Theory binding nuclear and nuclear energy:

My brother helped me to absolute extremes. Each sunday of every week of every month for almost the whole course we both used to walk through the woods (Torroella, L'Estartit, Valley St. until the time of the painful “split up”
Remember during those trips sometimes even we shouted to the lung open to mother nature to relieve stress (it was as a fusion with her and knowing that it encompasses a lot of the kernels energy).

To see a little more and the **nuclear reaction** equation Einstein I’ll say and repeat three optical respectively, at least:

- In the energy released to merge the nucleons, the core stability gains as has been seen in this equation

$\Delta E = \Delta mc^2$ (where the mass and energy are linked).

Ex:

$$a\ {}^{1}_{1}p + b\ {}^{1}_{0}n \longrightarrow {}^{A}_{Z}X + \Delta E \quad \text{on } A = a+b$$

represents the **attractiveness of a nucleon in relation to other nucleons** knowing that A=massic number= nº neutrons+ nº protons and Z= atomic number= nº electrons

ΔE is the energy that holds together the nucleus as the inverse we have that:

$$\Delta E + \text{core (or nucleous)} \longrightarrow a\ {}^{1}_{1}p + b\ {}^{1}_{0}n$$

Such particles (protons and neutrons) detach energy, and as more of such particles more E detached.

In principle, $\Delta E/A \approx$ 14'1 MeV meaning of the E nuclear can be combined with the environment.

• He says the following:

Sum of atomic weights of all nucleons- tomic weight of specific nucleus $\neq 0$

For example to calculate the mass loss caused in formation of an oxygen nucleus must do the following:

$$8\, {}^{1}_{0}n + 8\, {}^{1}_{1}p \longrightarrow {}^{16}_{8}O$$

where is the mass of the neutron is 1’0087 uma and the proton 1'0087 uma.

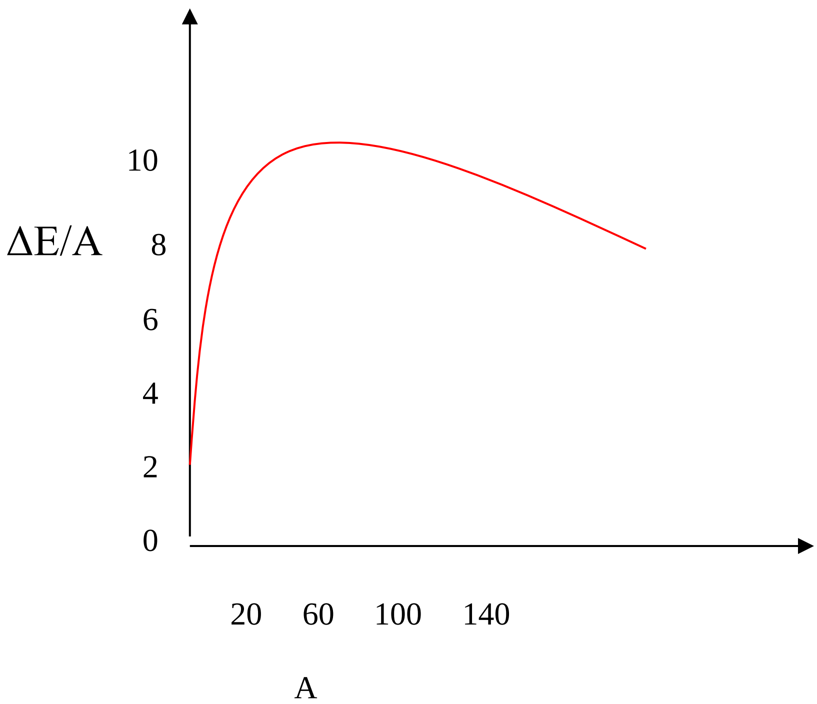
The mass of an oxygen atom is 15'995. Then procedure is

Δm = 15'995-[8 (1'0087) + 8 (1'0078)] = -0 '137

Therefore: $\Delta E = \Delta mc^2$ = (-0’137).(3.10^8)^2= -1’223.10^{16} J, knowing Joule is the Kgr.m^2/sg^2.

• Based on the **relationship between mass and E**, the difference in mass by subtracting the existing weighing an atom and its sum of nucleons leads to the E given off or detached

I would say at least I found that a value of A less than or equal to 20, the relationship is inexact, in contrast with A ≈ 60 (30 to 80 or 90 ...) when improvement in relation to stability.



The graph $\Delta E/A$ vs A, has a dramatically rising to $A \leq 30$ while for higher (up to 120 or similar) the graph remains fairly ctnt; to progress further, the curve undergoes a slight decrease.

Finally fix it in the **ratio ΔE / A** MeV lows from 14'1 to 8 MeV due to the repulsion between protons (therefore the only explanation is that the p-p interactions influence the stability

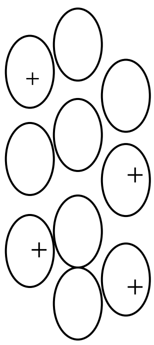
Such symptoms can be treated as a sampling plot:
If you take 3 samples in 1 day remains a month without doing anything, reliability is minimal, however if you take 3 samples every day of the month I results more credible. As I expose, the variable t can be replaced by space.

I love to please and be in my place: I feel that I imagine that an individual “x” can answer "x" front a
question or comment of "y" that can be responded using an approach Therefore there will always be someone that watches over us.

