New calculation of L1 subshell yields fluorescence of heavy elements

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Abstract
The analytical methods based on X-ray fluorescence have a great importance for a number of practical applications in a variety of fields including atomic physics, X-ray fluorescence surface chemical analysis, medical research and treatments (such as cancer therapy) and industrial irradiation processing. In this contribution, a summary of experimental data published in the period of time between 1955 to february-2016 was presented in a tabular form for *L1* subshell fluorescence yields ( ) taken from different sources. First, a critical examination of these data using the *weighted average values* was presented. Then, an interpolation using the famous analytical function vs the atomic number Z was proformed to deduce a new empirical *L1* subshell fluorescence yields for elements in the range $70 \leq Z \leq 96$ [1-3]. At last, our calculated empirical *L1* subshell fluorescence yields have been compared with other theoretical and empirical values reported in the literature.

Keywords:L1 subshell fluorescence yields, weighted average values, empirical fluorescence yields