ICS	0.821	Da72	
30	1.176	16.4	1.9	X	T	1981	ICS	0.831	Sh81	
30	1.176	16.8	2.5	X	TS	2001	ICS		Zh01	
30.5	1.195	14.7	1.3	X	T	1935	ICS	0.72	Cl35	⁋
32	1.274	17.5	4.4	X	T	1993	ICS	0.831	Sc93	*
32	1.254	20.6	2.9	X	TS	2001	ICS		Zh01	
33	1.294	10.7	0.6	X	T	1993	ICS	0.831	Sc93	*
34	1.333	23.9	3.6	X	TS	2001	ICS		Zh01	
35	1.371	23.7	5.9	X	T	1993	ICS	0.831	Sc93	*
38.5	1.509	28.6	2.6	X	T	1935	ICS	0.72	Cl35	⁋
40	1.568	50.40	0.90	X	T	1972	ICS	0.821	Da72	
40	1.568	39.5	9.9	X	T	1993	ICS	0.831	Sc93	*
45	1.770	44	11	X	T	1993	ICS	0.831	Sc93	*
50	1.960	63.9	1.0	X	T	1972	ICS	0.821	Da72	
50	1.960	44	10	X	T	1967	ICS		Fi67	*
50	1.964	52	13	X	T	1993	ICS	0.831	Sc93	*
51.0	1.999	37.3	3.4	X	T	1935	ICS	0.72	Cl35	⁋
51.53	2.020	44.0	5.0	X	T	2016	ICS	0.831	Va16	
52.90	2.073	43.0	5.0	X	T	2016	ICS	0.831	Va16	
53	2.059	49	12	X	T	1993	ICS	0.831	Sc93	*
55	2.151	52	13	X	T	1993	ICS	0.831	Sc93	*
57.35	2.248	46.0	5.0	X	T	2016	ICS	0.831	Va16	
58	2.255	51	13	X	T	1993	ICS	0.831	Sc93	*
60	2.352	68.7	1.1	X	T	1972	ICS	0.821	Da72	
60	2.352	55.0	6.6	X	T	1981	ICS	0.831	Ki81	
60	2.355	53	13	X	T	1993	ICS	0.831	Sc93	*
61.22	2.399	49.0	6.0	X	T	2016	ICS	0.831	Va16	
63.8	2.501	40.8	3.6	X	T	1935	ICS	0.72	Cl35	⁋
64.71	2.536	51.0	6.0	X	T	2016	ICS	0.831	Va16	
66	2.568	56	14	X	T	1993	ICS	0.831	Sc93	*
68.68	2.692	52.0	6.0	X	T	2016	ICS	0.831	Va16	
72.76	2.852	55.0	7.0	X	T	2016	ICS	0.831	Va16	
76.41	2.995	54.0	7.0	X	T	2016	ICS	0.831	Va16	
76.5	2.998	42.5	3.8	X	T	1935	ICS	0.72	Cl35	⁋

80	3.136	68.60	0.70	X	T	1972	ICS	0.821	Da72	
80.23	3.145	56.0	7.0	X	T	2016	ICS	0.831	Va16	
84.01	3.293	57.0	7.0	X	T	2016	ICS	0.831	Va16	
88.31	3.461	54.0	7.0	X	T	2016	ICS	0.831	Va16	
89.3	3.500	43.4	3.9	X	T	1935	ICS	0.72	Cl35	⁋
92.05	3.608	58.0	7.0	X	T	2016	ICS	0.831	Va16	
96.46	3.781	58.0	7.0	X	T	2016	ICS	0.831	Va16	
100	3.919	46.5	7.0	X	T	1987	ICS	0.83	We87b	*
100	3.919	52.3	7.9	X	T	1987	ICS	0.83	We87b	*
100	3.919	69.60	0.60	X	T	1972	ICS	0.821	Da72	
100	3.919	59.0	6.0	X	T	1966	ICS	0.8	Re66	
100	3.919	59.0	7.1	X	T	1981	ICS	0.831	Ki81	
100.77	3.950	61.0	7.0	X	T	2016	ICS	0.831	Va16	
102.0	3.998	42.5	3.8	X	T	1935	ICS	0.72	Cl35	⁋
102	3.998	41.90	0.36	X	T	1966	ICS		Ha66	*
114	4.468	49.4	4.5	X	T	1972	ICS		Hu72	
120	4.703	68.40	0.70	X	T	1972	ICS	0.821	Da72	
121	4.742	40.20	0.36	X	T	1966	ICS		Ha66	*
128.0	5.017	41.6	3.7	X	T	1935	ICS	0.72	Cl35	⁋
140	5.487	66.1	1.0	X	T	1972	ICS	0.821	Da72	
150	5.879	59.0	6.0	X	T	1966	ICS	0.8	Re66	
153.0	5.997	40.8	3.6	X	T	1935	ICS	0.72	Cl35	⁋
154	6.036	46.0	4.3	X	T	1966	ICS		Ha66	*
179.0	7.016	39.0	3.6	X	T	1935	ICS	0.72	Cl35	⁋
200	7.839	52.0	5.0	X	T	1966	ICS	0.8	Re66	
200	7.839	56.0	6.7	X	T	1981	ICS	0.831	Ki81	
211	8.270	57.8	4.9	X	T	1966	ICS		Ha66	*
250	9.799	52.0	5.0	X	T	1966	ICS	0.8	Re66	
271	10.622	57.40	0.54	X	T	1966	ICS		Ha66	*
300	11.758	59.9	5.4	X	T	1977	ICS	0.83	Ri77	
300	11.758	49.0	5.0	X	T	1966	ICS	0.8	Re66	
300	11.758	55.9	5.6	X	T	1976	ICS	0.834	Sc76	
300	11.758	54.0	6.5	X	T	1981	ICS	0.831	Ki81	
334	13.091	54.3	5.6	X	T	1966	ICS		Ha66	*
400	15.678	57.8	5.2	X	T	1977	ICS	0.83	Ri77	
400	15.678	53.0	5.3	X	T	1976	ICS	0.834	Sc76	
400	15.678	52.0	6.2	X	T	1981	ICS	0.831	Ki81	
401	15.717	56.7	4.9	X	T	1966	ICS		Ha66	*
490	19.205	36.8	9.0	X	T	1974	ICS	0.83	Se74	
500	19.597	56.1	5.1	X	T	1977	ICS	0.83	Ri77	
500	19.597	50.2	5.0	X	T	1976	ICS	0.834	Sc76	
500	19.597	52.0	6.2	X	T	1981	ICS	0.831	Ki81	
600	23.517	54.6	5.0	X	T	1977	ICS	0.83	Ri77	
600	23.517	52.1	5.2	X	T	1976	ICS	0.834	Sc76	
600	23.517	52.0	6.2	X	T	1981	ICS	0.831	Ki81	
670	26.260	40	10	X	T	1974	ICS	0.83	Se74	
1000	39.194	47.0	5.0	X	T	1966	ICS	0.8	Re66	
2040	79.956	55.2	5.0	X	T	1972	ICS	0.83	Sc72	*
2040	79.956	57.6	5.2	X	T	1972	ICS	0.83	Sc72	*
2900	113.663	54.3	3.1	X	T	1975	ICS		Da75	*

3900	152.857	54.7	2.7	X	T	1975	ICS		Da75	*
4550	178.333	55.3	2.8	X	T	1975	ICS		Da75	*
6290	246.531	61.4	3.7	X	T	1975	ICS		Da75	*
7400	290.037	62.7	2.6	X	T	1975	ICS		Da75	*
7880	308.850	62.6	2.2	X	T	1975	ICS		Da75	*
8330	326.487	62.4	2.3	X	T	1975	ICS		Da75	*
9330	365.682	62.8	3.2	X	T	1975	ICS		Da75	*
11800	462.491	66.1	3.5	X	T	1975	ICS		Da75	*
13300	521.282	63.6	3.5	X	T	1975	ICS		Da75	*
14500	568.315	68.4	3.5	X	T	1975	ICS		Da75	*
19500	764.286	74.5	4.3	X	T	1975	ICS		Da75	*
20000	783.883	77.0	5.0	X	T	1979	ICS	0.83	Ho79	
21200	830.916	75.0	4.3	X	T	1975	ICS		Da75	*
22400	877.949	70.6	4.7	X	T	1975	ICS		Da75	*
29200	1144.470	84.8	8.8	X	T	1975	ICS		Da75	*
35000	1371.796	86.0	5.0	X	T	1979	ICS	0.83	Ho79	
50000	1959.708	87.0	5.0	X	T	1979	ICS	0.83	Ho79	
60000	2351.650	95.0	6.0	X	T	1979	ICS	0.83	Ho79	
300000	11758.250	119	11	X	T	1987	ICS	0.83	Wa87	*
350000	13717.959	106	12	X	T	1987	ICS	0.83	Wa87	*
380000	14893.784	112	10	X	T	1987	ICS	0.83	Wa87	*
900000	35274.751	147	11	X	T	1982	ICS	0.83	Ge82	
1500000	58791.252	144	11	X	T	1982	ICS	0.83	Ge82	
2000000	78388.336	155	11	X	T	1982	ICS	0.83	Ge82	

(*) Digitalized from the original paper.
(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
200.00
150.00
100.00
50.00
0.00
σK (barn)
10
100
1000
10000
100000
1000000
Energy (keV)

Cadmium Cd
Z = 48
I_K = 26.7112 keV

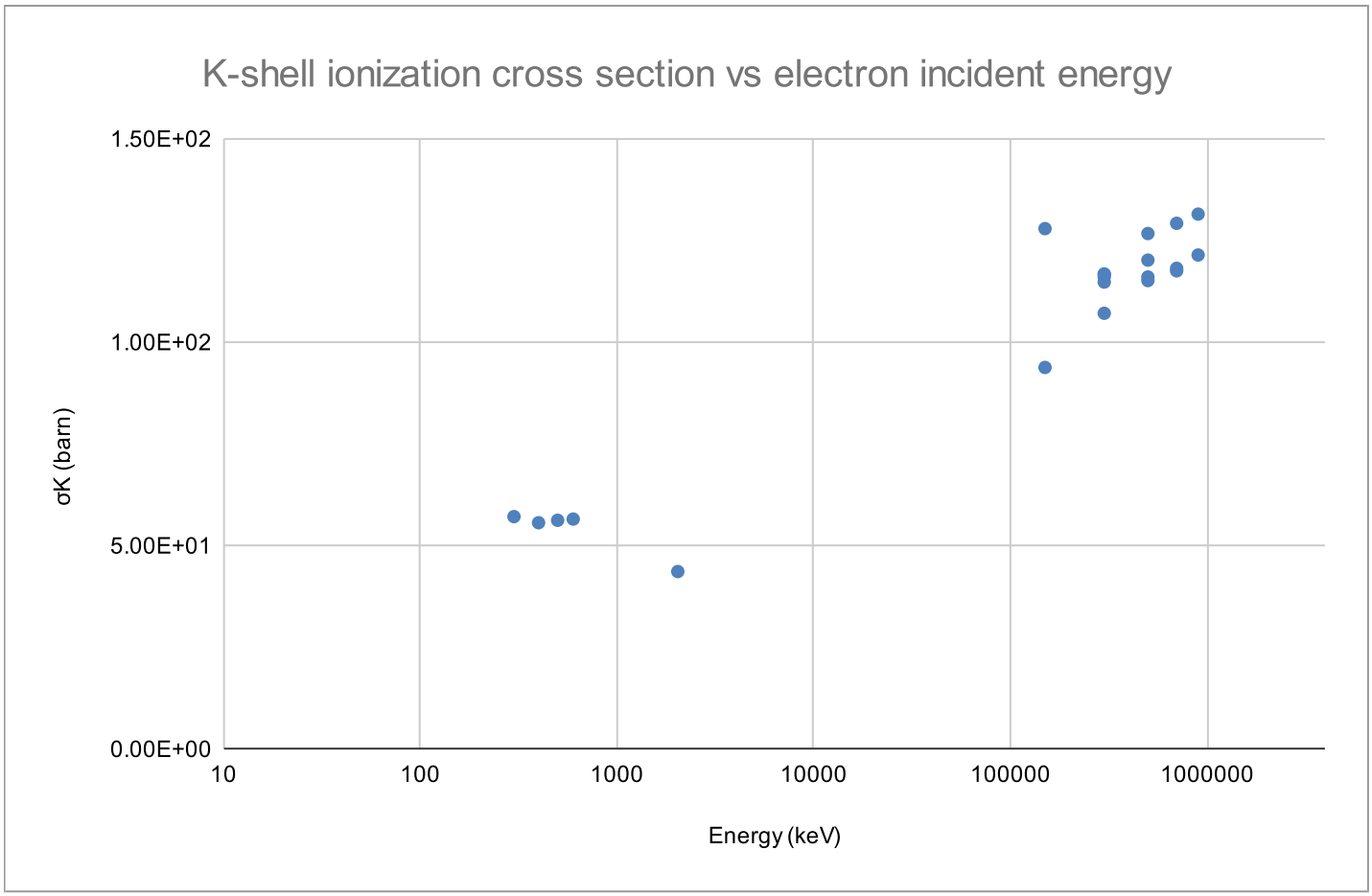
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	76.372	4.61E+01	4.1E+00	X	T	1972	ICS	0.840	Sc72	⁋

(⁋) Taken from table given in Lo90.

