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## Universal Gamow line for even-even superheavy nuclei

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The existence of long lived superheavy nuclei (SHN) is controlled mainly by spontaneous fission and alpha decay processes. The systematics of  $\alpha$ -decay lifetimes formulated by Geiger and Nuttall empirically formed straight lines. The half-life is extremely sensitive to  $Q_\alpha$ . Almost all the theories use either the extrapolated values of Audi et al., or the measured KE to calculate the experimental  $Q_{\alpha\text{exp}}$  in the calculation of  $T_\alpha$ . We proposed a corrected formula for  $Q_\alpha(\text{cf-}\ln 2)$  for the SHN which gives a very close agreement of the  $Q_{\alpha\text{exp}}$ . The earliest systematics of  $\alpha$ -decay lifetimes of natural emitters from actinides region was obtained by plotting the experimental values of  $\log_{10} T_\alpha$  vs  $Q_\alpha^{-1/2}$  and the data for a given Zd value fall roughly on a straight line with a large scatter between the lines. To reduce this separation, Zd is incorporated with the  $Q_\alpha$  and hence  $\log_{10} T_\alpha$  vs  $Zd \times Q_\alpha^{-1/2}$  plot became a better plot for half-lives since the lines for different Zd values have a common slope. The universal straight line drawn by Silisteanu et al for 90 even-even SHN from  $Zd=100-118$  (rms=0.1257) and from  $Zd=102-120$  (rms=0.4187). Our modified  $Q_\alpha$  in the  $\log_{10} T_\alpha$  (Viola-Seaborg) and (Brown) formula shows the rms value of 0.2252 and 0.0007 respectively. Hence the Brown Formula fit with our modified  $Q_\alpha$  may be the best fit for future studies of new alpha emitters in the superheavy region.

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