
X-Ray Data Booklet

Section 1.5 SUBSHELL PHOTOIONIZATION CROSS SECTIONS

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The atomic subshell photoemission cross sections plotted in Fig. 1-4 have been calculated for isolated atoms by Yeh and Lindau [1,2]. The calculations were done with a one-electron central-field frozen-core model using first-order perturbation theory. No single model accurately predicts the photoionization process of all orbitals for all elements from the VUV to 1.5 keV. The complexity of the physics of different atomic orbitals makes it impossible for any single rule to describe all of them. The accuracy of the model used has been discussed in detail by Cooper and Manson [3–5].

REFERENCES

1. J.-J. Yeh and I. Lindau, "Atomic Subshell Photoionization Cross Sections and Asymmetry Parameters: $1 < Z < 103$," *At. Data Nucl. Data Tables* **32**, 1 (1985).
2. J.-J. Yeh, *Atomic Calculations of Photoionization Cross Sections and Asymmetry Parameters* (Gordon and Breach, Langhorne, PA, 1993).
3. J. W. Cooper, *Phys. Rev.* **128**, 681 (1962).
4. S. T. Manson and J. W. Cooper, *Phys. Rev.* **165**, 126 (1968).
5. S. T. Manson, *Adv. Electron. Electron Phys.* **41**, 73 (1976).

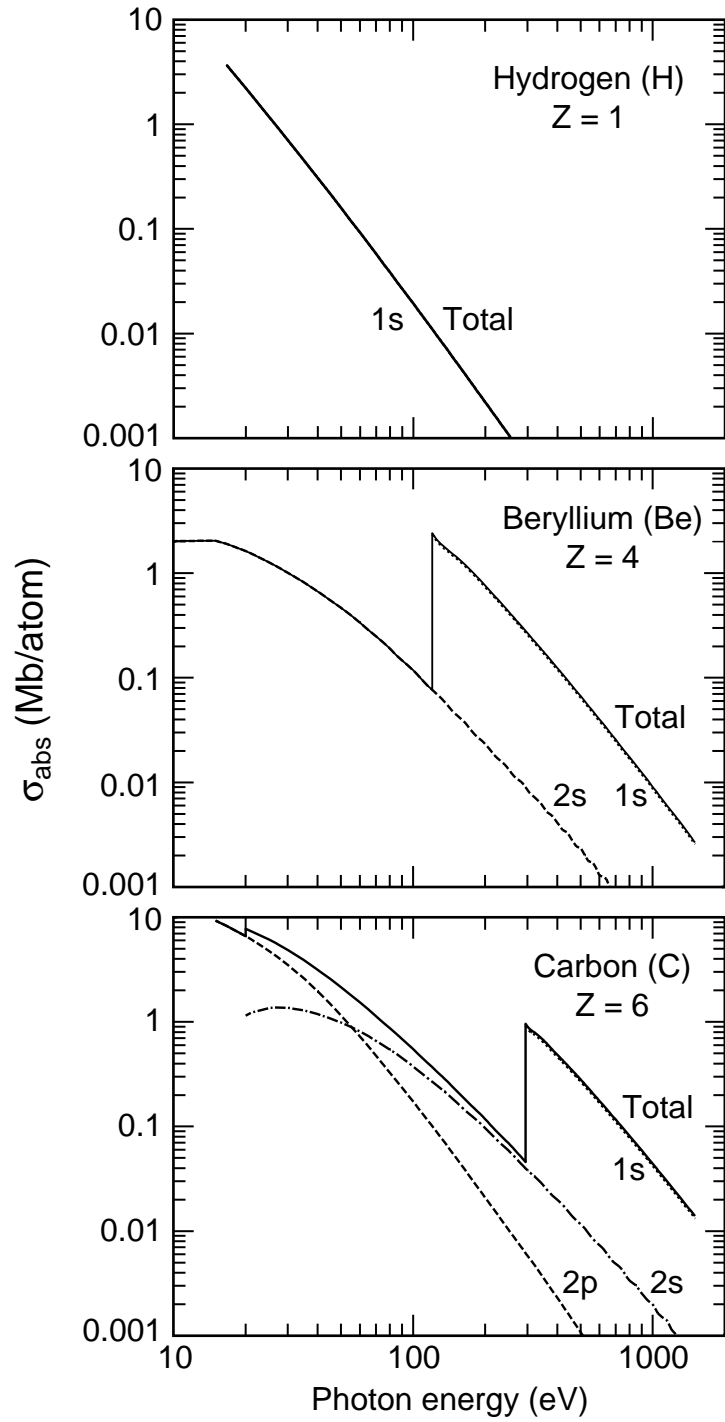


Fig. 1-4. Plots of atomic subshell photoemission cross sections, calculated for isolated atoms.

