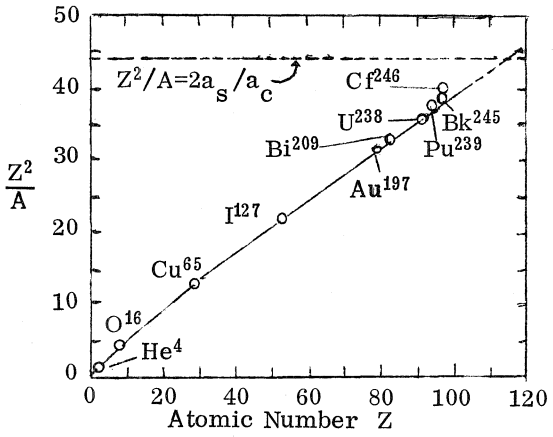

The Fission Parameter Z^2/A for Some Representative Nuclides

The limiting value $Z^2/A = 2a_s/a_c = 44$, from the incompressible lieuid-drop model is shown dotted. All the nuclides shown above $Z = 90$ exhibit spontaneous fission but not as their major mode of decay. (See [1].)

All nuclei with parameter $Z^2/A > 44$ could not practically exist, because they would decay already in "statu Nascendi." (See [1], [2].)

For the aforementioned possible comparatively stable candidate in the region of the first "island stability" the nucleus $_{114}[x]^{298}$ has the value of $Z^2/A = 43.6$, which is very close to the limiting value of the fission parameter = 44.

It seems that the element with $Z = 114$ would be practically the last one in the Periodic Table of Elements. The most stable candidate at the element with $Z = 114$ is the nucleus $_{114}[x]^{298}$. His proton-neutron ratio $Z/N = 0.6195\cdots$ and this value is one of the best approximations to the "Golden Ratio" in the world of atoms. (See [3].)

REFERENCES

1. Evans, Robley D., The Atomic Nucleus, McGraw-Hill, Inc. (1955), pp. 385-391.
2. Mukhin, K. N., Introduction to Nuclear Physics, Moskov, USSR (1963), pp. 321-323 and pp. 367-369.
3. J. Woldarski, "More About the 'Golden Ratio' in the World of Atoms," Fibonacci Quarterly, Vol. 6, No. 4 (1968), p. 244 and p. 249.