Indium In
Z = 49
I_K = 27.9399 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
300	10.737	5.72E+01	5.2E+00	X	T	1977	ICS	0.85	Ri77	
400	14.316	5.57E+01	5.0E+00	X	T	1977	ICS	0.85	Ri77	
500	17.896	5.63E+01	5.1E+00	X	T	1977	ICS	0.85	Ri77	
600	21.475	5.66E+01	5.1E+00	X	T	1977	ICS	0.85	Ri77	
2040	73.014	4.37E+01	3.9E+00	X	T	1972	ICS	0.85	Sc72	⁋
150000	5368.666	9.39E+01	1.3E+00	X	T	1970	DICS		Mi70	
300000	10737.333	1.07E+02	1.5E+00	X	T	1970	DICS		Mi70	
300000	10737.333	1.16E+02	1.6E+00	X	T	1970	DICS		Mi70	
300000	10737.333	1.17E+02	1.5E+00	X	T	1970	DICS		Mi70	
300000	10737.333	1.17E+02	1.5E+00	X	T	1970	DICS		Mi70	
300000	10737.333	1.15E+02	1.5E+00	X	T	1970	DICS		Mi70	
500000	17895.554	1.16E+02	1.5E+00	X	T	1970	DICS		Mi70	
500000	17895.554	1.15E+02	1.8E+00	X	T	1970	DICS		Mi70	
500000	17895.554	1.27E+02	1.9E+00	X	T	1970	DICS		Mi70	
500000	17895.554	1.20E+02	1.6E+00	X	T	1970	DICS		Mi70	
700000	25053.776	1.18E+02	1.6E+00	X	T	1970	DICS		Mi70	
700000	25053.776	1.18E+02	1.6E+00	X	T	1970	DICS		Mi70	
700000	25053.776	1.29E+02	1.8E+00	X	T	1970	DICS		Mi70	
900000	32211.998	1.22E+02	1.5E+00	X	T	1970	DICS		Mi70	
900000	32211.998	1.32E+02	1.8E+00	X	T	1970	DICS		Mi70	
150000	5368.666	1.28E+02	1.9E+01	X	T	1977	ICS	0.850	Is77	

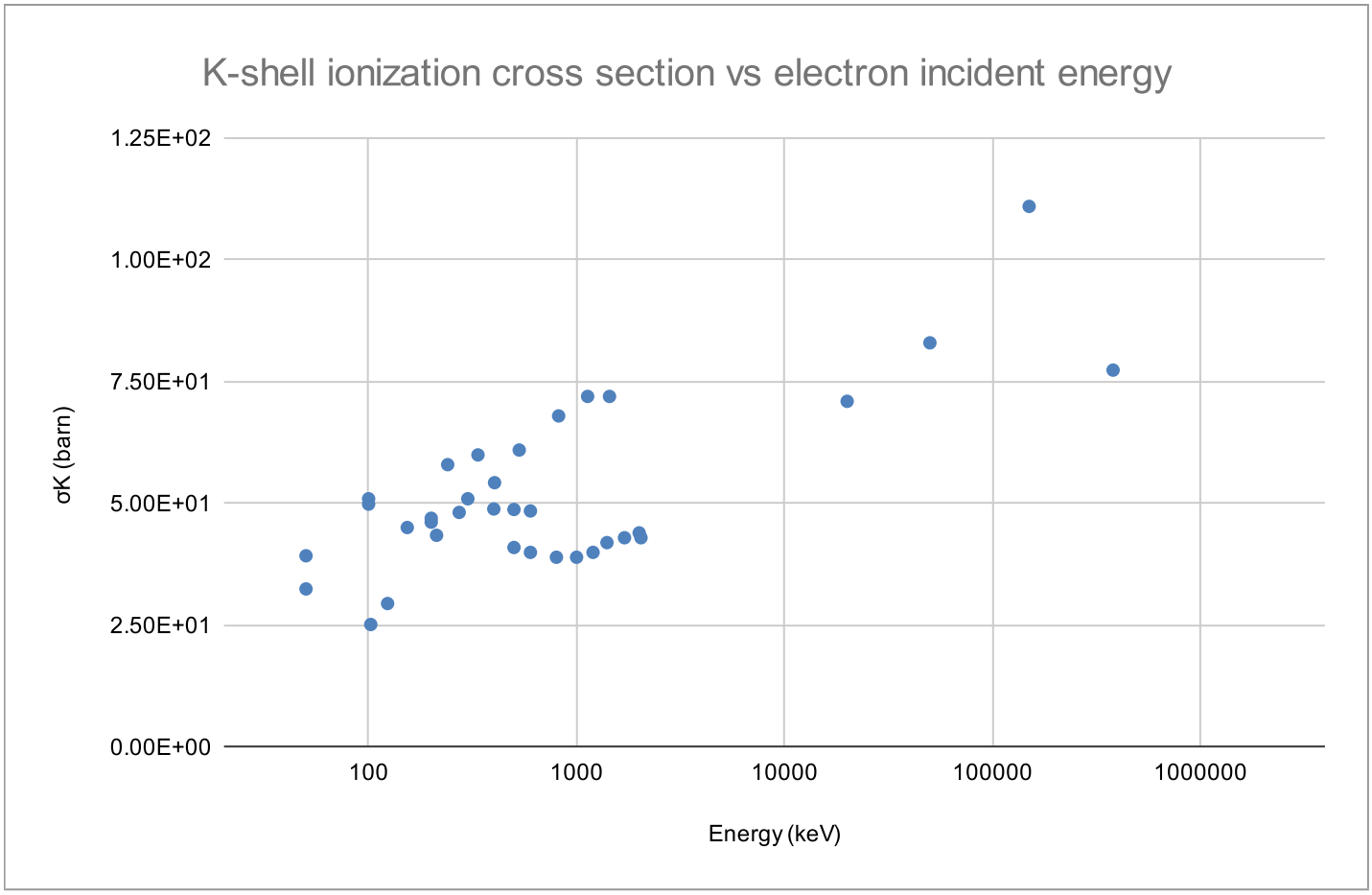
(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
1.50E+02
1.00E+02
5.00E+01
0.00E+00
σK (barn)
10
100
1000
10000
100000
1000000
Energy (keV)

Tin Sn
Z = 50
I_K = 29.2001 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
50	1.712	3.93E+01	9.6E-01	X	T	1964	ICS	0.84	Mo64	*
50	1.712	3.25E+01	8.0E+00	X	T	1967	ICS		Fi67	*
100	3.425	4.99E+01	5.2E+00	X	T	1964	ICS	0.84	Mo64	*
100	3.425	5.10E+01	7.7E+00	X	T	1987	ICS	0.859	We87b	*
102	3.507	2.52E+01	2.0E+00	X	T	1966	ICS		Ha66	*
123	4.226	2.95E+01	2.7E+00	X	T	1966	ICS		Ha66	*
153	5.253	4.51E+01	4.2E+00	X	T	1966	ICS		Ha66	*
200	6.849	4.62E+01	2.0E+00	X	T	1964	ICS	0.84	Mo64	*
200	6.849	4.70E+01	5.0E+00	X	T	1966	ICS	0.84	Re66	
212	7.267	4.35E+01	4.2E+00	X	T	1966	ICS		Ha66	*
240	8.219	5.80E+01	3.0E+00	X	T	1964	ICS		Ha64	
273	9.336	4.82E+01	4.5E+00	X	T	1966	ICS		Ha66	*
300	10.274	5.10E+01	4.6E+00	X	T	1977	ICS	0.859	Ri77	
336	11.493	6.00E+01	5.4E+00	X	T	1966	ICS		Ha66	*
400	13.699	4.89E+01	4.4E+00	X	T	1977	ICS	0.859	Ri77	
403	13.814	5.43E+01	5.4E+00	X	T	1966	ICS		Ha66	*
500	17.123	4.10E+01	2.5E+00	X	T	1964	ICS	0.84	Mo64	*
500	17.123	4.88E+01	4.4E+00	X	T	1977	ICS	0.859	Ri77	
530	18.151	6.10E+01	3.0E+00	X	T	1964	ICS		Ha64	
600	20.548	4.85E+01	4.4E+00	X	T	1977	ICS	0.859	Ri77	
600	20.548	4.00E+01	4.0E+00	X	T	1966	ICS	0.84	Re66	
800	27.397	3.90E+01	4.0E+00	X	T	1966	ICS	0.84	Re66	
820	28.082	6.80E+01	4.0E+00	X	T	1964	ICS		Ha64	
1000	34.246	3.90E+01	4.0E+00	X	T	1966	ICS	0.84	Re66	
1130	38.698	7.20E+01	4.0E+00	X	T	1964	ICS		Ha64	
1200	41.096	4.00E+01	4.0E+00	X	T	1966	ICS	0.84	Re66	
1400	47.945	4.20E+01	4.0E+00	X	T	1966	ICS	0.84	Re66	
1440	49.315	7.20E+01	4.0E+00	X	T	1964	ICS		Ha64	
1700	58.219	4.30E+01	4.0E+00	X	T	1966	ICS	0.84	Re66	
2000	68.493	4.40E+01	4.0E+00	X	T	1966	ICS	0.84	Re66	
2040	69.863	4.30E+01	3.9E+00	X	T	1972	ICS	0.859	Sc72	⁋
20000	684.929	7.10E+01	5.0E+00	X	T	1979	ICS	0.859	Ho79	
50000	1712.323	8.30E+01	6.0E+00	X	T	1979	ICS	0.859	Ho79	
150000	5136.969	1.11E+02	1.7E+01	X	T	1977	ICS	0.859	Is77	
380000	13013.654	7.74E+01	9.6E+00	X	T	1987	ICS	0.859	Wa87	*

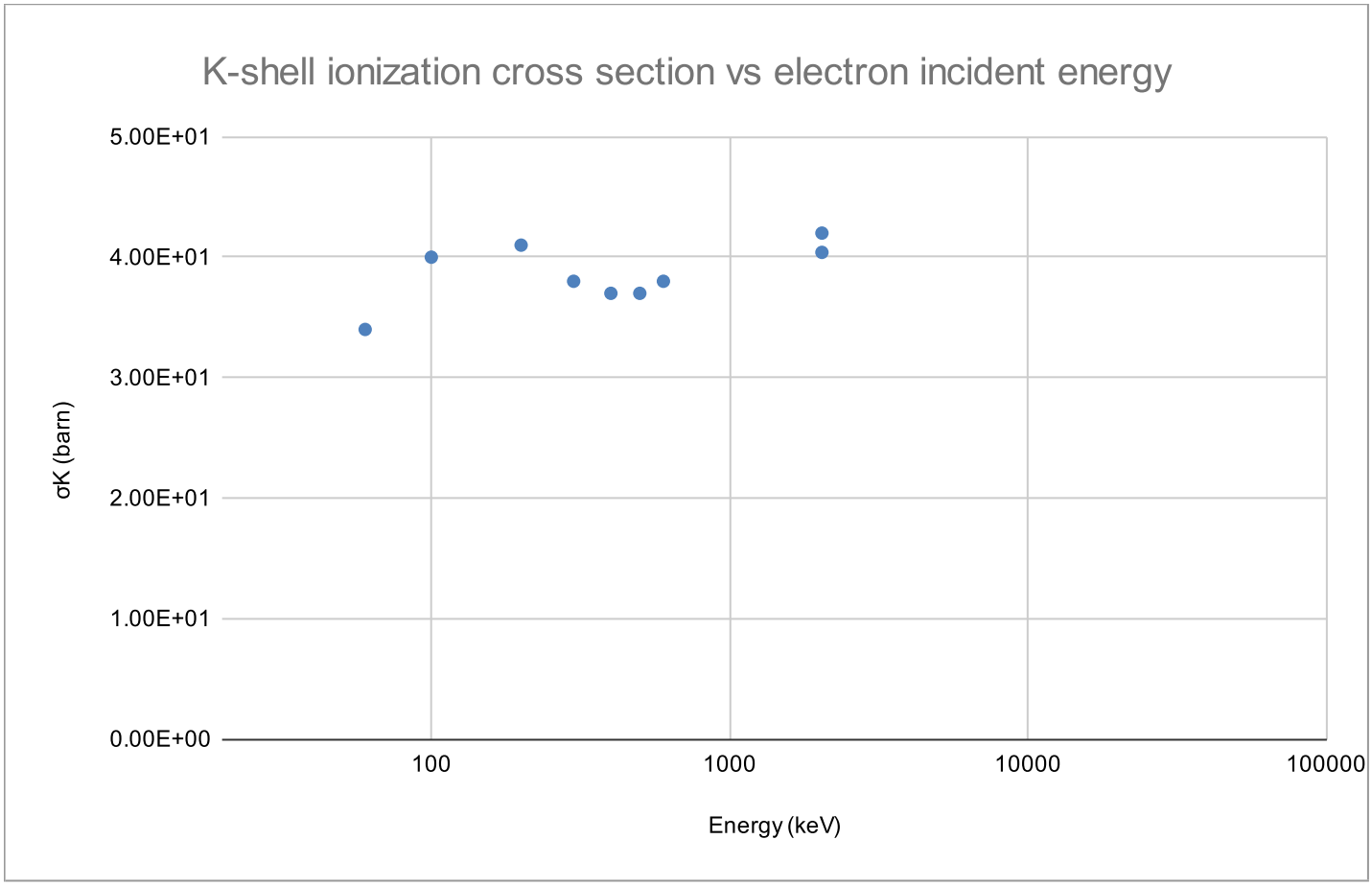
(*) Digitalized from the original paper
(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
1.25E+02
1.00E+02
7.50E+01
5.00E+01
2.50E+01
0.00E+00
σK (barn)
100
1000
10000
100000
1000000
Energy (keV)