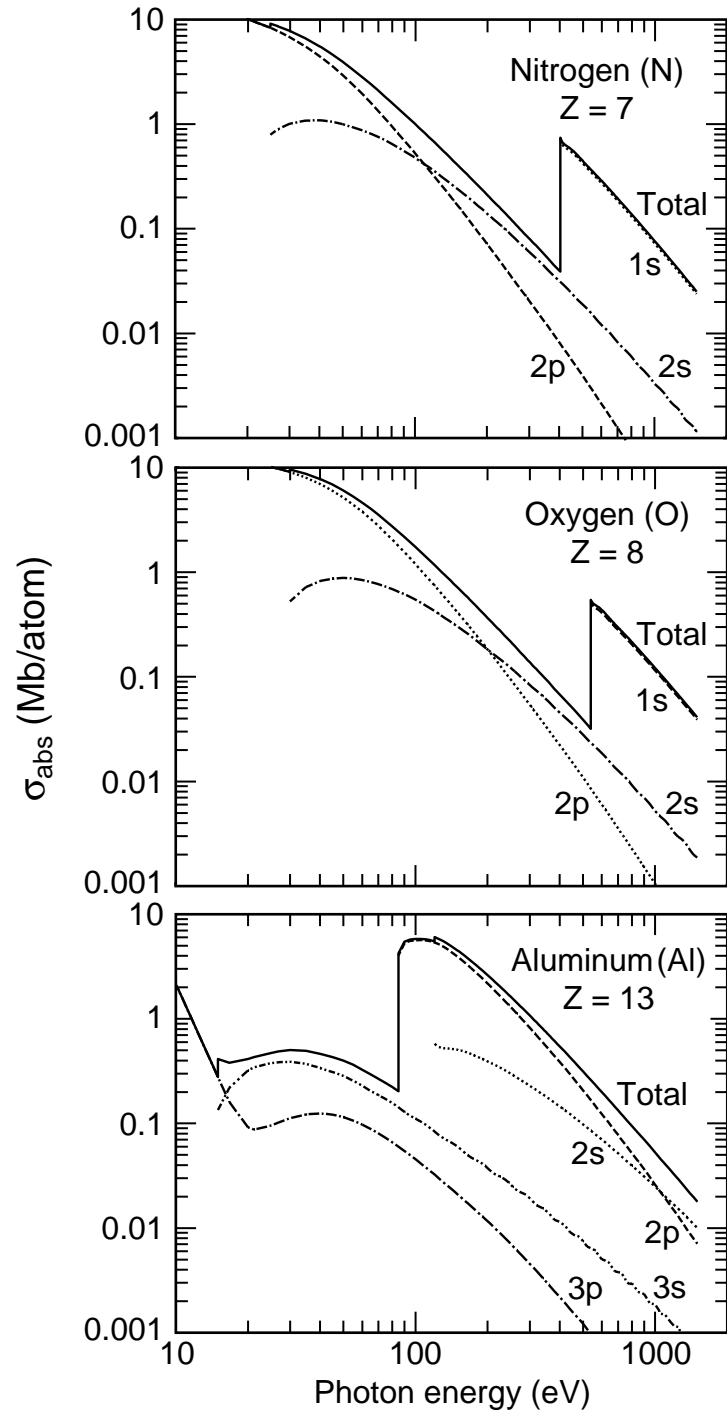


Fig. 1-4. Subshell photoemission cross sections (continued).

