APPENDIX F. ATOMIC DATA

1. Theoretical Internal Conversion Coefficients

The following graphs provide selected theoretical conversion coefficients for $M_1$, $M_2$, $M_3$, $M_4$, $E_1$, $E_2$, $E_3$, and $E_4$ transitions to an accuracy of 3% to 5%. For atomic numbers $Z=3$, 6, 10, and 20, the graphs show $K$-shell and $L$-subshell conversion coefficients from Band et al.\textsuperscript{1} For $Z=30$ through $Z=100$, they show $K$-shell, $L$-subshell, and total conversion coefficients from calculations by Rösel et al.\textsuperscript{2}

Smooth curves have been drawn through the calculated data points by using a cubic spline fit to the logarithms of both energy and conversion coefficient. Discontinuities in the plots of total conversion coefficients occur at the binding energies of the $K$ atomic shells, and the graphs at these energies indicate only the change in the conversion coefficient due to the presence of the $K$-shell edge. One should be aware that the cubic spline fit may not adequately represent this region and interpolation near the $K$-shell edge may be unreliable.

The $K$ binding energies used by Rösel et al.\textsuperscript{2} for calculating conversion coefficients are from Bearden and Burr.\textsuperscript{3} The newer and generally more precise $K$ binding energies of Porter and Freedman\textsuperscript{4} are somewhat different and, for some elements with $Z \geq 84$,\textsuperscript{5} differ by more than 2 keV. One should be aware that these differences may significantly affect conversion coefficients near the $K$ binding energy.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{Appendix_F_ATOMIC_DATA.pdf}
\caption{Graphs of theoretical internal conversion coefficients for $Z=3$ and $Z=6$ atomic shells.}
\end{figure}

\textsuperscript{1}I.M. Band, M.B. Trzhaskovskaya, and M.A. Listengarten, \textit{At. Data and Nucl. Data Tables} \textbf{18}, 433 (1976).
\textsuperscript{5}M.R. Schmorak, private communication (1982).