Antimony Sb
Z = 51
I_K = 30.4912 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
60	1.968	3.40E+01	4.1E+00	X	T	1981	ICS	0.87	Ki81	
100	3.280	4.00E+01	4.8E+00	X	T	1981	ICS	0.87	Ki81	
200	6.559	4.10E+01	4.9E+00	X	T	1981	ICS	0.87	Ki81	
300	9.839	3.80E+01	4.6E+00	X	T	1981	ICS	0.87	Ki81	
400	13.119	3.70E+01	4.4E+00	X	T	1981	ICS	0.87	Ki81	
500	16.398	3.70E+01	4.4E+00	X	T	1981	ICS	0.87	Ki81	
600	19.678	3.80E+01	4.6E+00	X	T	1981	ICS	0.87	Ki81	
2040	66.905	4.04E+01	3.6E+00	X	T	1972	ICS	0.867	Sc72	*
2040	66.905	4.20E+01	3.8E+00	X	T	1972	ICS	0.867	Sc72	*

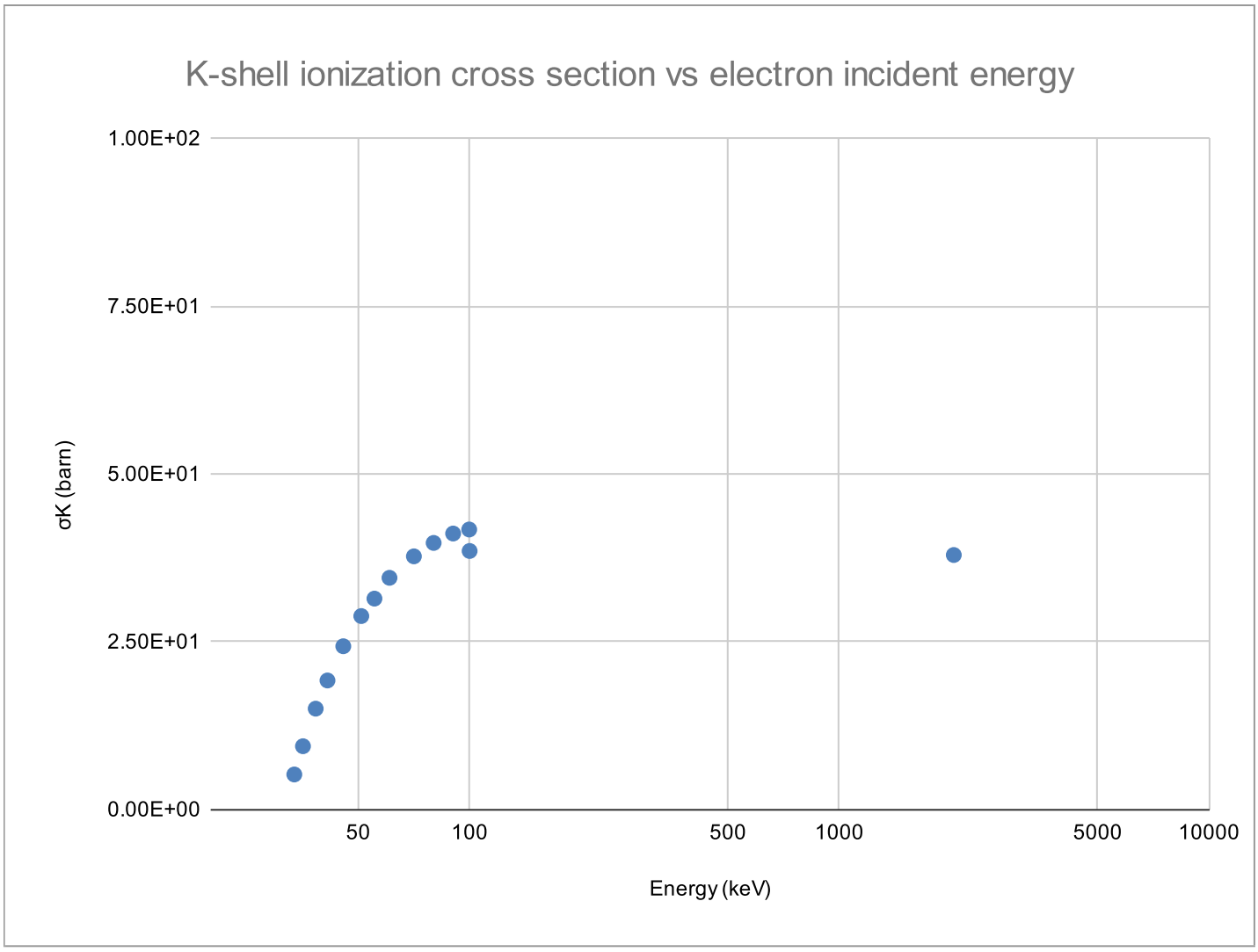
(*) Digitalized from the original paper.



Tellurium Te
Z = 52
I_K = 31.8138 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
33.56	1.055	5.19E+00	2.6E-01	X	T	2019	ICS	0.877	Sa19	
35.42	1.113	9.40E+00	5.0E-01	X	T	2019	ICS	0.877	Sa19	
38.34	1.205	1.50E+01	8.0E-01	X	T	2019	ICS	0.877	Sa19	
41.26	1.297	1.92E+01	9.0E-01	X	T	2019	ICS	0.877	Sa19	
45.53	1.431	2.43E+01	1.1E+00	X	T	2019	ICS	0.877	Sa19	
50.93	1.601	2.88E+01	1.4E+00	X	T	2019	ICS	0.877	Sa19	
55.28	1.738	3.14E+01	1.6E+00	X	T	2019	ICS	0.877	Sa19	
60.71	1.908	3.45E+01	1.7E+00	X	T	2019	ICS	0.877	Sa19	
70.68	2.222	3.77E+01	1.8E+00	X	T	2019	ICS	0.877	Sa19	
79.93	2.512	3.97E+01	1.9E+00	X	T	2019	ICS	0.877	Sa19	
90.24	2.837	4.11E+01	2.0E+00	X	T	2019	ICS	0.877	Sa19	
99.74	3.135	4.17E+01	2.0E+00	X	T	2019	ICS	0.877	Sa19	
100	3.143	3.85E+01	5.8E+00	X	T	1987	ICS	0.875	We87b	*
2040	64.123	3.79E+01	3.4E+00	X	T	1972	ICS	0.875	Sc72	⁋
300000	9429.870	9.00E+01	5.3E+00	X	TS	1987	ICS	0.875	Wa87	*
380000	11944.502	9.77E+01	1.8E+01	X	TS	1987	ICS	0.875	Wa87	*

(*) Digitalized from the original paper.
(⁋) Taken from table given in Lo90.

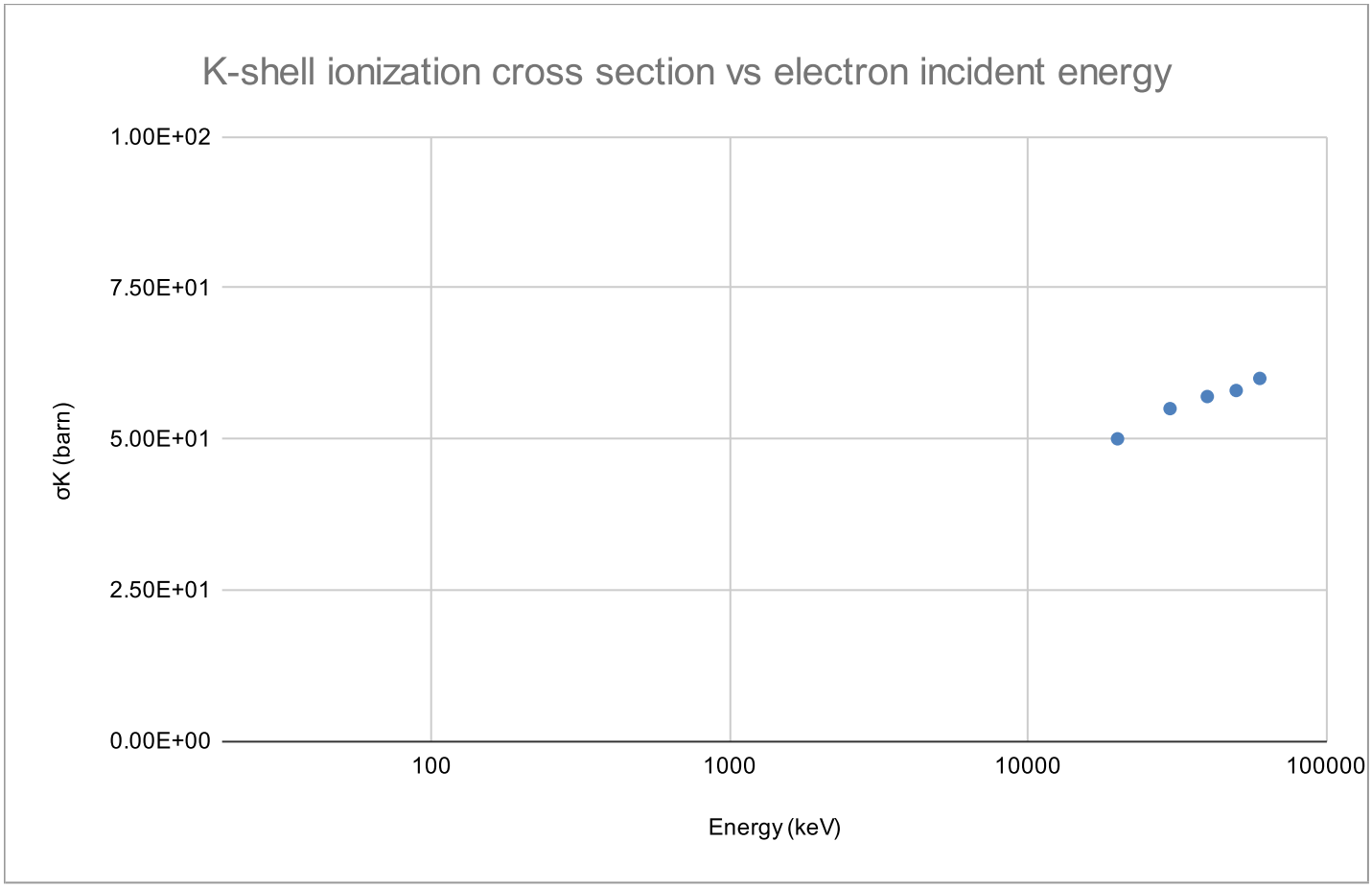

K-shell ionization cross section vs electron incident energy
1.00E+02
7.50E+01
5.00E+01
2.50E+01
0.00E+00
σK (barn)
50
100
500
1000
5000
10000
Energy (keV)

