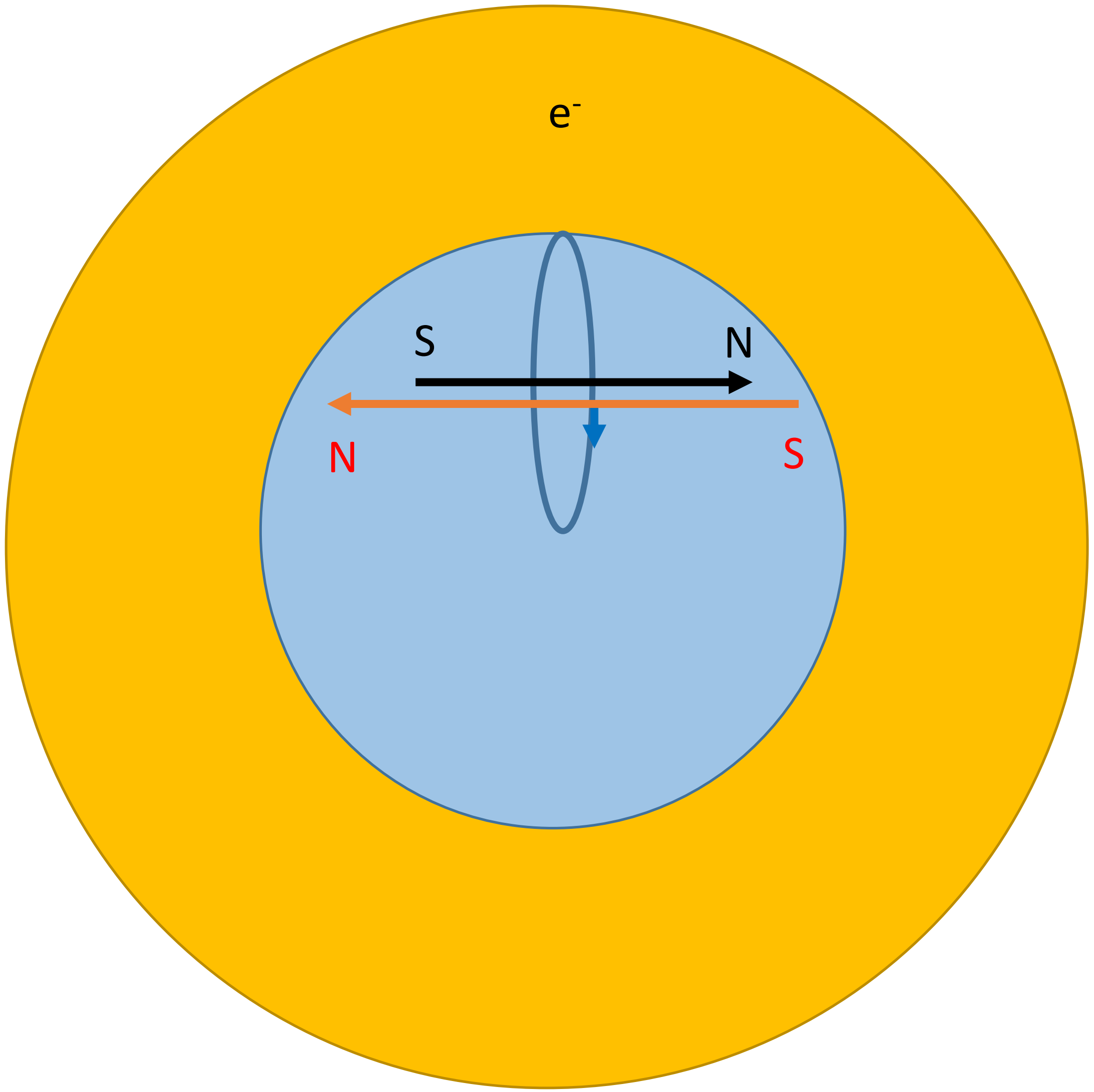
Appendix to „The Book ARCUS IV“ of the year 2020 Subtitle: „The Alternative Solution of Atomic Nuclei“

- *Source 1* (theoretical base):
- „The Book Arcus I“ – „Ideal Oscillator Theory, IOT“ selftranslated from German language:
- „Das Buch Arcus I“, abbreviated: „DBA I“.
- From „Die einheitliche Feldtherie – Antworten auf die Weltfrage“ by ARCUS, published in Germany by Frieling, Berlin 1998
- Published expanded on the internet https://www.arcusuniverse.com, 1998
- *Source 2* (binding energies of nuclides):
- Internet: http://www.periodensystem-online.de

- Arcus = Heinz-Joachim Ackermann, D-02828 Görlitz, Germany

The electron and its spins. 1st: e.m. spin - ½ $\bar{\mu}_e$, 2nd: g.m. spin + ½ ħ



View from the left to the right

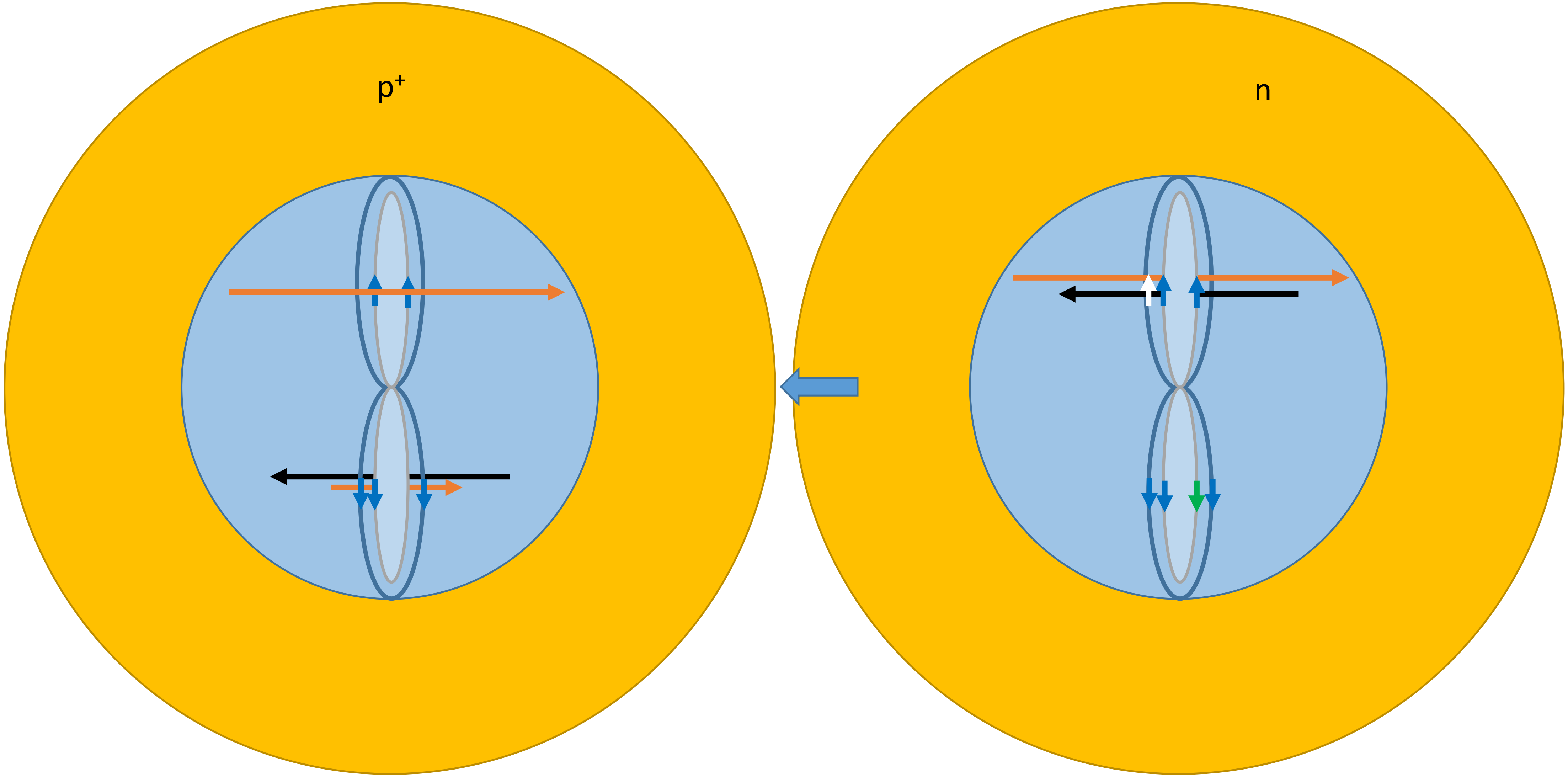
PK_e^- is rotating in right sense, marked by a blue ring with arrow.

Its positive matter makes the positive g.m. spin vector, seen as black arrow to the right, defined arrow peak as north pole N in analogy to e.m. magnetones.

But its negative electrical charge, also rotating to the right, makes the negative e.m. spin vector, seen as red arrow to the left, defined arrow peak as north pole N as an e.m. magnetone.

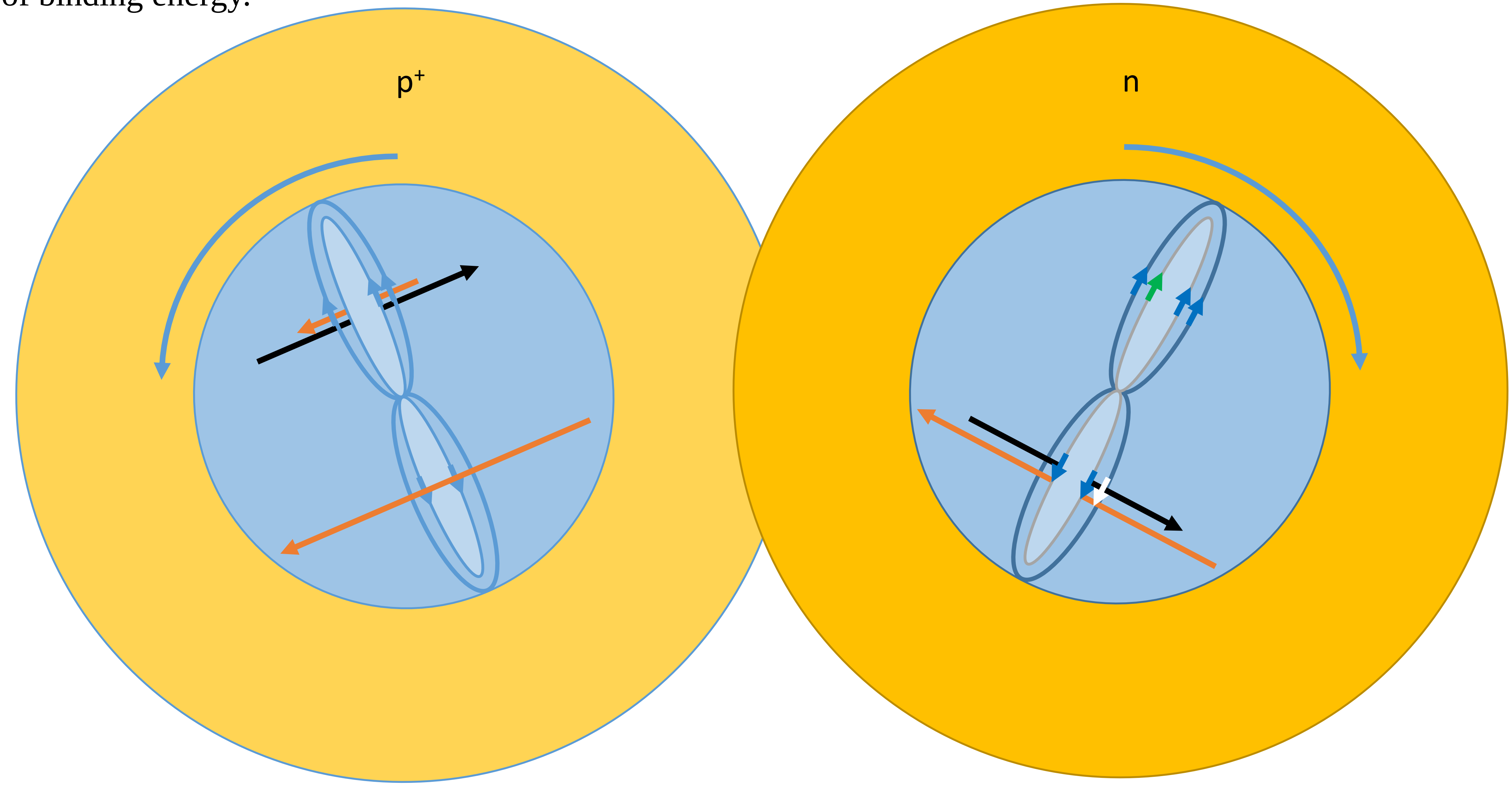
Proton spins: e.m. spin $+3/2\ \bar{\mu}_p$, g.m. spin $-\frac{1}{2}\,\hbar$

Neutron spins: e.m. spin $+2/2\ \bar{\mu}_p$, g.m. spin $-\frac{1}{2}\,\hbar$



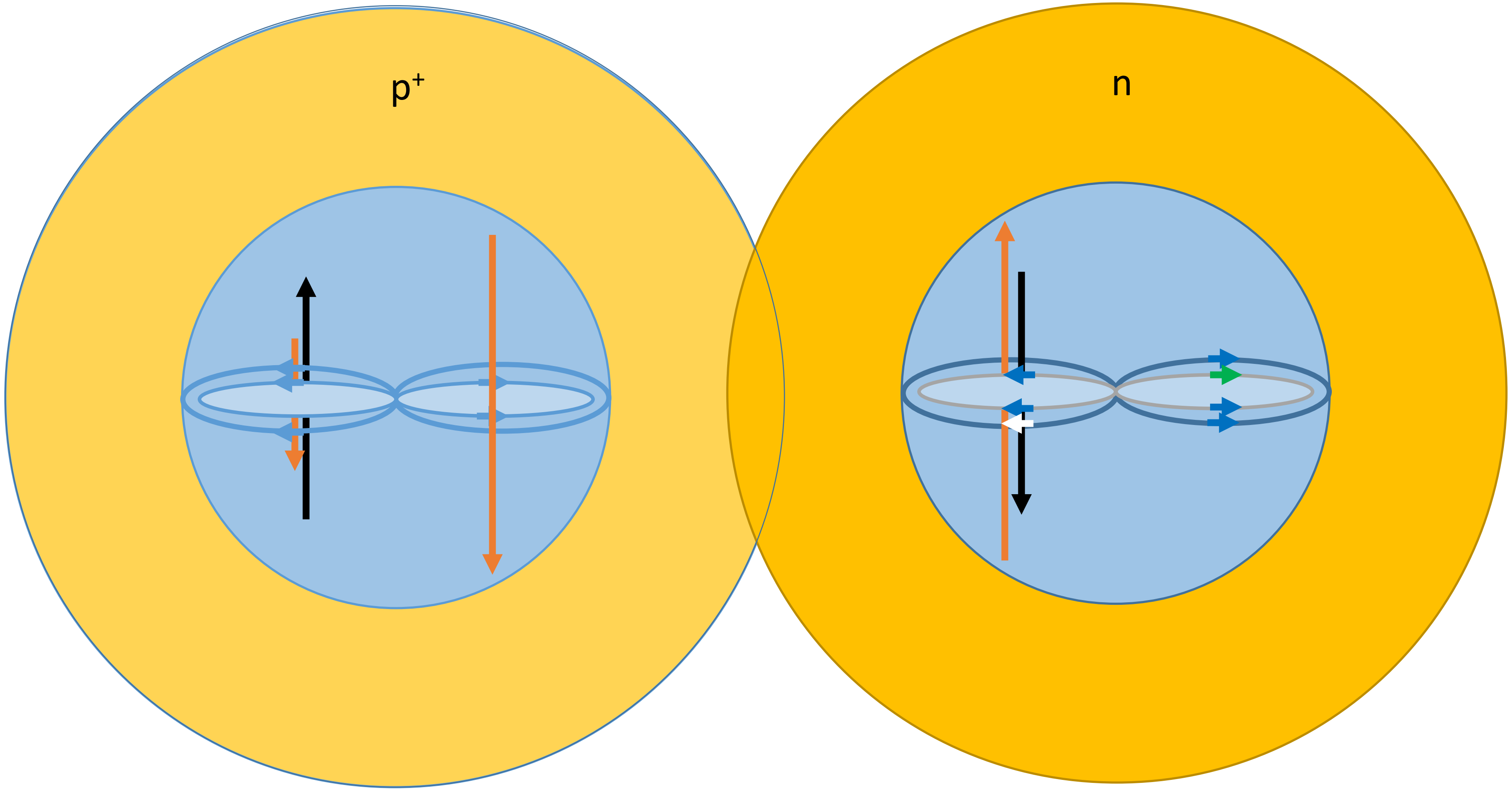
FIRST POSITION while approximation and binding

Deuteron, e.m. spin -5/2 $\bar{\mu}_p$, g.m. spin +1 ħ: My model: unic that +1, but most 0 or +-1/2. Importently, the g.m. fields repel each other, how both nucleons do not stand in turn but from the angle going into parallel position. Addition of e.m. forces (magneton‘s forces) consequently will be less. This favors the He-4 formation. That neutron sets free 2.225 MeV of binding energy.



Overcoming POSITION Changing

Deuteron, internal structure, electromagnets are coupling antiparallely, gravitomagnets are repelling by trying to rotate the system in g.m. parallel position. What here is the result has to be mathematically calculated by dynamic models. Because of the question: Which force is stronger at what position? Outside, I think, e.m. force is as strong that it orientates the vectors. Inside, after dunking into each other, g.m. force is increasing what may cause an angular momentum back to the e.m. momentum. Anyway, I think, an equilibrium will be established if nucleons were eternally static. But they are oscillating cosms. So there will be an up and down and always a new attitude of finding positions.



SECOND POSITION

Deuteron: Two questions are remaining.

I. How will the binding between both nucleons stay in that meanwhile when their cosms fall down next to zero?

I know as Albert Einstein too, each cosmos has its vacuum sphere under its gravitational horizont, an area which exists from eternity to eternity. Inside of this cosm area its radiation area also exists from eternity to eternity. Consequently, coupling never will be disconnected. But because of the changing of the inside mass M (oscillating mass), only the gravational attraction will be oscillating between minimum and maximum force. And so the inside bodies of both nucleons will find a longer distance after a shorter distance to each other, and this in eternal movement up and down, also as a pendulum.

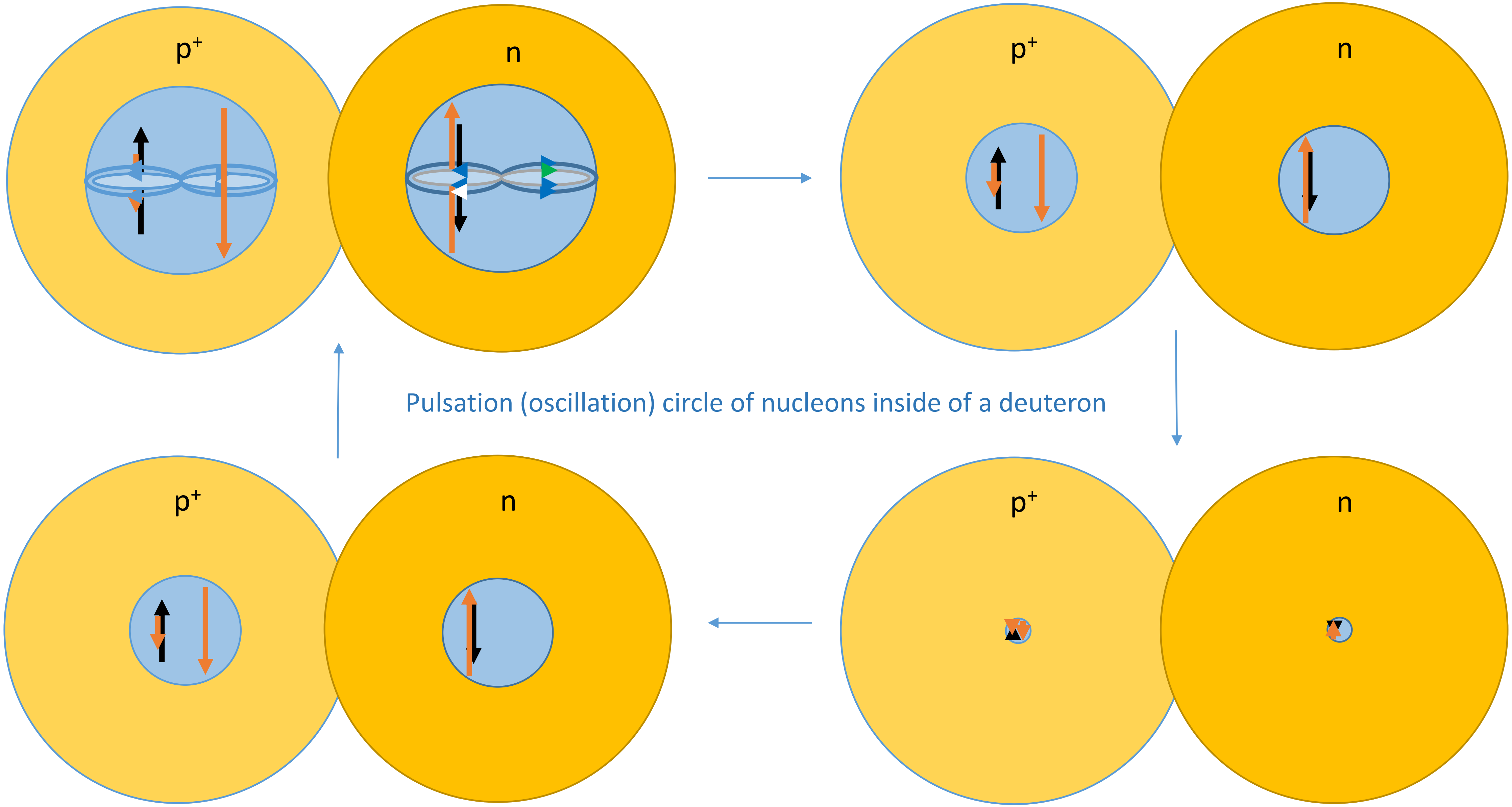
From the rotation velocity of the internal mass block, the condition of the particle named „pion“ π^{+o-} is following. Binding angles reduce the real binding energy.

Binding of nucleons is limited on the radiation area between the radius of 2.1e-16 m to 4.2e-16 m.
Binding energy can take diverse energy points depending on the angles between the nucleons and the hit energy.

Vice versa, it is not said that the collision speed is the measurement of the binding energy. It is just the indication!
Its largest value is to indicate an energy equivalent of the elementary particles named pions. Because the most speed value of c/6.866 = 43,663,335 m/s is the deepest which appears after falling into each other. It reflects a pion energy of about 136.68 MeV next to the average of 137.28 MeV of the electrically charged pion of 139.57 MeV and the uncharged pion of 134.98 MeV.

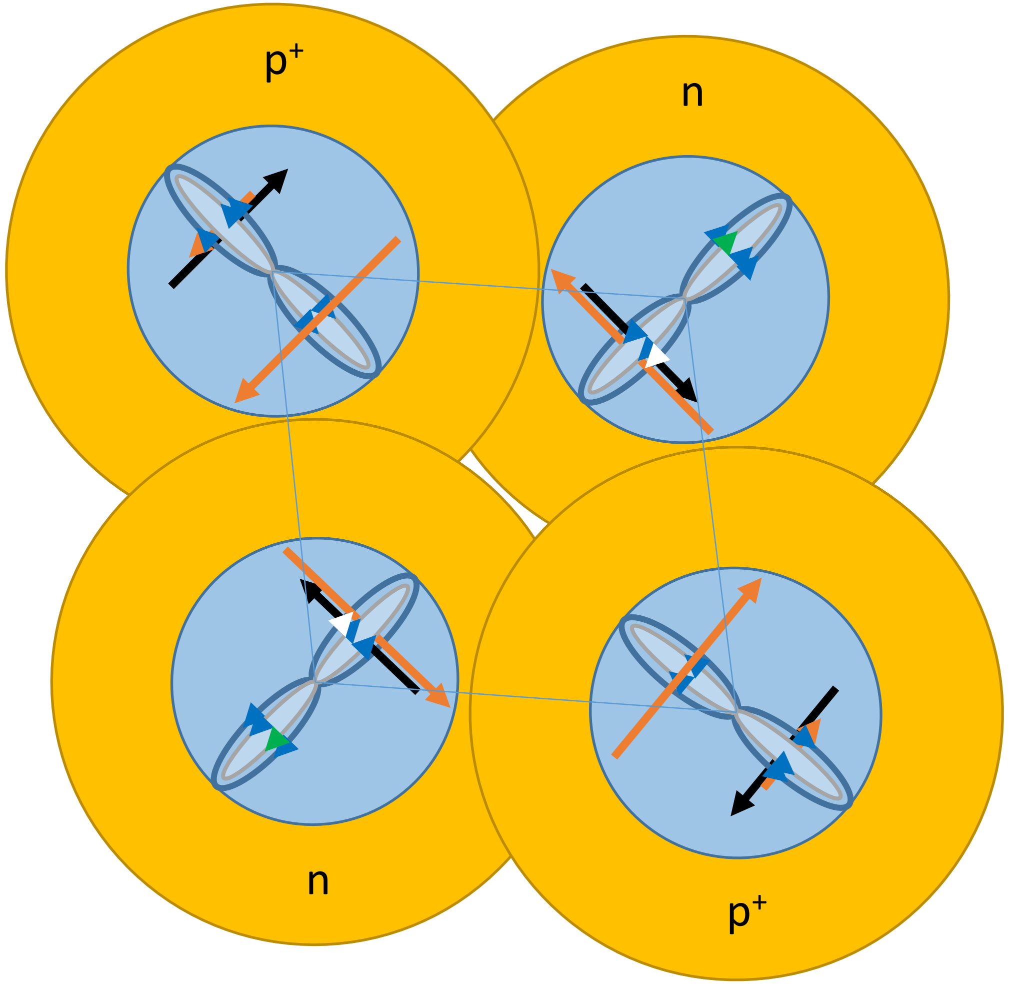
II. What is the order of the mechanism of the nuclear binding?

1st Electromagnetical orientation leads to attraction of a neutron and a proton or kinetic energy makes colliding of both.
2nd Both nucleons are going into contact of both radiation areas (under the gravitational horizont r_o being an „incident horizon")
3rd Inside of the overlapping area, a lens, radiation energy achieves more than double as before.
4th Now attraction of the internal M and external mass m leads to inside binding of internal gravitation.
5th Electron protocosm PK_e of neuton is evaporizing and giving additionally mass M and radiation into the neutron cosm.
6th Radiation has been transferred to the proton. Proton has been changed into an energy cosm (EK) emitting this portion of energy to the outside of the incident horizon.
7th Internal mass M_o of the neutron is inceasing. External mass m_o is decreasing, and at the same time, the surplus of internal radiation energy has to be emitted to the outside by the proton. This is that energy quantum which is calculated as mass defect $-\Delta E=-\Delta mc^2$.
8th Both nucleons are located by binding of the electromagnets which aren't rotate. But nucleons would fall into each other if there was no rotating.
9th Both mass blocks equalized by their quantum numbers are rotating now. So a **phenomal rotation** is created, externally invisible, internally relatively effective from the position of the oberserver inside a proton or inside a neutron. Invisibly from the outside, the n-mass-block rotates around the gravity center of the proton. The same way, invisibly from the outside, the p-mass-block rotates around the gravity center of the neutron. Angles determine the energy.
10th Additionally, gravitomagnetical repulsion acts against the attraction movement.



Pulsation (oscillation) circle of nucleons inside of a deuteron

He-4/ 2: e.m. spin 0 $\bar{\mu}_p$, g.m. spin 0 ħ



Alpha link (He-4, α)

as it is coupling with both e.m. spins and how the g.m. spins repel each other at the neutron. And how a proton can couple with a neutron by both e.m. magnetons.

That He-4 for lack of energy gain cannot bind another He-4 directly for stability.
The neutrons of the ring but can bind external protons. Neutrons have to master the energy to the protons.
The ring-n can do it only by small energy.
The ring-p needs external neutron.
Each neutron sets free 14.148 MeV binding energy binding to each 2 protons: 7.074 MeV.

By angles you see a parallelogram, n-angle always > 90°, mostly more than 100°; p-angle always < 90°, mostly more than 80°.

Explanation

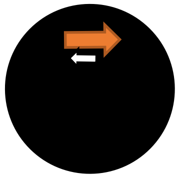
Know, nucleons‘ positions inside of a nuclide are shifting (wandering)! Especially, neutrons are wandering. Inside of an alpha link, the wandering of protons and neutrons does not lead to any change of the turn npnp in a circle.

But in the chain of nuclide, there are more positions which can be exchanged. This way, different structures arise from wandering. I myself only show you the most important structures for your understanding of nuclides‘ reactions and interactions. Why have nucleons the chance to exchange their coupling positions?

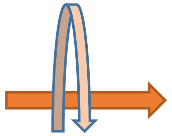
See, each 1.1e-24 s one quarter period of a nucleon‘s spatial oscillation is running. Firstly, the climb to the most elongation of the radius of the nucleon, named amplitude, is going. Secondly, the descent to the center of the nucleon happens. Then the repetition is running of this half period to the complete period of 4.4e-24 seconds. Then the micro or macro cosm has spatially oscillated for 2 times. In these moments, for 2 extremely small times, each nucleon matter was gone away.

Imagine, you stand in front of your mirror and you are watching yourself meaning you was there in continuous existence. But it isn‘t. You are not yourself for a moment between 2.2e-24 seconds! You are non-existent at this moment which is repeating after each 2.2e-24 seconds. But what are we? We are sequences of pictures!! Pictures which are changing!

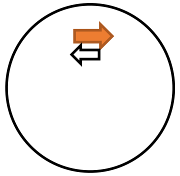
We are radiated images, gigantic holograms! And now ask yourself the question: Where do all the images come from? The answer you can give yourself. My answer, only my answer to myself is: This is the Creator! My God.



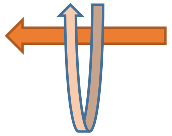
proton p^+; e.m. spin $+3/2\ \bar{\mu}_p$ S ⇨ N in direction of arrow,
g.m. spin $-1/2\ \hbar$ N⇦S
made of three PK (+ - +, R L R, $+3/2\bar{\mu}$) (+-+-- g.m.: $-1/2\ \hbar$)



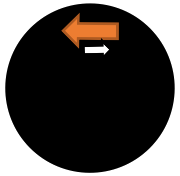
PK$^+$ rotation, right direction,
result: e.m. S-N (+)



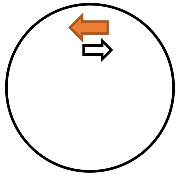
neutron n; e.m. spin $+2/2\ \bar{\mu}$ ⇨ in direction of arrow,
g.m. spin $-1/2\ \hbar$ ⇦
made of both PK (+ - , R L , $+2/2\bar{\mu}$) (- g.m.: $-1/2\ \hbar$)



PK$^+$ rotation, left direction, result:
e.m. N-S (-)

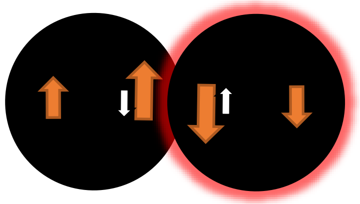


proton p^+; e.m. spin $-3/2\ \bar{\mu}$ N ⇦ S in direction of arrow,
g.m. spin $+1/2\ \hbar$ S⇨ N



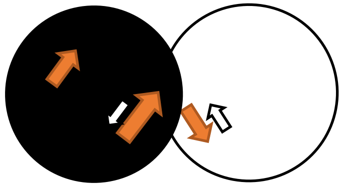
neutron n; e.m. spin $-2/2\ \bar{\mu}$ ⇦ in direction of arrow,
g.m. spin $+1/2\ \hbar$ ⇨

Using these symbols we build nucleons.



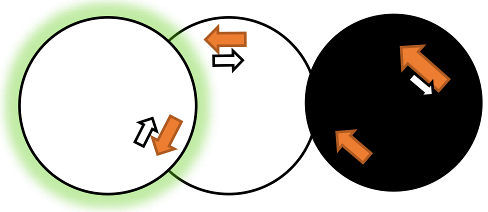
2Diproton*
2

Instable. Beta-plus. β^+
For example: Dineutron, unstable, beta-minus β^-.