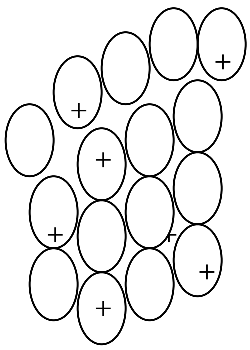
The increase of the number of nuclear particles (nucleons) gives at least more events because of all connections nucleons together, so it is more reliable (if there is little **connecting particles** is inaccurate).

And the point is where we can fit, and there are more job pleasant others, that are I find harder”. Binding nuclear issue seems or "binding positive vibrations" or "link exchange feelings "... that seem related to my current reality and match (at least minimally) in my scope without having to make efforts to maintain the high pavilion (in those moments it currently appears a relationship partnertness).

Fig. 2:



$$\left.\begin{array}{l} 10 = n + p \\ n/p = 1'5 \end{array}\right\} \begin{array}{l} p = 4 \\ n = 6 \end{array} \quad \frac{9+8+7\ldots+2+1}{3+2+1} = 7'5$$



$$\left.\begin{array}{l} 16 = n + p \\ n/p = 1'5 \end{array}\right\} \begin{array}{l} p = 6 \\ n = 10 \end{array} \quad \frac{15+14+\ldots+2+1}{5+4+\ldots+2+1} = 8'0$$

$$\left.\begin{array}{l} 30 = n + p \\ n/p = 1'5 \end{array}\right\} \begin{array}{l} p = 12 \\ n = 18 \end{array} \quad \frac{29+28+\ldots+2+1}{11+10+\ldots+2+1} = 6'59$$

$$\left.\begin{array}{r} 70 = n + p \\ n/p = 1'5 \end{array}\right\} \begin{array}{l} p = 28 \\ n = 42 \end{array} \quad \frac{69 + 68 + \ldots + 2 + 1}{27 + 26 + \ldots + 2 + 1} = 6'39$$

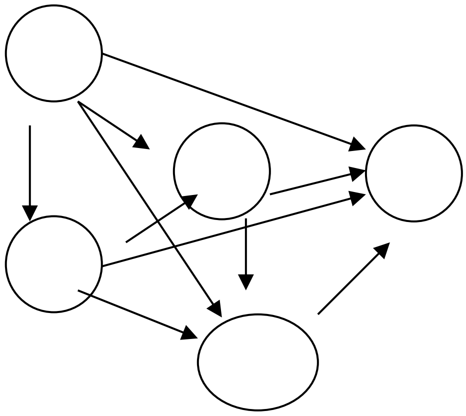
$$\left.\begin{array}{r} 80 = n + p \\ n/p = 1'5 \end{array}\right\} \begin{array}{l} p = 32 \\ n = 48 \end{array} \quad \frac{79 + 78 + \ldots + 2 + 1}{31 + 30 + \ldots + 2 + 1} = 6'37$$

$$\left.\begin{array}{r} 150 = n + p \\ n/p = 1'5 \end{array}\right\} \begin{array}{l} p = 60 \\ n = 90 \end{array} \quad \frac{149 + 148 + \ldots + 2 + 1}{59 + 58 + \ldots + 2 + 1} = 6'40$$

$$\left.\begin{array}{r} 130 = n + p \\ n/p = 1'5 \end{array}\right\} \begin{array}{l} p = 52 \\ n = 78 \end{array} \quad \frac{129 + 128 + \ldots + 2 + 1}{51 + 50 + \ldots + 2 + 1} = 6'32$$

We use n / p = 1.5 because statistically the relationship between protons and neutrons of all elements, but should work out case by case (sometimes “n” and “p” have the same value, while others do not).

Teach small example of this when we have 5 particles, where the combination of all gives 4 + 3 + 2 + 1 (taking into account that the expression of Figure 2 is:
[(n-n)+(p-p)+(n-p)]/(p-p)



As can be seen in Figure 2, the ratio neutron-proton must be constant (as it otherwise would be meaningless calculation nº interactions between nucleons / nº interactions between protons).

Thanks to solving systems of equations we see that increase particle ("n" and "p") and the relationship or ratio between the interactions between them takes a uniform way (as seen in the results of the figure 25: 7'5, 8, 6'5, 6'3, 6'37, 6'39, 6'32 ...).

If the reader allows me, I have explored this "assembly" figure 2:
Instead of using the partition of nº interactions all with "all nucleons / protons with protons" to visualize and understand, with the result obtained, the graph above ($\Delta E/A$ vs A) we present the reverse: sum of interactions between protons/sum of interactions between all nucleons (both protons and neutrons);

In addition, I have allowed to calculate the same equation but when nº p + nº n sum 190 total; the results vary as follows:

n+p= 10	→	**0'13**
n+p= 16	→	**0'17**
n+p= 30	→	**0'15**
n+p= 70	→	**0'16**
n+p= 80	→	**0'16**
n+p= 150	→	**0'16**
n+p= 190	→	**0'158**

1- The key probability that we have: The number of interactions between nucleons (n-n)+(p-n)+(p-p)/nº interactions between protons (p-p)= "x", and x fluctuates severely when $A \leq 30$.

2- As mentioned, in quantities of between 30 and 90 in the relationship above does not **fluctuate** much.

Attention to the large number of items that are in the land, the heavier are inside and the lighter in the surface.

Where there is more number of elements with $A \approx 60$, which means they **feel stable** (there are many more nuclei with such value of A). Then came the fission and fusion, the first is to combine 2 cores to obtain one-third with while the second is to divide a heavier nucleus in two, both have a lighter mass of 60 about, too.
Usually the increasing age increases the sense and ability to follow rules that prevail in each scenario (classroom university, business, chess, tennis match ...) and silencing when necessary, although the mere fact of being born in Empordà I am a little touched by the north wind.