Xenon Xe

Z = 54

I_K = 34.5644 keV

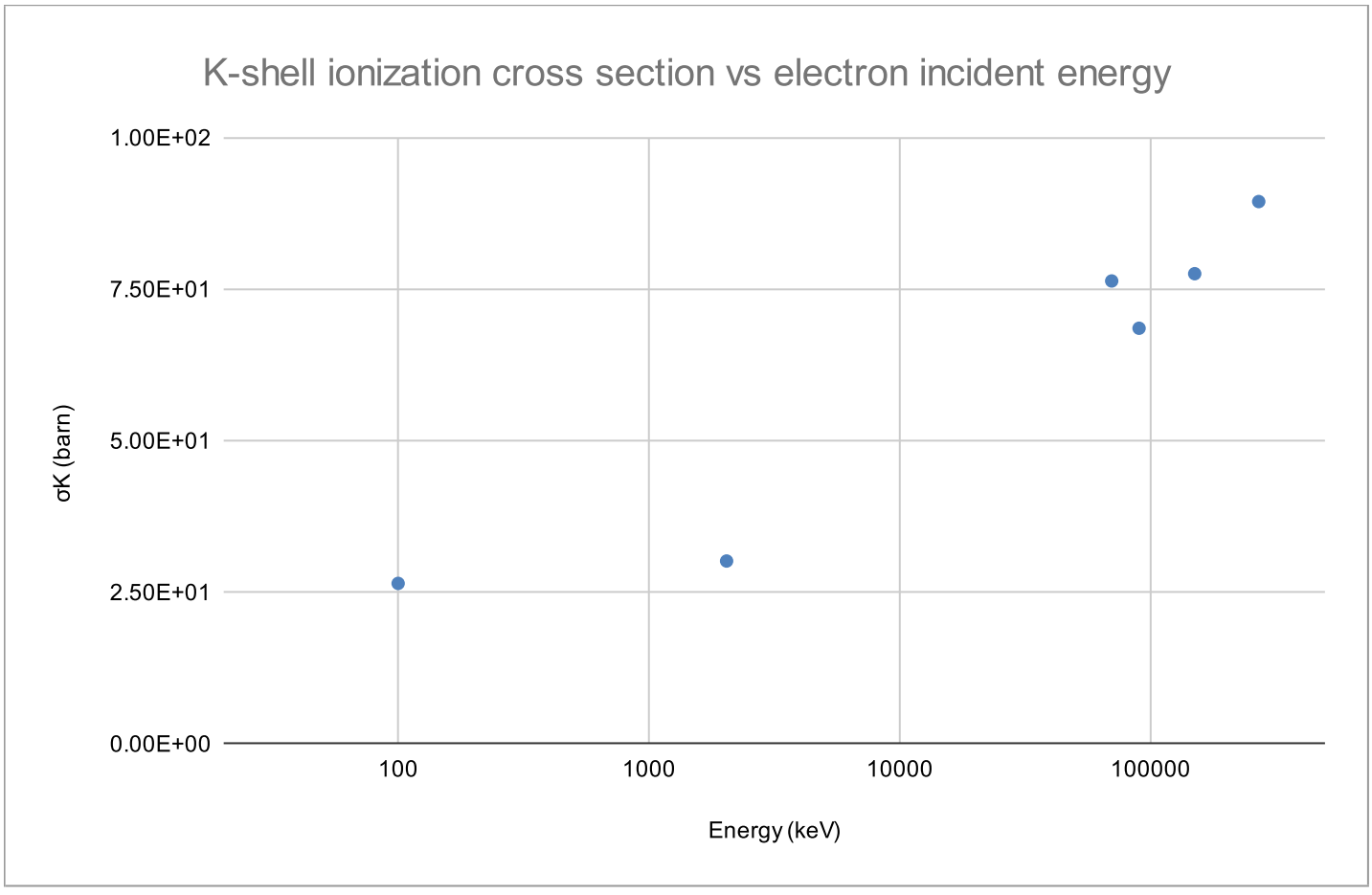
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
20000	578.630	5.00E+01	5.0E+00	X	G	1979	ICS	0.889	Ho79	
30000	867.945	5.50E+01	5.0E+00	X	G	1979	ICS	0.889	Ho79	
40000	1157.260	5.70E+01	5.0E+00	X	G	1979	ICS	0.889	Ho79	
50000	1446.575	5.80E+01	5.0E+00	X	G	1979	ICS	0.889	Ho79	
60000	1735.890	6.00E+01	5.0E+00	X	G	1979	ICS	0.889	Ho79	



Barium Ba
Z = 56
I_K = 37.4406 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
100	2.671	2.65E+01	4.0E+00	X	T	1987	ICS	0.901	We87b	*
2040	54.486	3.02E+01	2.7E+00	X	T	1972	ICS	0.901	Sc72	⁋
70000	1869.628	7.64E+01	1.1E+01	X	T	1977	ICS	0.901	Is77	
90000	2403.808	6.86E+01	1.0E+01	X	T	1977	ICS	0.901	Is77	
150000	4006.346	7.76E+01	1.2E+01	X	T	1977	ICS	0.901	Is77	
270000	7211.423	8.95E+01	1.3E+01	X	T	1977	ICS	0.901	Is77	

(*) Digitalized from the original paper.
(⁋) Taken from table given in Lo90.



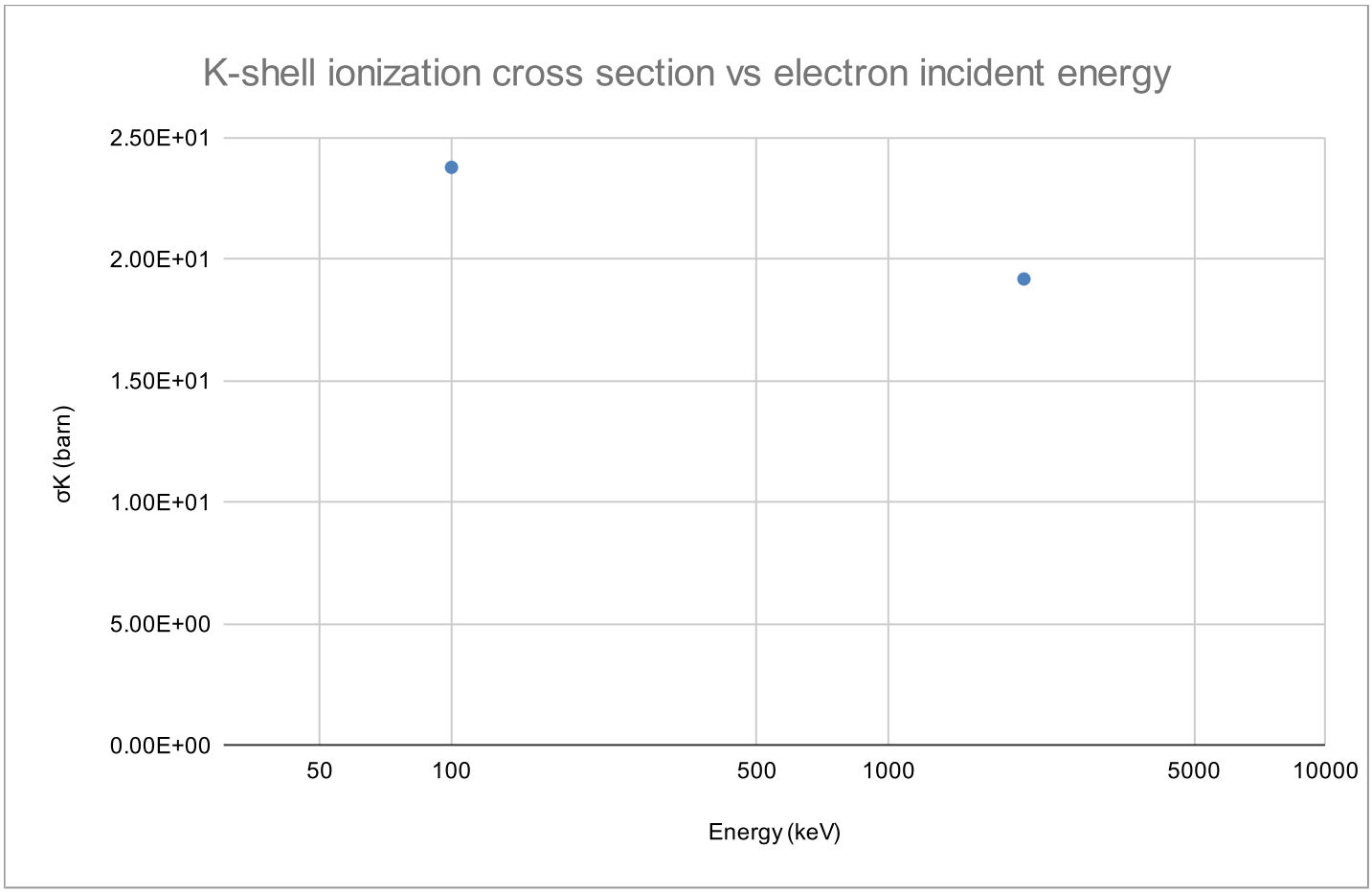
Lanthanum La

Z = 57

I_K = 38.9246 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
100	2.569	2.38E+01	3.6E+00	X	T	1987	ICS	0.906	We87b	*
2040	52.409	1.92E+01	1.7E+00	X	T	1972	ICS	0.906	Sc72	⁋

(*) Digitalized from the original paper.
(⁋) Taken from table given in Lo90.



Cerium Ce
Z = 58
I_K = 40.443 keV

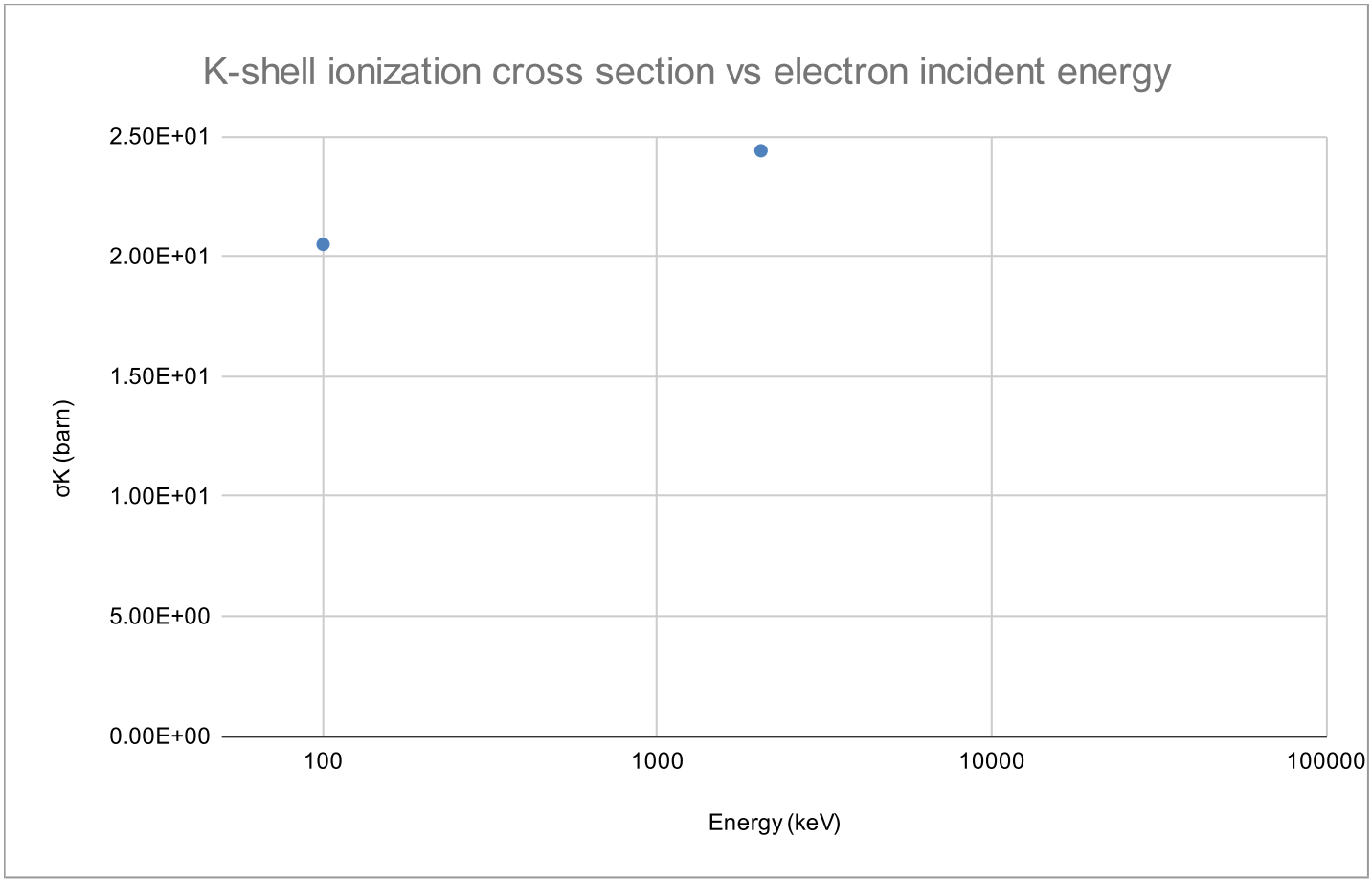
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	50.441	2.31E+01	2.1E+00	X	T	1972	ICS	0.911	Sc72	*
2040	50.441	2.40E+01	2.2E+00	X	T	1972	ICS	0.911	Sc72	*

(*) Digitalized from the original paper.

Praseodymium Pr
Z = 59
I_K = 41.9906 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
100	2.381	2.05E+01	3.1E+00	X	T	1987	ICS	0.915	We87b	*
2040	48.582	2.44E+01	2.2E+00	X	T	1972	ICS	0.915	Sc72	⁋

(*) Digitalized from the original paper.
(⁋) Taken from table given in Lo90.