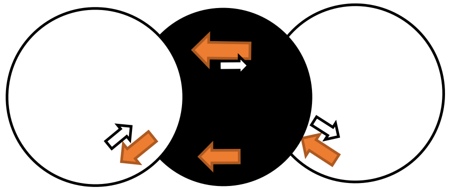
2D
1

Deuteron as the only one which have additional spin.
+5/2 $\bar{\mu}_p$, g.m. Spin -1 $\hbar$,



3T*
1

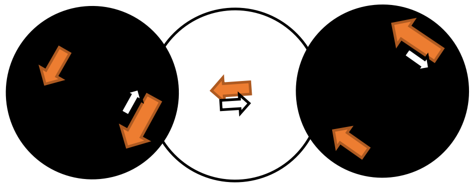
But if n at n by changing position, than ß- follows, above s + def.
spin here: +2/2 $\bar{\mu}_p$, g.m. spin + ½ $\hbar$
Unstable. Beta-Minus β^-.



3T
1

In a stably variant structure. Binding energy of each neutron: 4.241 MeV, together 8.482 MeV.

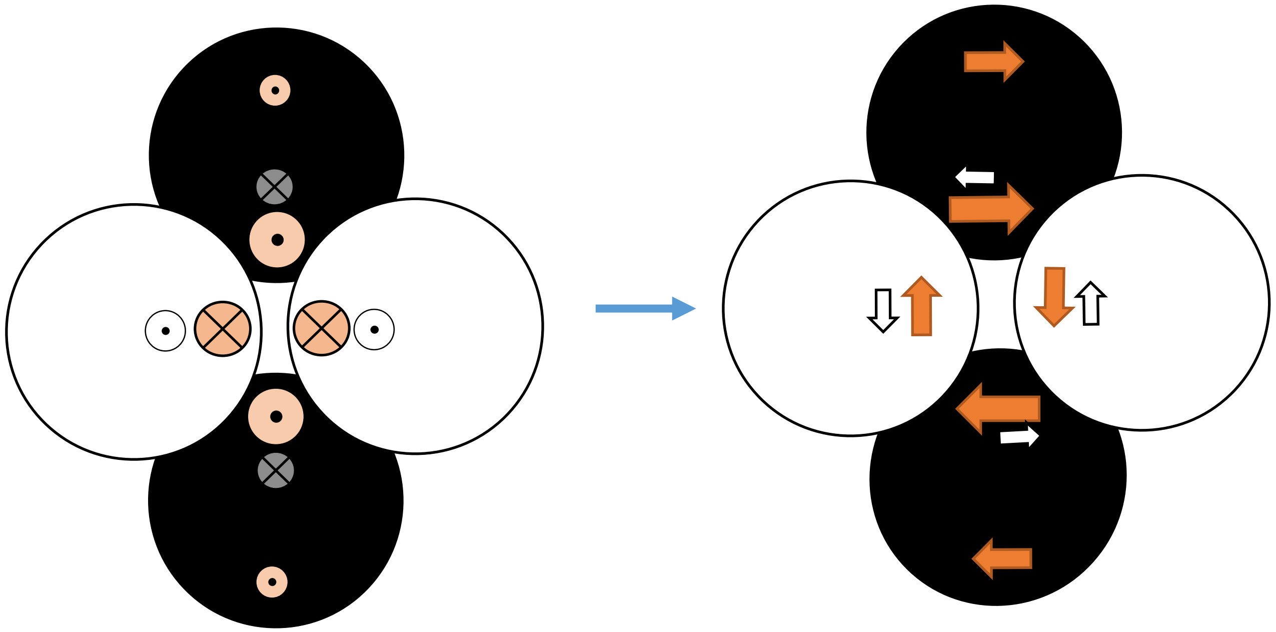
The first important principle is: Externally coupling neutrons are wandering!



3He
2

Neutron is twisted a little for absolute symmetry, repulsively stretched, s: -5/2 $\bar{\mu}_p$, g.m. spin +1/2 $\hbar$. Neutron sets free 7.718 MeV, to each proton the part of 3.859 MeV.

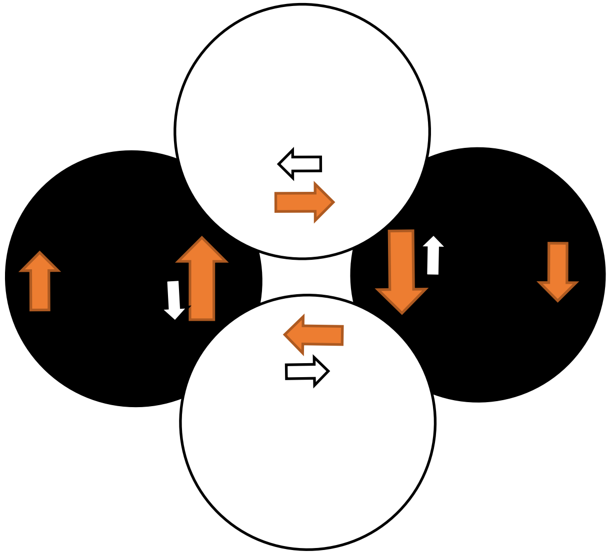
- The neutrons and protons approach each other through contacts of the north and south poles. However, because there is no resistance to this, they then turn into the positions of the magnetic circuit or the ring-shaped connection. As is known, the magnet vectors (bar magnets) are then one behind the other. Their e.m. spins completely eliminate themselves. BUT: the g.m. spins are twisted on repulsion. It works like this:
- The magnets attract each other from the outside and orientate their location. They cause the strongest external effect. As soon as the spheres are submerged into each other, additionally to the magnetes, the internal static gravitation is attractively acting. Mutually, because the center of gravity of the observed nucleon is on the outside of the other nucleon. Consequently, each nucleon „sees“ the partner nucleon as external nucleon at „its sky“ as a „gigantic star“. However, the repulsion of the g.m. spins of both nucleons increases by further approaching into the areas of the radiation cosm (the top R_o in each case, the next R_o slightly deeper is the world level of mass and of least radiation). As the immersion of the other nucleon, it now reaches its maximum (and vice versa), the entire external effect comes inside. This increases the repulsion of the g.m. effect of the g.m. magnetons extremely. Now the nucleon‘s mass block has to turn around and to rotate.
- The e.m. magnetons can do next to nothing to counter this. They are too weak. So the nucleon with its angular momentum will be repelled. It comes back again to the area of radiation cosm. There, it gets back its e.m. angular momentum into the e.m. position from before. By this pendulum the bond is retained, but just in the radiation cosm area. Because both radiation cosms are overlapped, you see that the neutron gives energy which the proton does not need but emits this one. This way, the mass defect occures with energy radiation to the outside of the proton. This is not the direct change from mass to energy! This is the most important to know: it is a correspondence, like exchange money. Energy is released instead of mass.
- Both deuterons lie electromagnetically (e.m.) against each other in an antiparallel manner and form out the ring of e.m. spin of zero from +1-1. Internally, the mass blocks are rotating.



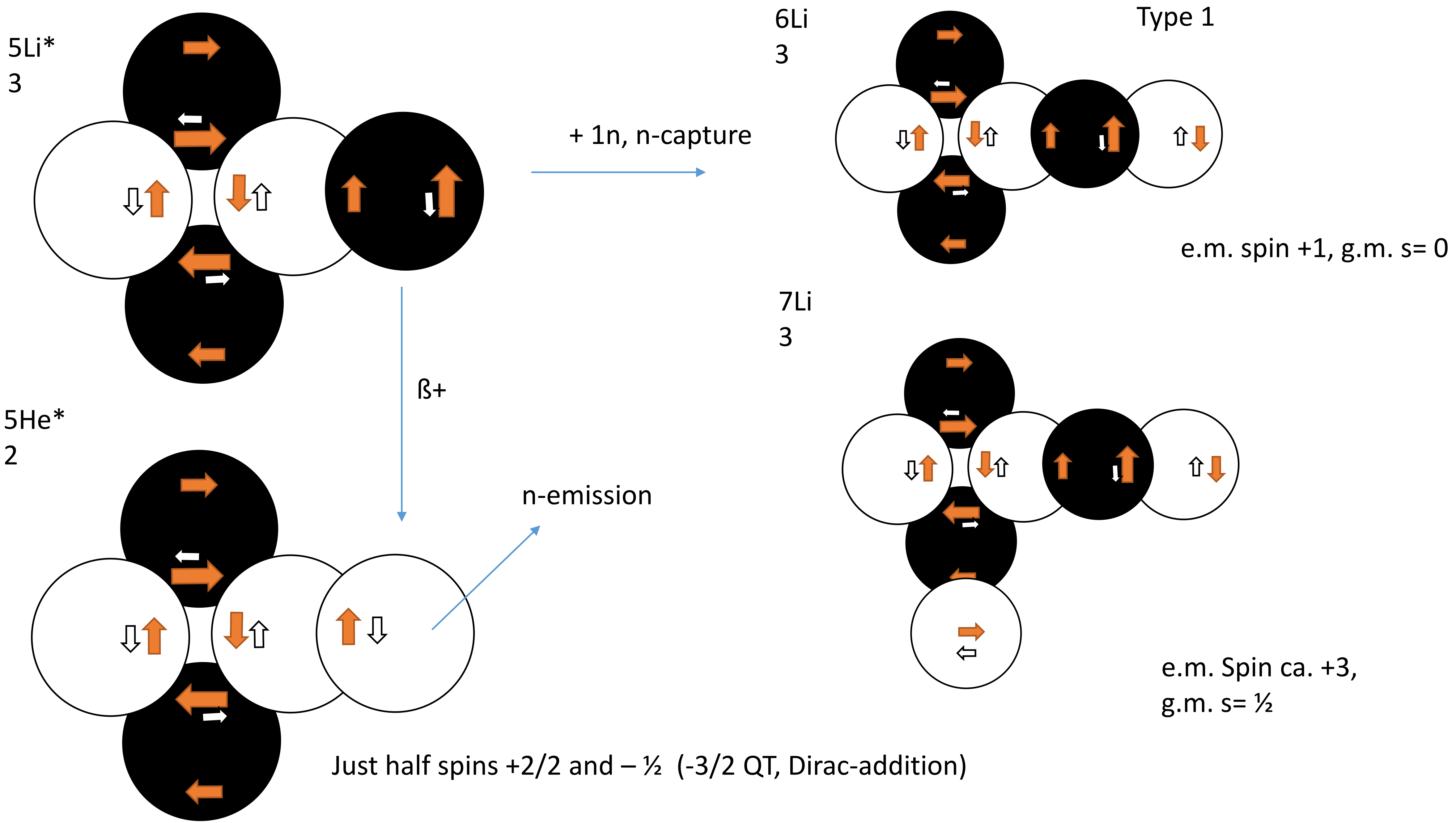
4He
2

At the start of combining nucleons attract themselves this way. Then the turn around to the ring bond.

Spin is:
e.m. Spin 0 $\bar{\mu}_p$, g.m. Spin 0 $\hbar$



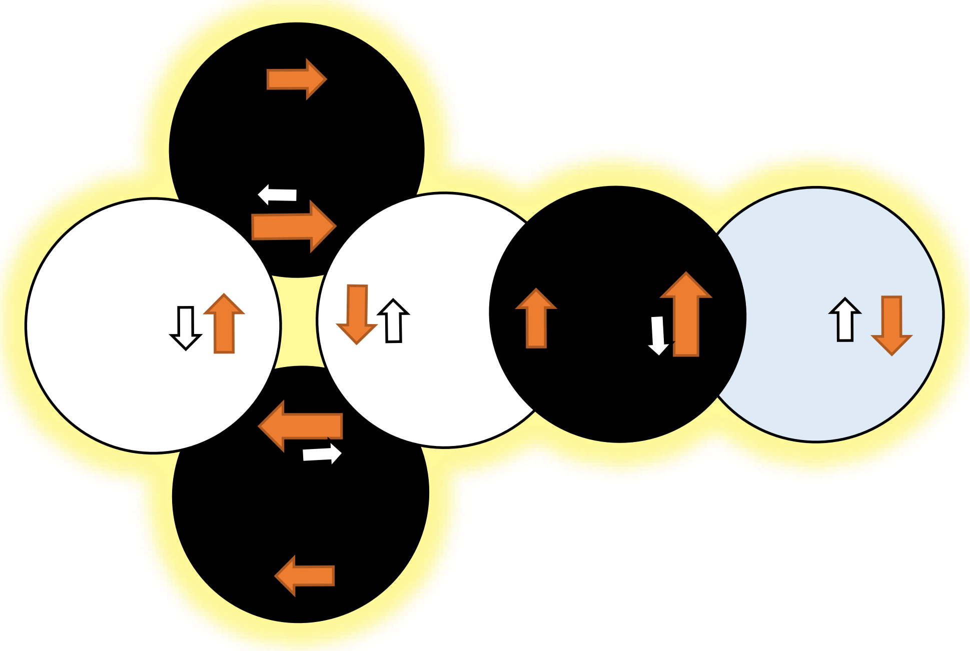
No heavier elements could result, if there were not instable Helium.
He-8* gives free the way to the elements by the decay with 84% into Li-8* and with 16% into Li-7. The isotope Li-8* decays after 1209 s lifespan using ß- into Be-8* and
this decays into 2 He-4. 16% Li-7 is the step to arise. If Li-5* takes one neutron, we get the stable Li-6. This then is the beginning of the next area of chemical elements: Li-6 and Li-7.


5Li*
3
+ 1n, n-capture
6Li
3
Type 1
e.m. spin +1, g.m. s= 0
ß+
5He*
2
n-emission
7Li
3
e.m. Spin ca. +3,
g.m. s= ½
Just half spins +2/2 and – ½ (-3/2 QT, Dirac-addition)

Li-6 types 1 and 2 can directly couple each other. C-12 would arise.

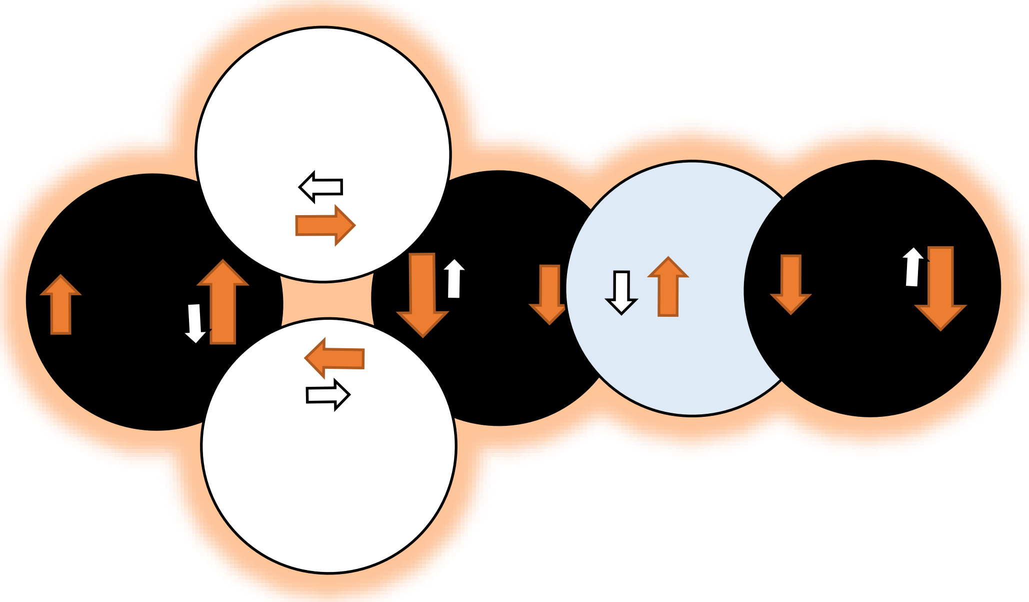
e.m. spin +1, g.m. s= 0
Binding energy of „gray" neutron at the proton into the alpha-ring:
3.698 MeV. But each n now has 31.994/3= 10.665 MeV/n. 14.148 MeV/n in alpha ring is now decreased.

Li-6/ 3
Type 1

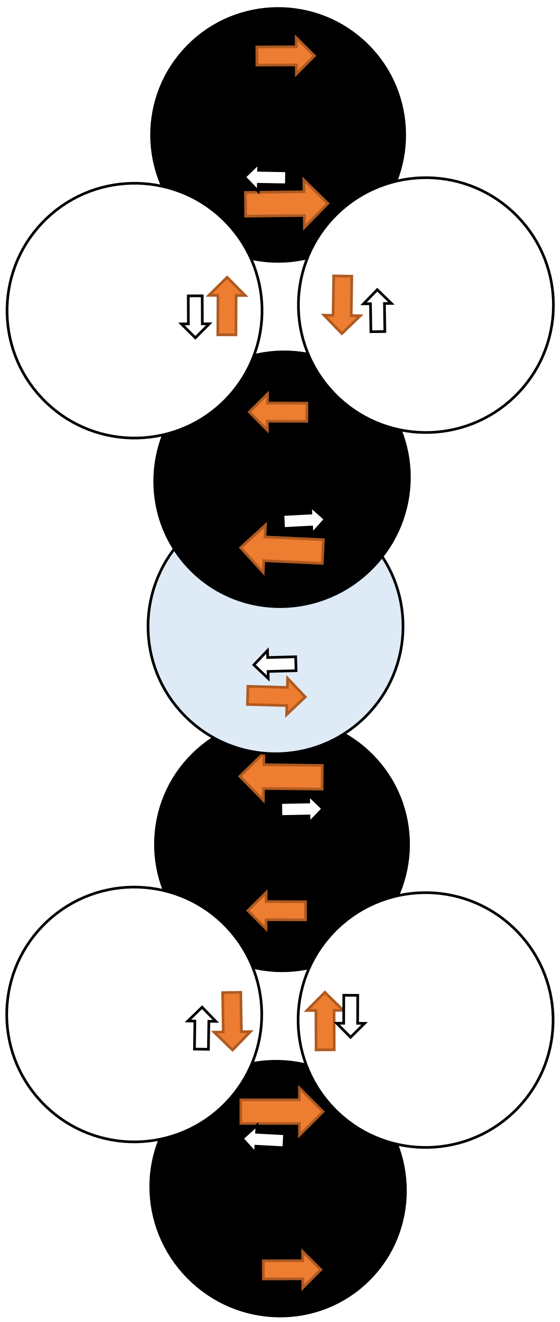


The neutron gives energy into both protons like in He-3, when the neutron gave 7.718 MeV. Resulted type 2 is energetically more stable than the type 1, also 3.698 MeV. This binding is less stable than an alpha-ring.

Li-6/ 3
Type 2



Be-9/ 4 stable, both He-4 are coupled by one neutron. Even this is possibel.



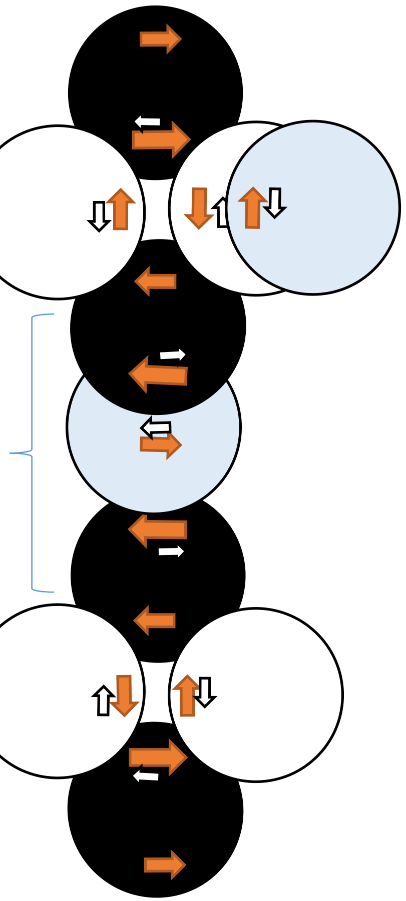
Beryllium-9 (the only stable Be)
arises never from Be-8/ 4p,
but
from construction of n and p,
angled, above foreward. That middle neutron makes an edge. He-3 binding type, THAT is here more He-6 at He-4, or a single neutron sticks both He-4 protons together.

e.m. Spin 2/2 $\bar{\mu}_p$, g.m. Spin – ½ ħ or vise versa

Shell and Drop theory: 3/2 aus He-5; is not imaginable

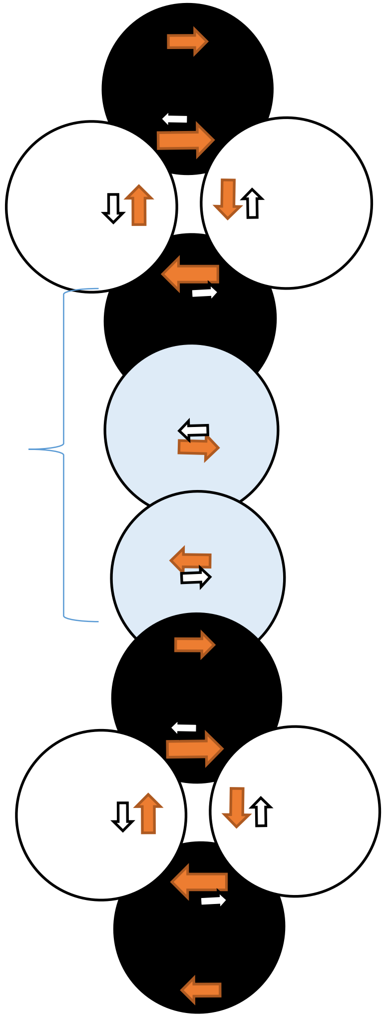
Just neutrons let roll around without order and distribute spins, is one possibility. To order them on orbitals (shells), let them rotate there and then add their spins, is another possibility. But both assumptions lead to mistakes, because God did not made the world as simply that a nucleus can be made by cement together like a swallow‘s nest.
Binding energy of the central neutron is 1.574 MeV (58.166 – 2x28.296 = 1.574) unless neutron binding energy inside of both alpha links was decreasing by distribution between all the neutrons.

He-3-B



Be-10*

T*-3-B



Be-10*

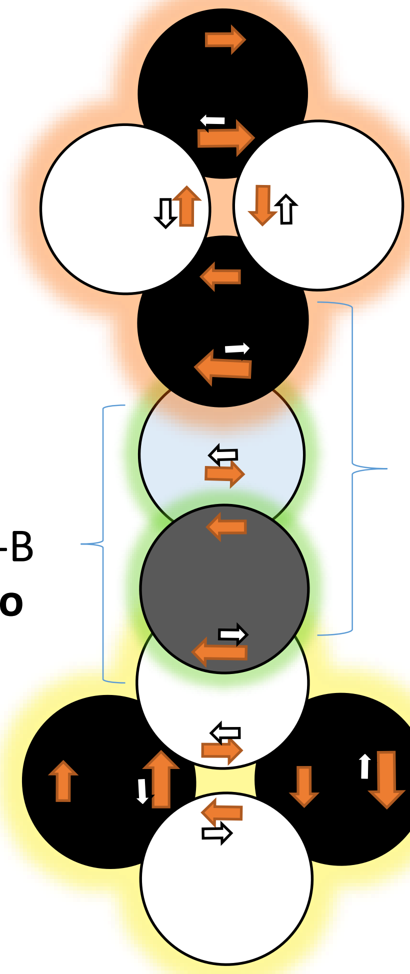
Bor-10

an ideal structure! The inner binding links attract the alpha links. It is like:

A Li-6 is binding a He-4 and vice versa.

Or: **Both He-5-types are coupling or virtually: Both Li-6-types are coupling into each other over the green. The one sees the other in this light.**

T-3-B



He-3-B

Be-10* (giving 6.812 MeV by one more neutron)ß- into Bor-10 (-0.226 MeV relatively to Be-10*).

That n could be seen as a T*-3-B. As a chain, it is nearly stable because symmetrical and internally analogously to He-4.

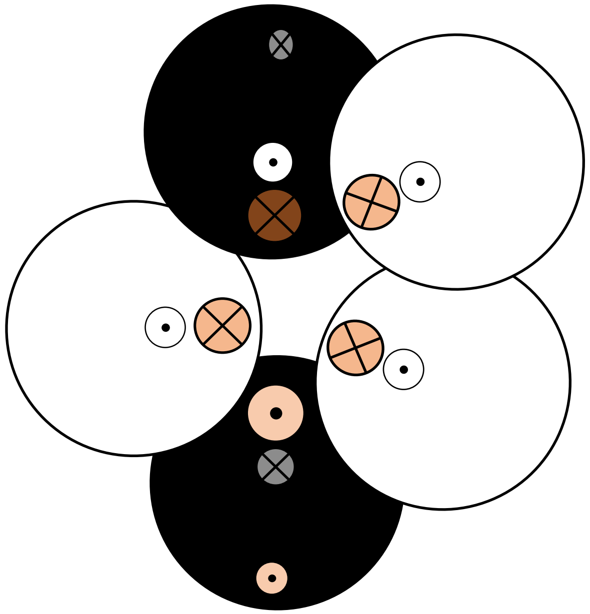
The g-Spin not clear, could be aslant, then but zero, and zero again. A n-n-coupling directly is no solution ´cause that n cannot give something need of energy to the other n. ONLY that p has lack.

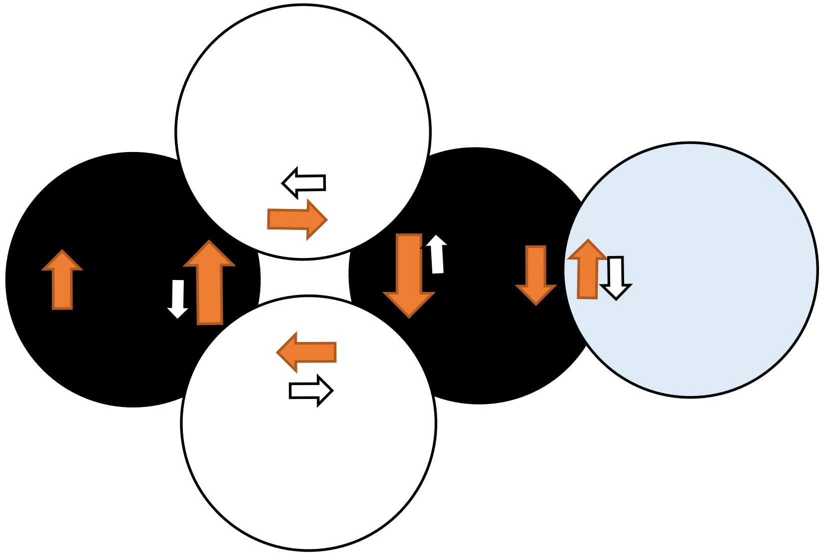
The third makes these 2 coupling links between He-4-links, as used at foil 21.

He-4: e.m. spin 0 $\bar{\mu}_p$, g.m. spin 0 $\hbar$, all the 4 e.m. space areas are compensated.

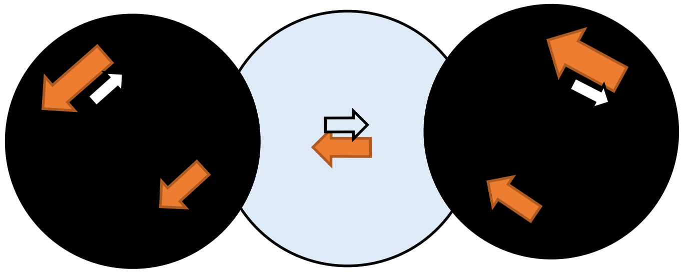
He-5*: e.m. spin 2/2 $\bar{\mu}_p$, g.m. spin -1/2 $\hbar$, all the 4 e.m. space areas in He are compensated.

But theoretists imagine He-5, as there was a turn of 5 nucleons. Always 2 nucleons would stand antiparallely, the other 3 but always parallelly.
My model: It stays an alpha link which has all the spins to zero. If one neutron is coupling at that nuclide, then it determines now the e.m. and g.m. spins to 2/2 and -1/2.
He-5* emits this neutron because of negative binding energy.

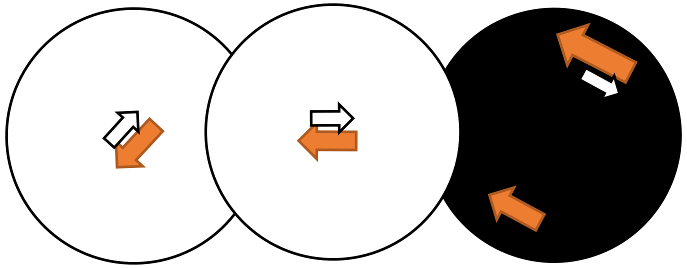




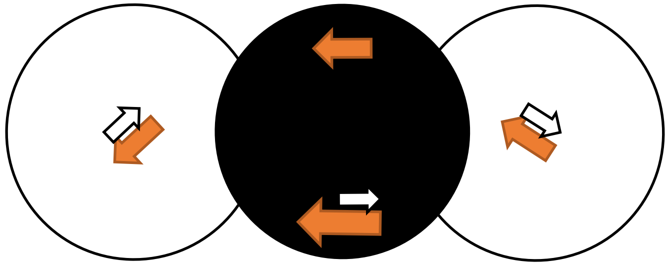
This is the contradiction by my model. There are no multiple half g.m. spins by single nucleons.



3,2He, streched by repulsion of both p.
This also would be a symbol of He-3-coupling, always stable: **He-3-C**

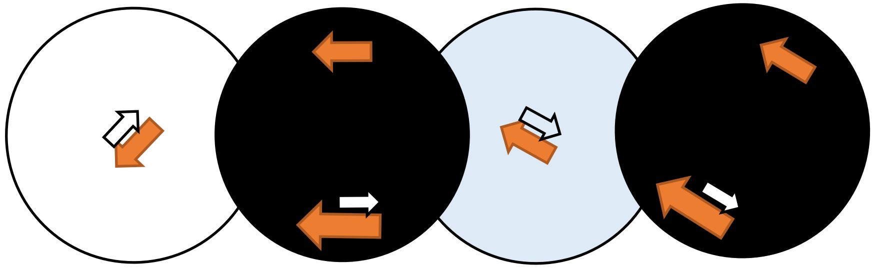


3,1-coupling, unstable because of the direct position of both neutrons: **T*-3-C**

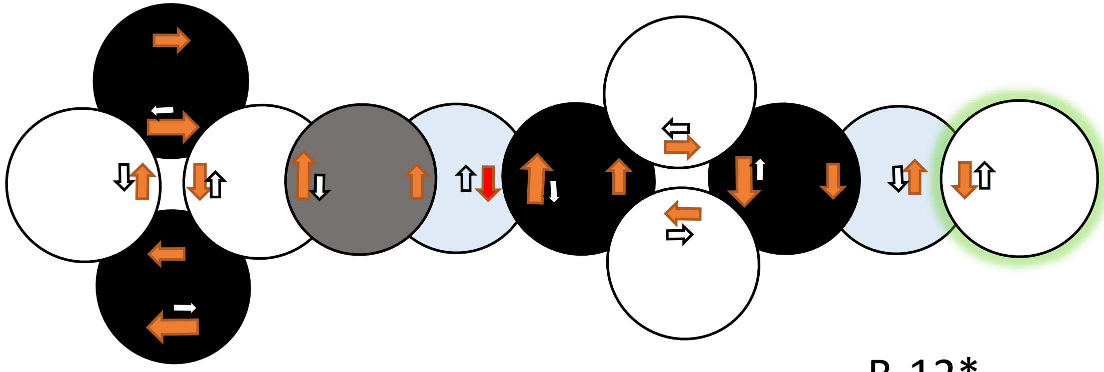


3,1-coupling, stable because of the distance positions of both neutrons: **T-3-C**

Neutron‘s coupling to each other are unstable, ß-, n-emission
and vise versa: Proton‘s coupling: **n*-C, p*-C**



He-T-3-C: 4,2-coupling, stable because of the types He-3-C und T-3-C in one combination. T-3-C observed from the left, He-3-C from the right. Those four make a ring of He-4 as alpha link or the couple of two D-2-links to each other.

