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Coherent neutron-scattering amplitudes.

By THE NEUTRON DIFFRACTION COMMISSION*

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An up to date Table of coherent neutron scattering amplitudes is presented.

The following list of amplitudes is published on behalf of the Neutron Diffraction Commission. For brevity, references to the original sources of information are only given in the case of recently communicated data. The Chairman of the Commission* would be glad to hear from any readers who dispute the accuracy of any of these values and are able to provide new or improved information.

Table 1. *Coherent neutron scattering amplitudes, b, in units of* 10^{-12} cm

Complex amplitudes are for a wavelength of 1 Å.

Z	Element or isotope	b	Z	Element or isotope	b
1	^{1}H	−0·372[1]	19	K	0·37[14]
	^{2}H	0·621[2]		^{39}K	0·37[15]
	^{3}H	0·47[19]	20	Ca	0·49
2	^{4}He	0·30		^{40}Ca	0·49
3	Li	−0·194[3]		^{44}Ca	0·18
	^{6}Li	0·18 + 0·025i[4]			
	^{7}Li	−0·21[5]	21	^{45}Sc	1·18
4	^{9}Be	0·774	22	Ti	−0·34
5	B	0·54 + 0·021i[4]		^{46}Ti	0·48
	^{11}B	0·60[6]		^{47}Ti	0·33
6	^{12}C	0·665[1]		^{48}Ti	−0·58
	^{13}C	0·60		^{49}Ti	0·08
7	^{14}N	0·94		^{50}Ti	0·55
8	^{16}O	0·577	23	V	−0·05
	^{17}O	0·578[7]	24	Cr	0·352
	^{18}O	0·600[8]		^{52}Cr	0·490
9	^{19}F	0·55	25	^{55}Mn	−0·36
10	Ne	0·46[9]	26	Fe	0·95[16]
				^{54}Fe	0·42
11	^{23}Na	0·351		^{56}Fe	1·01
12	Mg	0·52[10]		^{57}Fe	0·23
13	^{27}Al	0·35	27	^{59}Co	0·25[17]
14	Si	0·42	28	Ni	1·03
15	^{31}P	0·51[11]		^{58}Ni	1·44
16	^{32}S	0·28[12]		^{60}Ni	0·30
17	Cl	0·96[1]		^{61}Ni	0·76[18]
	^{35}Cl	1·18[13]		^{62}Ni	−0·87
	^{37}Cl	0·26[13]		^{64}Ni	−0·037[18]
18	^{40}A	0·20			

Table 1 (*cont.*)

Z	Element or isotope	b	Z	Element or isotope	b
29	Cu	0·76[15]	52	^{124}Te	0·55
	^{63}Cu	0·67		^{125}Te	0·56
	^{65}Cu	1·11	53	^{127}I	0·52
30	Zn	0·57[15]	54	Xe	0·47[30]
	^{64}Zn	0·55[15]	55	^{133}Cs	0·75[15]
	^{66}Zn	0·63[15]	56	Ba	0·52
	^{68}Zn	0·67[15]	57	^{139}La	0·83
			58	Ce	0·46
31	Ga	0·72[20]		^{140}Ce	0·47
32	Ge	0·84		^{142}Ce	0·45
33	As	0·64[20]	59	^{141}Pr	0·44
34	Se	0·78[21]	60	Nd	0·72
35	Br	0·67		^{142}Nd	0·77
36	Kr	0·74[22]		^{144}Nd	0·28
37	Rb	0·85		^{146}Nd	0·87
	^{85}Rb	0·83			
38	Sr	0·656[24]	62	^{152}Sm	−0·5
39	^{89}Y	0·79[25]		^{154}Sm	0·8
40	Zr	0·69[42]	63	Eu	0·55[32]
			64	Gd	1·5[33]
41	^{93}Nb	0·69	65	Tb	0·76[34]
42	Mo	0·66	66	Dy	1·69[35]
43	Tc	0·68[26]		^{160}Dy	0·67[35]
44	Ru	0·73		^{161}Dy	1·03[35]
45	Rh	0·59		^{162}Dy	−0·14[35]
46	Pd	0·60[27]		^{163}Dy	0·50[35]
47	Ag	0·61		^{164}Dy	4·94[35]
	^{107}Ag	0·83	67	^{165}Ho	0·85
	^{109}Ag	0·43	68	Er	0·79
48	Cd	0·37 + 0·16i[4]	69	^{169}Tm	0·69[36]
	^{113}Cd	−1·5 + 1·2i[28]	70	Yb	1·26[37]
49	In	0·39[20]			
50	Sn	0·61	71	Lu	0·73[37]
	^{116}Sn	0·58[29]	72	Hf	0·78[38]
	^{117}Sn	0·64[29]	73	^{181}Ta	0·70
	^{118}Sn	0·58[29]	74	W	0·466
	^{119}Sn	0·60[29]	75	Re	0·92
	^{120}Sn	0·64[29]	76	Os	1·07
	^{122}Sn	0·55[29]		^{188}Os	0·78[39]
	^{124}Sn	0·59[29]		^{189}Os	1·10[39]
				^{190}Os	1·14[39]
51	Sb	0·54		^{192}Os	1·19[39]
52	Te	0·56	77	Ir	1·06[40]
	^{120}Te	0·52	78	Pt	0·95
	^{123}Te	0·57	79	Au	0·76

* Chairman: Professor G. E. Bacon, The University, Sheffield S10 2TN, England.

Table 1 (*cont.*)

Z	Element or isotobe	b	Z	Element or isotobe	b
80	Hg	1·27	92	U	0·84[31, 27]
				^{235}U	0·98[31]
81	Tl	0·89		^{238}U	0·85[27]
82	Pb	0·96	93	Np	1·055[23]
83	^{209}Bi	0·864	94	Pu	0·75
90	^{232}Th	0·99[41, 31]			

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