Neodynium Nd
Z = 60
I_K = 43.5689 keV

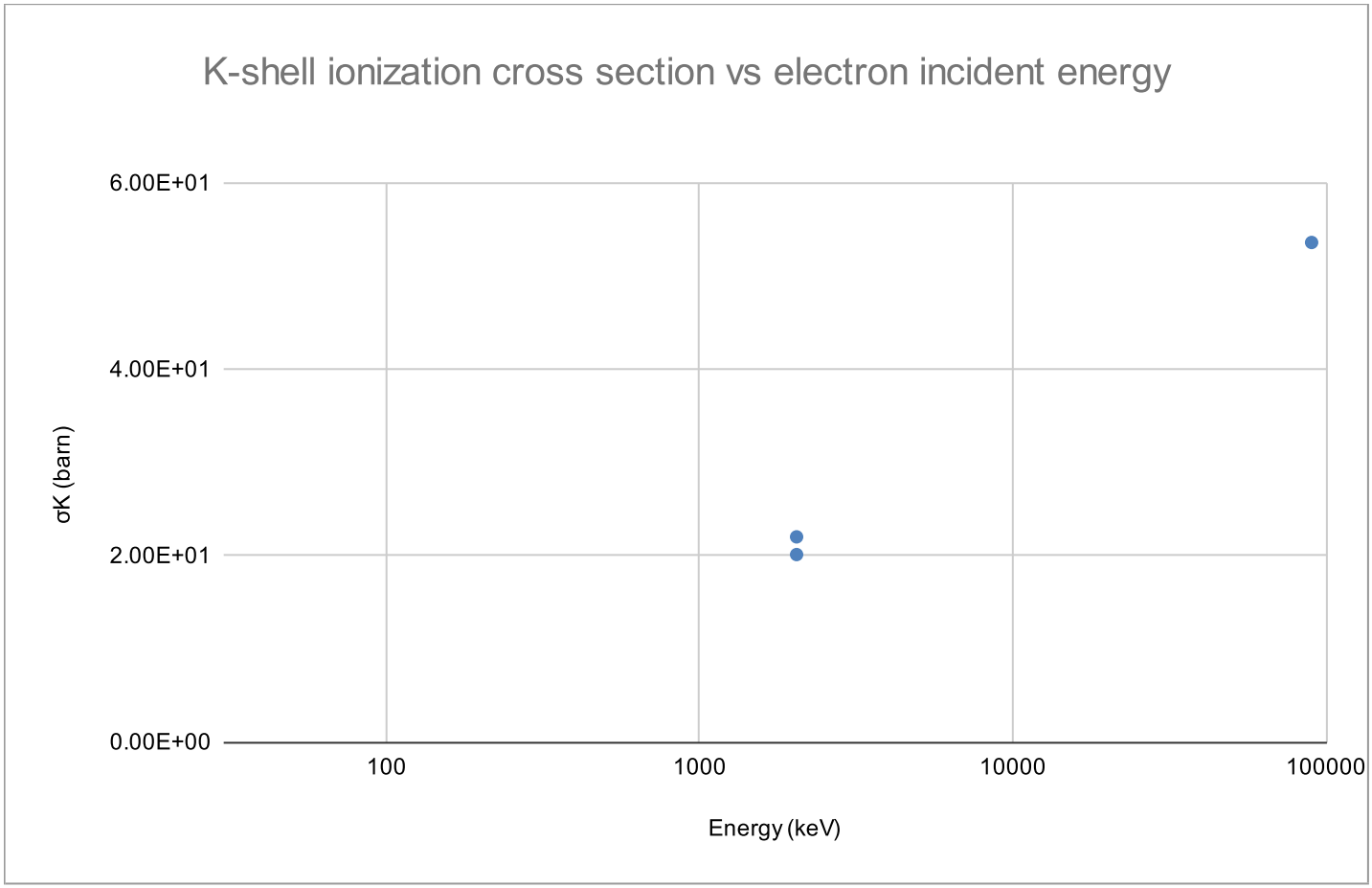
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	46.822	2.13E+01	1.9E+00	X	T	1972	ICS	0.920	Sc72	*
2040	46.822	2.19E+01	2.0E+00	X	T	1972	ICS	0.920	Sc72	*

(*) Digitalized from the original paper.

Samarium Sm
Z = 62
I_K = 46.8342 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	43.558	2.01E+01	1.8E+00	X	T	1972	ICS	0.928	Sc72	*
2040	43.558	2.20E+01	2.0E+00	X	T	1972	ICS	0.928	Sc72	*
90000	1921.673	5.36E+01	8.0E+00	X	T	1977	ICS	0.928	Is77	

(*) Digitalized from the original paper.



Europium Eu
Z = 63
I_K = 48.5190 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	42.045	2.12E+01	1.9E+00	X	T	1972	ICS	0.931	Sc72	⁋

(⁋) Taken from table given in Lo90.

Gadolinium Gd
Z = 64
I_K = 50.2391 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	40.606	2.11E+01	1.9E+00	X	T	1972	ICS	0.934	Sc72	(⁋)

(⁋) Taken from table given in Lo90.

Terbium Tb
Z = 65
I_K = 51.9957 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
100	1.923	1.30E+01	2.0E+00	X	T	1987	ICS	0.937	We87b	*

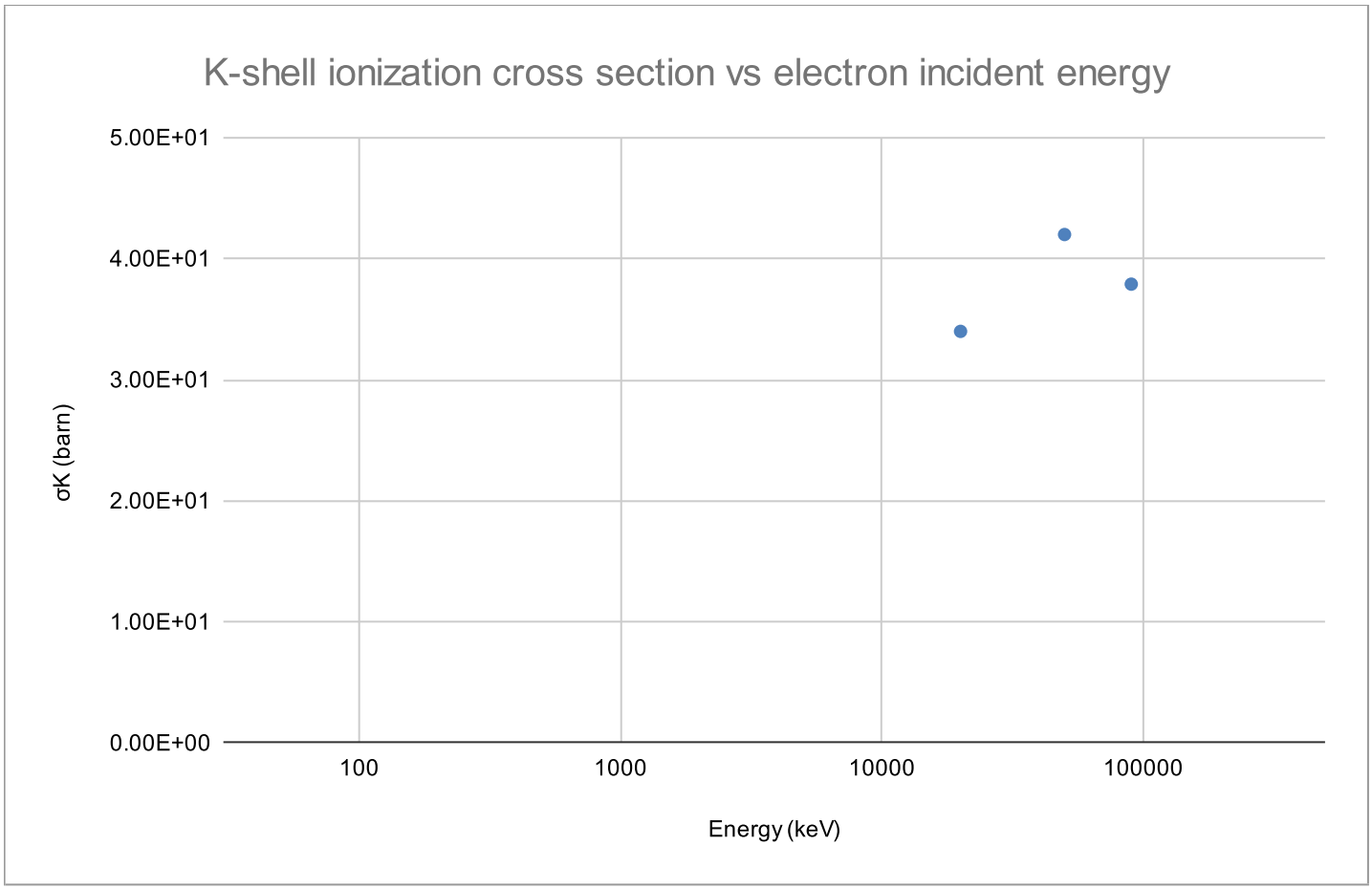
(*) Digitalized from the original paper.

Holmium Ho

Z = 67

I_K = 55.6177 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
20000	359.598	3.40E+01	3.0E+00	X	T	1979	ICS	0.943	Ho79	
50000	898.994	4.20E+01	4.0E+00	X	T	1979	ICS	0.943	Ho79	
90000	1618.190	3.79E+01	5.7E+00	X	T	1977	ICS	0.943	Is77	



Erbium Er
Z = 68
I_K = 57.4855 keV

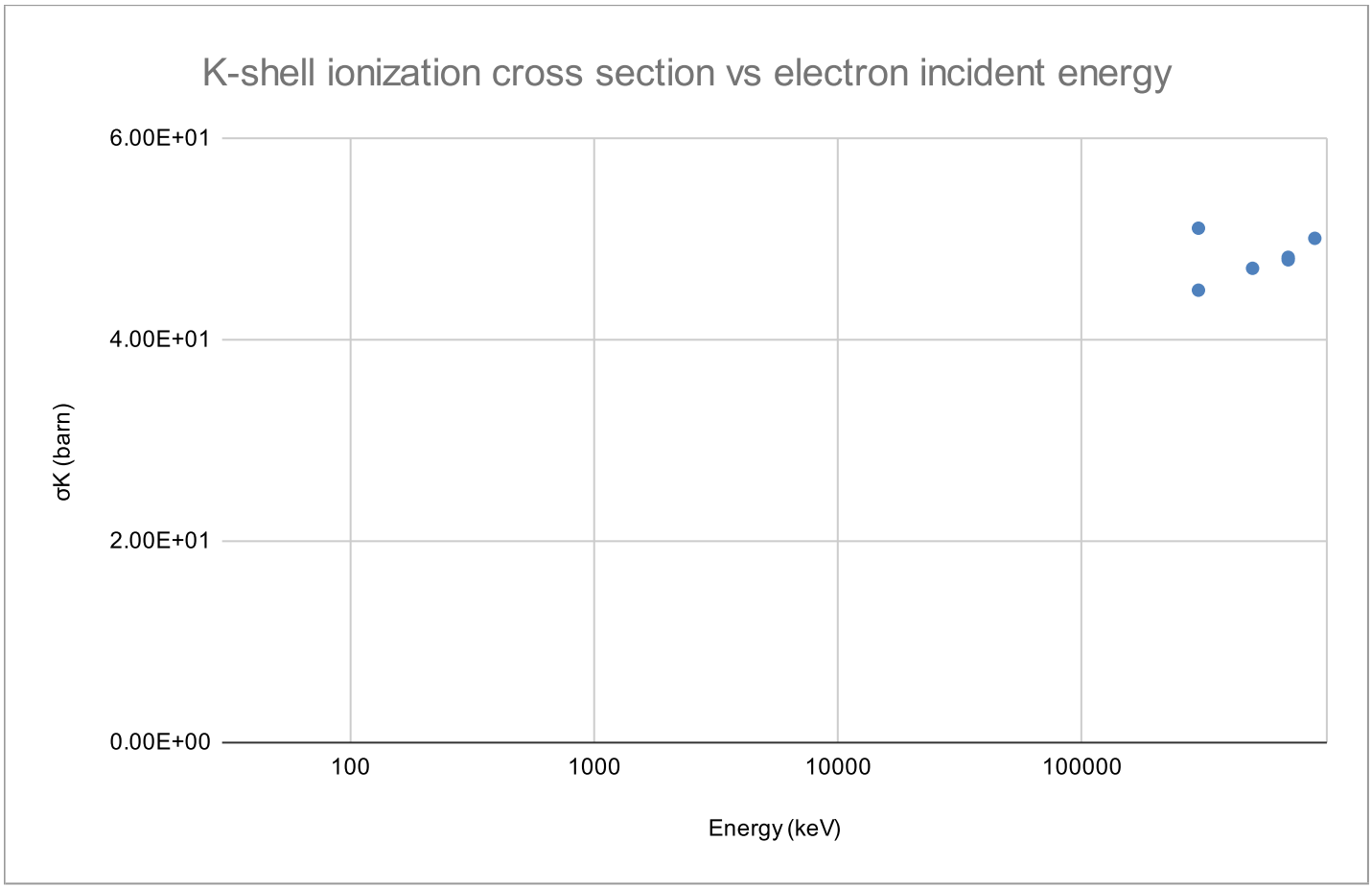
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	35.487	1.61E+01	1.4E+00	X	T	1972	ICS	0.945	Sc72	*
2040	35.487	1.81E+01	1.4E+00	X	T	1972	ICS	0.945	Sc72	*

(*) Digitalized from the original paper.