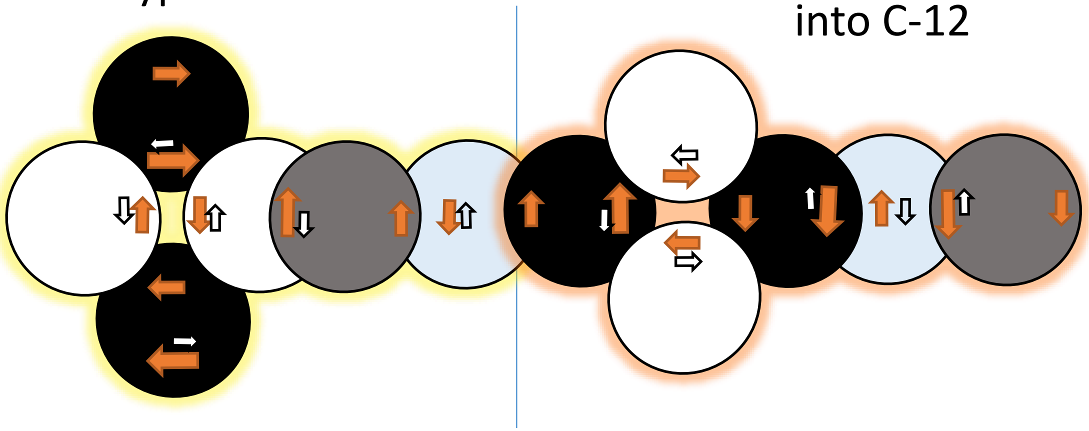


B-12*

Li-6 type 1

into C-12

Li-6 type 2



Copling of both types of Li-6

O-16 arising to 0-28*
in my „DBA I“ I coupled 4 alpha links. This was wrong. Here, there are 3 alpha coupled over 2 x pn.

This construction leads to chains. But at each He-4-proton again neutrons can be coupled, also at neutron, but than consequently ß—unstable.

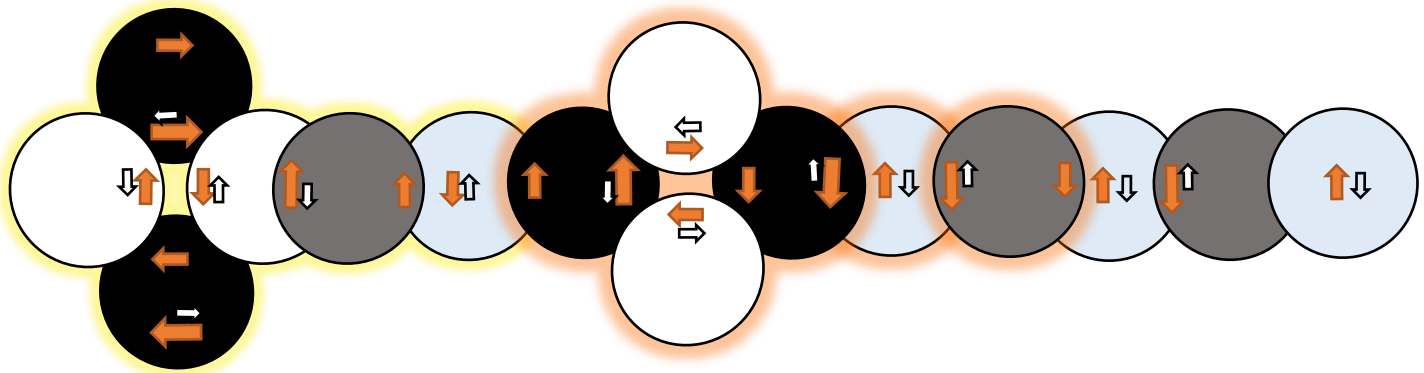
At such a chain I can bind 12 n. But at a cube only 8 n. SO:
There are rather no cubes. Just chains. Can these chains have junctions? Otherwise I only had chains. In my „DBA I“ I constructed junctions. This was obviously wrong.

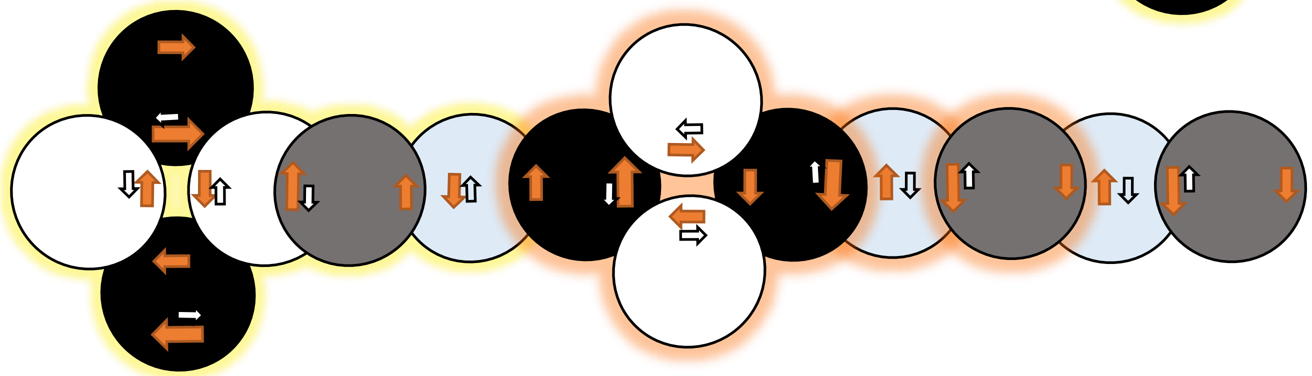
From binding energy would be calculated what is possible.

There are only He-5-types and Li-6-types which are coupling at
which p and n can come along. Now each neutron sets free (92.162/6) 15.36 MeV/n. Binding here ist stronger.

N-14

N-15, binding energy: 115.492 MeV

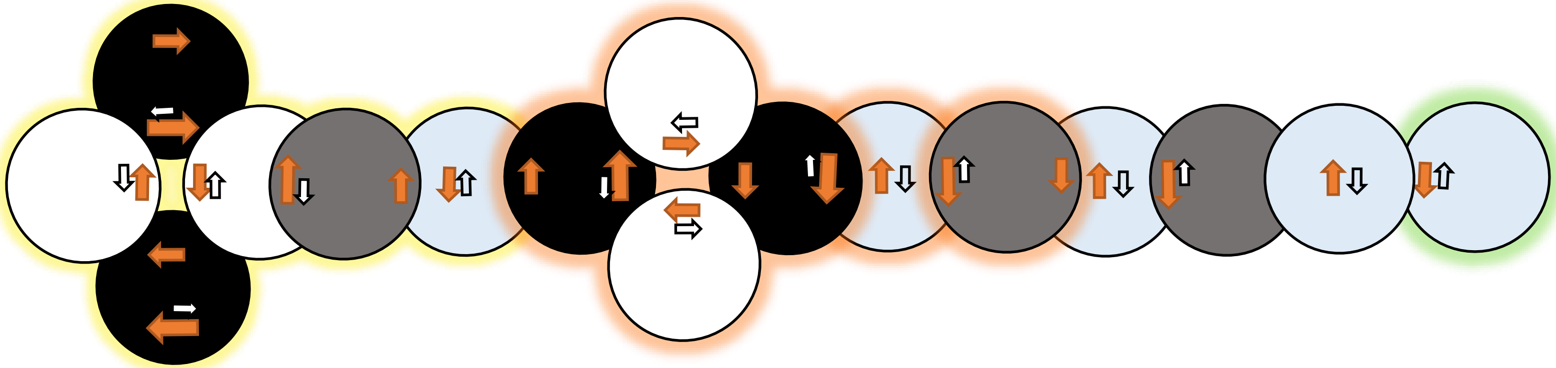




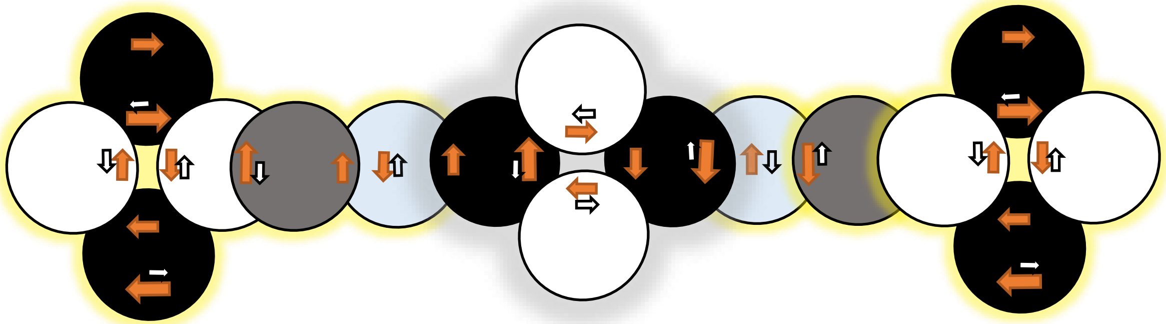
N*-16 has one n yet which decays into p. Binding energy: 117.981 MeV, it meens 2.489 MeV of that outside neutron coupling with a neutron. Perhaps n-n-binding would set free a binding energy of about 2.5 MeV. Each n has 13.109 MeV/n.

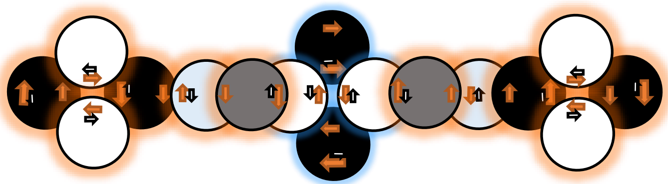
Only a lonely He-4 cannot couple another He-4.

N*-16

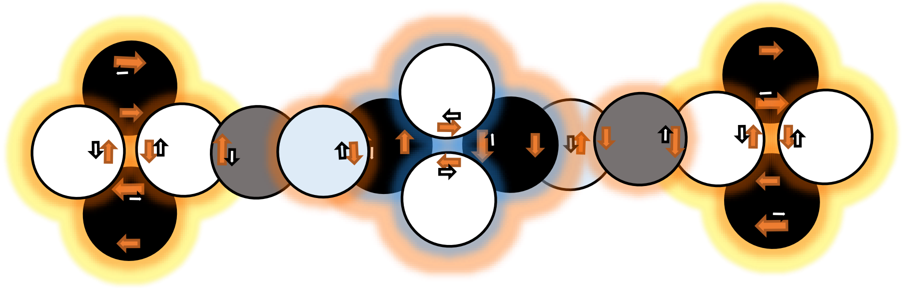


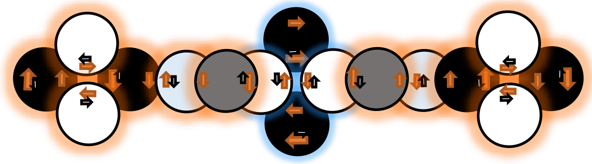
O-16 in 2 variants. Using variant 1, I didn‘t find a better solution. Binding energy 127.619 MeV. The structure has won strongness of its binding of 9.638 MeV to N*-16 of 2.489 MeV → 7.149 MeV. Each neutron now has 15.952 MeV/n.



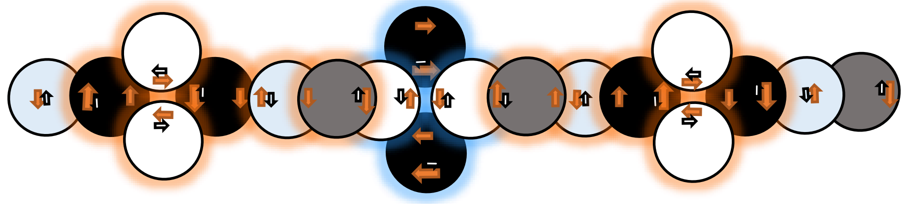


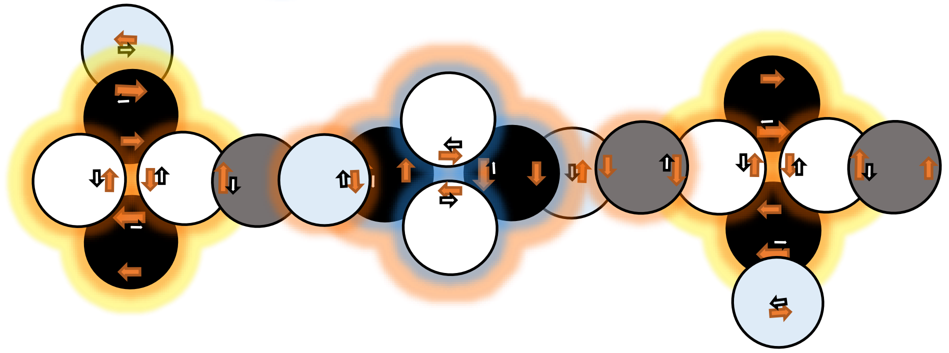
O-16/8





Symmetrical coupling of 2 equal Li-6-types 1 with a He-4-ring (alpha link). Plus 2n, 1p and it is fluorine.





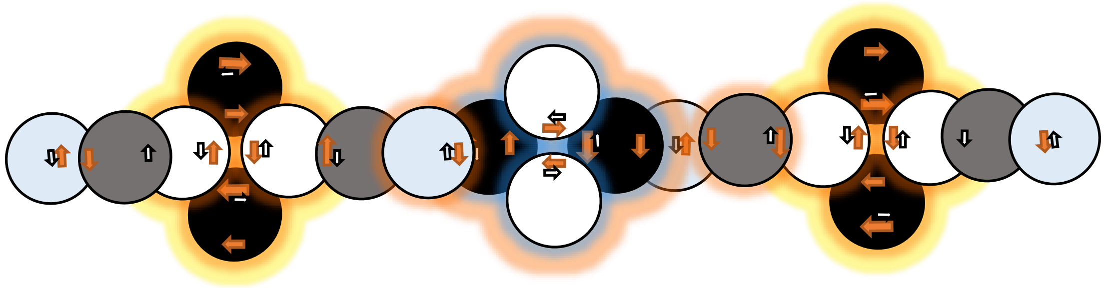
F-19/ 9

(F-20* gets a n at the left position to have mass symmetry. That n decays into p.)

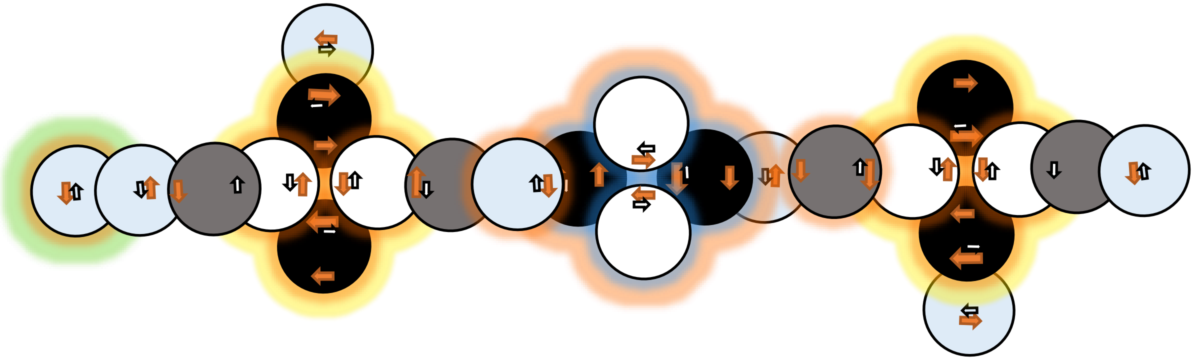
F-19 can be structured in 2 variants as all the nuclides. But until when it is the better structure? I think, where more n have tho couple.

But
Ne-20/ 10, also a super chain, symmetrically.

2p extend the chain, Ne-21 and Ne-22 both get each n at the edge protons.

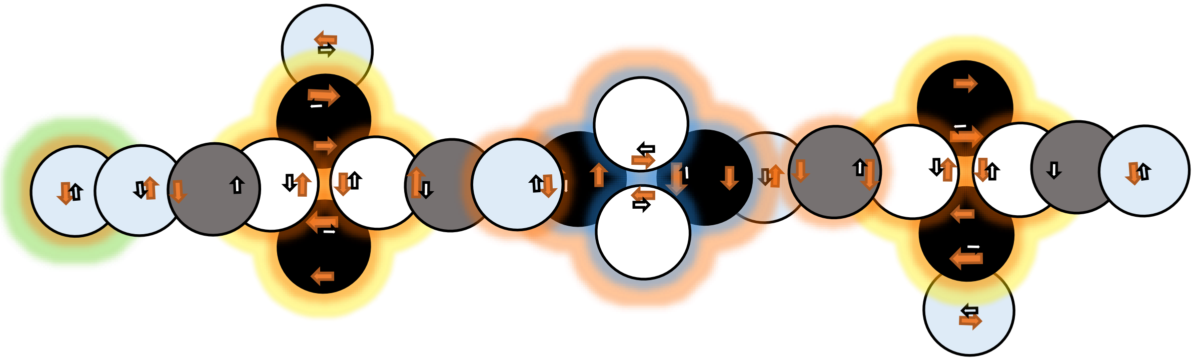


A stable Ne*-23 consequently cannot exist! The decay into Na-23 which is only stable like F-19 is neccessary.



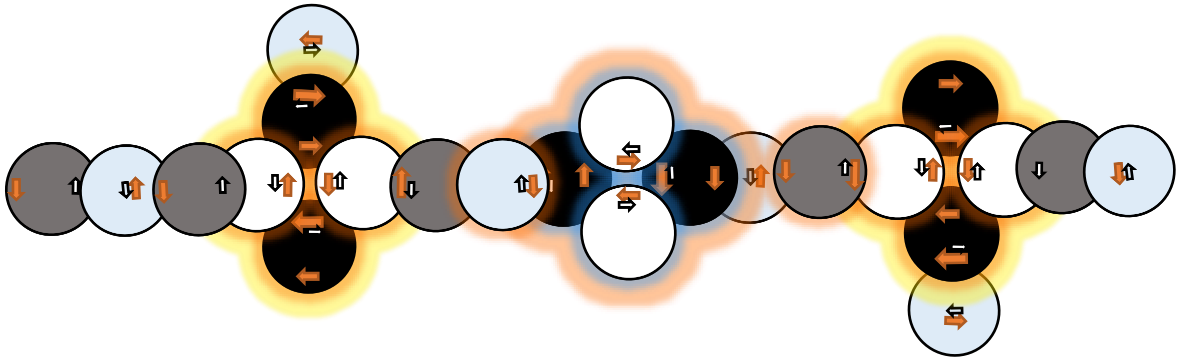
Ne*-23

the left n is too much.



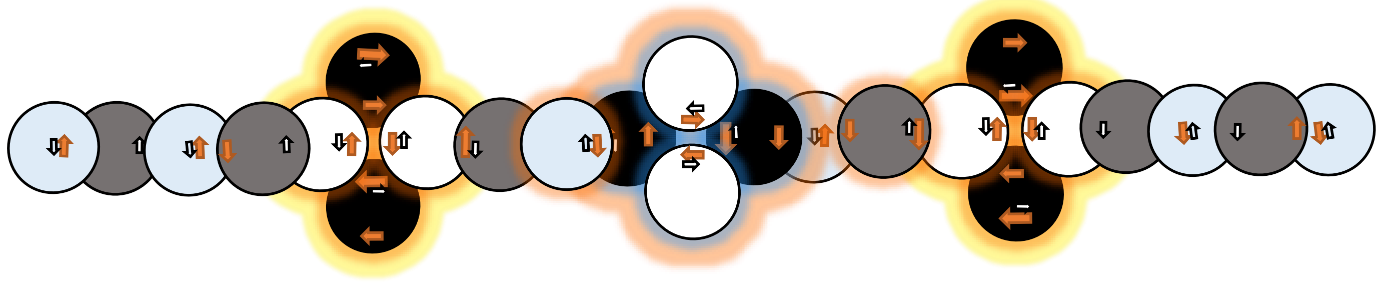
Na-23/ 11

the left n became p. If now a n couples at the right position at the given n (for having imbalance compensation), it is changing into a p, and we find Mg-24. But do not think, it must be. Think at my explanation! The neutron is wandering. If it is wandering as fast that it cannot decay at the neutron, then it is wandering on. And the decay has failed. This is the cause of the lifespan of unstable matter!

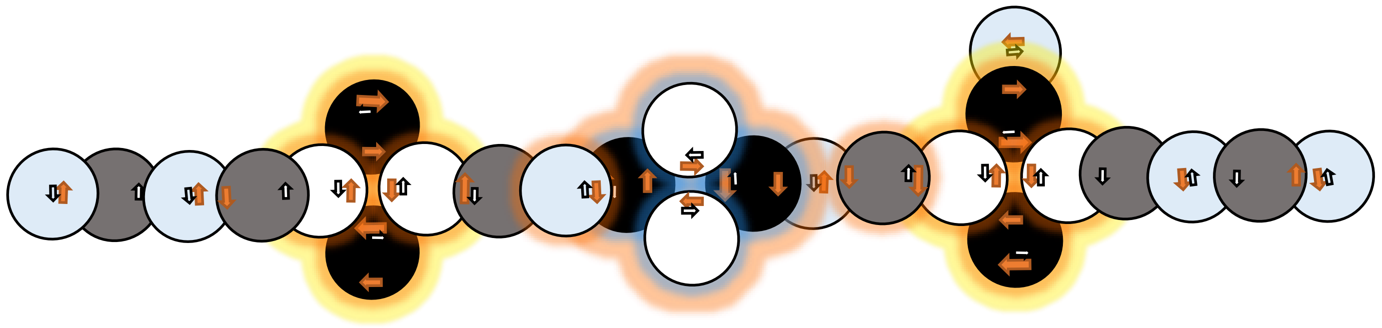


Na-23/ 11, Na*24 sets a n at the left n and has a chance to make a p, changing

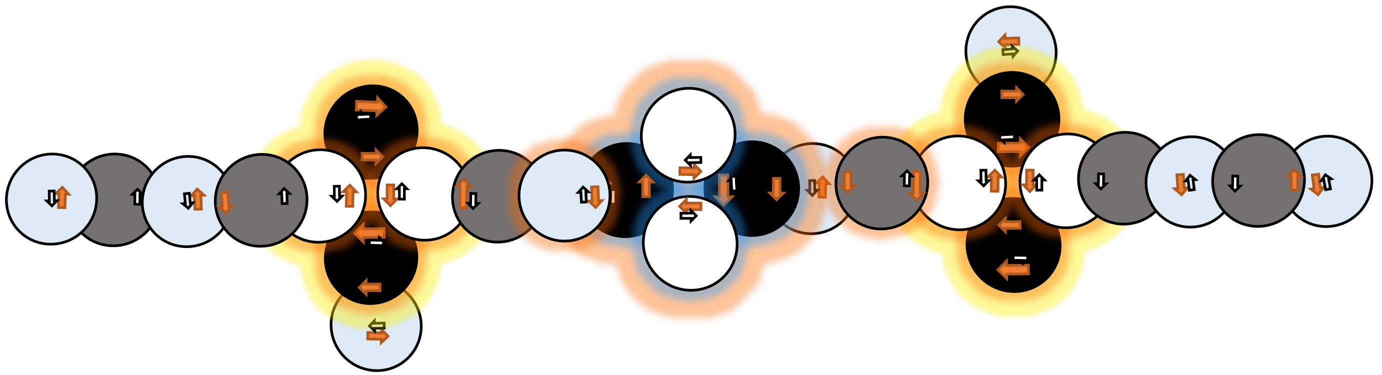
into Mg-24/ 12, also a perfect line:



Mg-25/ 12

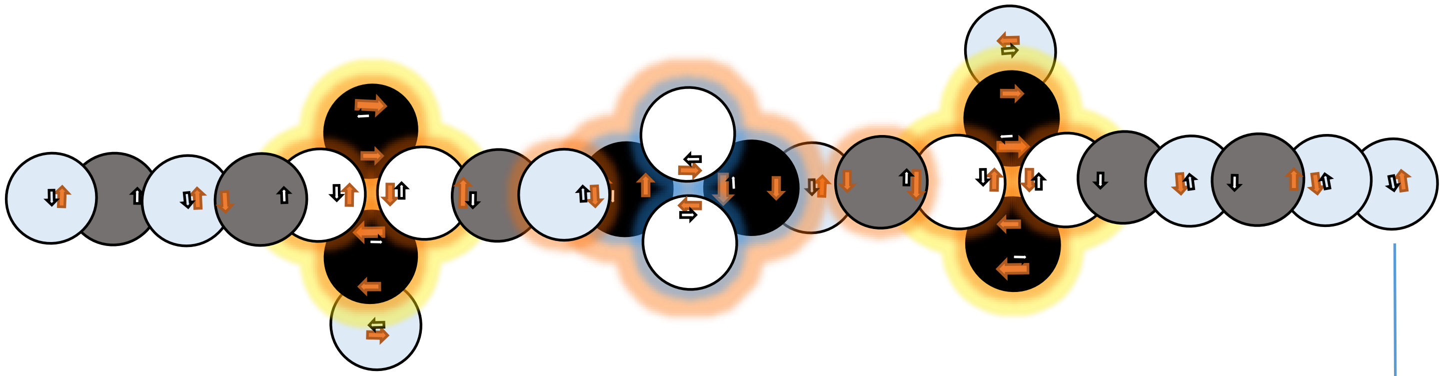


Mg-26/ 12

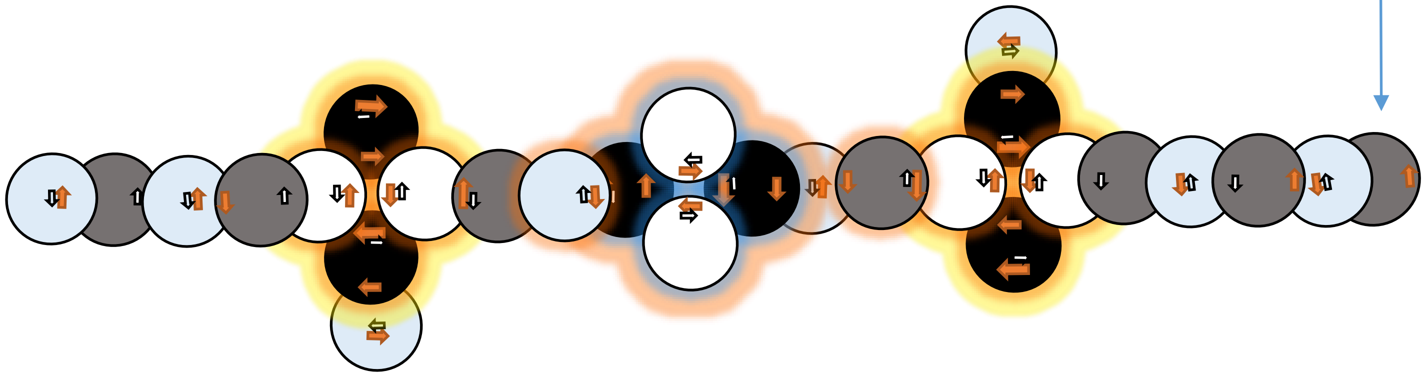


Mg-27*/ 12

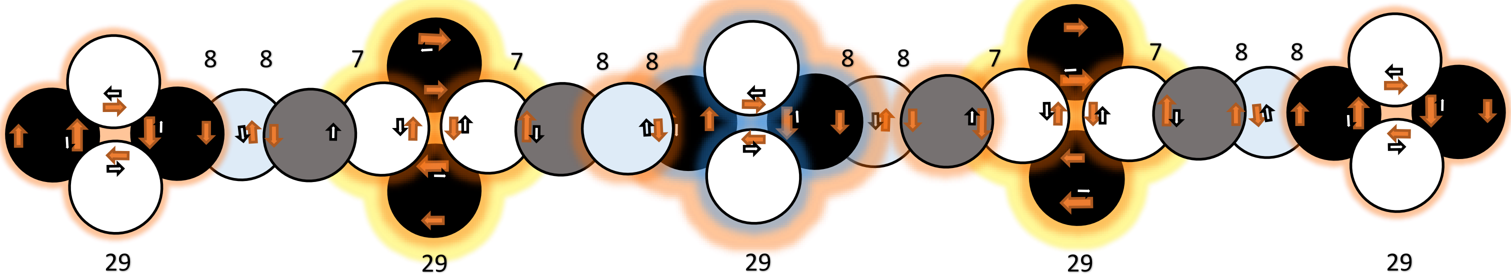
it is running tos Mg-40* with 13 n.   Mg-27* decays into Al-27, which is only stable.



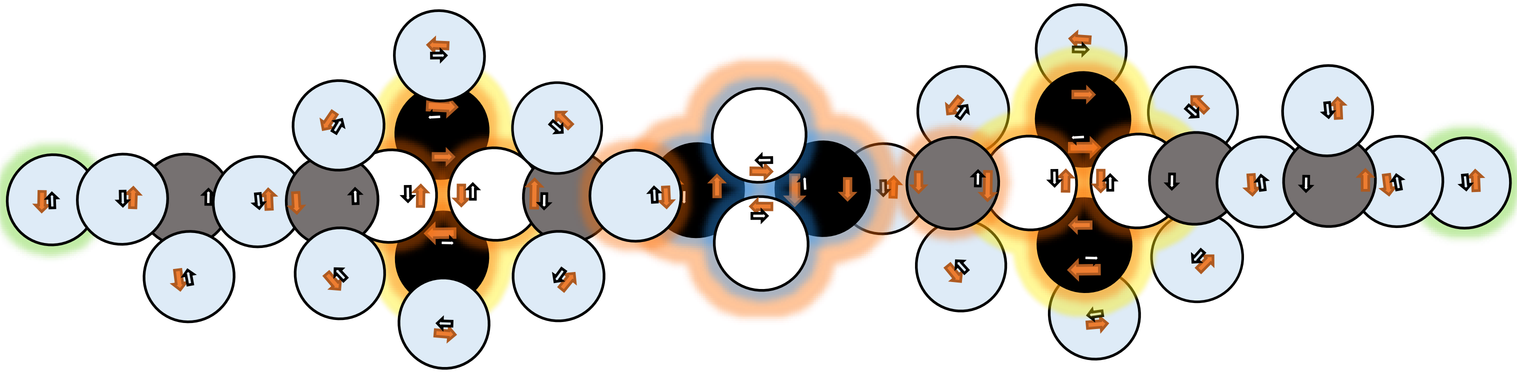
Al-27, Al-28* decay comes from the left nn. Junction n and n form alpha links:



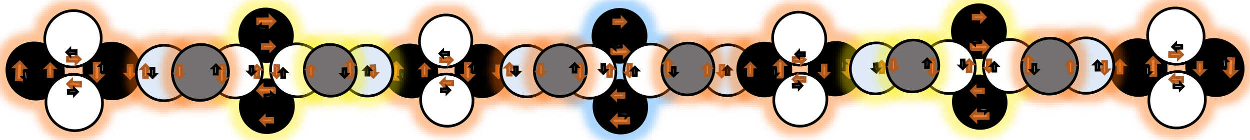
Si-28/ 14, perfect structure, each n now has binding energy of: (236.537/14) 16.8955 MeV/n.



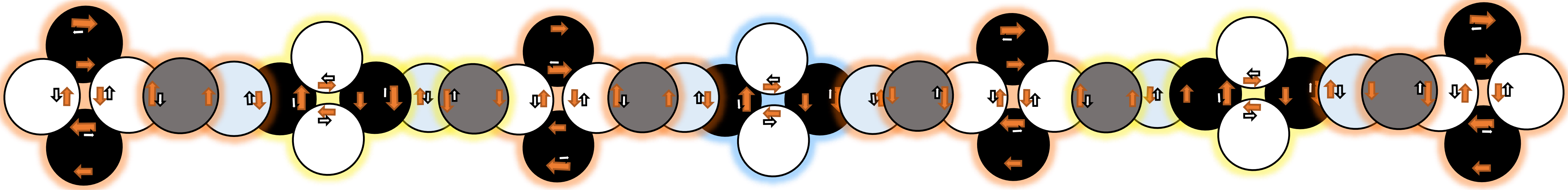
Mg-40* with 12 p, 28 n; binding energy: 263.23 MeV. Each neutron: 9.401 MeV/n. System must decay from each other. There is no other decision.