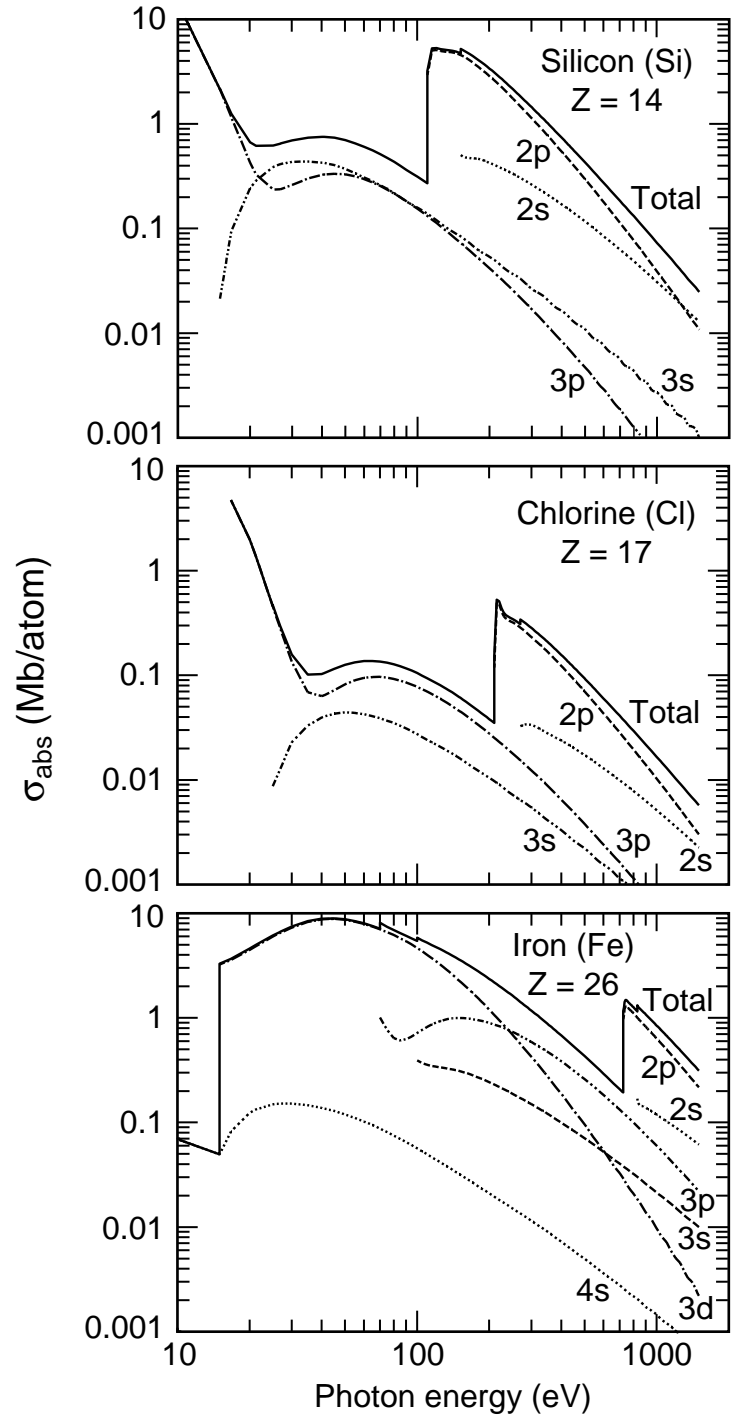


Fig. 1-4. Subshell photoemission cross sections (continued).