Thulium Tm
Z = 69

I_K = 59.3896 keV

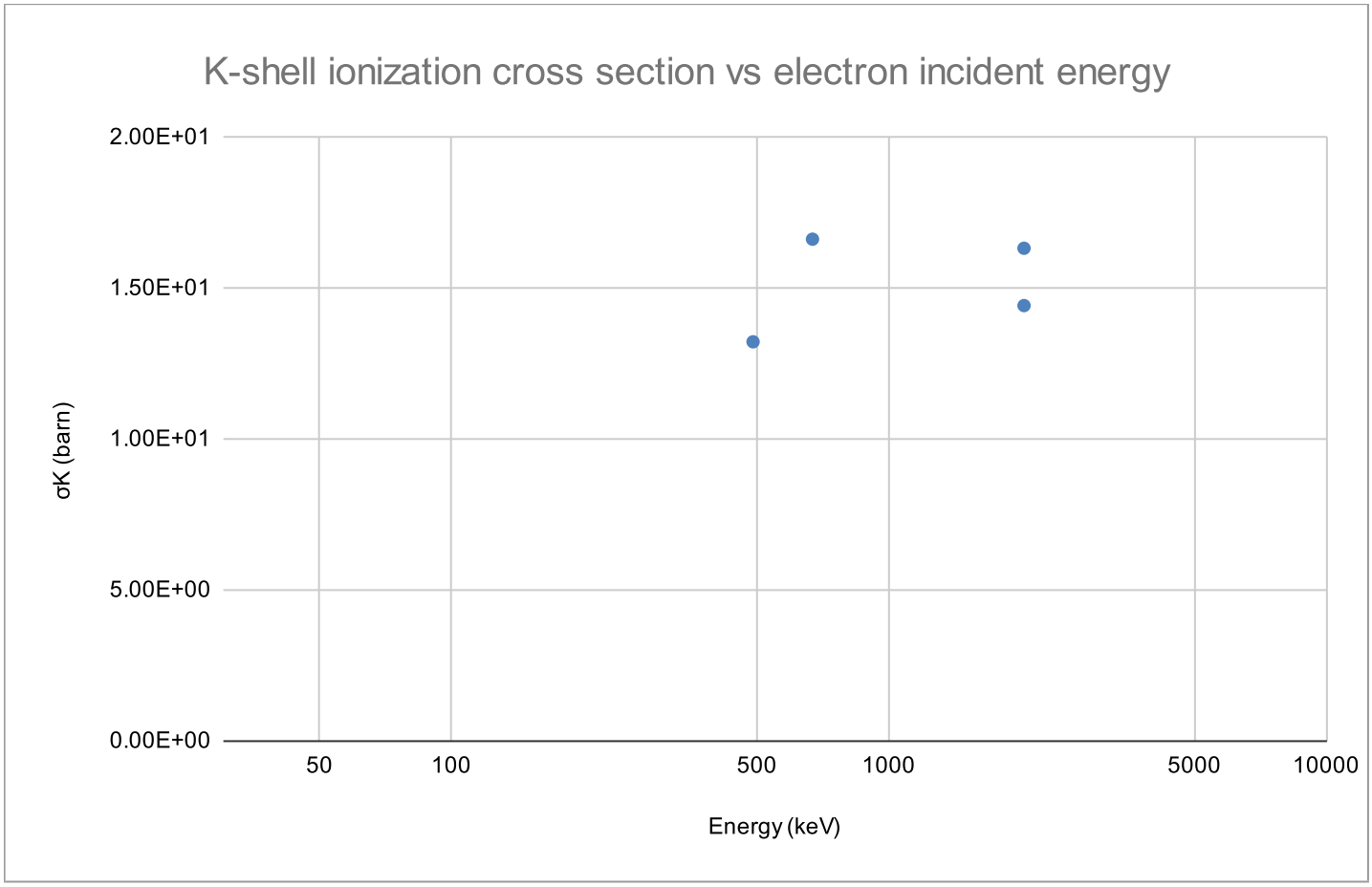
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
300000	5051.389	4.49E+01	6.3E-01	X	T	1970	DICS		Mi70	
300000	5051.389	5.10E+01	8.8E-01	X	T	1970	DICS		Mi70	
500000	8418.982	4.70E+01	6.3E-01	X	T	1970	DICS		Mi70	
700000	11786.575	4.81E+01	6.3E-01	X	T	1970	DICS		Mi70	
700000	11786.575	4.79E+01	6.3E-01	X	T	1970	DICS		Mi70	
900000	15154.168	5.00E+01	6.3E-01	X	T	1970	DICS		Mi70	



Ytterbium Yb
Z = 70
I_K = 61.3323 keV

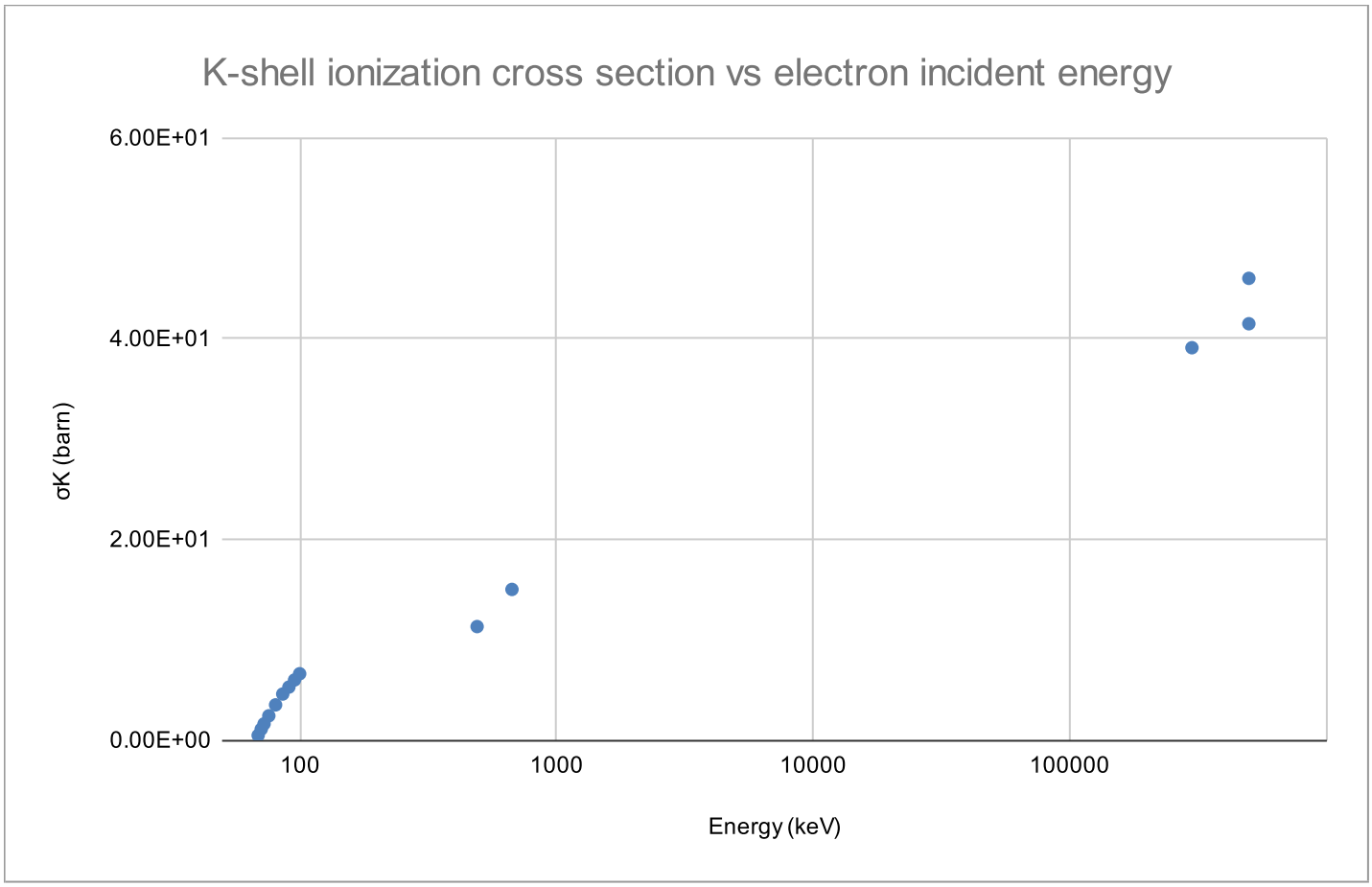
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
490	7.989	1.32E+01	3.3E+00	X	T	1974	ICS	0.95	Se74	
670	10.924	1.66E+01	4.1E+00	X	T	1974	ICS	0.95	Se74	
2040	33.261	1.44E+01	1.3E+00	X	T	1972	ICS	0.95	Sc72	*
2040	33.261	1.63E+01	8.5E-01	X	T	1972	ICS	0.95	Sc72	*

(*) Digitalized from the original paper.



Tantalum Ta
Z = 73
I_K = 67.4164 keV

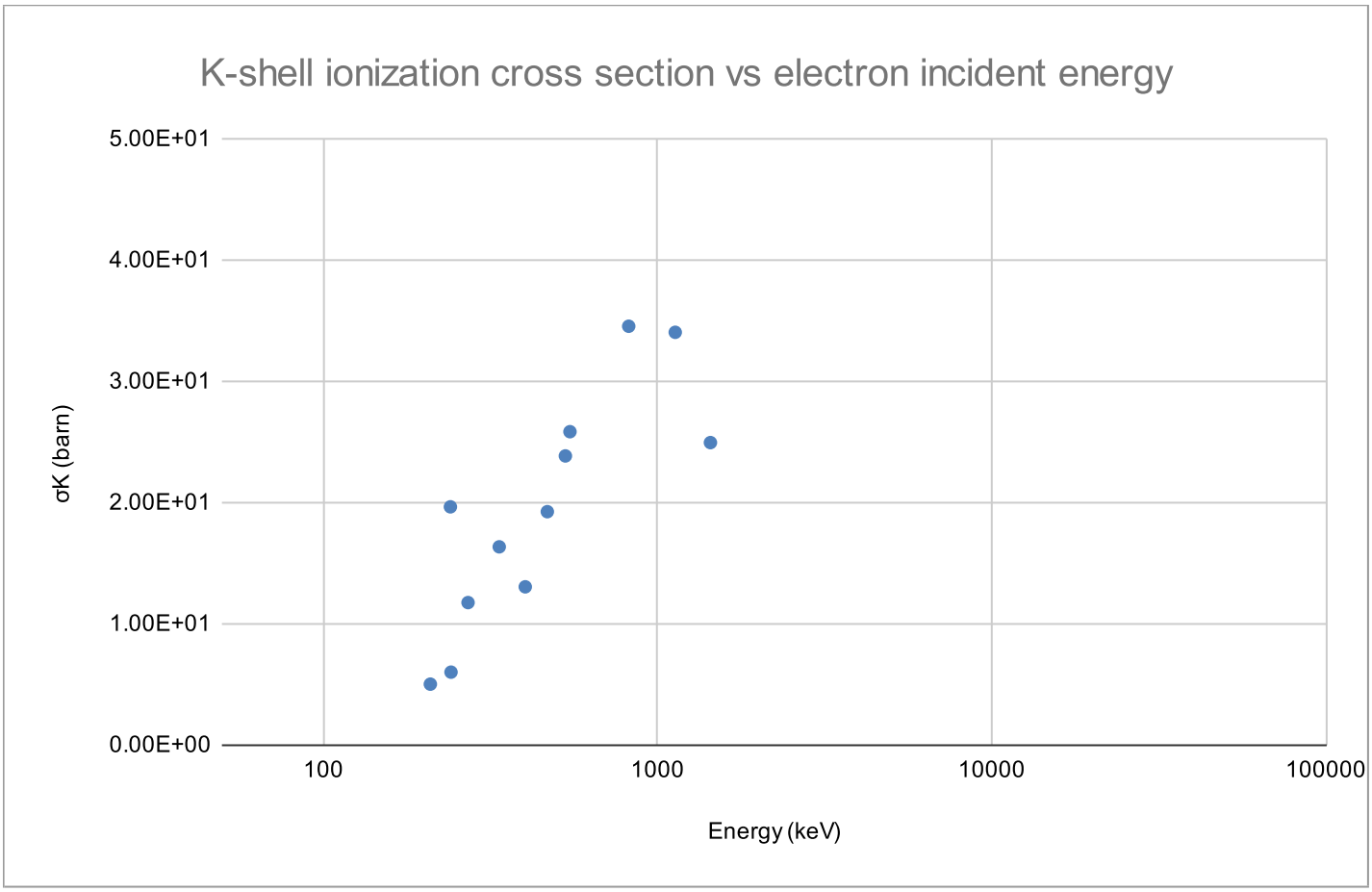
Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
68.64	1.018	4.60E-01	2.5E-02	X	T	2019	ICS	0.957	Sa19	
70.56	1.047	1.08E+00	7.0E-02	X	T	2019	ICS	0.957	Sa19	
72.38	1.074	1.61E+00	8.0E-02	X	T	2019	ICS	0.957	Sa19	
75.53	1.120	2.41E+00	1.2E-01	X	T	2019	ICS	0.957	Sa19	
80.26	1.191	3.50E+00	1.6E-01	X	T	2019	ICS	0.957	Sa19	
85.58	1.269	4.58E+00	2.2E-01	X	T	2019	ICS	0.957	Sa19	
90.45	1.342	5.27E+00	2.5E-01	X	T	2019	ICS	0.957	Sa19	
95.16	1.412	5.98E+00	2.8E-01	X	T	2019	ICS	0.957	Sa19	
99.62	1.478	6.60E+00	3.0E-01	X	T	2019	ICS	0.957	Sa19	
490	7.268	1.13E+01	2.8E+00	X	T	1974	ICS	0.956	Se74	
670	9.938	1.50E+01	3.0E+00	X	T	1974	ICS	0.956	Se74	
300000	4449.956	3.91E+01	5.0E-01	X	T	1970	DICS		Mi70	
500000	7416.593	4.15E+01	5.0E-01	X	T	1970	DICS		Mi70	
500000	7416.593	4.60E+01	1.6E+00	X	T	1970	DICS		Mi70	



