

NUMERICAL DESCRIPTION OF PHOTOELECTRIC ABSORPTION COEFFICIENTS FOR FUNDAMENTAL PARAMETER PROGRAMS

Horst Ebel and Robert Svagera

Institut für Festkörperphysik, Vienna University of Technology (Austria)
and Abdallah Shaltout

National Research Center, Spectroscopy Dept., Dokki, Cairo (Egypt)

The aim of the present investigation is the development of a data set of photoelectric absorption coefficients of elements from $Z=1$ to 94 in the energy range from 1keV to 300keV. An essential feature is a structure of the data files in accordance with the specific needs of fundamental parameter approaches in X-ray fluorescence, X-ray photoelectron spectrometry and quantitative analysis by measurement of the X-ray induced total electron yield of specimens. Values of photoelectric absorption coefficients and edge energies are taken from existing algorithms and tables (Scofield, Elam, XCOM, McMaster, MUCAL, Bearden, Siegbahn) under recognition of missing data, discrepancies and errors. The final version of the data set is checked by a comparison to experimental results (Saloman and Hubbell).