

The Vacancy Transfer Probabilities from K-Shell to L₂, L₃ and L-Shell/Subshells: Updated Database Values

Aslı ARAZ¹, Fatma AKDEMİR¹, Ferdi AKMAN², M. R. KAÇAL³ and Rıdvan DURAK¹

¹Department of Physics, Faculty of Sciences, Atatürk University, Erzurum-Turkey

²Department of Physics, Faculty of Sciences, Bingöl University, Bingöl-Turkey

³Department of Physics, Faculty of Sciences, Giresun University, Giresun-Turkey

asliaraz25@gmail.com

ABSTRACT

In this paper, the experimental and empirical values of the vacancy transfer probabilities from K to L_i (i=2, 3) subshell and K to L shell for elements in the range 10 ≤ Z ≤ 100 have been collected from the literature and evaluated. The updated database values were presented in a tabular form for K to L₂, L₃ subshells and K to L shell taken directly from different sources. At last, the experimental and empirical values in the literature have been reported and commented.

REFERENCES

- [1] A. S. Bernal, K.M. Niranjan and N. M. Badiger, *Journal of Quantitative Spectroscopy & Radiative Transfer*, 111, 1363-1371 (2010).
- [2] B. Ertuğral, G. Apaydın, A. Tekbiyık, E. Tıraşođlu, U. Çevik, A. İ. Kobya and M. Ertuğrul, *Eur. Phys. J. D*, 37, 371–375 (2006).
- [3] E. Baydaş, *Instrumentation Science and Technology*, 33, 461–471 (2005).
- [4] E. Cengiz, V. Aylıkçı, N. Kaya, G. Apaydın and E. Tıraşođlu, *Journal of Radioanalytical and Nuclear Chemistry*, 278, 89-96 (2008).
- [5] E. Cengiz, E. Tıraşođlu, G. Apaydın, V. Aylıkçı, N. Küp Aylıkçı and C. Aksoy, *Radiation Physics and Chemistry*, 80, 328–334 (2011).
- [6] E. Öz, *Journal of Quantitative Spectroscopy & Radiative Transfer*, 97, 41-50 (2006).
- [7] E. Schönfeld and H. Janben, *Nuclear Instruments and Methods in Physics Research A*, 369, 527-533 (1996).
- [8] F. Akman, *Can. J. Phys.*, 94, 1–8 (2016).
- [9] F. Akman, *Applied Radiation and Isotopes*, 115, 295–303 (2016).
- [10] G. Apaydın and E. Tıraşođlu, *Radiation Physics and Chemistry*, 81, 1593-1594 (2012).
- [11] I. Han and L. Demir, *Radiation Physics and Chemistry*, 79, 1174-1179 (2010).
- [12] L.F.M. Anand, S.B. Gudennavar, S.G. Bubbly and B.R. Kerur, *Journal of Experimental and Theoretical Physics*, 121, 961–965 (2015).
- [13] M. Dingfelder, S. Segui and J.M. Fernandez-Varea, *Phy. Review A*, 77, 062710 (2008).
- [14] M. Ertugrul, *J. Phys. B: At. Mol. Opt. Phys.*, 36, 225-2282 (2003).
- [15] Ö. Söğüt, *Radiochim. Acta*, 97, 695–699 (2009).
- [16] Ö. Şimşek, D. Karagöz and M. Ertugrul, *Spectrochimica Acta Part B*, 58, 1859–1865 (2003).
- [17] P. Onder, A. Tursucu and D. Demir, *Hindawi Publishing Corporation Science and Technology of Nuclear Installations*, Article ID 285190, 6 pages (2013).
- [18] R. Durak and Y. Özdemir, *J. Phys. B: At. Mol. Opt. Phys.*, 31, 3575–3581 (1998).