Ca-40/ 20. 8 n were decaying over β^- into 8 p by **moving up gradually**, but not all at once. This would not run:



Complete binding energy: 342.052 MeV. Each neutron: 17.1026 MeV. Here the neutrons have the most binding energy. It is not iron what has maximum binding energy if we watch only neutrons as binding partners giving energy (IOT).

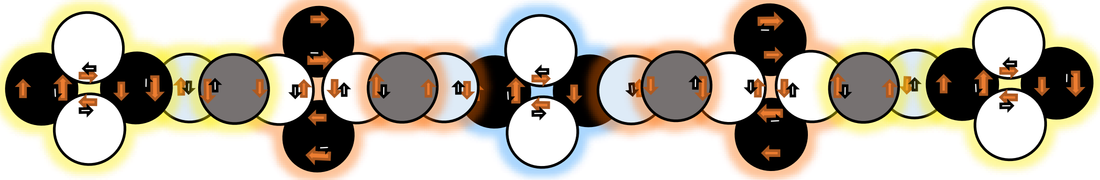


Why do then stars produce nuclides up to iron? They don‘t decide about the single neutrons but about the complete binding energy per nuclide‘s nucleons. We see a different background to the processes of binding.

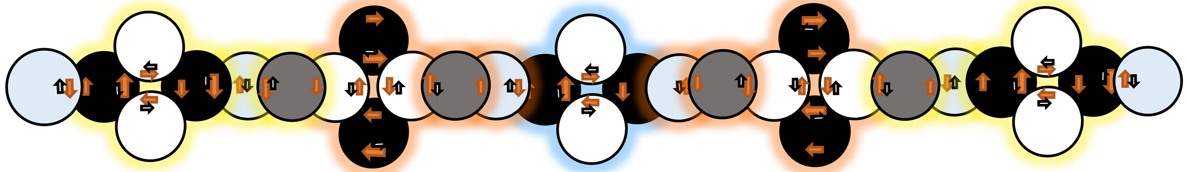
Mg-24/ 12 bis Mg*-40 zu Ca-40

I tested the tetraedrical model. But I was mistaken. The repulsion from the center does not allow it. Chains (or strings) are formed from Li-6-types, where ever n can couple.

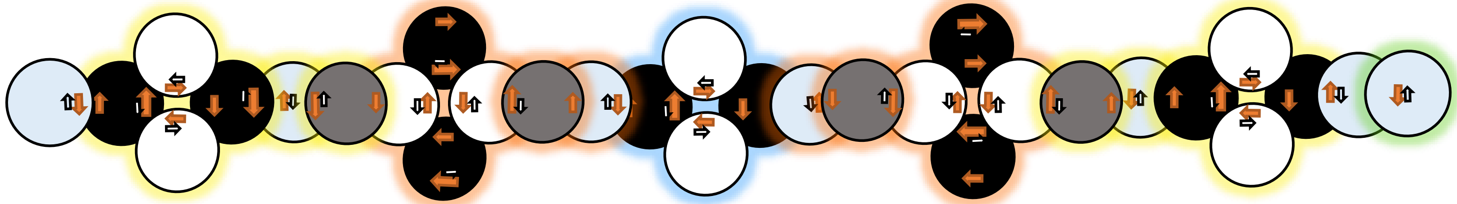
Si-28/ 14: At the edges more n only can couple into 2 directions.



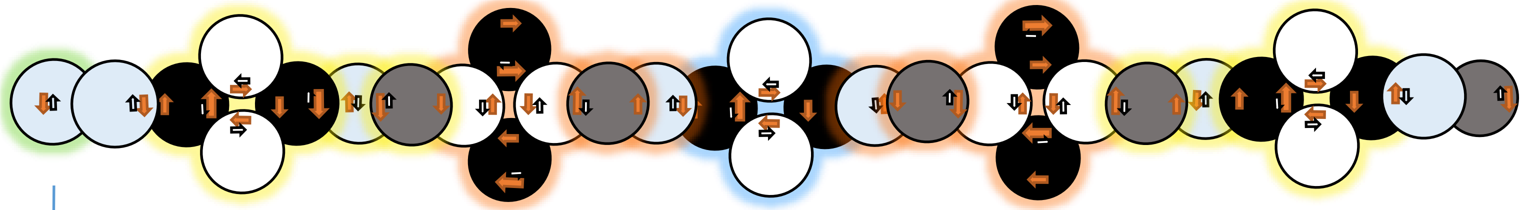
Si-30/ 14:



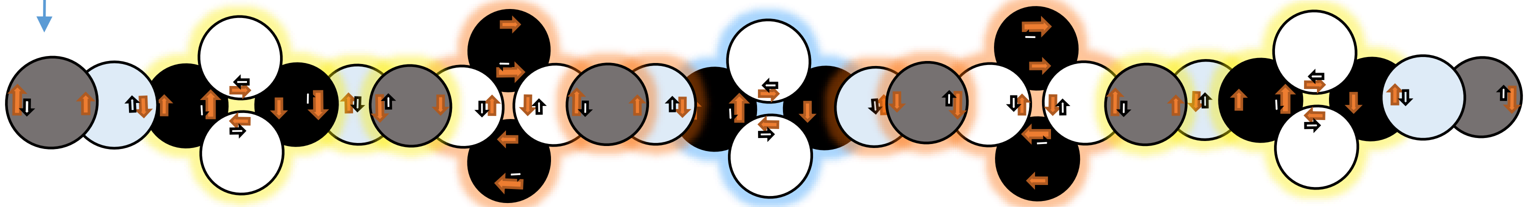
Si-31* decays into P-31/ 15. Using the wrong structure, junctions had to be made, here we can dispense:



P-32*, 15. Another n desires for the same decay as Si-31*, so now with P-32*. It gets S-32/ 16

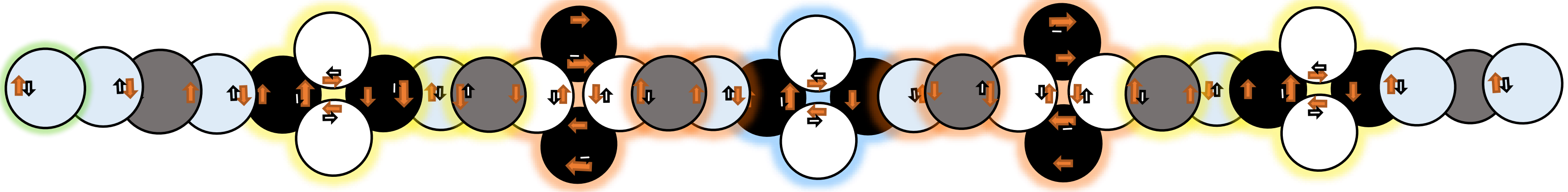


S-32/ 16:

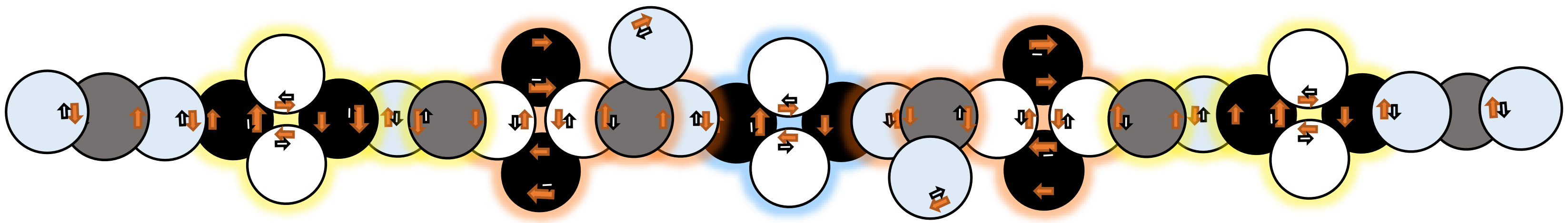


You can see clearly how S-34 will arise, but S-35* again has to decay. S-36 is symmetrical.
S-37* is asymmetrical. Let us see what will be at the next:

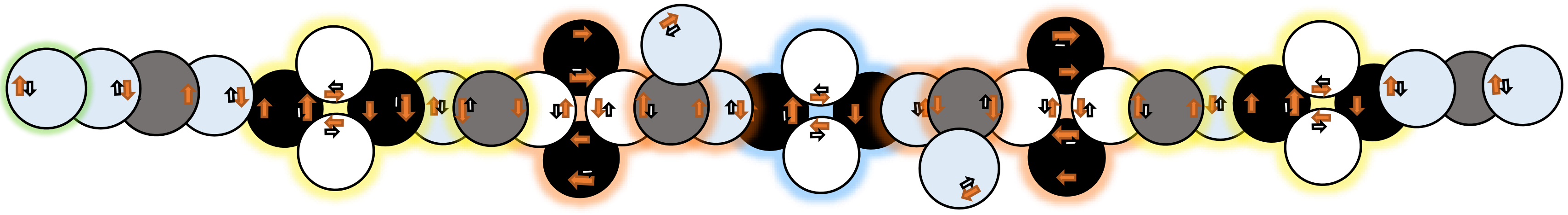
S-35*/ 16



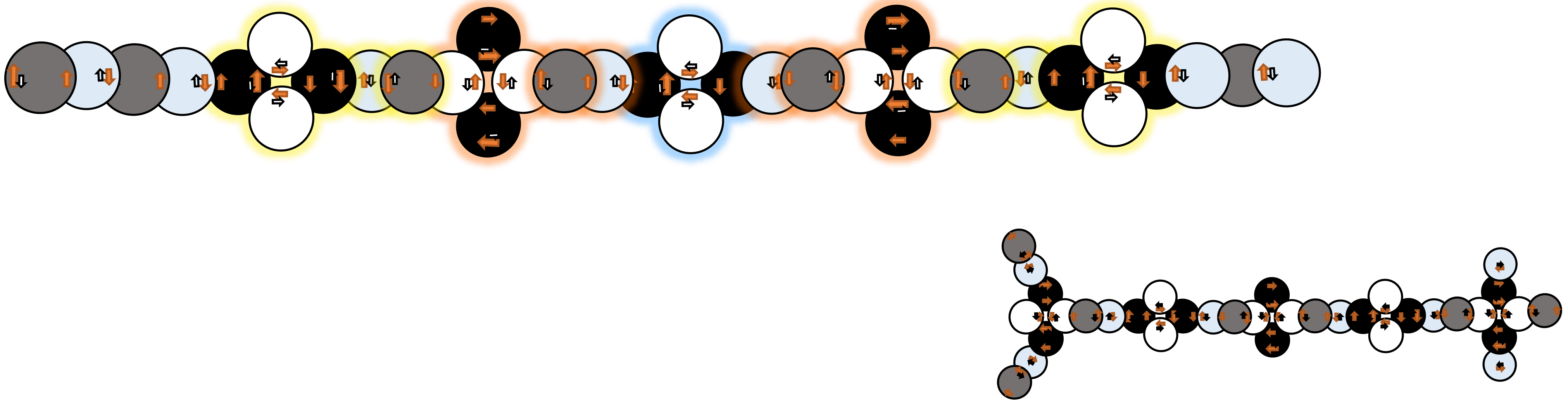
S-36/ 16



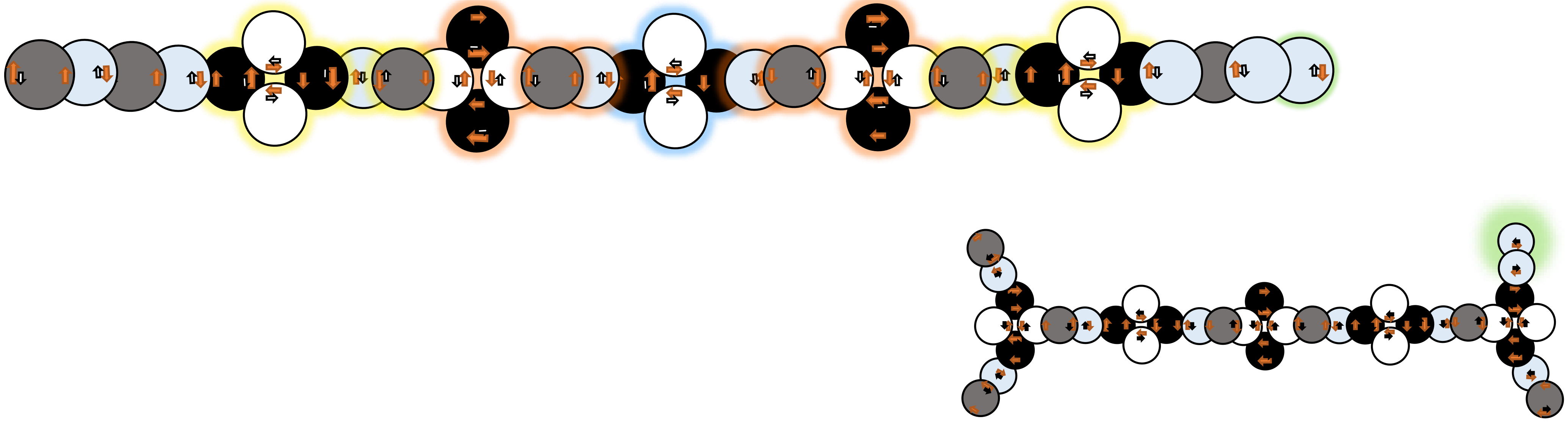
S*-37/ 16



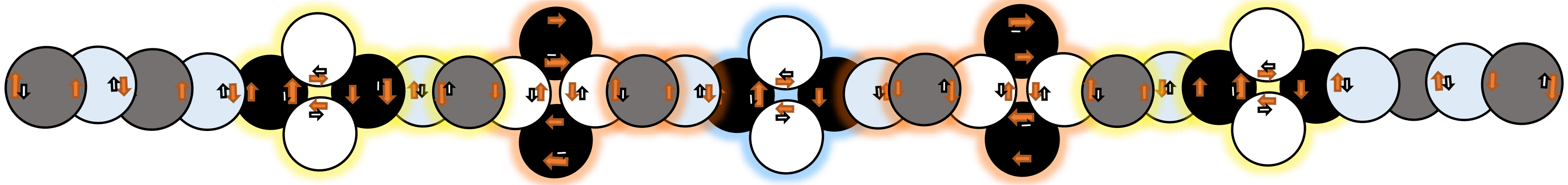
Cl-35/ 17

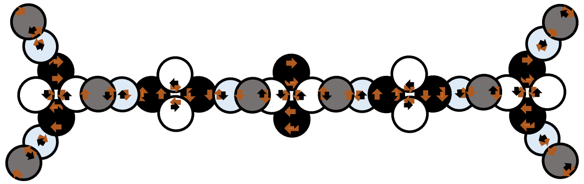


Cl-36*/ 17

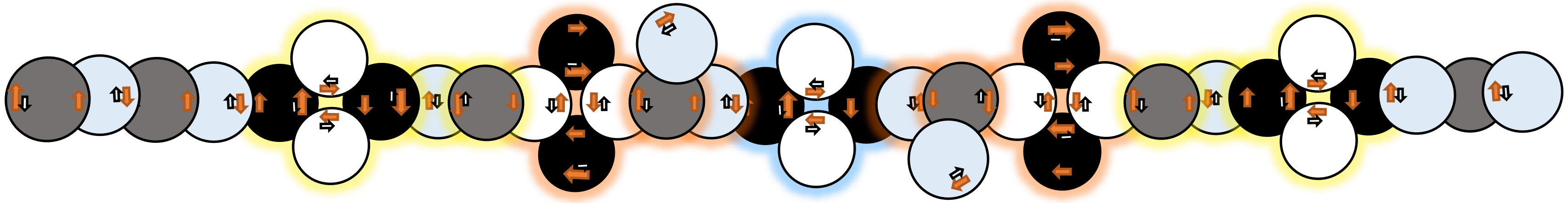


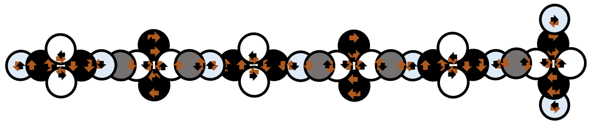
Ar-36/ 18, binding energy is 306.716 MeV/ 18n = 17.039 MeV/n:



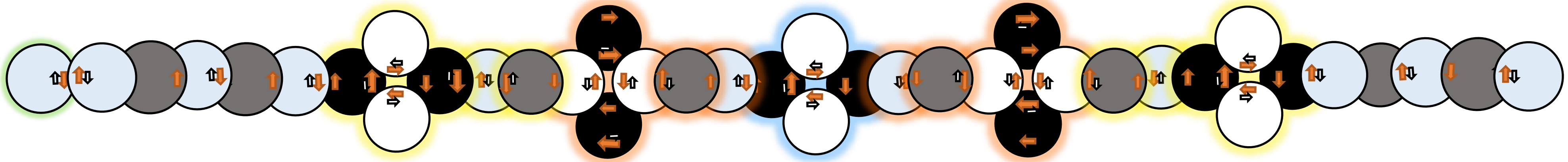


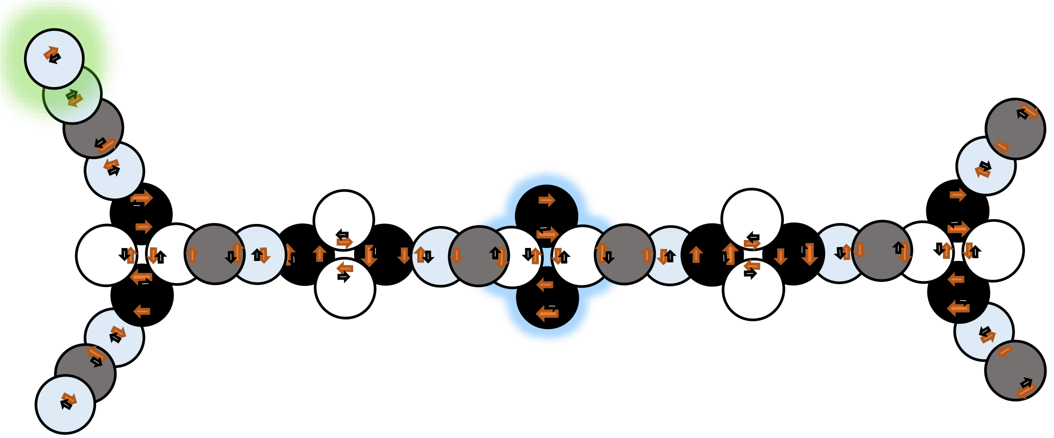
Cl-37/ 17:



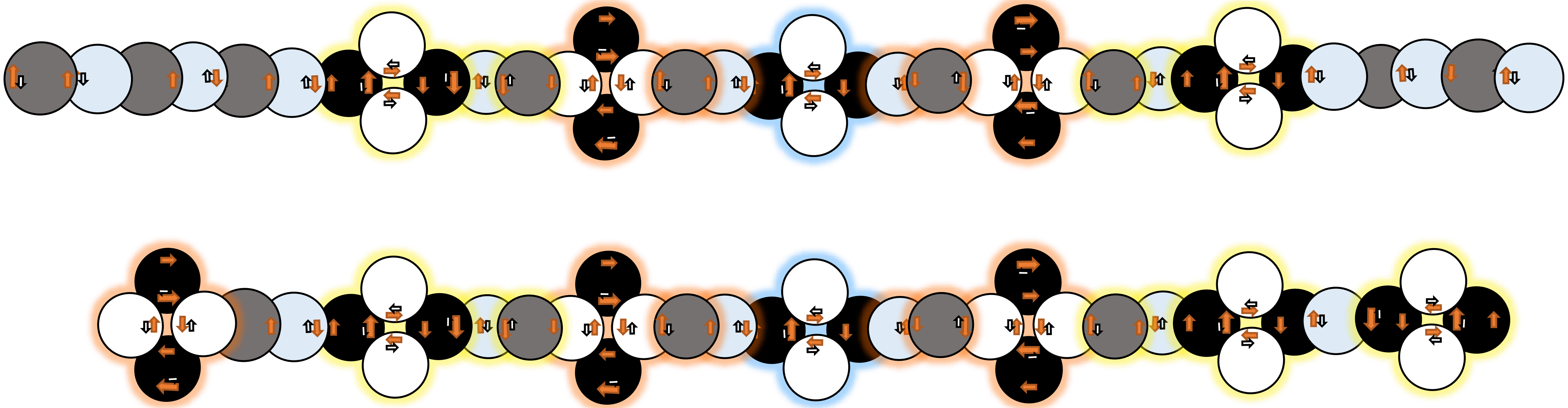


Ar-39*/ 18:

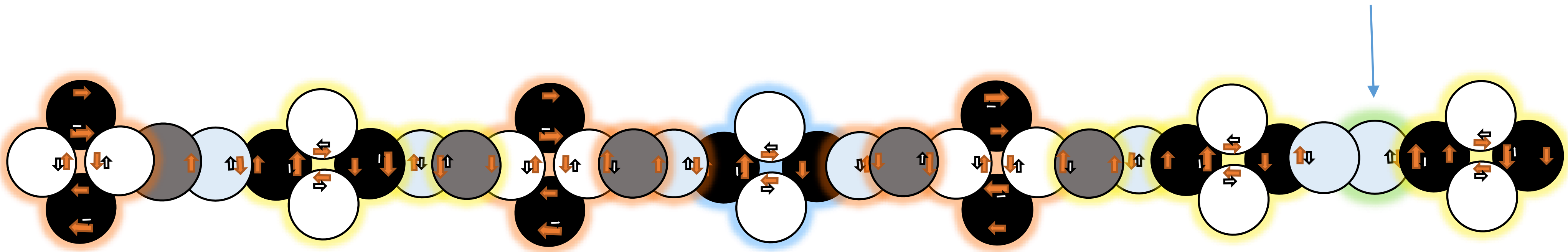




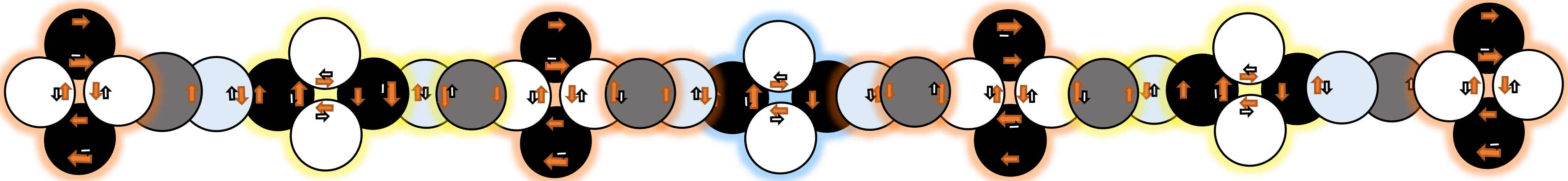
K-39/ 19:

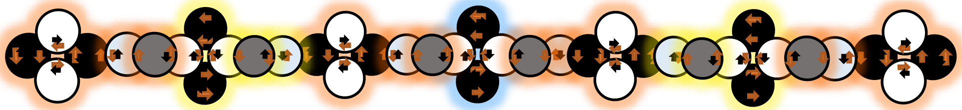


K*-40/ 19:

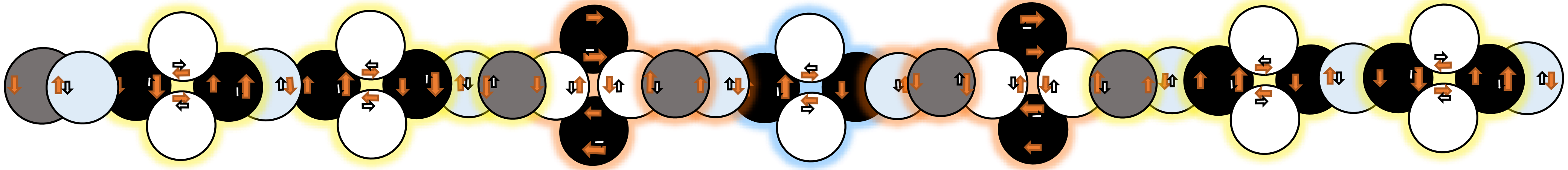


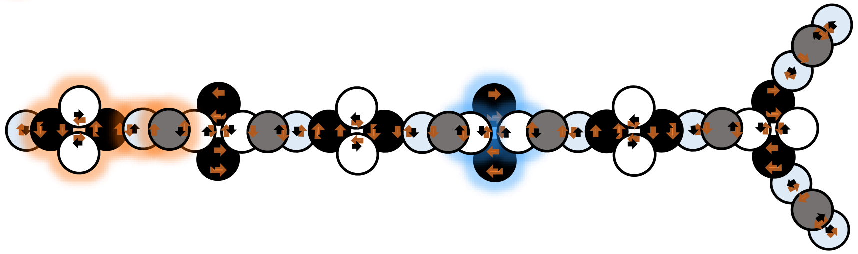
Ca-40/ 20, better:



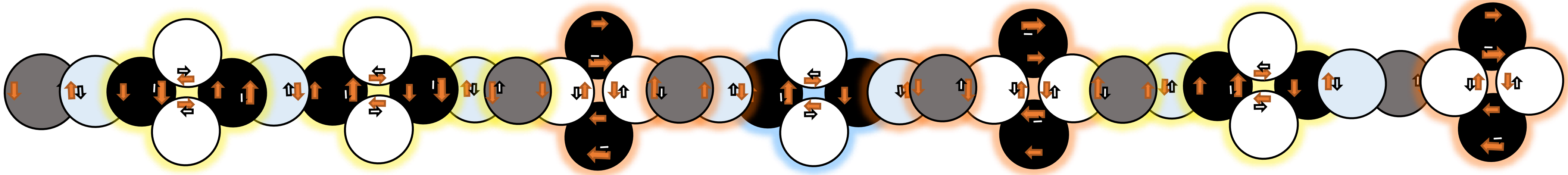


K-41,19:

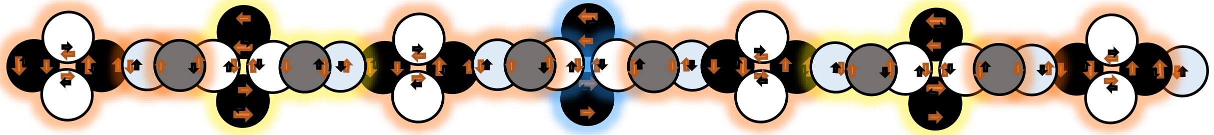




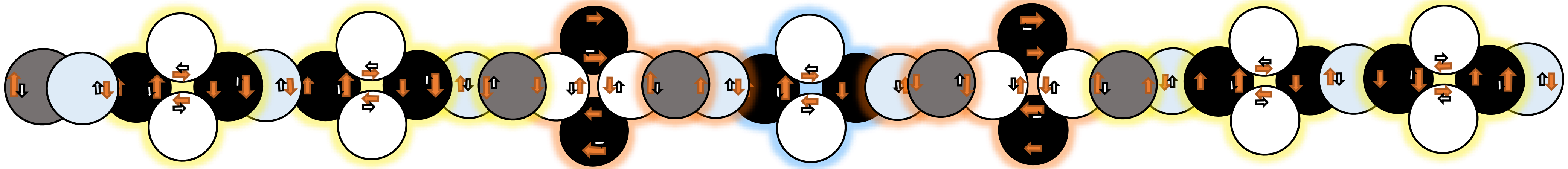
Ca-41, 20, stable until 147000 years lifespan to the nucleus-capture of an electron to K-41:



wrong structure:

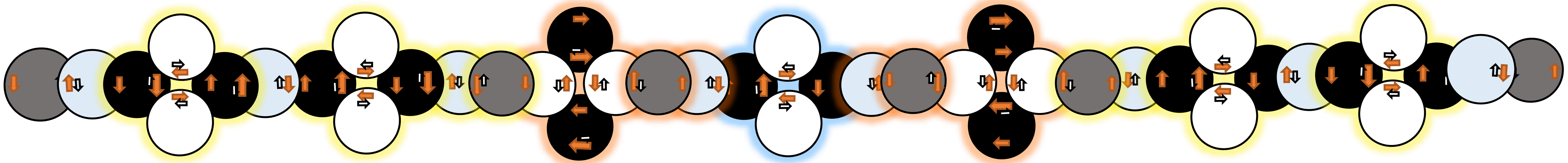


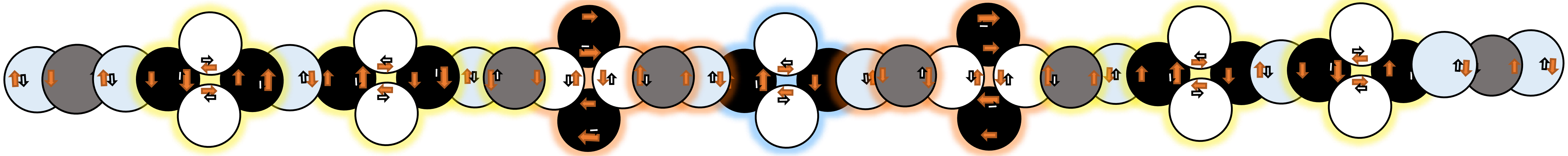
for comparison with K-41:

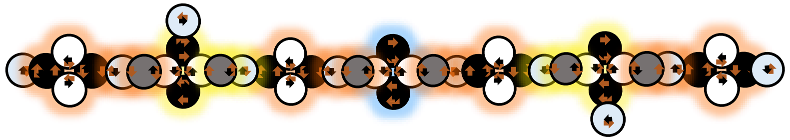


Ca-42 on base of Ca-41, below Ca-44:

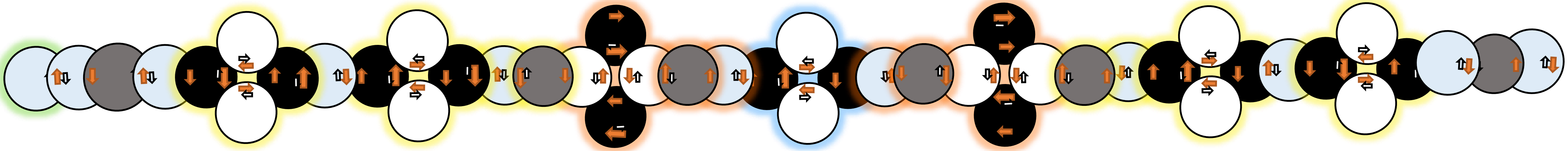
Ca-42 until 44 stable, from 45 instable.

