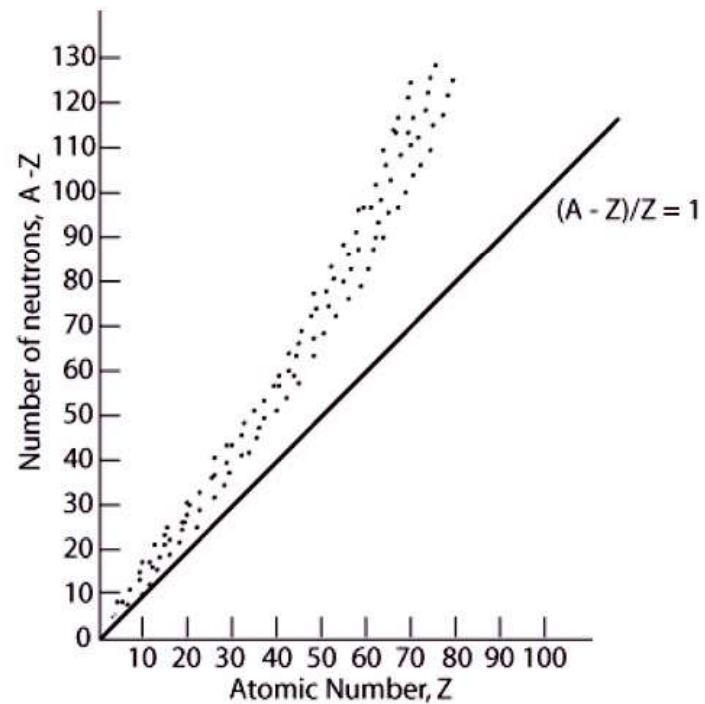


Stability of Nucleus

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In light nuclei, the no. of protons and no. of neutrons are equal.

In heavier nuclei, the proportion of neutrons becomes progressively greater.



In nucleus nuclear energy levels exist and nucleons which have spin half obey Pauli's exclusion principle.

As a result ,Each nuclear energy level contains two protons with opposite spin and two neutrons with opposite spin. And the energy levels are filled according to the exclusion principle.

${}^5_5\text{B}^{12}$ has more energy than ${}^6_6\text{C}^{12}$. Why?

In boron, there are 5 protons and 7 neutrons. So
Four energy levels are filled according to
exclusion principle.

4 n↑
3 p↑ n↑n↓
2 p↑p↓ n↑n↓
1 p↑p↓ n↑n↓

Energy level

In Carbon 6 protons and 6 neutrons

3 p↑ p↓ n↑n↓
2 p↑ p↓ n↑n↓
1 p↑ p↓ n↑n↓

Energy level

Since the ${}_5\text{B}^{12}$ has more energy than ${}_6\text{C}^{12}$ nucleus, it is unstable.

Similarly find out

Which is stable ${}_5\text{B}^{11}$ or ${}_6\text{C}^{11}$?

Sixty percentage of stable nuclei are even-even nuclei (even no. of protons and even no. of neutrons)

Nearly all other stable nuclei are either odd-even or even-odd nuclei.

There are only six odd-odd nuclei that are stable. They are ${}^2_1\text{H}$, ${}^6_3\text{Li}$, ${}^{10}_5\text{B}$, ${}^{14}_7\text{N}$ and ${}^{180}_{73}\text{Ta}$

THANKYOU.....