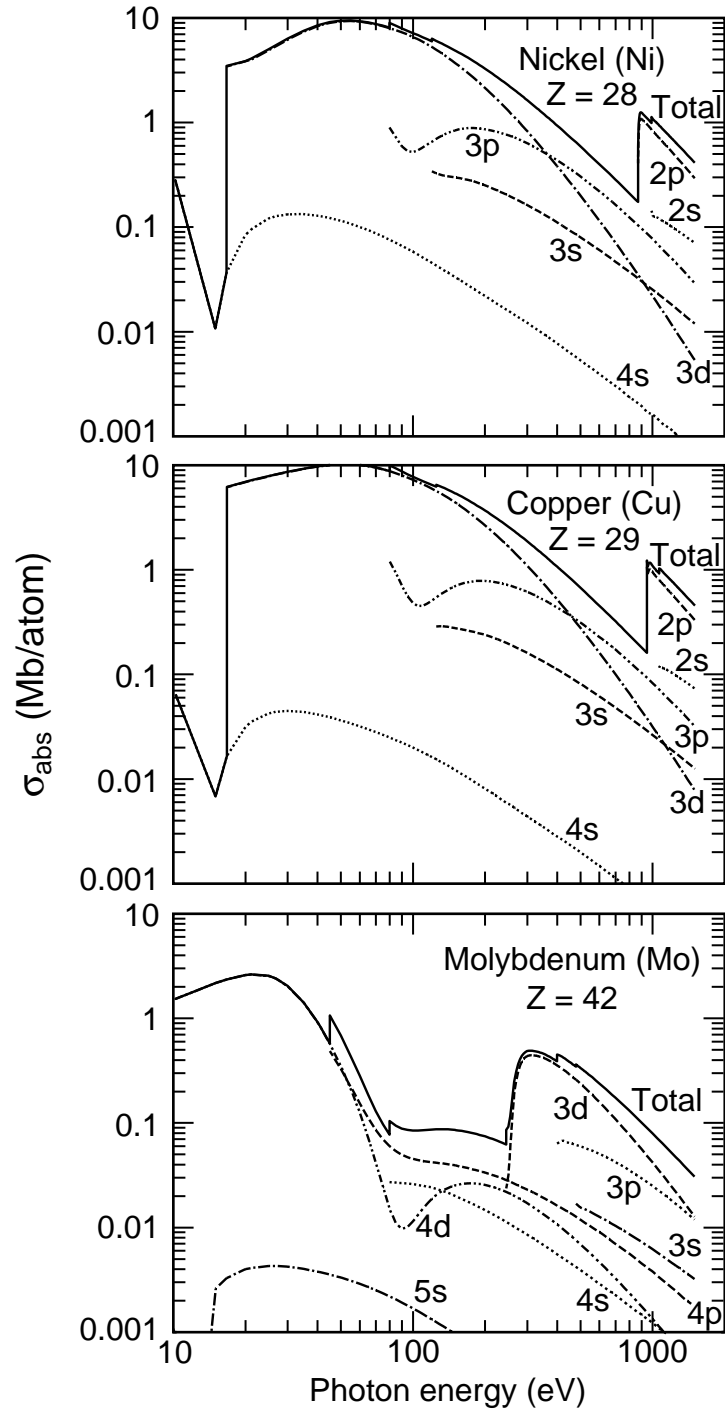


Fig. 1-4. Subshell photoemission cross sections (continued).

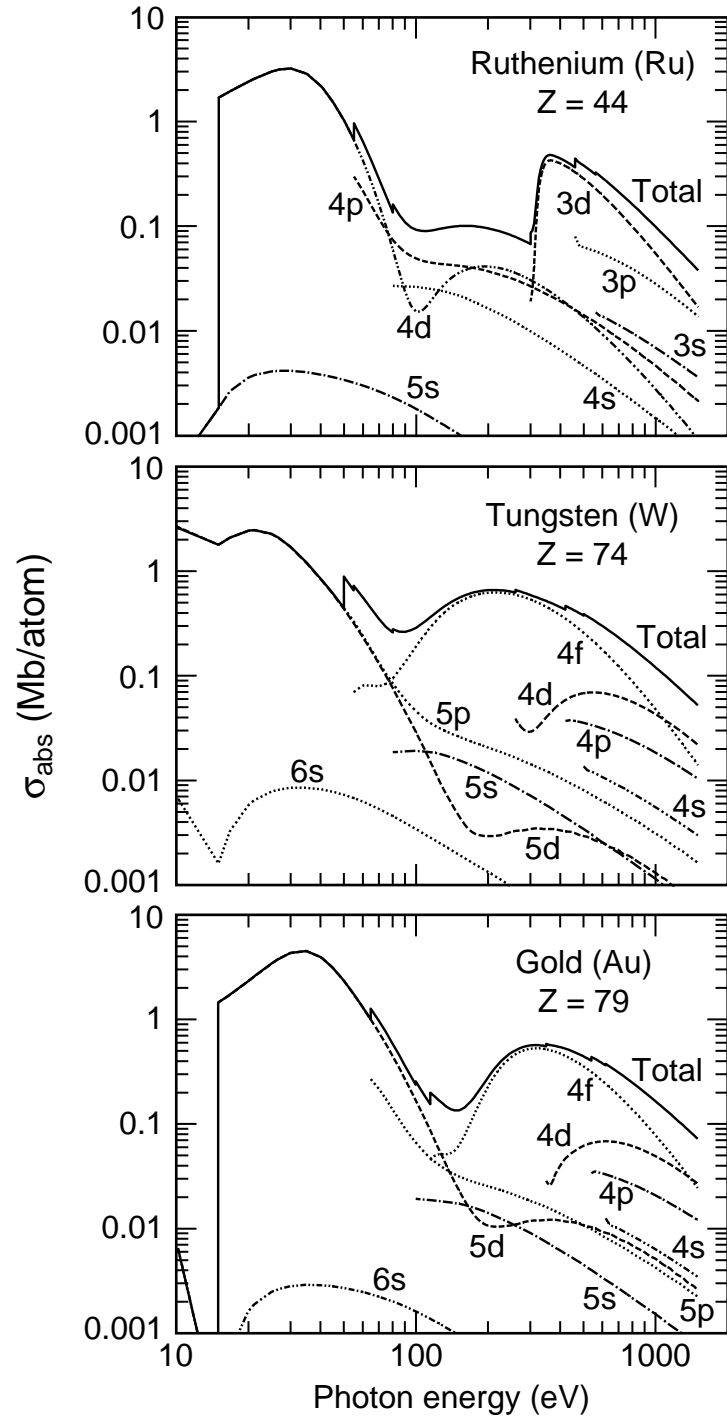


Fig. 1-4. Subshell photoemission cross sections (continued).