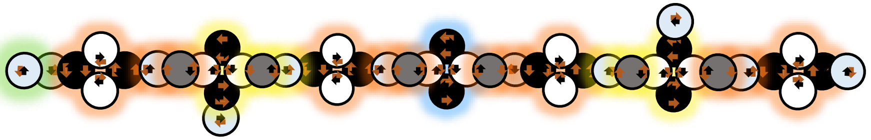






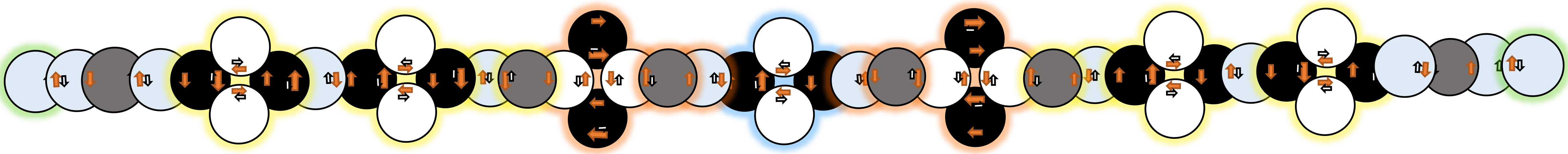
Ca-45*:



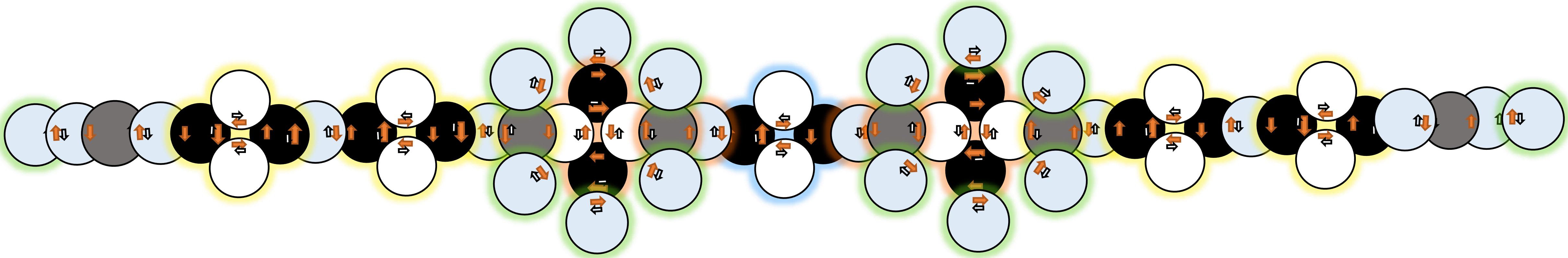


From Ca-46* (right, left +1n) I made Ca-58*, plus 12 n:

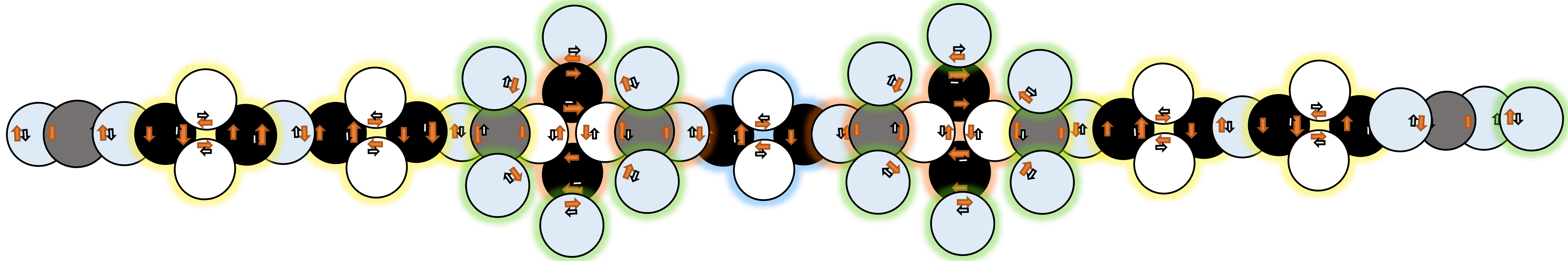
Ca-46*:



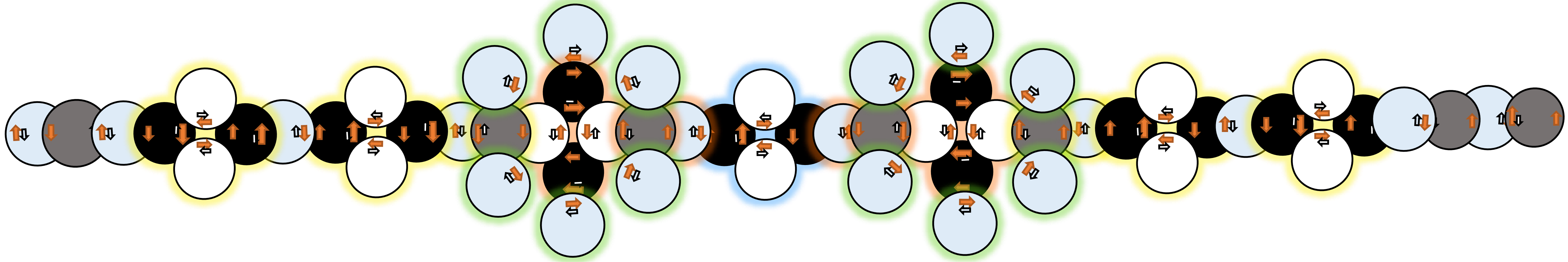
Ca-58*



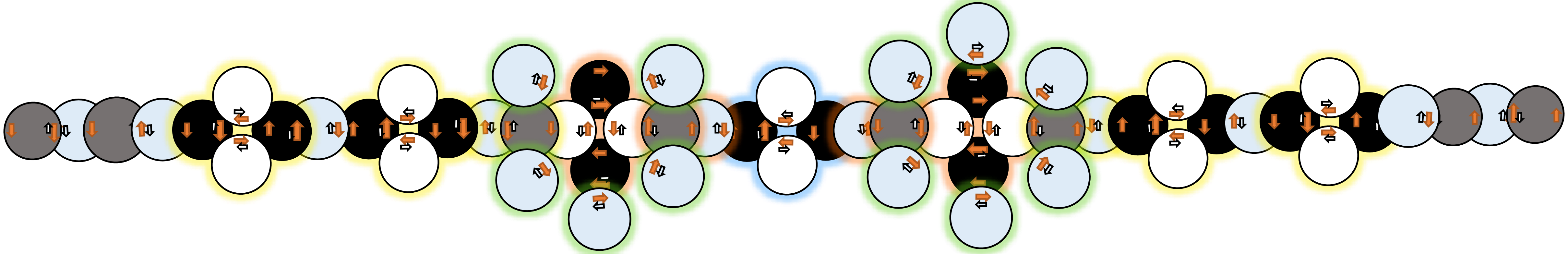
Sc-57* from Ca-57* (Sc-45 at last stable):



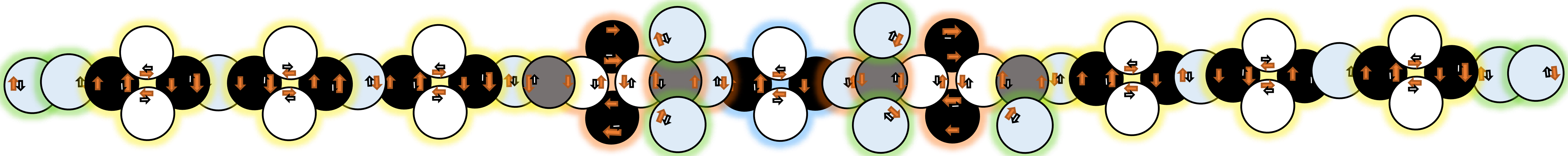
Sc-57*



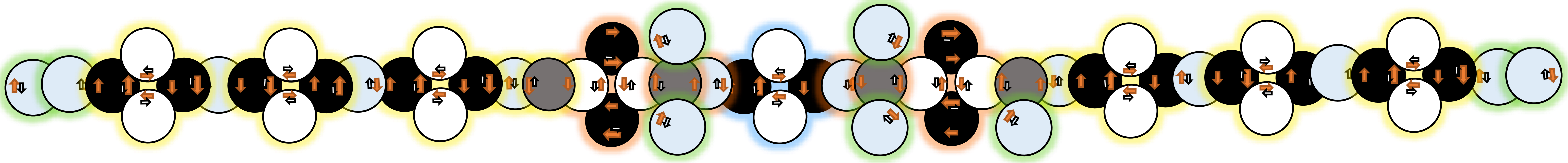
Ti-57*



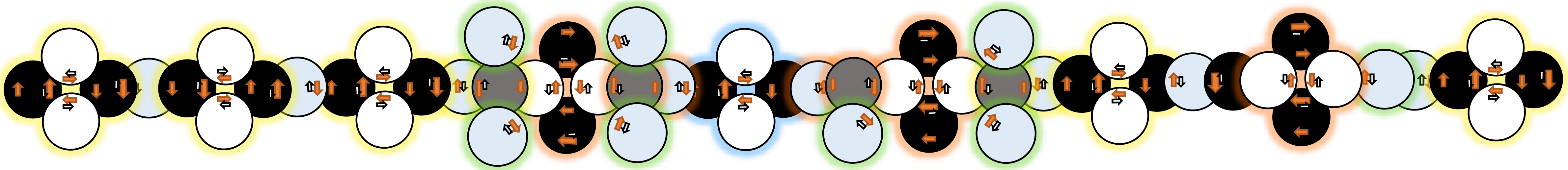
Ti-57*, transitional state



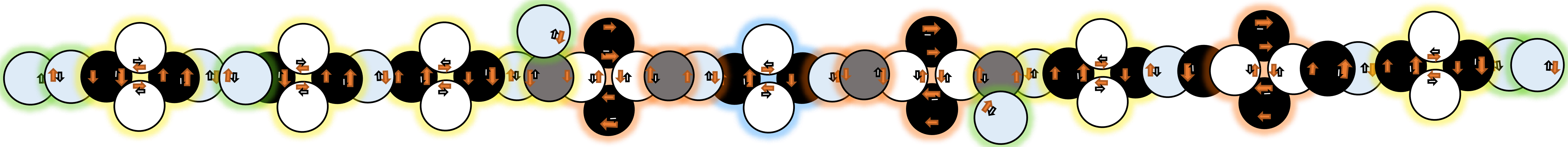
Ti-57*



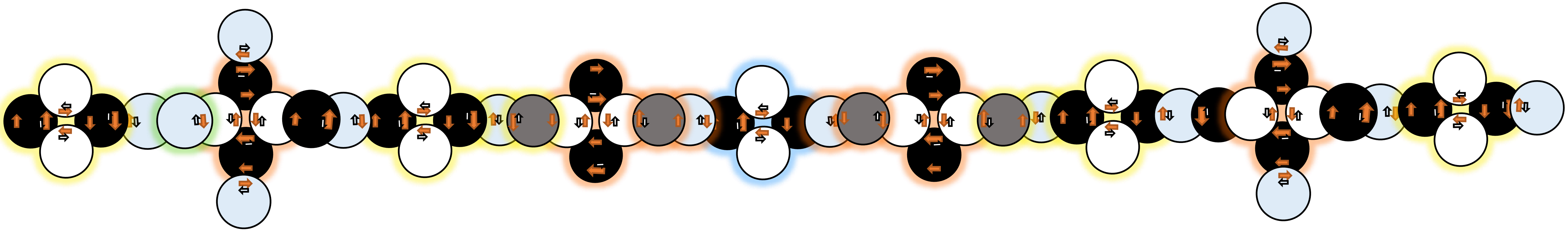
V-57*



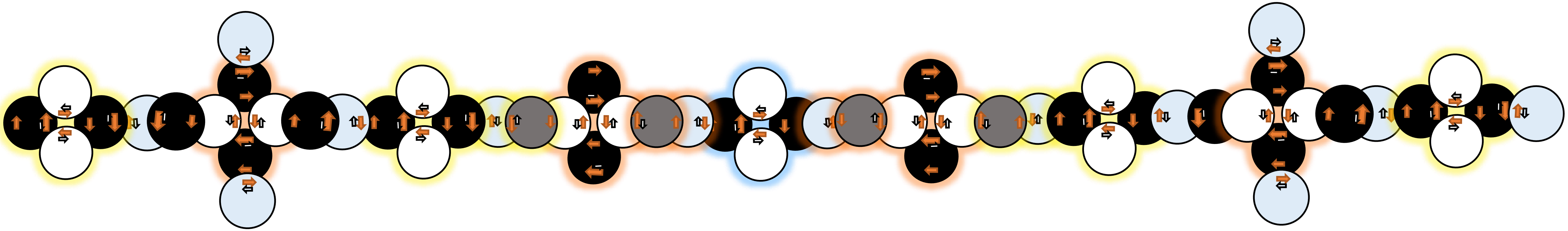
Cr-57*, 24p, 33n, now at the left side it does the same to Mn*-57



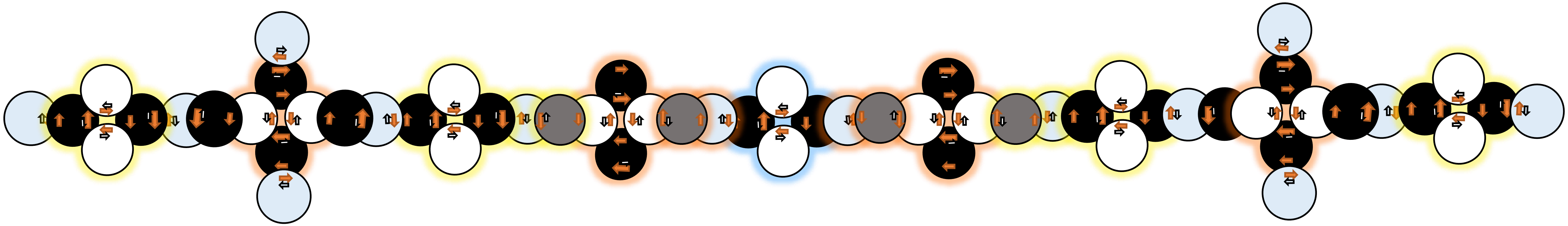
Mn-57*, 25p, 32n



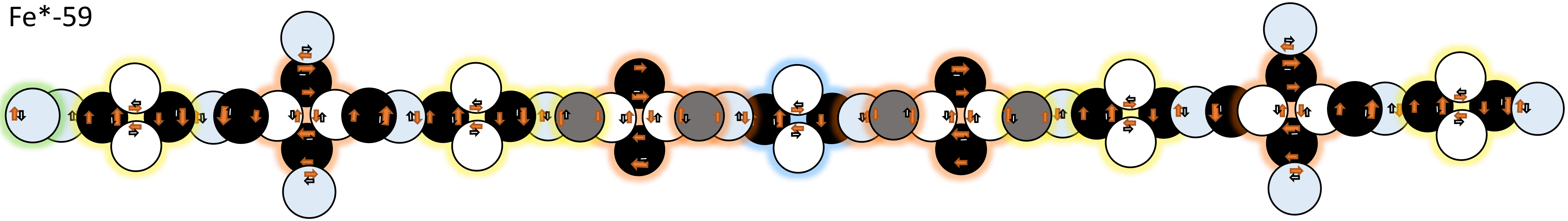
Fe-57, 26p, 31n



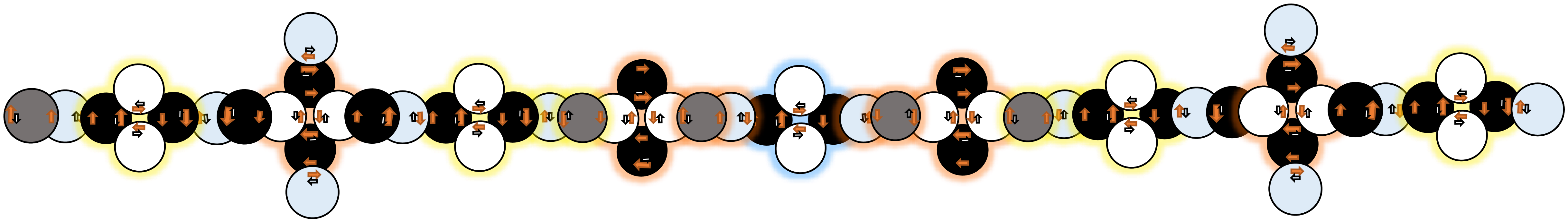
Fe-58, 26p, 32n, iron stable until Fe-58, Fe*-59 unstable, Fe-56 lost both neutrons on left and right edge.
Binding energy: 509.949 MeV/32n = 15.935 MeV/n. Less than at Ca-40 with 17.1 MeV/n. What makes less? Here is the structural answer: 4 neutrons couple into y, 2 at the edges into x coordinate, means these 6 n reduce the energy of all.



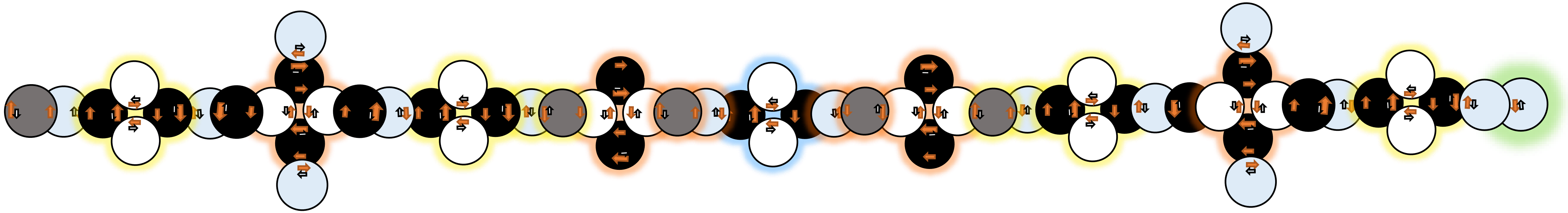
Fe*-59



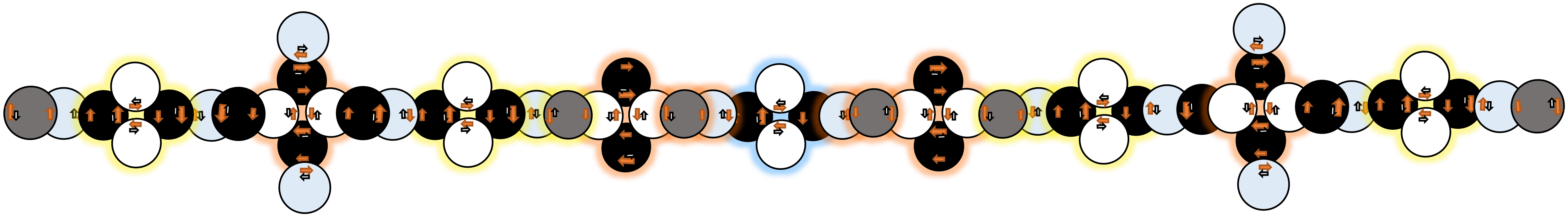
Co-59/27



Co-60* /27p, 33n

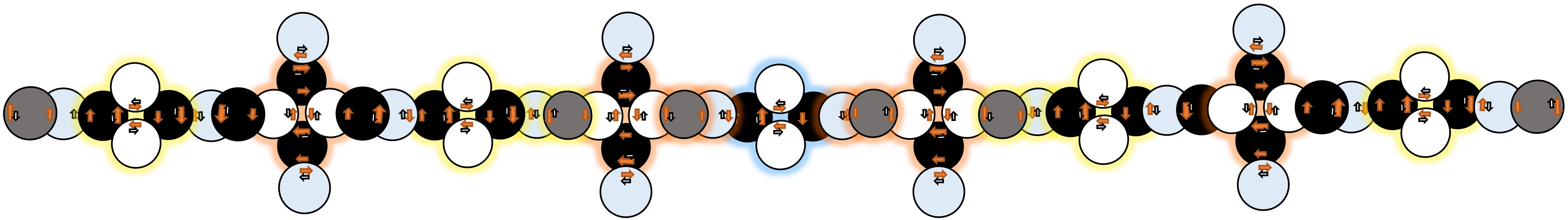


Ni-60 /28p, 32n

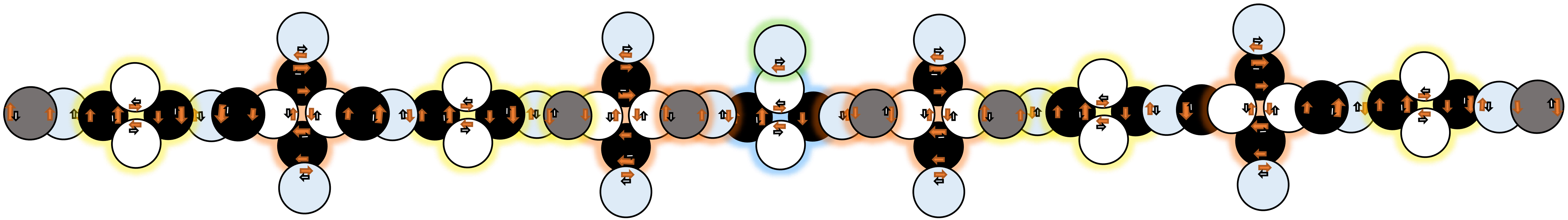


Note: Ni-59*/ 28p over nucleus capture with lifespan of 76000 y.

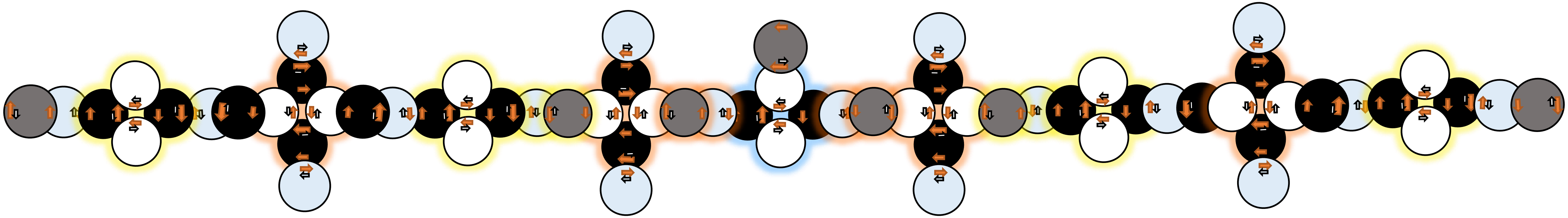
Ni-64, stable, from Ni-65* /28p unstable by ß⁻.



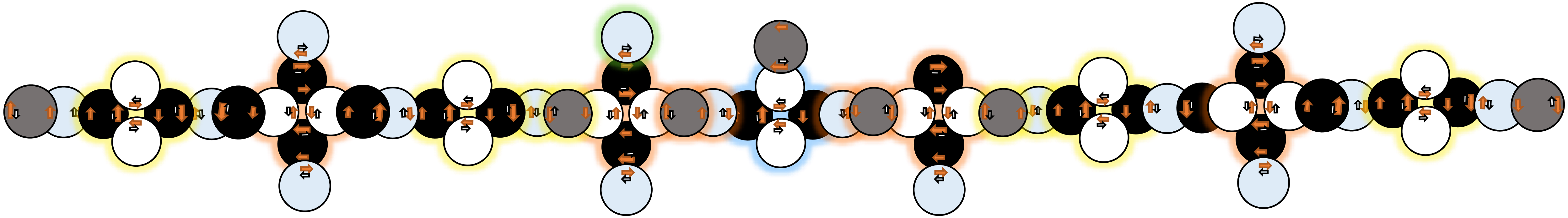
Ni-65*, if this next neutron runs away at one of the free neutron docks in the mean time of about 2 hours, than it is time to decay. Before this time, it is stable in coupling at left or right proton. It is the beginning of a special way at the magic counter of 28 protons that a new proton ist made in the center.



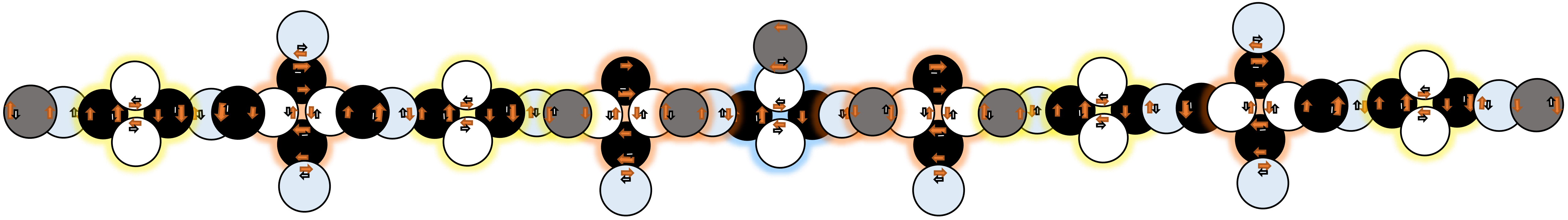
Cu-65 /29p, 36n



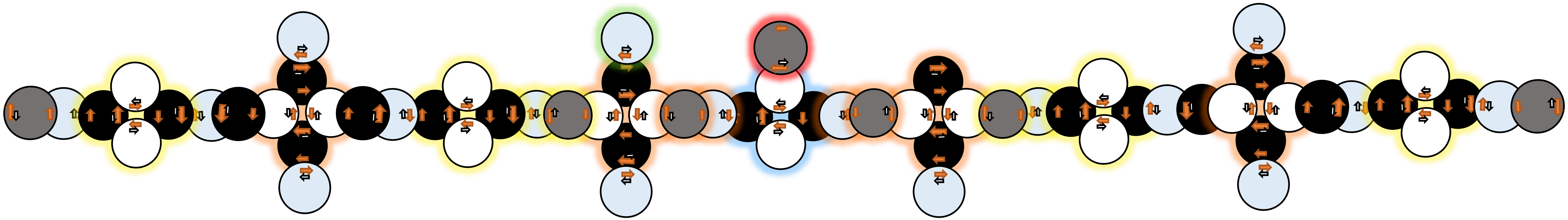
Cu*-64, 33n unstable



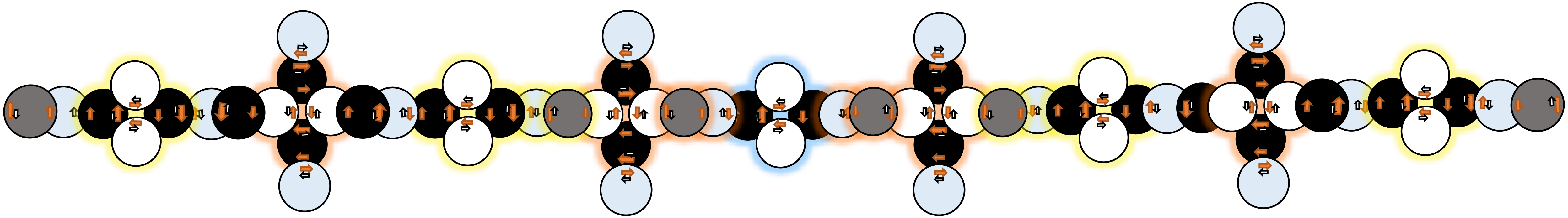
Cu-63 /29p, 34n



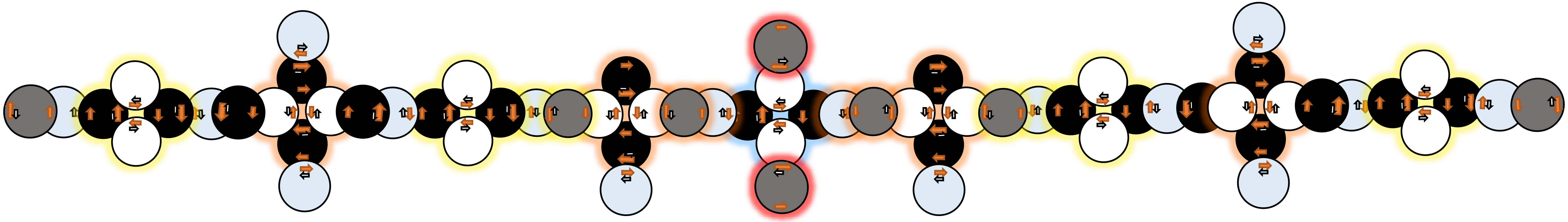
Cu*-64/ 29p, 33n unstable, decays into 2 directions; up and down, ß plus und minus



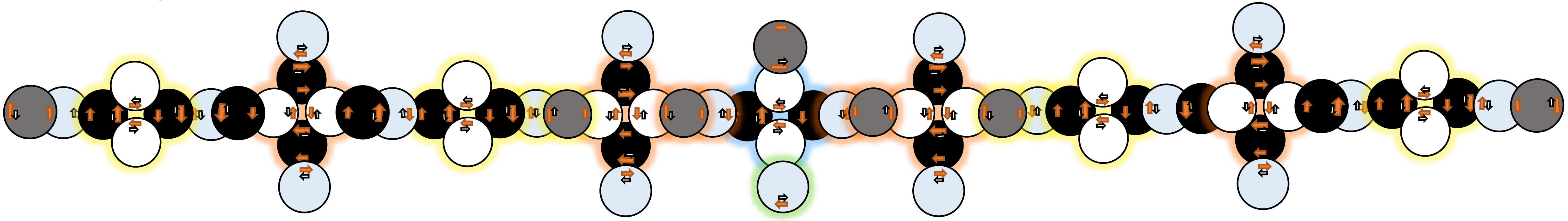
Ni-64, binding energy: 561.758 MeV/ 36n = 15.604 MeV/n. Compare Ni-60: 16.464 MeV/n! Slack neutrons are the cause.



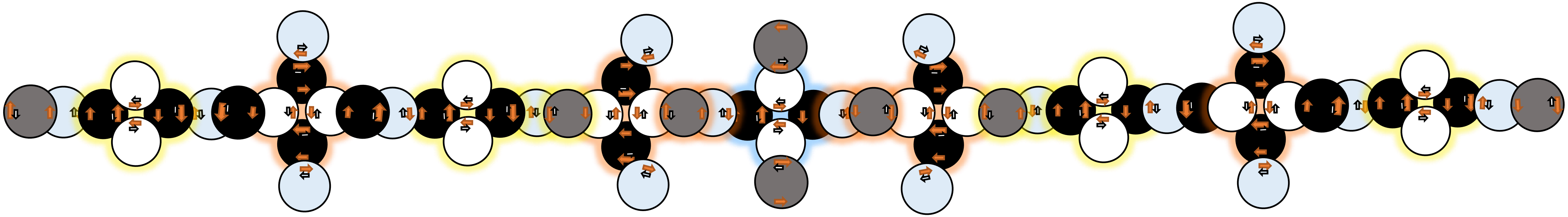
Zn-64* /30p, 40 quadrillion years over 2x ß+ into Ni-64/28, protons hold at He-4-core with less energy, but they hold!



Cu-66* /29p,37n

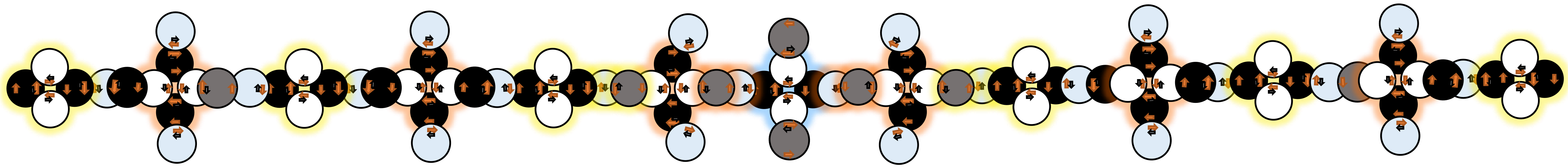


Zn-66 / 30p,36n until Zn-68 stable

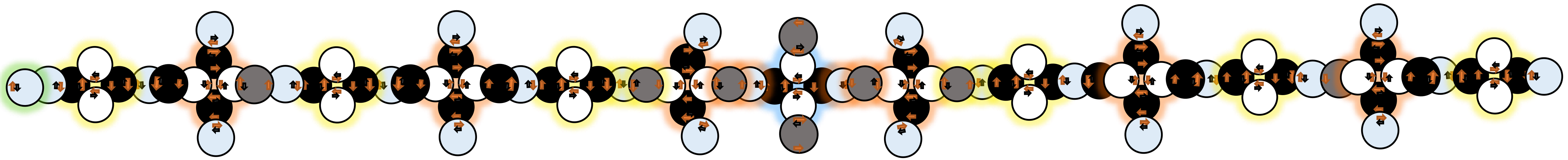


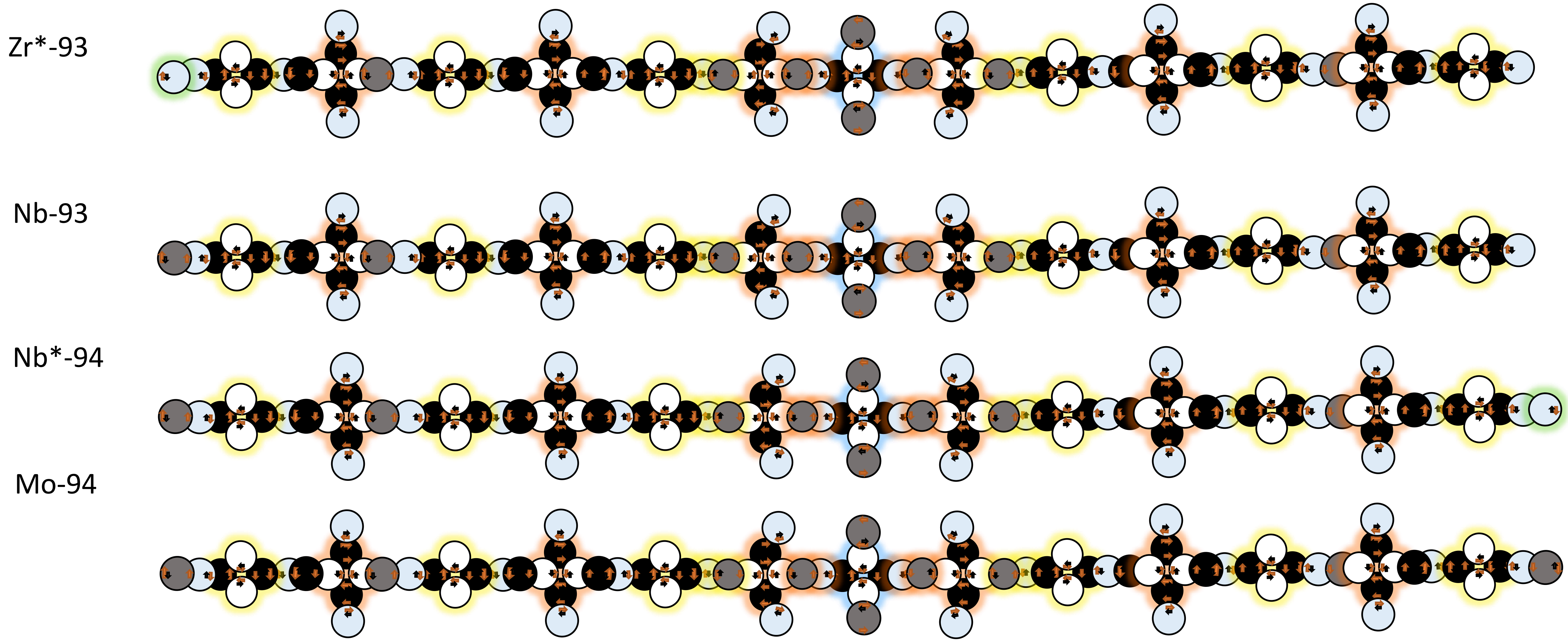
These 4 central neutrons stabilize 2 special central protons electromagnetically in their position to be repelled from left and right, resulting zero force in the middle.

