Corrigendum

Stable Isotope Capture Cross Sections from the Oak Ridge Electron Linear Accelerator—Part II

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The analysis of neutron capture cross sections of stable isotopes, measured at the 40-m station of the Oak Ridge Electron Linear Accelerator (ORELA), suffered from an error in the computer codes. The nature and effect of this error has been described by Macklin and Winters[1] who published a correction table for isotopes from magnesium to thorium. Excluded from that table, however, were results published in the Oak Ridge National Laboratory-Australian Atomic Energy Commission (ORNL-AAEC) collaboration, in which ORELA data were analyzed by the Australian group at Lucas Heights. The same error remained undetected in these analyses, and the appropriate corrections are given in Table I.

For most nuclides, the correction is relatively small compared to the experimental errors in the early days of the ORELA capture program. Generally the correction is without uncertainty, but in some cases an error is given when different procedures have been followed for which an unequivocal correction cannot be given. The correction to resonance capture areas, radiation widths, and average capture cross sections is in principle nonlinear because of sample thickness effects. However, an uncertainty of less than a few percent will result from the direct application of the correction factors. Self-shielding in low-energy resonances with large neutron widths could lead to larger corrections for individual radiation widths. However, many of these widths already have large uncertainties because of the sensitivity of the detectors to resonance-scattered neutrons, and laborious reanalyses are not considered necessary.

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TABLE I

Correction Factors for Neutron Capture Cross Sections Published by the ORNL-AAEC Collaboration

Isotope	Correction Factor	Ref.
^{23}Na	1.0360	2
^{27}Al	No correction	2
^{28}Si	No correction	3,4
^{29}Si	No correction	3,4
^{30}Si	No correction	3,4
^{40}Ca	No correction	5
^{42}Ca	No correction	6
^{43}Ca	No correction	6
^{44}Ca	No correction	6
^{45}Sc	1.0737	7
^{46}Ti	0.9833	8,9
^{47}Ti	0.9833	8,9
^{48}Ti	1.0360	8,9
^{49}Ti	0.9833	8,9
^{50}Ti	No correction	8,9
^{50}Cr	1.0737	9,10
^{52}Cr	1.0737	9,10
^{53}Cr	1.0737	9,10
^{54}Cr	1.0737	9,10
^{54}Fe	No correction	9,11
^{56}Fe	No correction	9,12
^{57}Fe	1.0360	9,13
^{58}Fe	0.9655	14
^{86}Sr	No correction	15
^{87}Sr	No correction	15
^{88}Sr	1.0737	16
^{89}Y	1.0360	17
^{90}Zr	0.967 ± 0.016	18
^{91}Zr	No correction	19
^{92}Zr	0.9833	20
^{94}Zr	0.9833	20
^{92}Mo	0.9833	21,22
^{94}Mo	0.9833	21
^{95}Mo	0.9833	21
^{96}Mo	0.9833	21
^{97}Mo	0.9833	21
^{98}Mo	0.9833	21
^{100}Mo	0.9833	21
^{106}Cd	0.9850	23
^{108}Cd	0.9850	23
^{110}Cd	0.9833	23
^{111}Cd	1.208	24,25
^{112}Cd	1.0069	23
^{113}Cd	1.0187	24
^{114}Cd	1.0187	23
^{116}Cd	1.0187	23
^{134}Ba	0.9833	26
^{135}Ba	0.9833	27
^{136}Ba	0.9833	26
^{137}Ba	0.9833	28
^{138}Ba	0.9833	29
^{139}La	1.0737	30
^{140}Ce	No correction	29
^{141}Pr	1.0737	31
^{142}Nd	0.967 ± 0.016	32
^{143}Nd	0.9507	32
^{144}Nd	0.967 ± 0.016	32
^{145}Nd	0.9507	32
^{146}Nd	0.9833	32
^{148}Nd	0.9833	32
^{204}Pb	1.0737	33
^{206}Pb	No correction	33
	1.0737	34
^{207}Pb	No correction	33,35
^{208}Pb	No correction	33,36
^{209}Bi	No correction	36

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