Tungsten W
Z = 74
I_K = 69.5250 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
209	3.006	4.97E+00	1.6E+00	X	T	1966	ICS		Ha66	*
240	3.452	1.96E+01	1.6E+00	X	T	1964	ICS		Ha64	
241	3.466	5.96E+00	2.0E+00	X	T	1966	ICS		Ha66	*
271	3.898	1.17E+01	2.0E+00	X	T	1966	ICS		Ha66	*
336	4.833	1.63E+01	2.7E+00	X	T	1966	ICS		Ha66	*
402	5.782	1.30E+01	2.3E+00	X	T	1966	ICS		Ha66	*
468	6.731	1.92E+01	3.9E+00	X	T	1966	ICS		Ha66	*
530	7.623	2.38E+01	2.5E+00	X	T	1964	ICS		Ha64	
547	7.868	2.58E+01	4.7E+00	X	T	1966	ICS		Ha66	*
820	11.794	3.45E+01	3.5E+00	X	T	1964	ICS		Ha64	
1130	16.253	3.40E+01	3.5E+00	X	T	1964	ICS		Ha64	
1440	20.712	2.49E+01	3.8E+00	X	T	1964	ICS		Ha64	

(*) Digitalized from the original paper.



Platinum Pt
Z = 78
I_K = 78.3948 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
2040	26.022	1.22E+01	8.5E-01	X	T	1972	ICS	0.963	Sc72	⁋

(⁋) Taken from table given in Lo90.

Gold Au

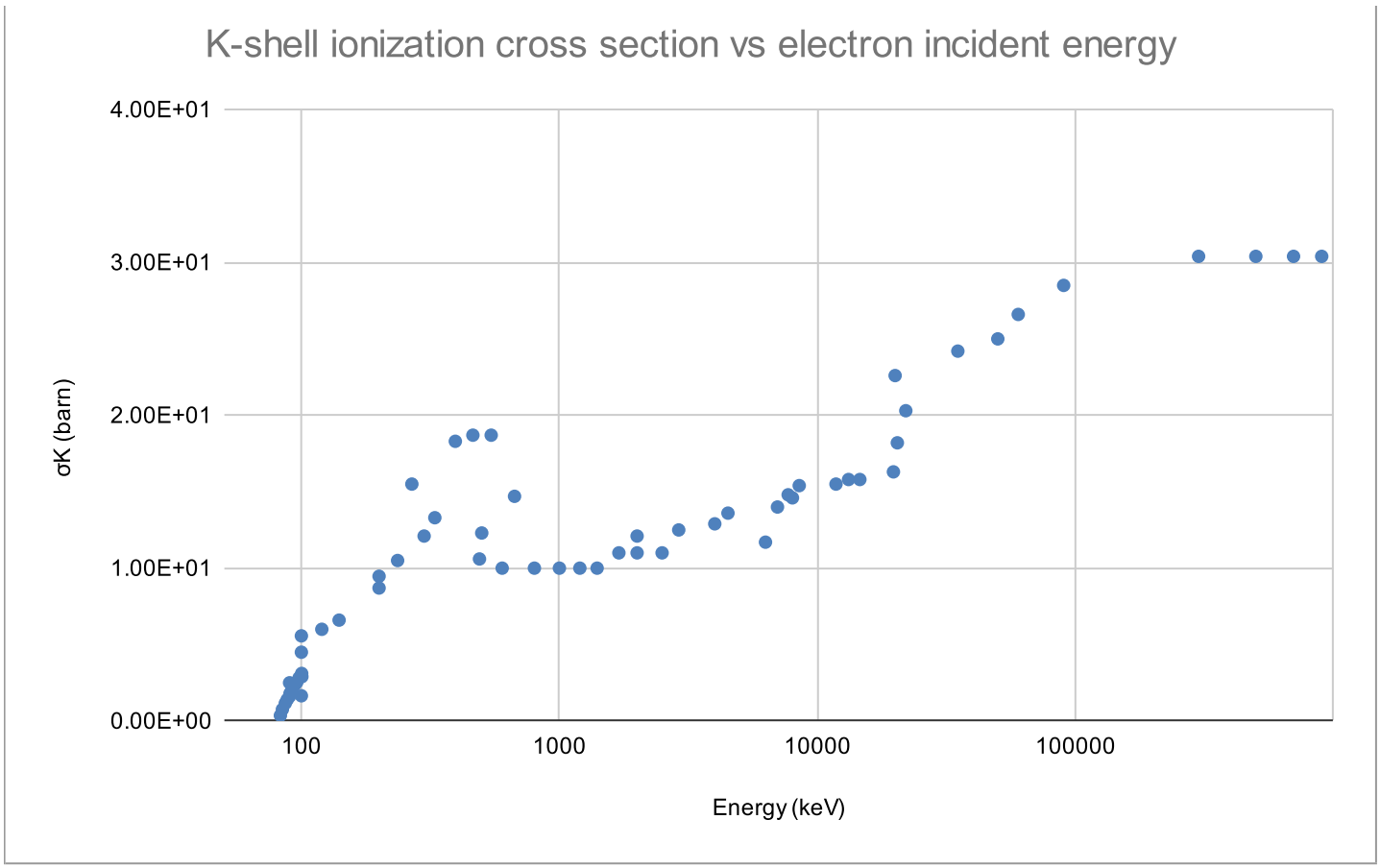
Z = 79

I_K = 80.7249 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
82.91	1.027	3.60E-01	4.0E-02	X	T	2014	ICS	0.964	Fe14	
84.41	1.046	7.60E-01	2.0E-02	X	T	2014	ICS	0.964	Fe14	
86.63	1.073	1.16E+00	3.0E-02	X	T	2014	ICS	0.964	Fe14	
88.05	1.091	1.39E+00	4.0E-02	X	T	2014	ICS	0.964	Fe14	
89.88	1.113	1.60E+00	2.3E-01	X	T	2015	ICS	0.964	Ba15	
90	1.115	2.50E+00	3.0E-01	X	T	1972	ICS	0.95	Da72	
90.38	1.120	1.81E+00	4.0E-02	X	T	2014	ICS	0.964	Fe14	
91.91	1.139	2.04E+00	4.0E-02	X	T	2014	ICS	0.964	Fe14	
94.31	1.168	2.37E+00	5.0E-02	X	T	2014	ICS	0.964	Fe14	
96.01	1.189	2.54E+00	5.0E-02	X	T	2014	ICS	0.964	Fe14	
98.01	1.214	2.83E+00	5.0E-02	X	T	2014	ICS	0.964	Fe14	
100	1.239	5.57E+00	9.6E-01	X	T	1964	ICS	0.95	Mo64	*
100	1.239	4.50E+00	1.0E-01	X	T	1972	ICS	0.95	Da72	
100	1.239	1.65E+00	2.5E-01	X	T	1987	ICS	0.964	We87b	*
100.26	1.242	3.11E+00	5.0E-02	X	T	2014	ICS	0.964	Fe14	
100.43	1.244	2.90E+00	3.8E-01	X	T	2015	ICS	0.964	Ba15	
120	1.487	6.00E+00	1.0E-01	X	T	1972	ICS	0.95	Da72	
140	1.734	6.60E+00	1.0E-01	X	T	1972	ICS	0.95	Da72	
200	2.478	9.47E+00	3.7E-01	X	T	1964	ICS	0.95	Mo64	*
200	2.478	8.70E+00	1.0E+00	X	T	1966	ICS	0.95	Re66	
236	2.924	1.05E+01	1.9E+00	X	T	1966	ICS		Ha66	*
268	3.320	1.55E+01	3.0E+00	X	T	1966	ICS		Ha66	*
299	3.704	1.21E+01	2.4E+00	X	T	1966	ICS		Ha66	*
329	4.076	1.33E+01	2.5E+00	X	T	1966	ICS		Ha66	*
395	4.893	1.83E+01	3.4E+00	X	T	1966	ICS		Ha66	*
462	5.723	1.87E+01	4.0E+00	X	T	1966	ICS		Ha66	*
490	6.070	1.06E+01	2.6E+00	X	T	1974	ICS	0.964	Se74	
500	6.194	1.23E+01	9.0E-01	X	T	1964	ICS	0.95	Mo64	*
544	6.739	1.87E+01	3.8E+00	X	T	1966	ICS		Ha66	*
600	7.433	1.00E+01	1.0E+00	X	T	1966	ICS	0.95	Re66	
670	8.300	1.47E+01	3.6E+00	X	T	1974	ICS	0.964	Se74	
800	9.910	1.00E+01	1.0E+00	X	T	1966	ICS	0.95	Re66	
1000	12.388	1.00E+01	1.0E+00	X	T	1966	ICS	0.95	Re66	
1200	14.865	1.00E+01	1.0E+00	X	T	1966	ICS	0.95	Re66	
1400	17.343	1.00E+01	1.0E+00	X	T	1966	ICS	0.95	Re66	
1700	21.059	1.10E+01	1.0E+00	X	T	1966	ICS	0.95	Re66	
2000	24.776	1.10E+01	1.0E+00	X	T	1966	ICS	0.95	Re66	
2000	24.776	1.21E+01	1.1E+00	X	T	1972	ICS	0.964	Sc72	⁋
2500	30.969	1.10E+01	1.1E-01	X	T	1970	ICS		Be70	
2900	35.924	1.25E+01	6.0E-01	X	T	1975	ICS		Da75	*

4000	49.551	1.29E+01	1.3E+00	X	T	1975	ICS		Da75	*
4500	55.745	1.36E+01	7.0E-01	X	T	1975	ICS		Da75	*
6290	77.919	1.17E+01	1.8E+00	X	T	1975	ICS		Da75	*
7000	86.714	1.40E+01	1.4E-01	X	T	1970	ICS		Be70	
7700	95.386	1.48E+01	1.3E+00	X	T	1975	ICS		Da75	*
8000	99.102	1.46E+01	1.0E+00	X	T	1975	ICS		Da75	*
8500	105.296	1.54E+01	8.0E-01	X	T	1975	ICS		Da75	*
11800	146.175	1.55E+01	9.0E-01	X	T	1975	ICS		Da75	*
13200	163.518	1.58E+01	9.0E-01	X	T	1975	ICS		Da75	*
14600	180.861	1.58E+01	9.0E-01	X	T	1975	ICS		Da75	*
19700	244.039	1.63E+01	1.4E+00	X	T	1975	ICS		Da75	*
20000	247.755	2.26E+01	1.0E+00	X	T	1979	ICS	0.964	Ho79	
20400	252.710	1.82E+01	1.0E+00	X	T	1975	ICS		Da75	*
22000	272.531	2.03E+01	1.4E+00	X	T	1975	ICS		Da75	*
35000	433.571	2.42E+01	1.0E+00	X	T	1979	ICS	0.964	Ho79	
50000	619.388	2.50E+01	1.0E+00	X	T	1979	ICS	0.964	Ho79	
60000	743.265	2.66E+01	1.0E+00	X	T	1979	ICS	0.964	Ho79	
90000	1114.898	2.85E+01	2.9E+00	X	T	1977	ICS	0.964	Is77	
300000	3716.325	3.04E+01	3.8E-01	X	T	1970	DICS		Mi70	
500000	6193.876	3.04E+01	5.0E-01	X	T	1970	DICS		Mi70	
700000	8671.426	3.04E+01	5.0E-01	X	T	1970	DICS		Mi70	
900000	11148.976	3.04E+01	5.0E-01	X	T	1970	DICS		Mi70	