Zirkonium 90/ 40p, 50n magical counter:

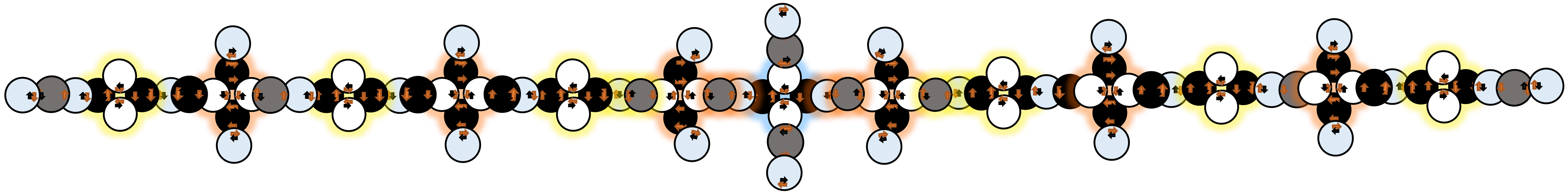


Zr*-93



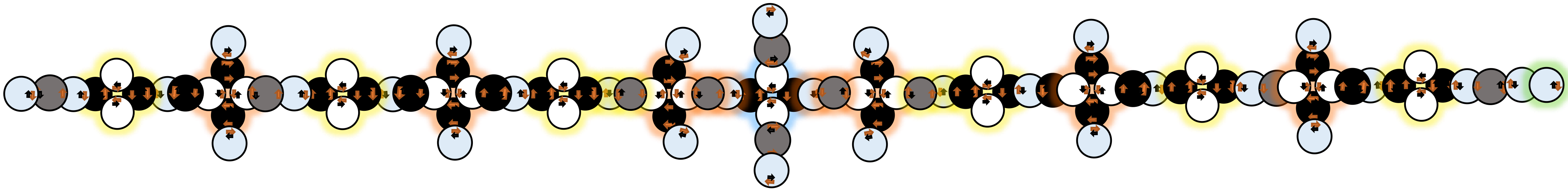

Zr*-93
Nb-93
Nb*-94
Mo-94

Mo-94 until 98 stable, think, now the center is again at its turn filling with neutrons for Mo-98:

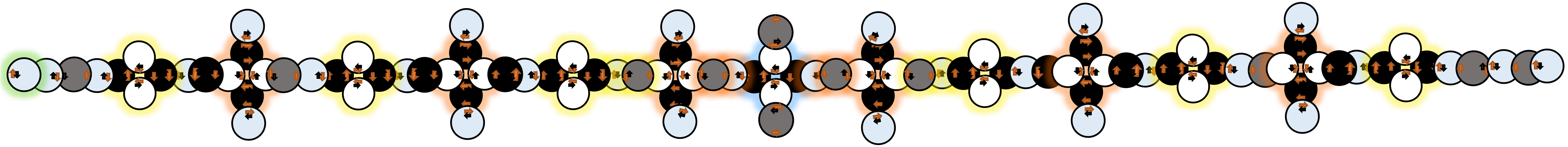


This is a condradiction in the center by e.m. directions. I think, this structure is last in this way in the center.

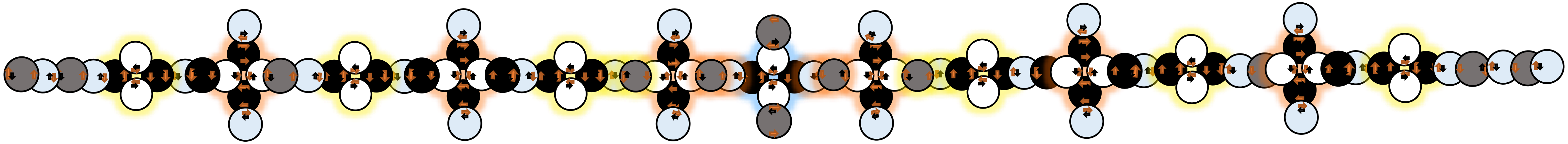
Mo*-99/ 42p, 57n



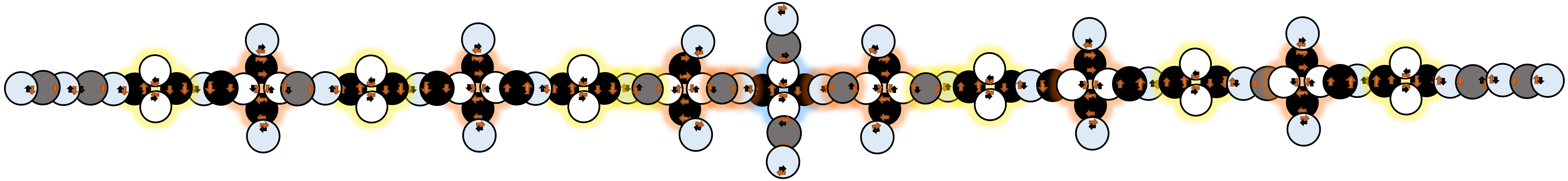
Tc*-99/ 43p, 56n



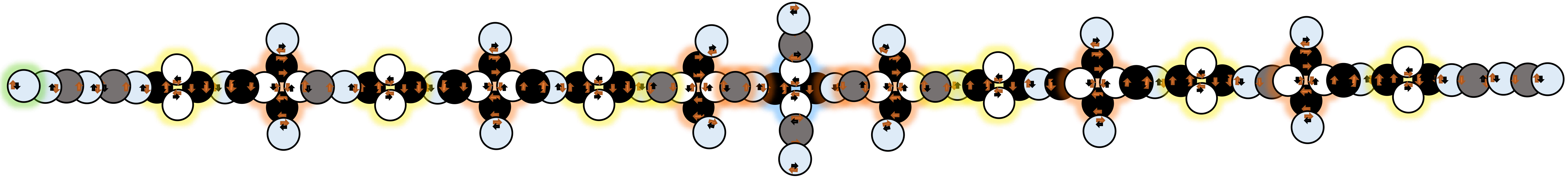
Ru-99/ 44p, 55n, ab Ru-98 bis 102 stabil



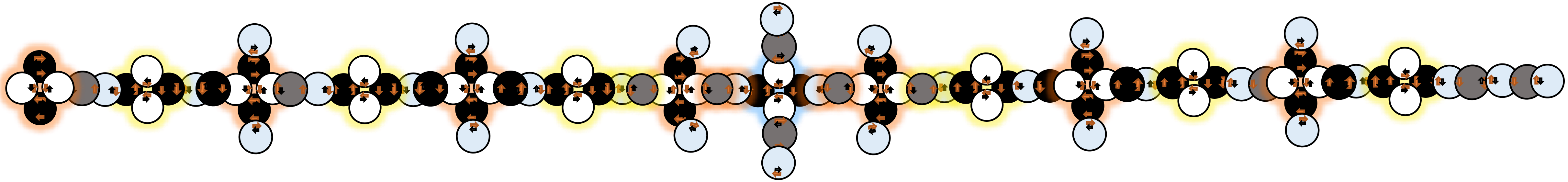
Ru-102/ 44p, 58n



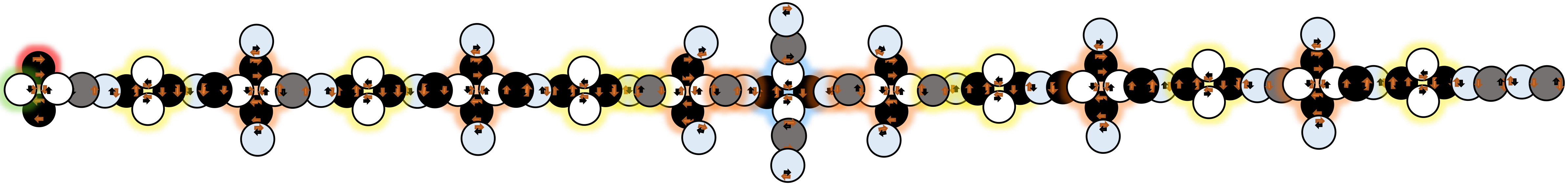
Ru*-103/ 44p, 59n



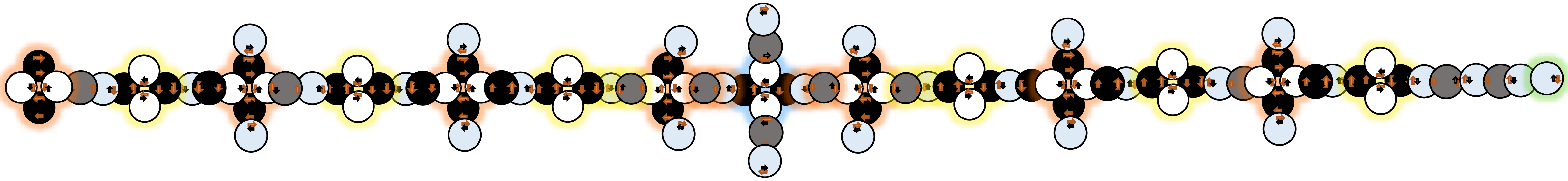
Rh-103/ 45p, 58n, is the only stable, Rh*-102 should decay over ß- and ß+



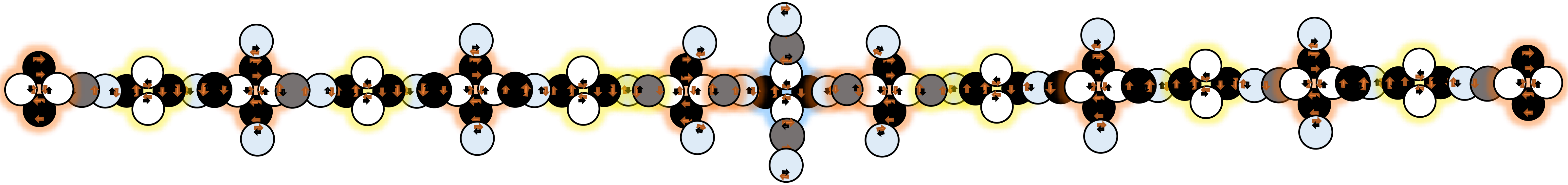
Rh*-102/ 45p, 57n, over ß- and ß+



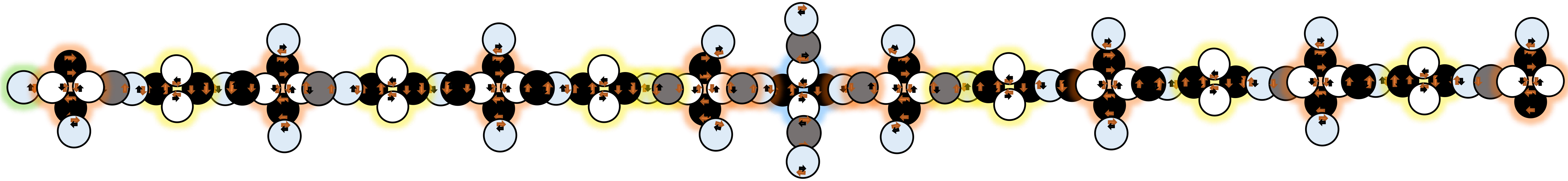
Rh*-104/ 45p, 59n



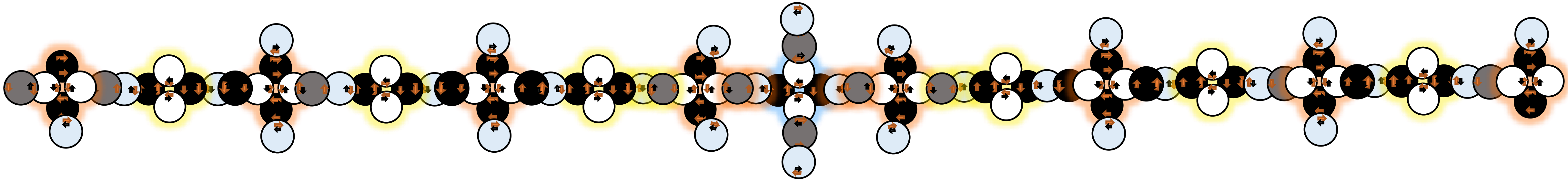
Pd-104/ 46p, 58n



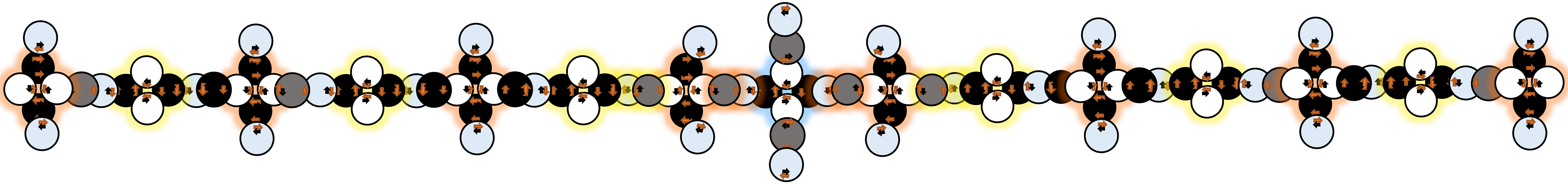
Pd*-107/ 46p, 61n:



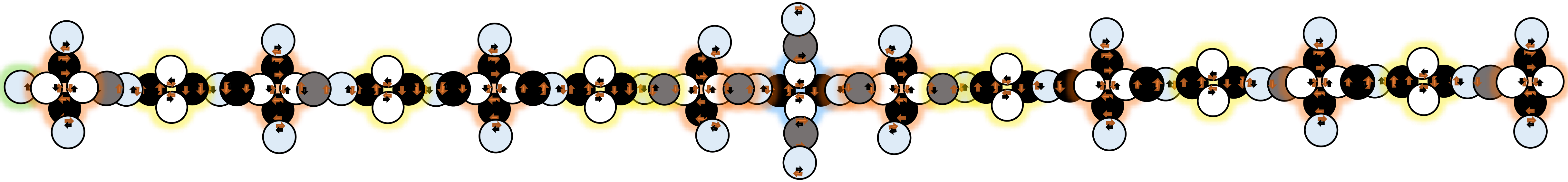
Ag-107/ 47p, 60n:



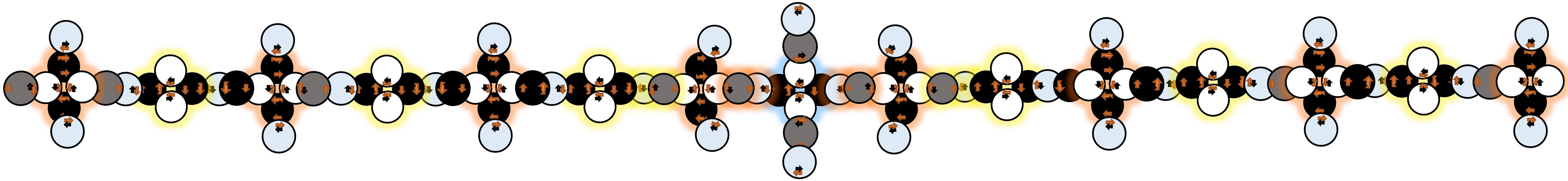
Pd-108/ 46p, 62n:



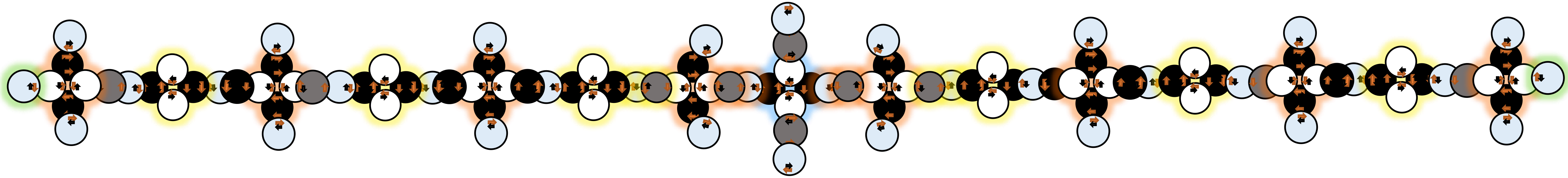
Pd*-109/ 46p, 63n:



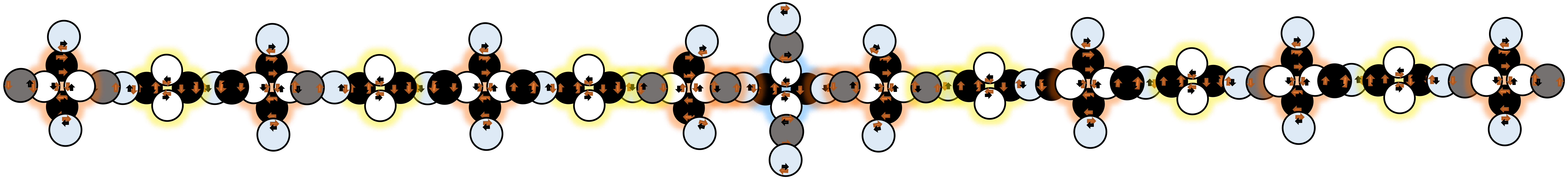
Ag-109/ 47p, 62n:



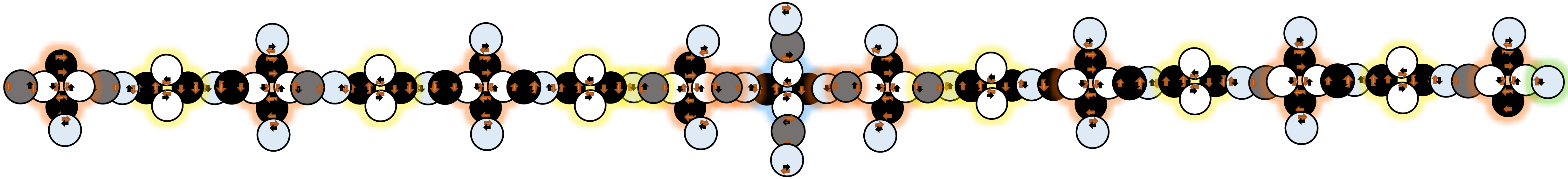
Pd*-110/ 46p, 64n, decays over 2x ß- into next Ag*-110, Cd-110:



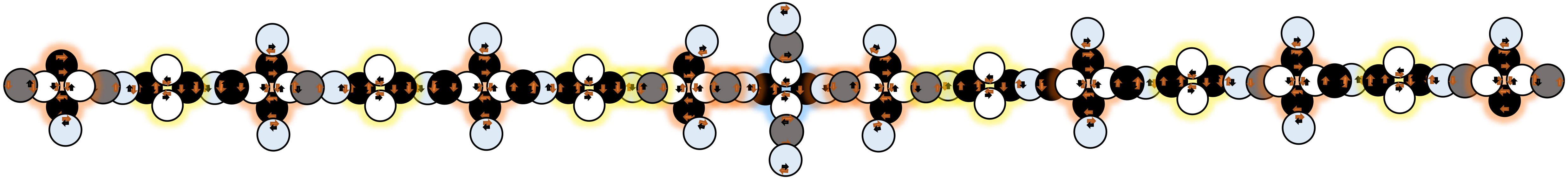
Cd-110/ 48p,62n, first stable manner, stable until 112 (Cd-112 with 2p right and left at the edge protons):



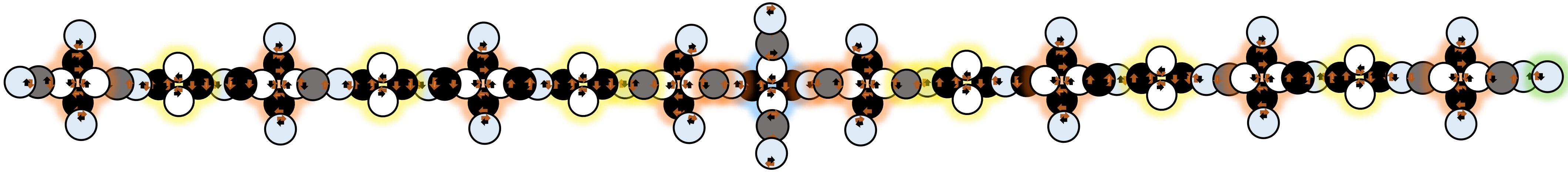
Ag*-108/ 47p, 61n decays into Cd*-108



Cd*-108/ 48p,60n, 2x ß+:

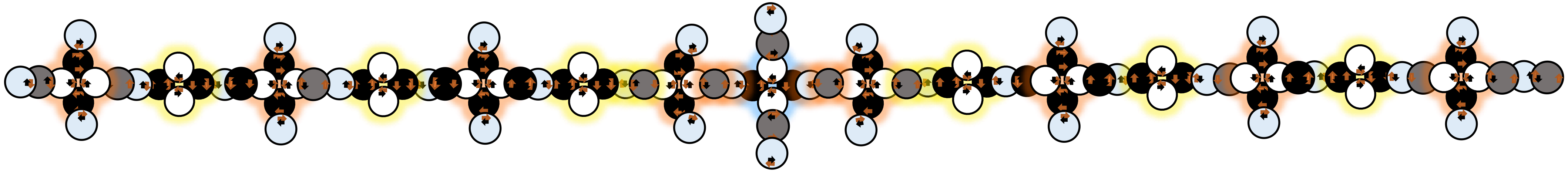


Cd*-113/ 48p,65n decays into In-113 the only stable:

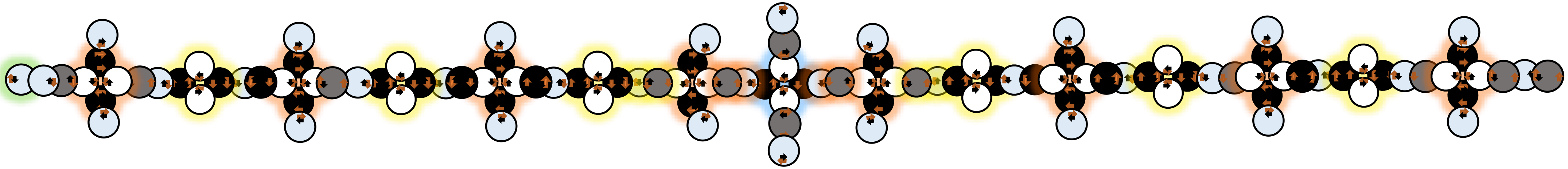


Cd*-114/ 48p,66n would have left another n decaying over ß-.

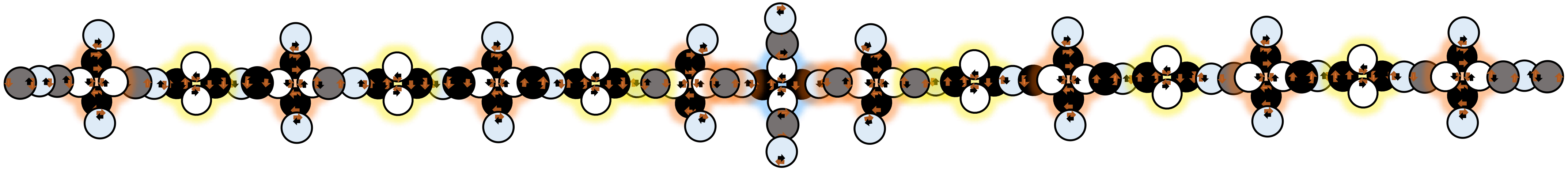
In-113/ 49p, 64n the only stable one:



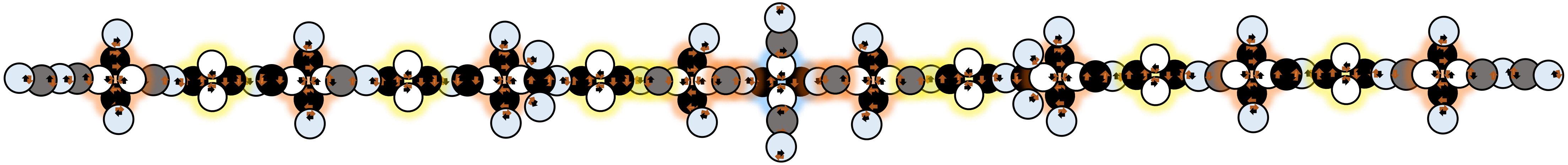
In*-114/ 49p, 65n:



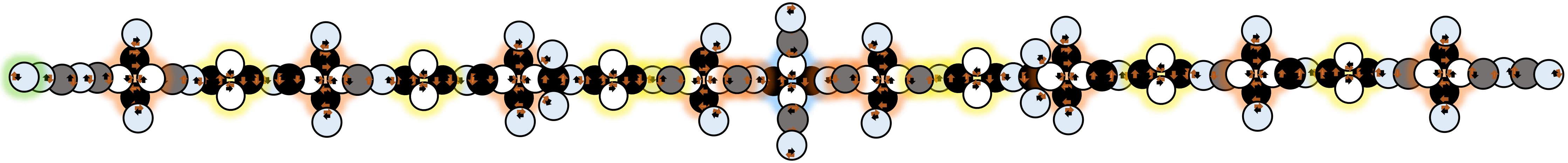
Sn-114/ 50p, 64n until Sn-120 stable, complete symmetry in this chain, somehow as magical counter 50p:



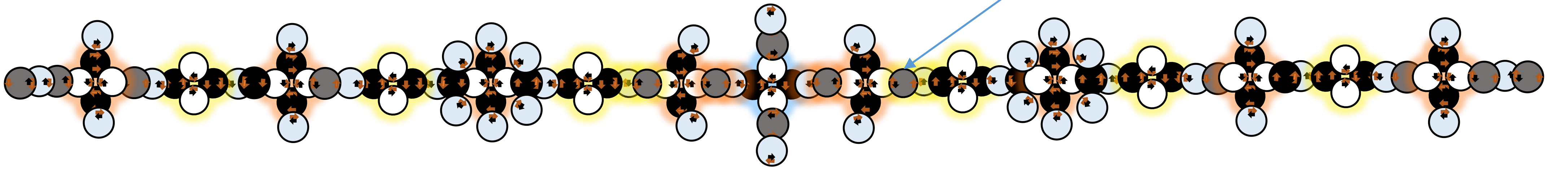
Sn-120/ 50p, 70n, stable (as like at Ca*-57, now the special principle is opened again, setting in neutrons to link protons:



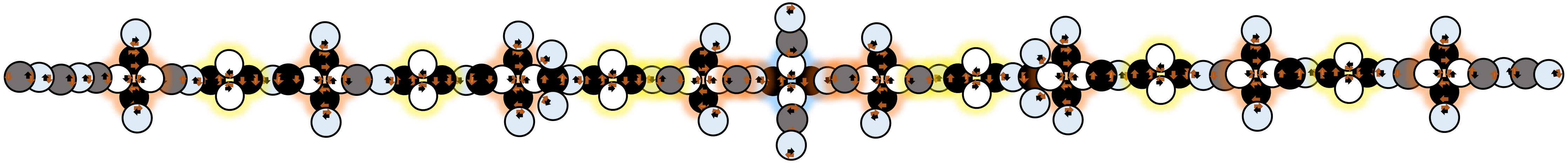
Sn*-121/ 50p, 71n, cannot follow this principle but the last principle, to couple n at an edge, left or right:



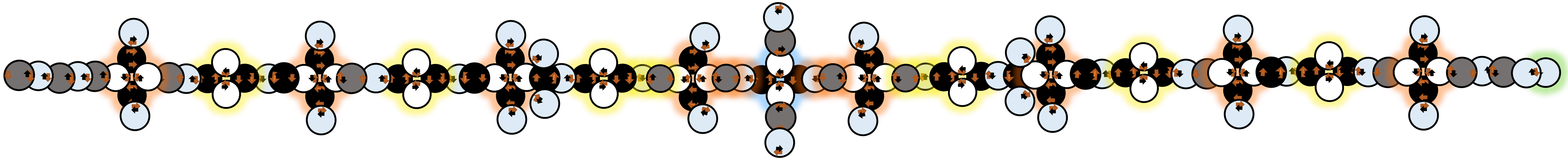
Sn-122/ 50p, 72n, is stable but why (THINK, it is possible next to the middle with 6n instead of 1 link on, but this area is strong enough to hold better, seems to be correct as constructed now):



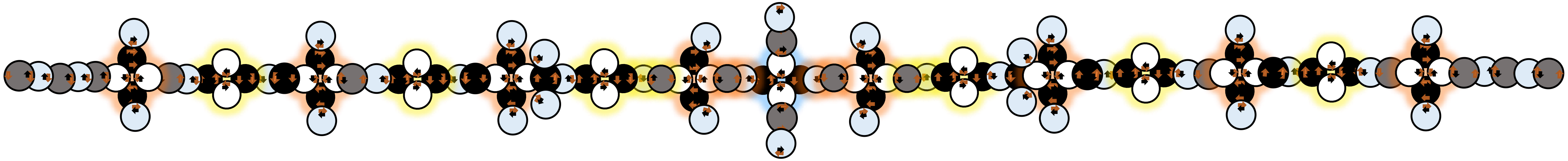
Sb-121/ 51p, 70n, (122 ß-, 123 stable, 124-139 unstable:



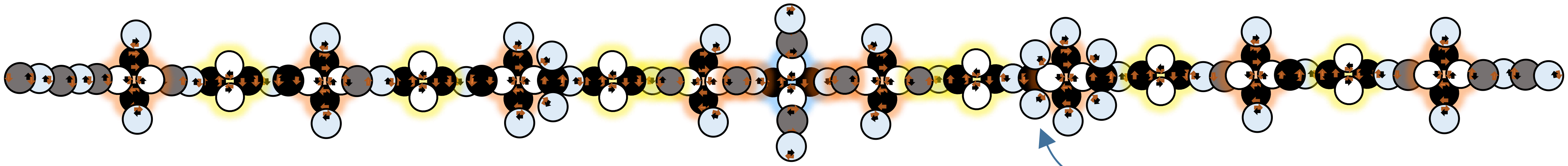
Sb*-122/ 51p, 71n (from symmetry causes):



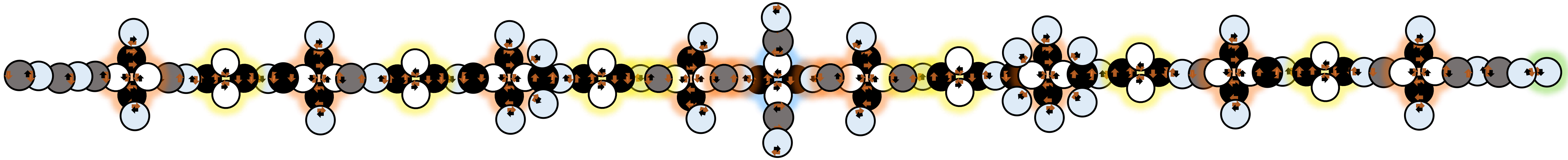
Te-122/ 52p, 70n, it is symmetrical and stable:



