

PREDICTIONS FOR ALPHA HALF-LIVES OF SUPERHEAVY NUCLEI FROM A MODIFIED BROWN EMPIRICAL FORMULA

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The original Brown formula, correlating the half-lives with the Q_α values, is modified by adding a hindrance term differentiated by the parity (Z, N) of the parent nucleus and considering an additional free parameter defining the power of daughter nucleus' atomic number. The parameters of the new formula are fixed by fitting the experimentally available data on the decay half-lives and Q_α values for 96 superheavy nuclei. Theoretical estimates are compared with the results of similar fits with Viola-Seaborg and Royer formulas as well as the experimental values. Although the modified Brown formula has fewer fitting parameters it provides a similar overall agreement with experimental data, however with local differences between the estimations. The obtained parameters are then used to generate half-lives predictions for 125 adjacent unknown superheavy emitters.