(*) Digitalized from the original paper.
(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
4.00E+01
3.00E+01
2.00E+01
1.00E+01
0.00E+00
σK (barn)
100
1000
10000
100000
Energy (keV)

Lead Pb

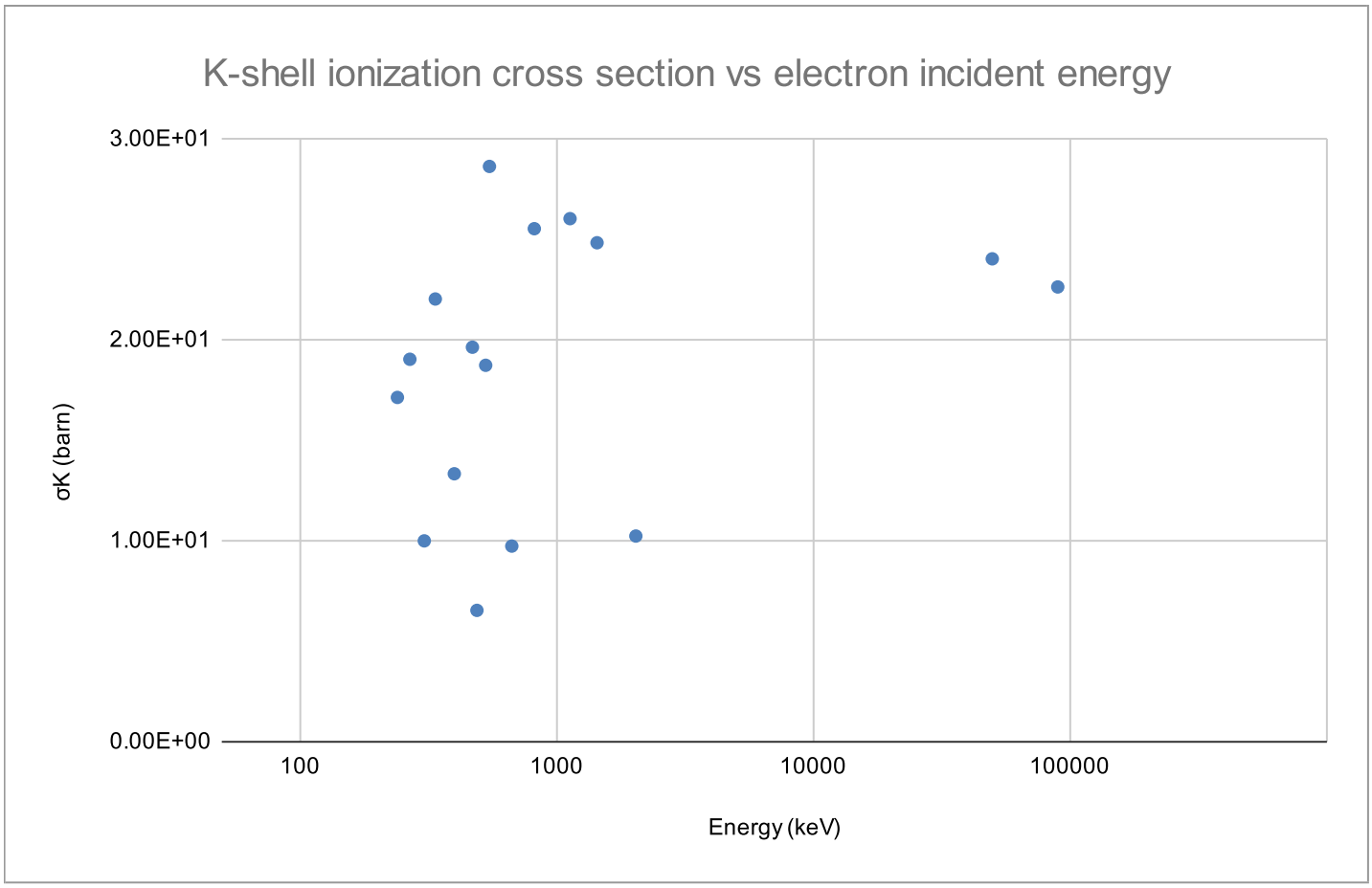
Z = 82

I_K = 88.0045 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
240	2.727	1.71E+01	2.0E+00	X	T	1964	ICS		Ha64	
268	3.050	1.90E+01	3.5E+00	X	T	1966	ICS		Ha66	*
305	3.471	9.96E+00	2.1E+00	X	T	1966	ICS		Ha66	*
337	3.832	2.20E+01	3.8E+00	X	T	1966	ICS		Ha66	*
400	4.545	1.33E+01	2.4E+00	X	T	1966	ICS		Ha66	*
471	5.347	1.96E+01	3.8E+00	X	T	1966	ICS		Ha66	*
490	5.568	6.50E+00	3.2E+00	X	T	1974	ICS	0.968	Se74	
530	6.022	1.87E+01	2.8E+00	X	T	1964	ICS		Ha64	
548	6.230	2.86E+01	5.2E+00	X	T	1966	ICS		Ha66	*
670	7.613	9.70E+00	4.8E+00	X	T	1974	ICS	0.968	Se74	
820	9.318	2.55E+01	3.5E+00	X	T	1964	ICS		Ha64	
1130	12.840	2.60E+01	3.5E+00	X	T	1964	ICS		Ha64	
1440	16.363	2.48E+01	5.0E+00	X	T	1964	ICS		Ha64	
2040	23.181	1.02E+01	1.6E+00	X	T	1972	ICS	0.968	Sc72	⁋
50000	568.153	2.40E+01	2.0E+00	X	T	1979	ICS	0.968	Ho79	
90000	1022.675	2.26E+01	2.3E+00	X	T	1977	ICS	0.968	Is77	

(*) Digitalized from the original paper.

(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
3.00E+01
2.00E+01
1.00E+01
0.00E+00
σK (barn)
100
1000
10000
100000
Energy (keV)

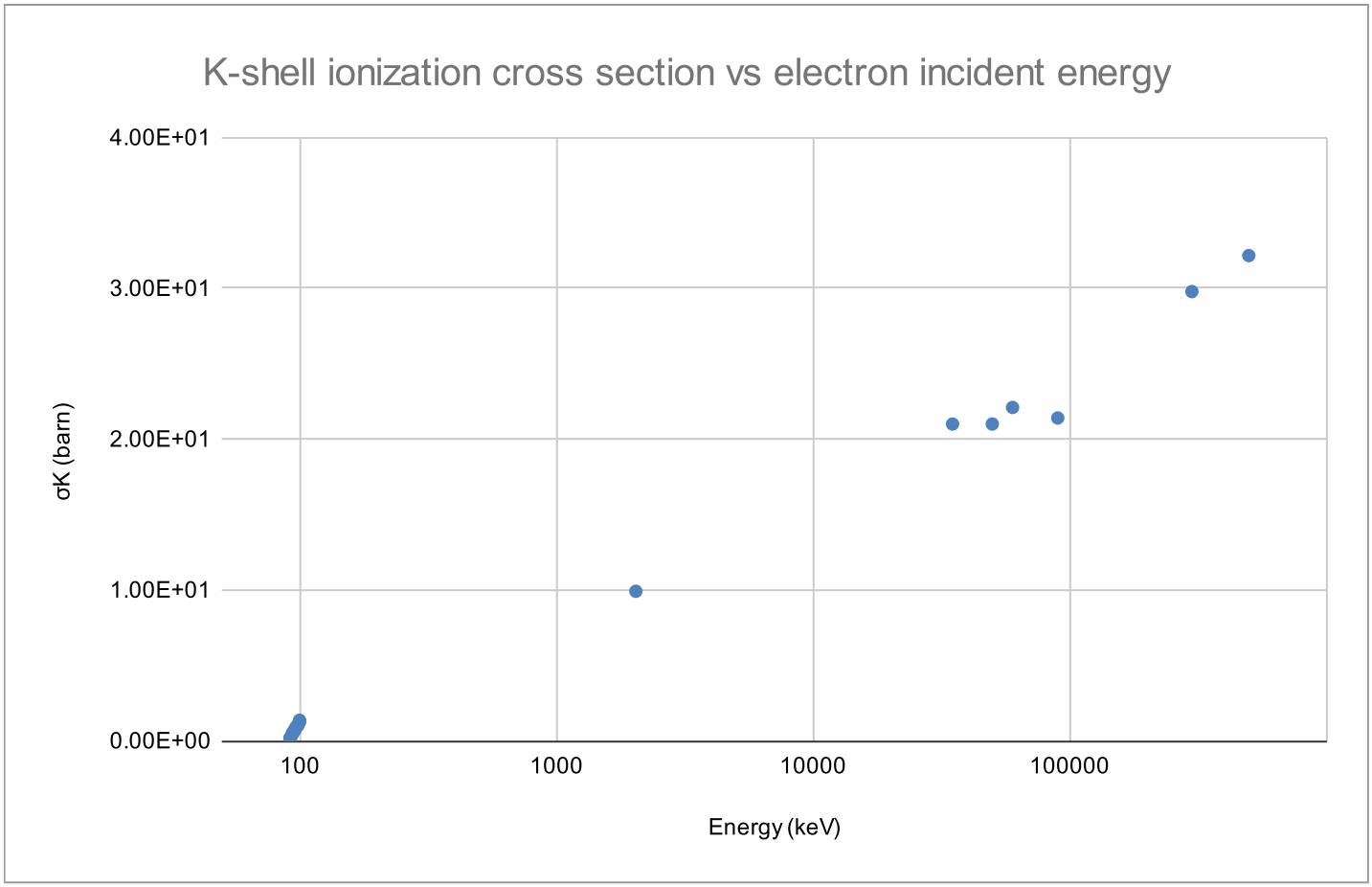
Bismuth Bi

Z = 83

I_K = 90.5259 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
91.58	1.012	1.82E-01	1.3E-02	X	T	2019	ICS	0.968	Sa19	
91.62	1.012	2.06E-01	1.5E-02	X	T	2019	ICS	0.968	Sa19	
92.01	1.016	1.70E-01	3.0E-02	X	T	2014	ICS	0.968	Fe14	
93.33	1.031	4.71E-01	2.5E-02	X	T	2019	ICS	0.968	Sa19	
93.91	1.037	4.90E-01	3.0E-02	X	T	2014	ICS	0.968	Fe14	
94.14	1.040	6.00E-01	3.0E-02	X	T	2019	ICS	0.968	Sa19	
95.79	1.058	7.20E-01	3.0E-02	X	T	2014	ICS	0.968	Fe14	
96.30	1.064	8.80E-01	4.0E-02	X	T	2019	ICS	0.968	Sa19	
98.08	1.083	9.80E-01	4.0E-02	X	T	2014	ICS	0.968	Fe14	
98.61	1.089	1.11E+00	5.0E-02	X	T	2019	ICS	0.968	Sa19	
99.71	1.101	1.36E+00	6.0E-02	X	T	2019	ICS	0.968	Sa19	
99.86	1.103	1.26E+00	4.0E-02	X	T	2014	ICS	0.968	Fe14	
2040	22.535	9.91E+00	1.6E+00	X	T	1972	ICS		Sc72	⁋
35000	386.630	2.10E+01	1.0E+00	X	T	1979	ICS	0.970	Ho79	
50000	552.328	2.10E+01	1.0E+00	X	T	1979	ICS	0.970	Ho79	
60000	662.794	2.21E+01	1.0E+00	X	T	1979	ICS	0.970	Ho79	
90000	994.191	2.14E+01	2.1E+00	X	T	1977	ICS	0.970	Is77	
300000	3313.969	2.98E+01	5.0E-01	X	T	1970	DICS		Mi70	
500000	5523.281	3.22E+01	5.0E-01	X	T	1970	DICS		Mi70	

(⁋) Taken from table given in Lo90.


K-shell ionization cross section vs electron incident energy
4.00E+01
3.00E+01
2.00E+01
1.00E+01
0.00E+00
σK (barn)
100
1000
10000
100000
Energy (keV)

Uranium U

Z = 92

I_K = 115.6020 keV

Energy E (keV)	U E / I_K	σ_K (barn)	$\Delta\sigma_K$ (barn)	Method	Target	Year	Reported Datum	ω_K	Ref.	Notes
90000	778.53	1.80E+01	1.8E+00	X	T	1977	ICS	0.97	ls77	