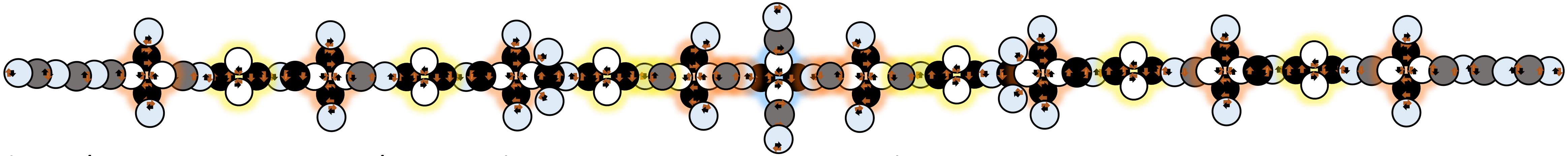
Sb-123/ 51p, 72n (nucleon mass symmetry):



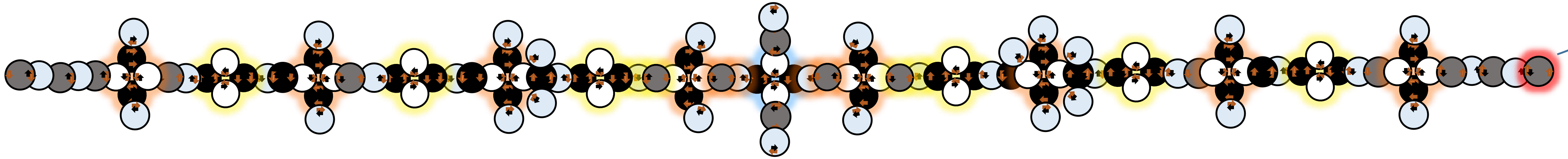
Sb*-124/ 51p, 73n (nucleon mass asymmetry to the right):



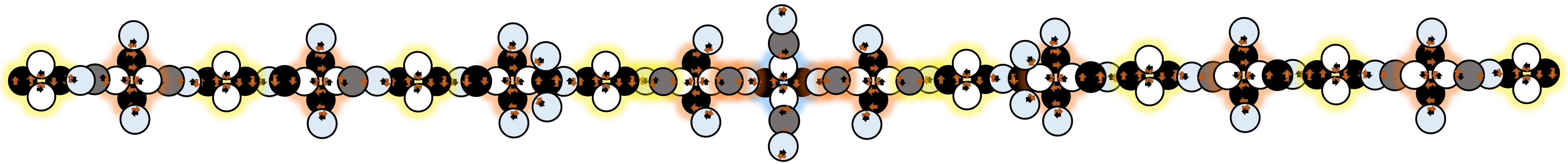
Te-124/ 52p, 72n, internal modification:



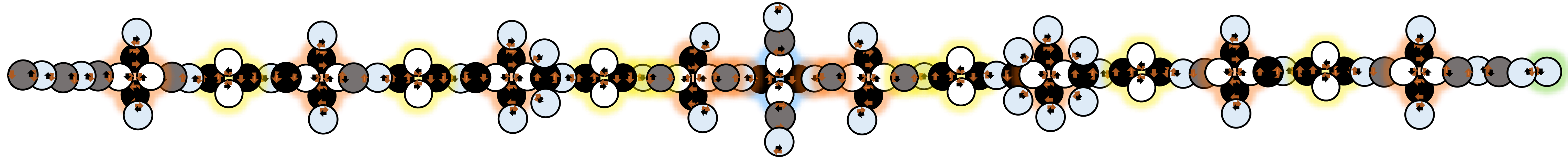
Te*-123/ 52p, 71n into Sb-123/51p,72n (a question of mass symmetry):



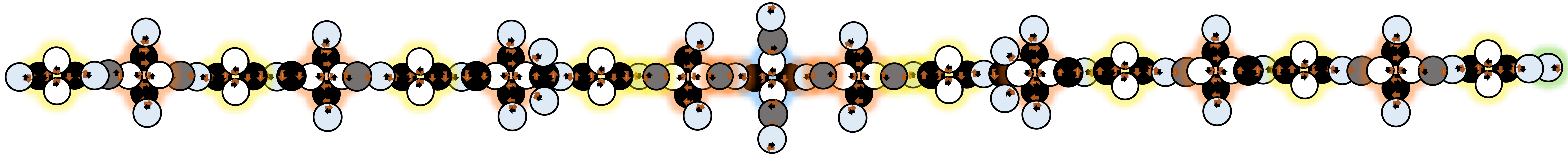
Te-124/ 52p, 72n, internal modification into complete symmetry:



Sb*-124/ 51p, 73n (nucleon mass asymmetry to the right):

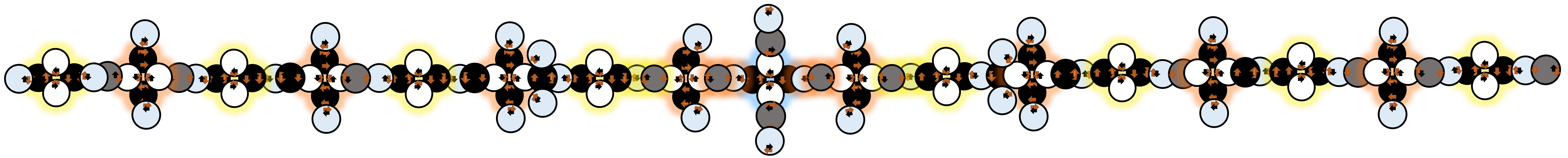


Te*-127/ 52p, 75n, internal modification into complete symmetry, until 126 stable:

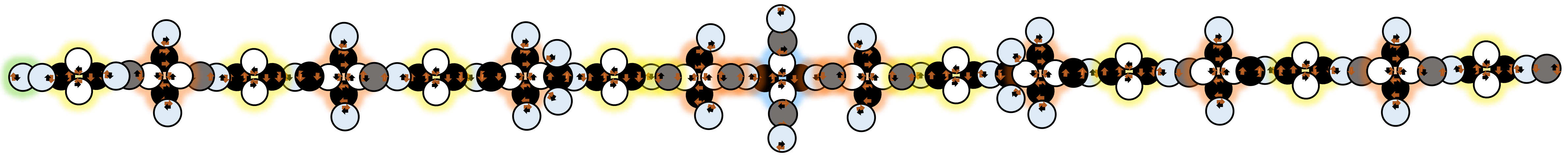


By the way, Te*-128/ 52p, 76n decays over 2x ß- into Xe-128./ 54p, 74n.

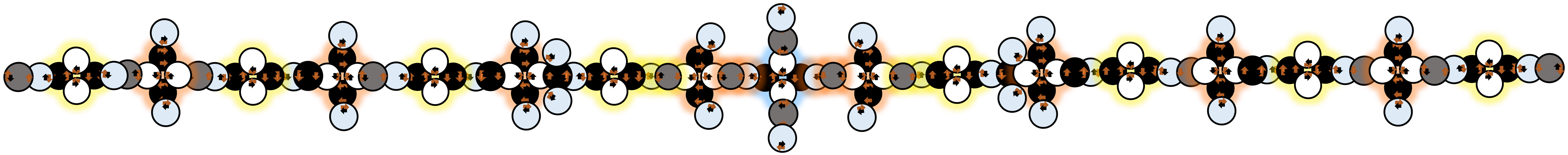
J-127/ 53p, 74n, the only stable nuclide of jod:



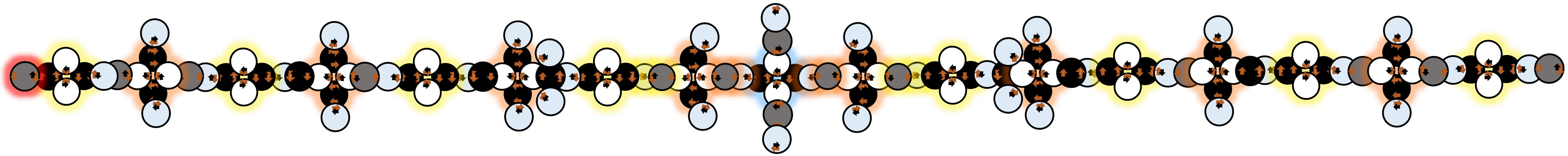
J*-128/ 53p, 75n:



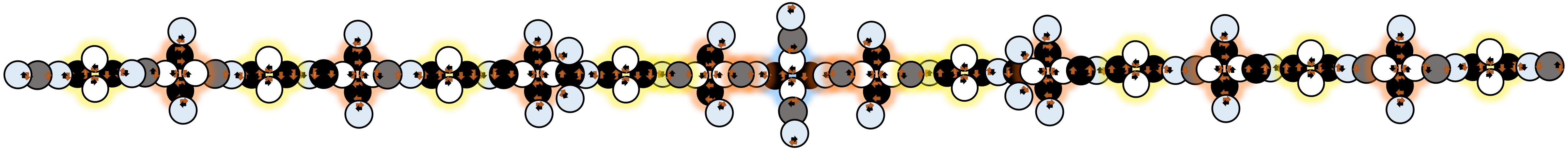
Xe-128/ 54p, 74n, but also Xe-126 is stable by less 2n in the middle:



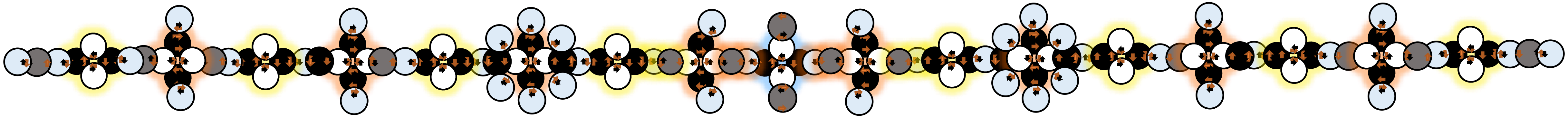
Xe*-127/ 54p, 73n decay into J-127, it is missing one n at the left or at the right edge:



Xe-129/ 54p, 75n, here might be coupled further 2 n to Xe-132 what is last stable one

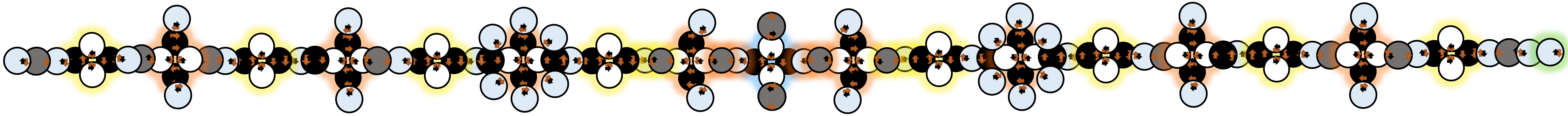


Xe-132/ 54p, 78n:



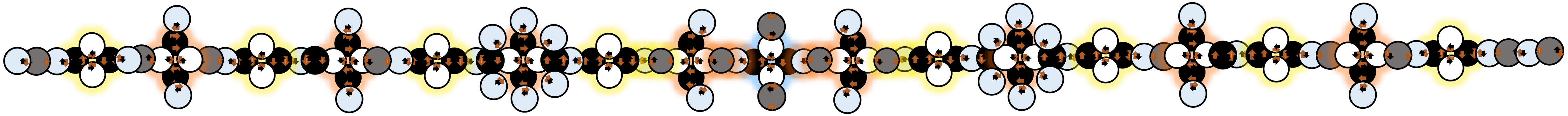
The symmetrical constructions seem to strive to the neutron ring around a He-4 plus 2 protons, like 2n + 4p + 6n +… 2n for coupling next alpha link in yellow.

Xe*-133/ 54p, 79n:

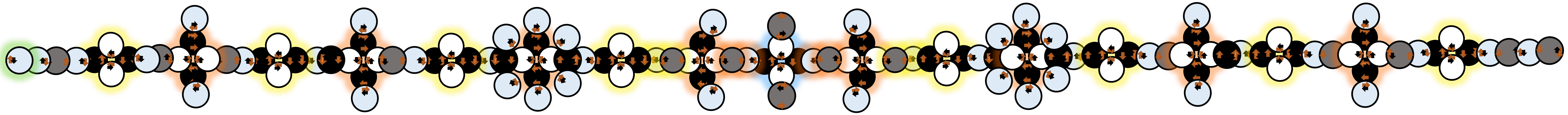


It is absolutely interesting, that the construction let follow only one solution: This right oder left neutron has to decay by beta minus into a proton and a nucleus had to follow which is the only one: Cs-133!! Because another neutron at one of the edges would now decay into the next nuclide of Ba-134!! I have to follow my structured solutions going on!

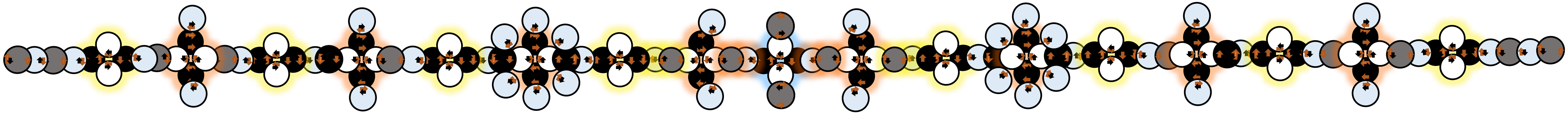
Cs-133/ 55p, 78n:



Cs*-134/ 55p, 79n:

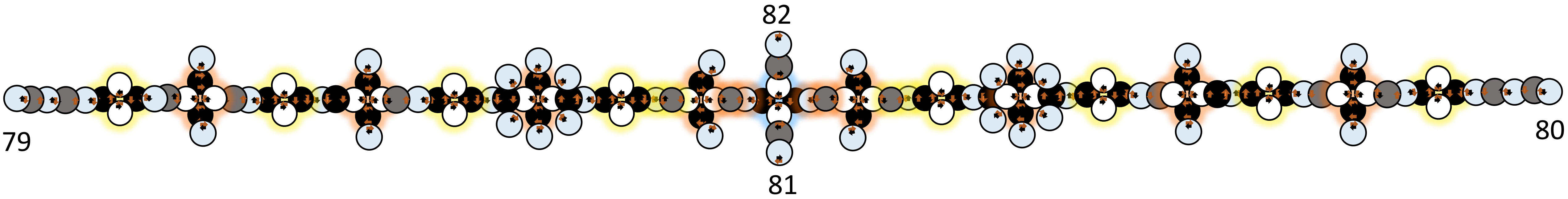


Ba-134/ 56p, 78n:

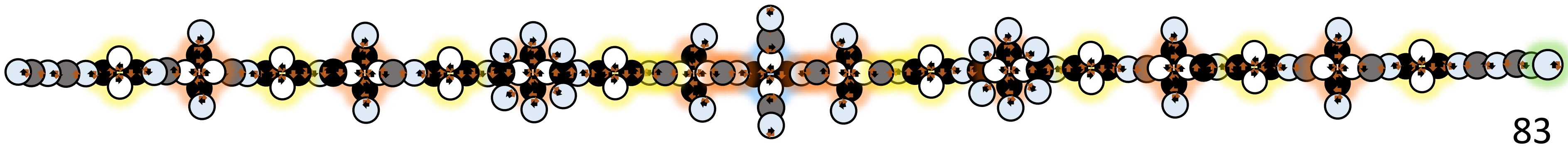


Ba-134/ 56p, 78n until Ba-138 are stable.

Ba-134/ 56p, 78n, extended with 4 neutron (79, 80, 81, 82) into **Ba-138**:

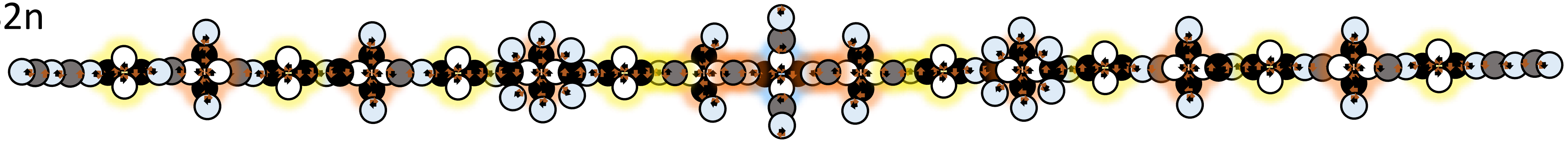


Ba*-139/ 56p, 83n

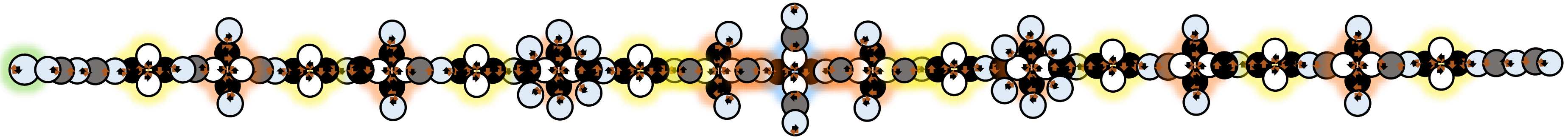


And the same rule is validated like for Cs-133, now for La-139!! At the beginning of nuclide formation, the spaces of taking neutrons were more than later, when already a lot of neutrons are bound. Therefore, the distances between lonely nuclide isotopes are getting smaller.

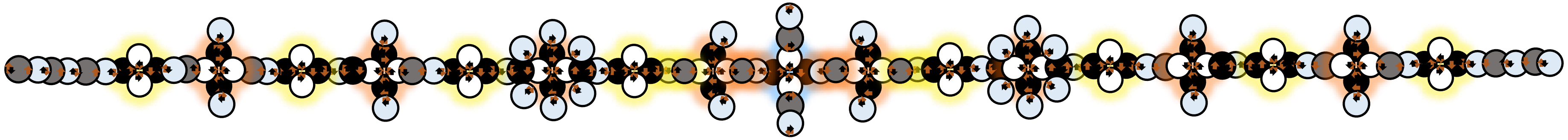
La-139/ 57p, 82n

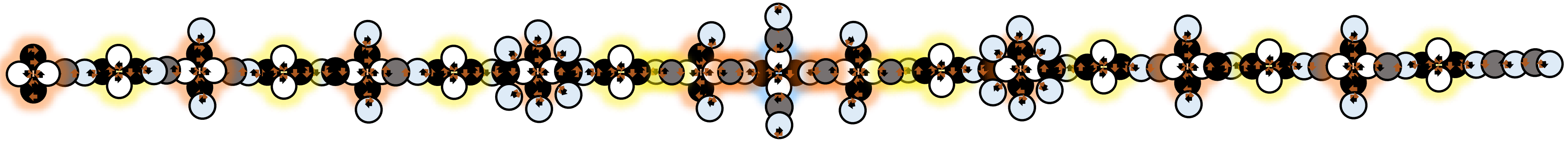


La*-140/ 57p, 83n

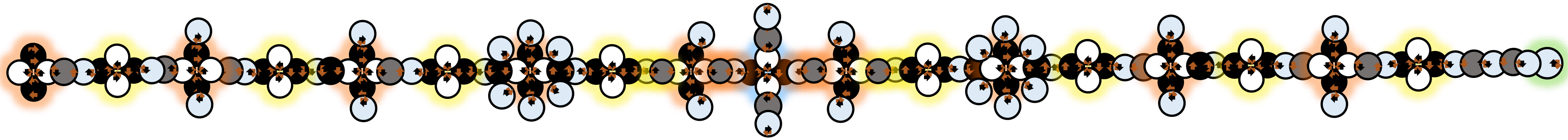


Ce-140/ 58p, 82n

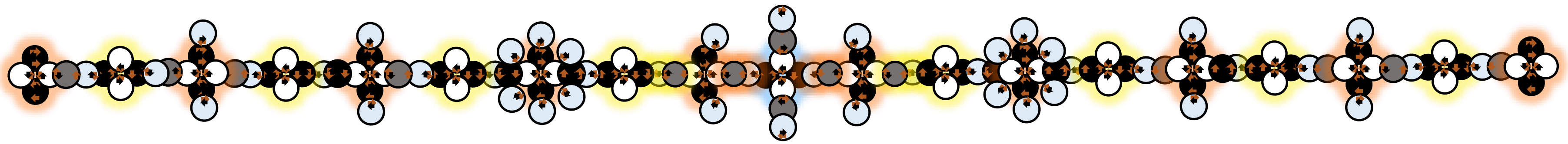




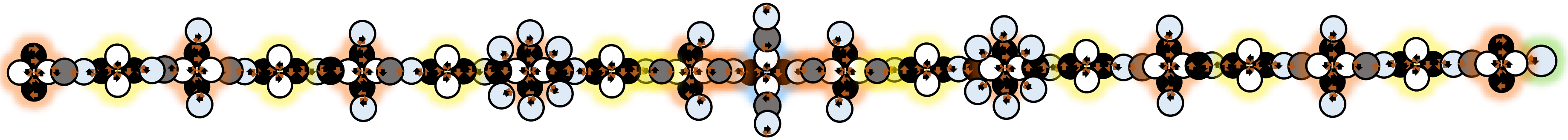
Ce*-141/ 58p, 83n, rare rearrangement of neutron position, left above at proton stable, right at neutron unstable:



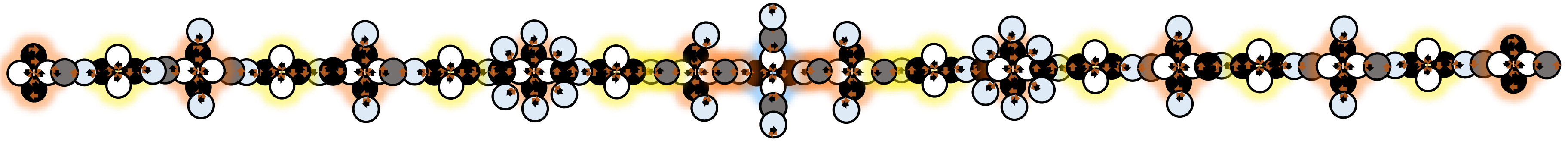
Pr-141/ 59p, 82n, again an lonely, single nuclide:



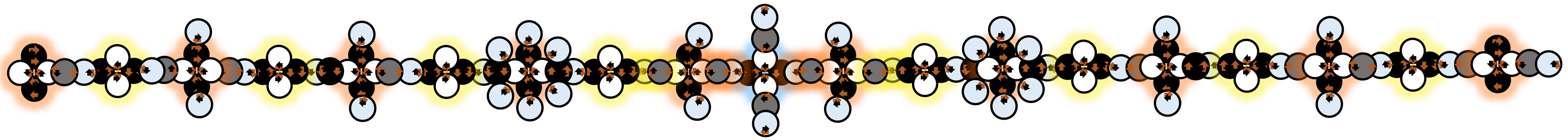
Pr*-142/ 59p, 83n:



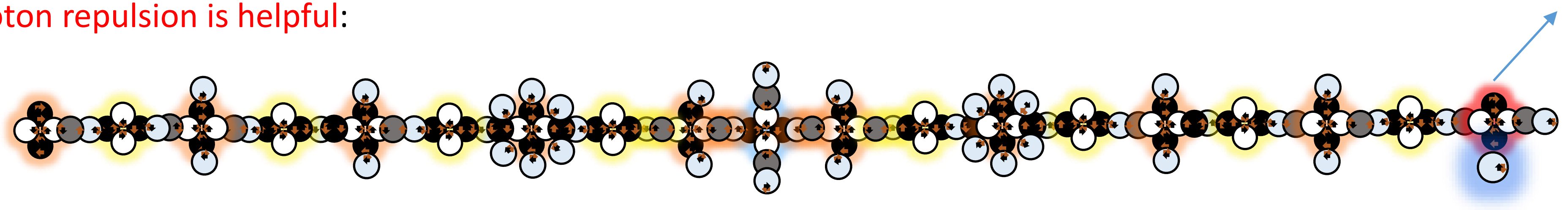
Nd-142/ 60p, 82n, the first stable one:



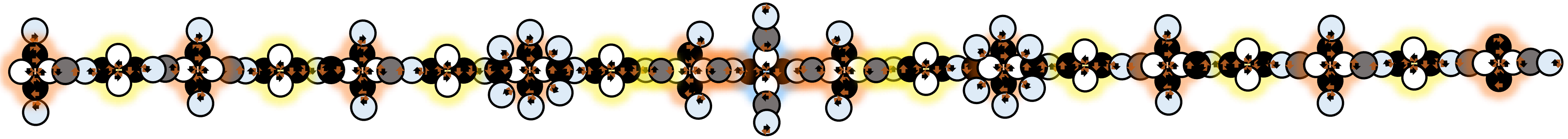
Nd-143/ 60p, 83n, the next stable one. But what chance has the next one when another n comes along to bind?:



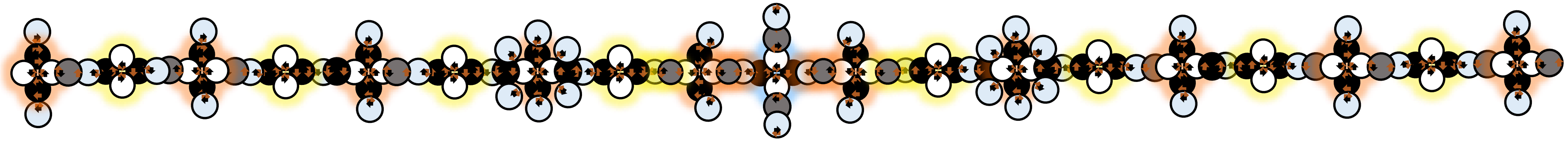
Nd*-144/ 60p, 84n, could bind hardly at edge protons, but rather to an edge neutron, this means decay, alpha radiation by alpha link emission to Ce-140, that is a new process, emission of alpha link by pressure of a neutron from aside, proton repulsion is helpful:



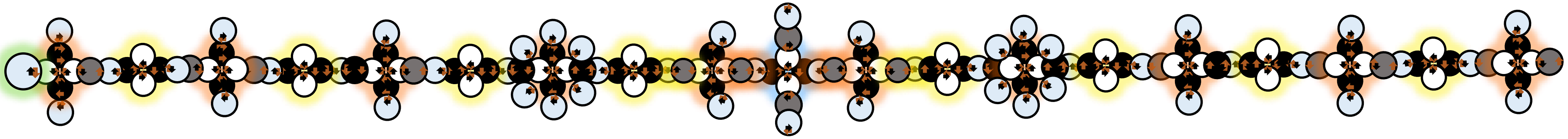
Nd-145/ 60p, 85n, the next stable one. Left alpha link is stabilized by 2 neutrons:



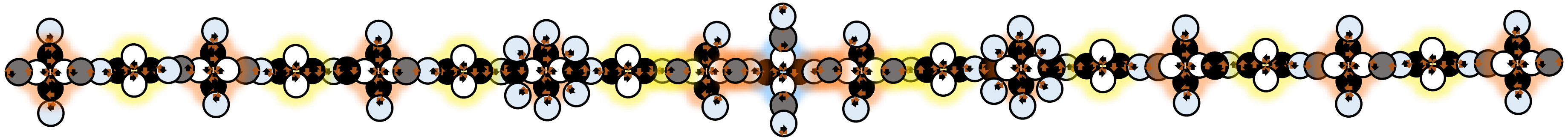
Nd-146/ 60p, 86n, the next stable one. Right alpha link is now stabilized by 2 neutrons additionally given perfect symmetry:

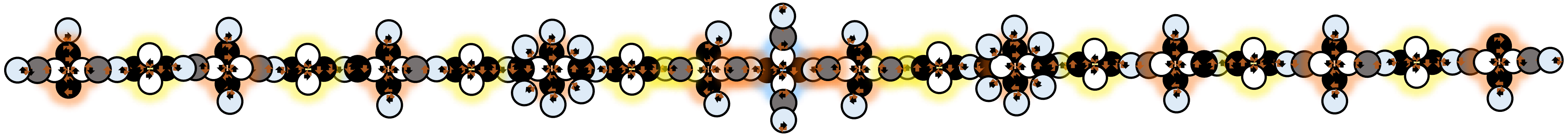


Nd*-147/ 60p, 87n, decaying into Pm*-147

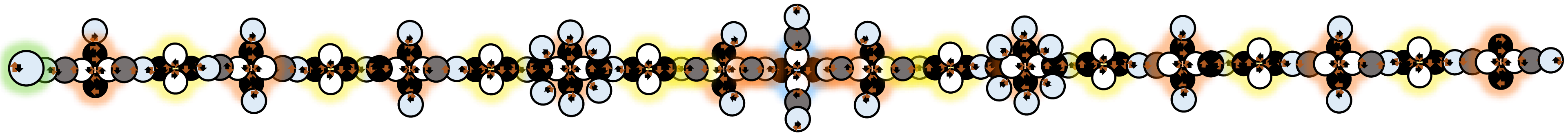


Pm*-147/ 61p, 86n (lifespan: 3y, 286d), long life! Wandering neutrons form out another structure.

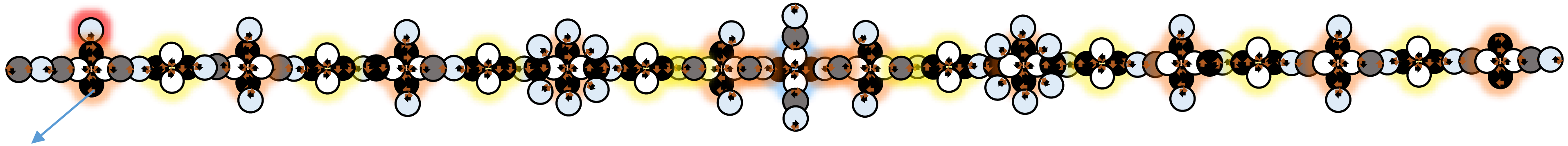




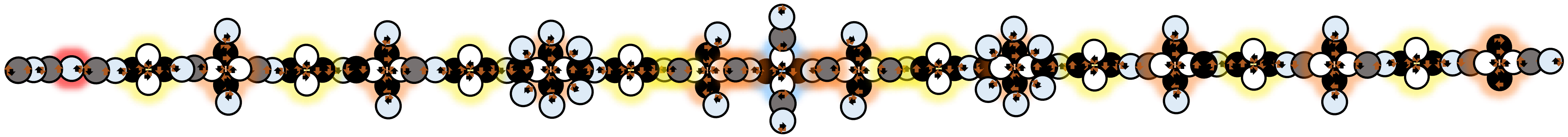
Pm*-147/ 61p, 86n: one of the unstable variants:



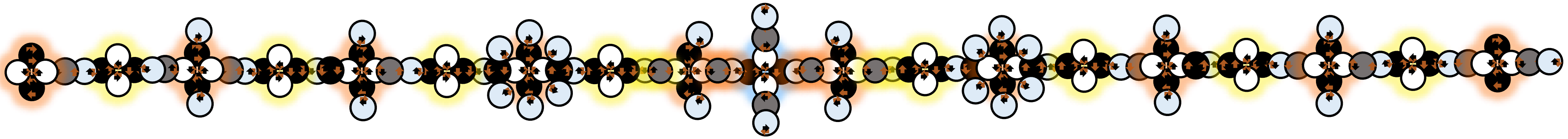
Sm*-147/ 62p, 85n, neutron press out alpha link:



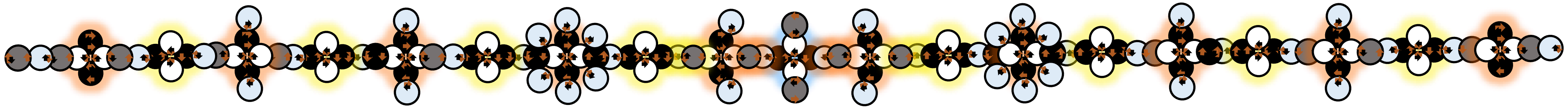
Nd-143/ 60p, 83n, neutron makes an alpha link at the left side:



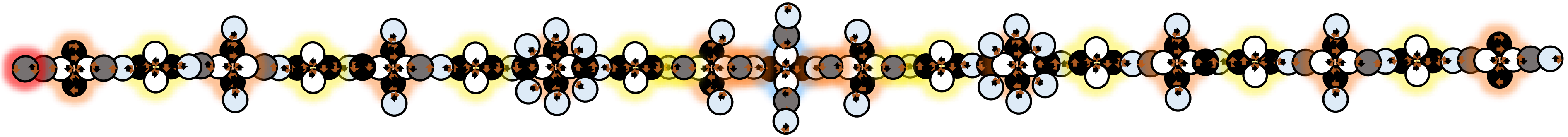
Nd-143/ 60p, 83n, after reforming left side:



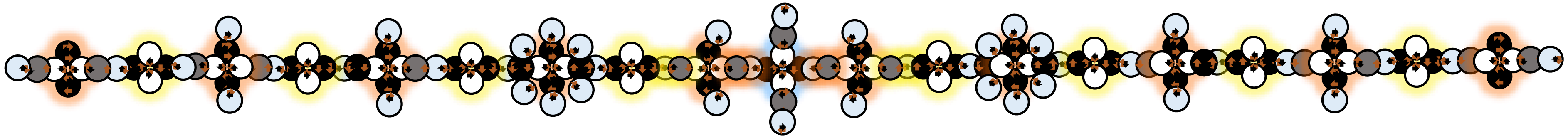
Sm-144/ 62p, 82n is stable, additionally Sm-149, 150, 152,154, up to 165 unstable:



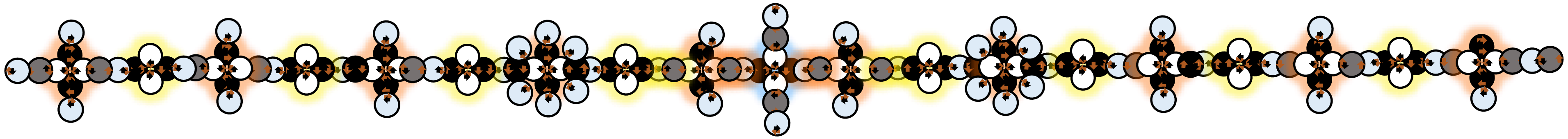
Sm*-145/ 62p, 83n unstable, ß+:



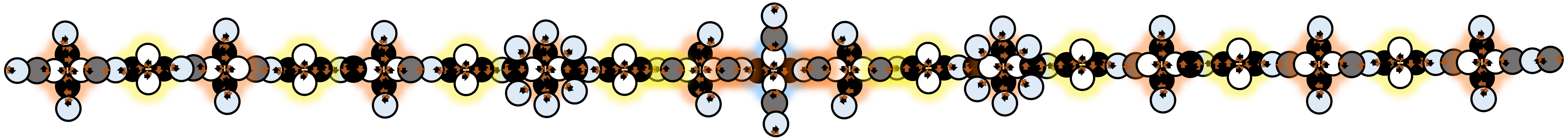
Pm*-145/ 61p, 84n unstable, lifespan 25y:



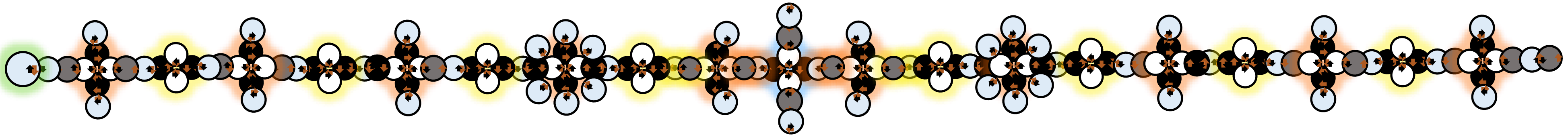
Sm-149/ 62p, 87n, just a massive balance:



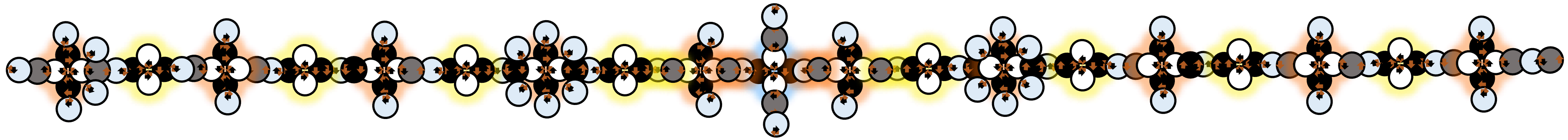
Sm-150/ 62p, 88n, for better massive balance:



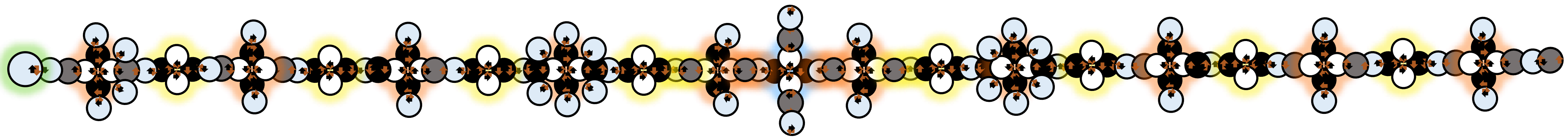
Sm*-151/ 62p, 89n, n goes to the right – stable variant, it hikes to the left – ß- into Eu*-151 (alpha radiator, extreme long life, after modifications sometimes an alpha link is arising at the edge and cannot hold there as Be-8):



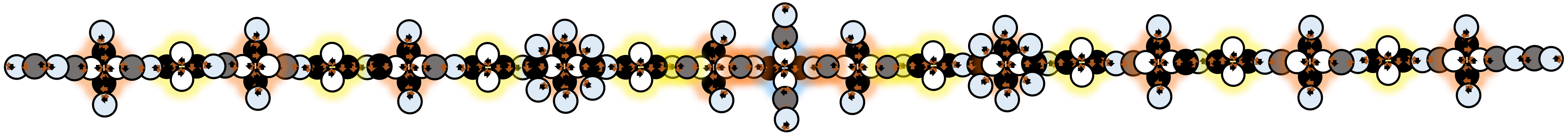
Sm-152/ 62p, 90n:



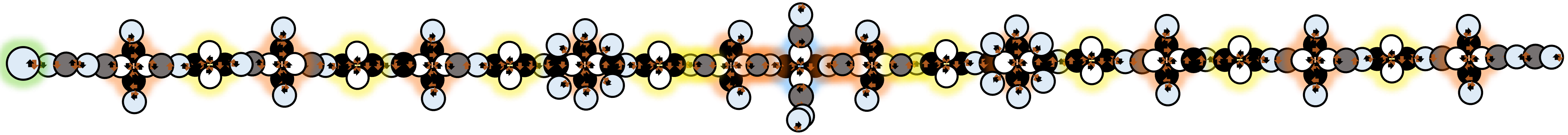
Sm*-153/ 62p, 91n, decay into Eu-153:



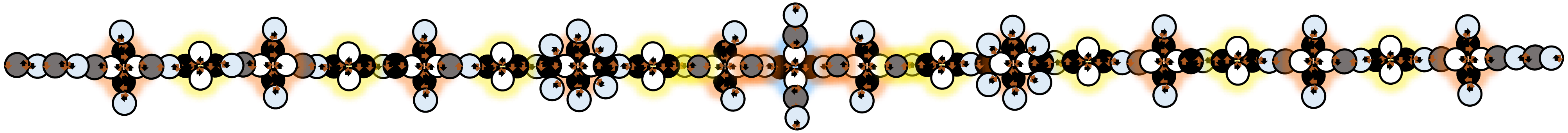
Eu-153/ 63p, 90n, the only stable one:



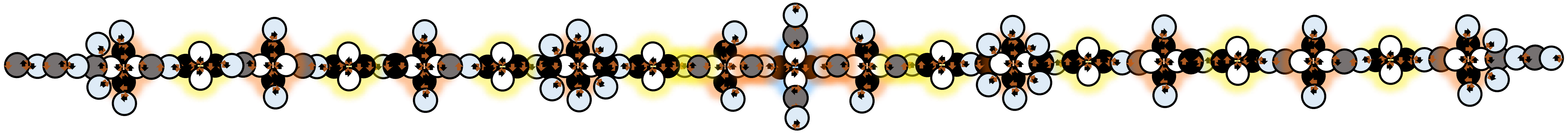
Eu*-154/ 63p, 91n:



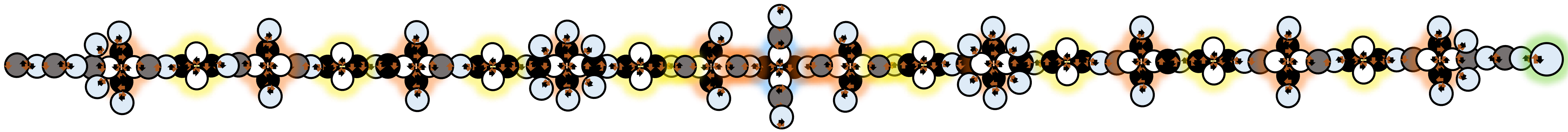
Gd-154/ 64p, 90n (Gd*-152 presses alpha out), until Gd-158 stable (following Tb-159):



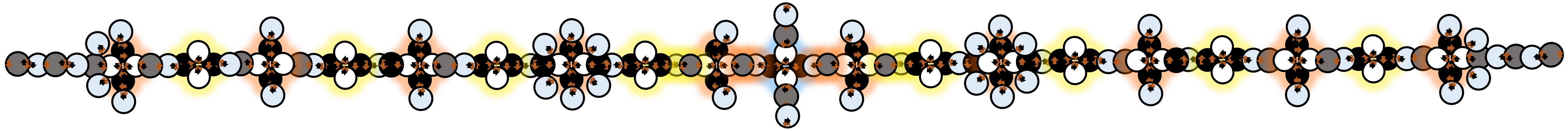
Gd-158/ 64p, 94n stable (from Gd*-159 follows Tb-159):



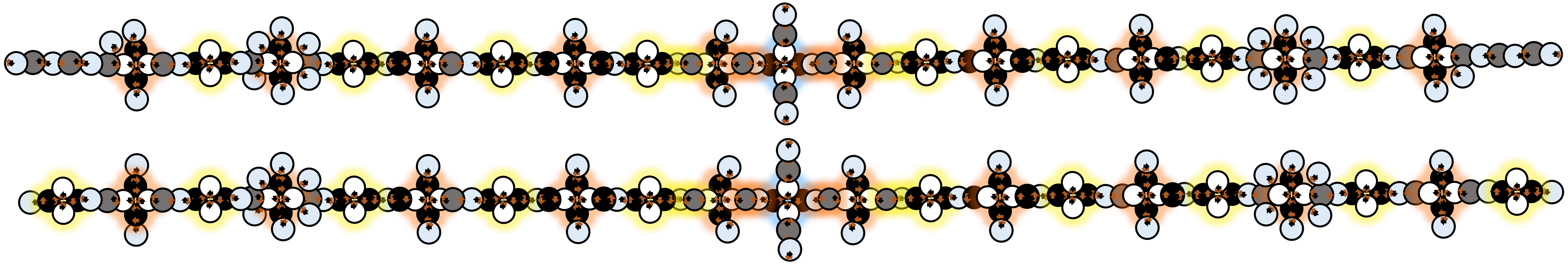
Gd*-159/ 64p, 95n into Tb-159):



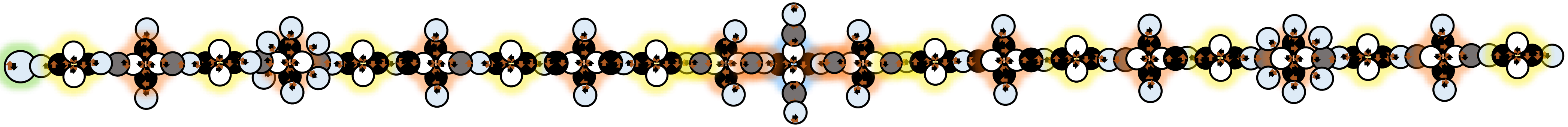
Tb-159/ 65p, 94n, again a lonely stable isotope:



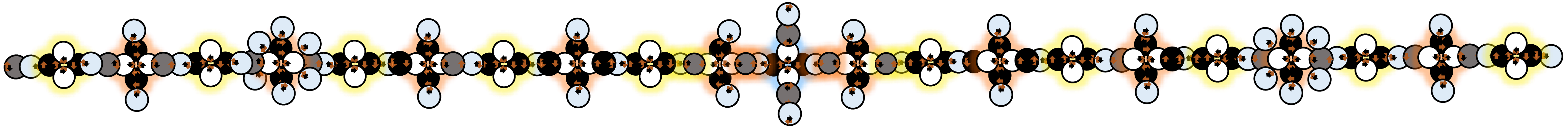
Tb-159/ 65p, 94n, another possible structure of wandering neutrons, Center of gravity by rotating shifted:



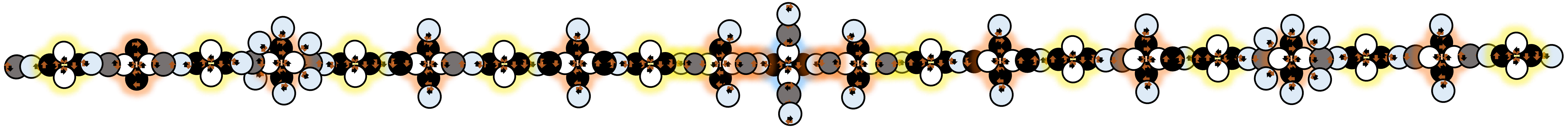
Tb*-160/ 65p, 95n, into Dy-160:



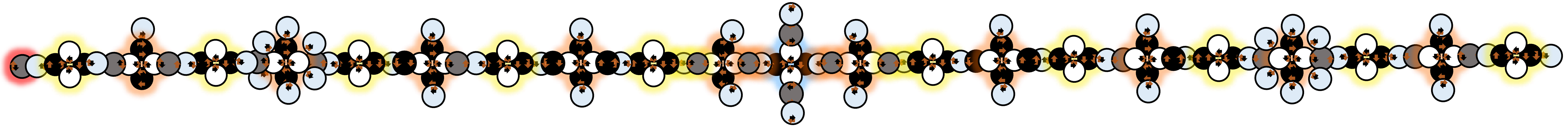
Dy-160/ 66p, 94n, after reformation stable, stable too are Dy-158, 161-164:



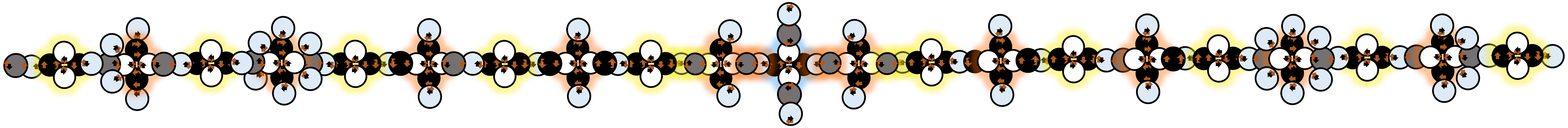
Dy-158/66p, 92n



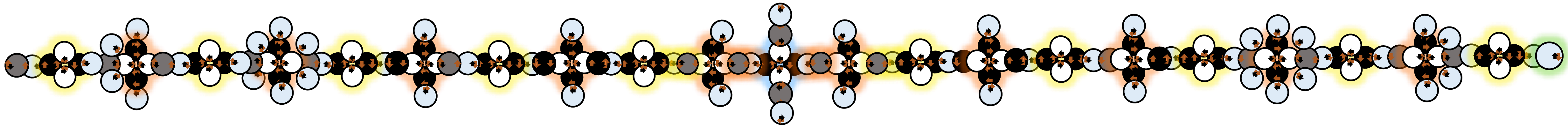
Dy*-159/66p, 93n; decay into Tb-159/ 65p, 94n



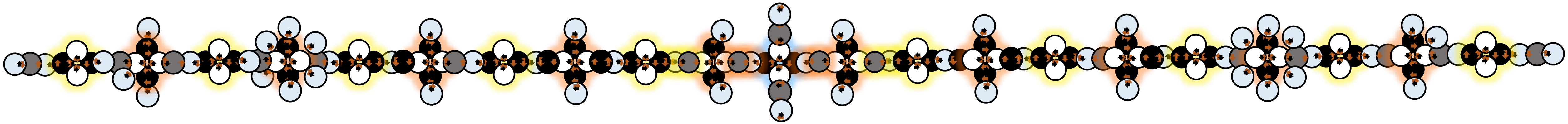
Dy-164/66p, 98n



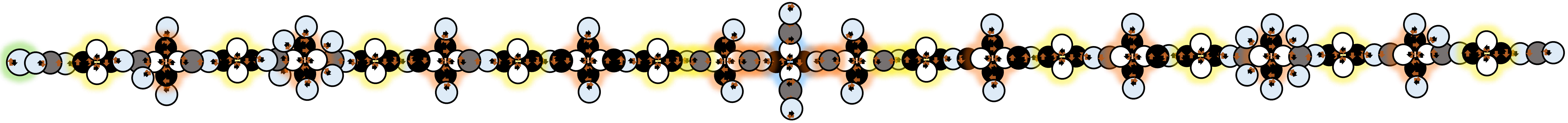
Dy*-165/66p, 99n by wandering neutron from the left at proton to the right because of mass symmetry



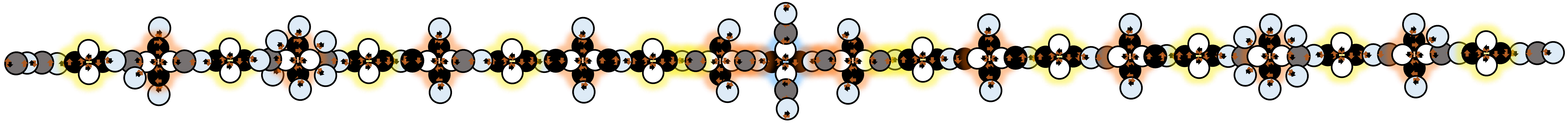
Ho-165/67p, 98n, a lonely nuclide state:



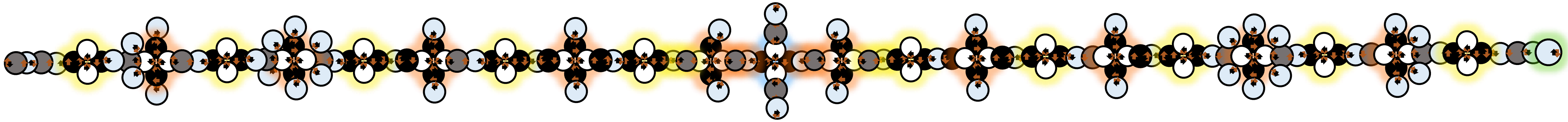
Ho*-166/67p, 99n:



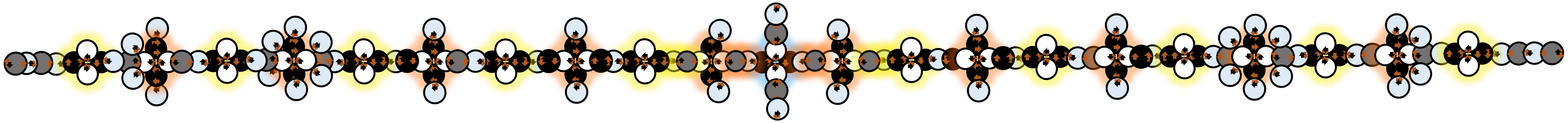
Er-166/68p, 98n, stable 167 and 168, unstable 169 ß-, stable 168, unstable 169 ß-, stable 170, unstable 171… ß-:



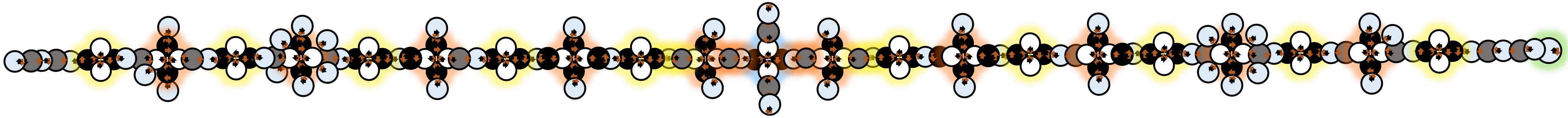
Er*-169/68p, 101n, unstable ß-:



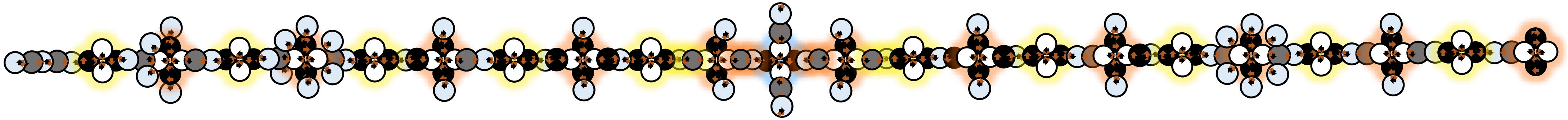
Tm-169/69p, 100n, another lonely stable nuclide, but a question remains: What do neutrons do now at their position?

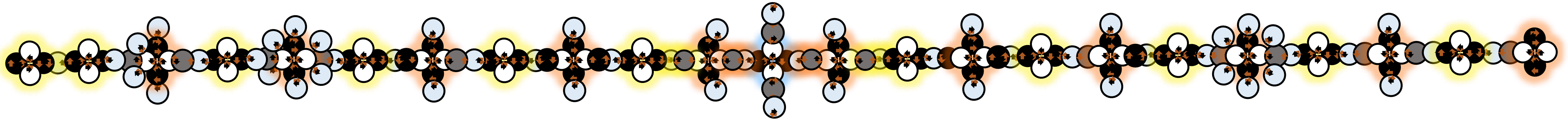


Tm*-170/69p, 101n:



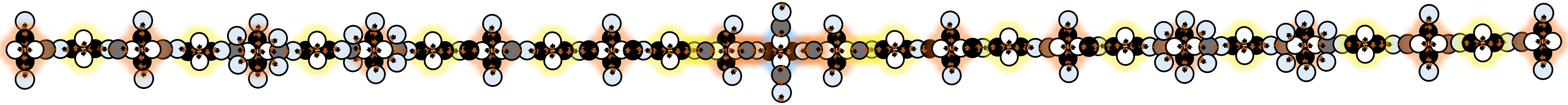
Yb-170/70p, 100n, stable until 174:



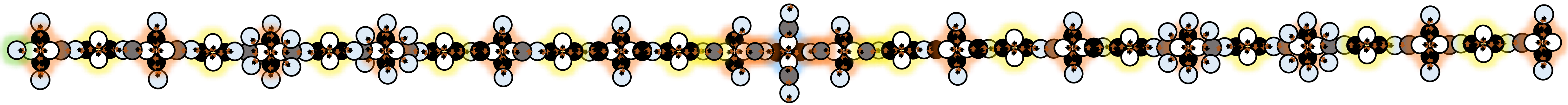


Pb-208/ 82p, 126n
(Pb*-204, alpha radiator, may be 4n less make an edge free of stabilization, repulsion of protons is a relative maximum. To be math. calculated. Driving out alphas, but why just one alpha and not two????
Pb*-205 over ß+ or K-capture
Pb-206, Pb-207, 208
Pb*-209 into Bi*-209 over ß-
Bi*-209 over alpha into Tl-205
make all of them sure!

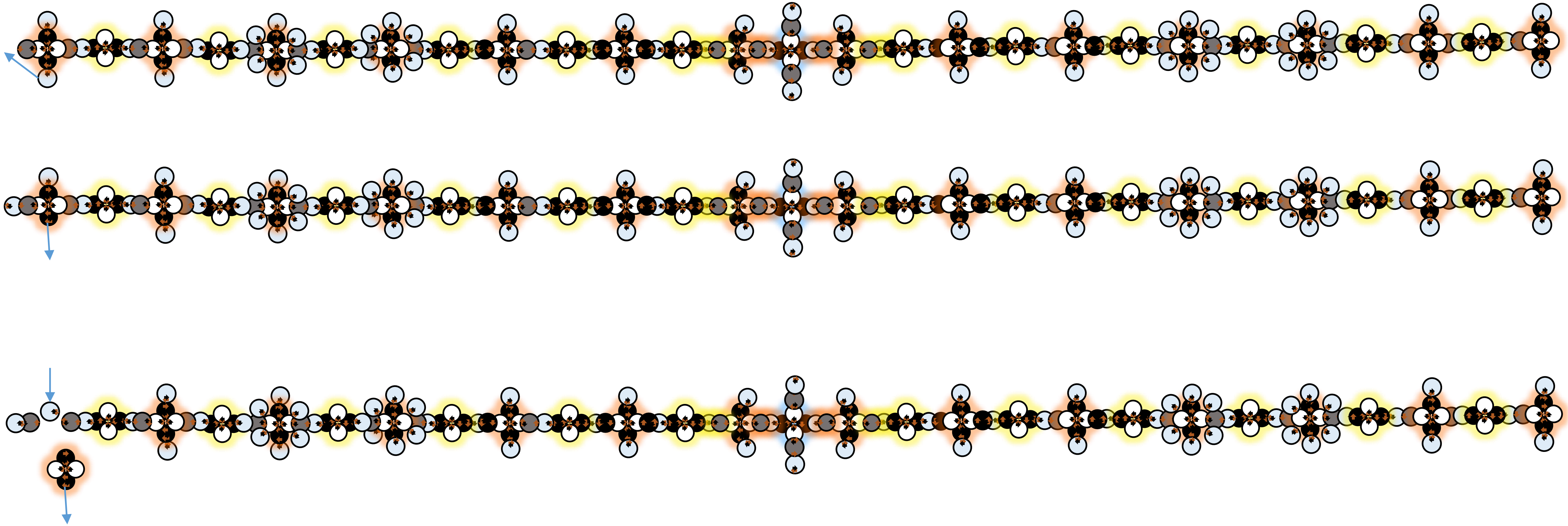
Pb-208/ 82p, 126n, (2n less also stable by wandering both central neutrons. 1n less in the center is also stable.):



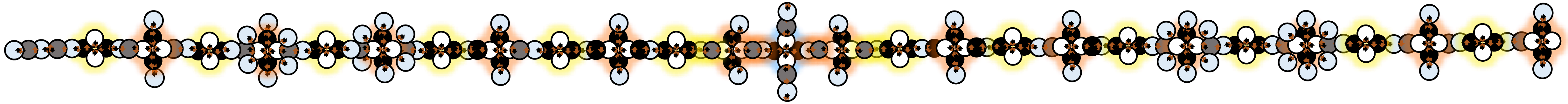
Pb*-209, into Bi*-209:



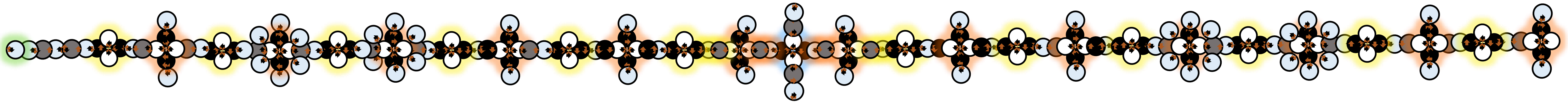
Bi*-209/ 83p 126n; It is looking stably, but in extremely rare cases the left proton is coupling with the next neutron by pressing out an alpha at the left side, taking lifespan of 27.7e18 y



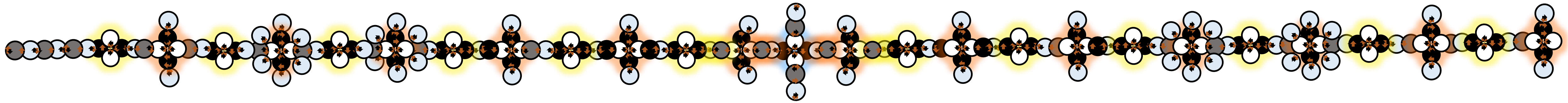
Tl-205/ 81p 124n is stable, Tl*-206 must decay by one neutron at the left side by ß- into Pb-206, logically:



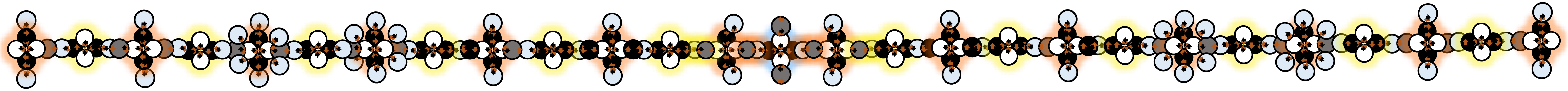
Tl*-206/ 81p 125n into Pb-206:



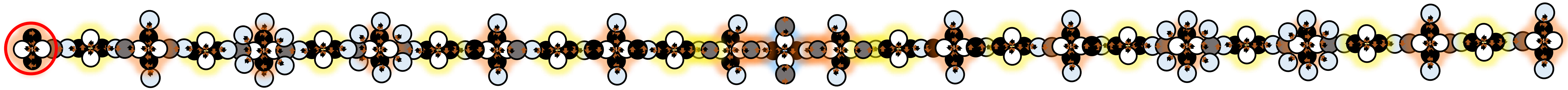
Pb-206:



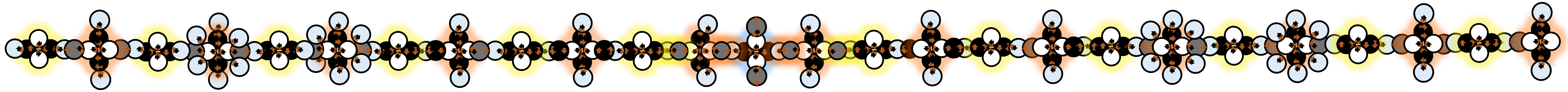
Pb-206 after internal reconstruction, both central neutrons come to the left where 4 nucleons formed an alpha link:



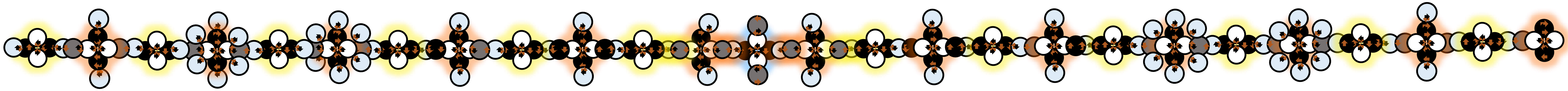
Pb*-204, alpha radiator, lifespan about 201,000,000,000,000,000 y, extremely rare process into Hg-200:



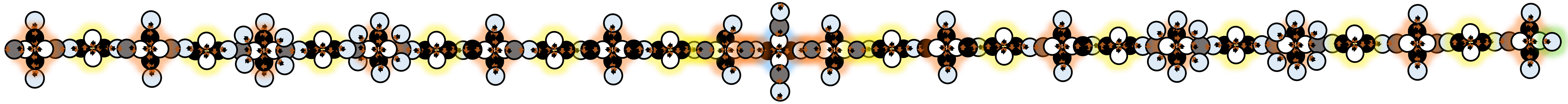
Hg-200:



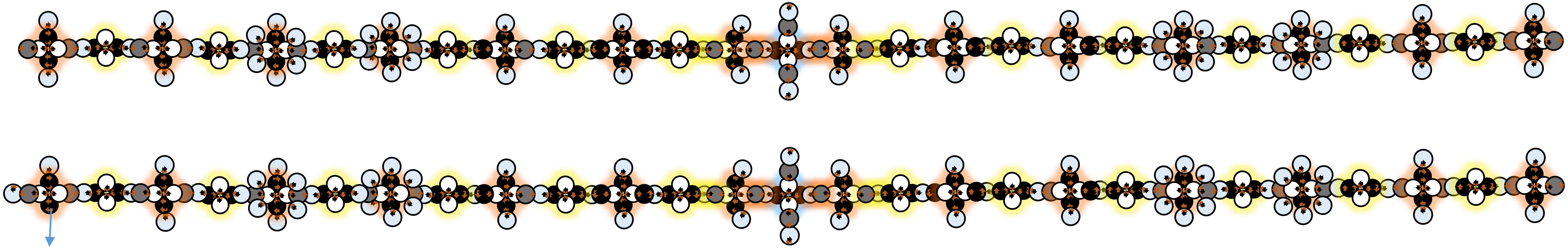
Hg-198, to compare:



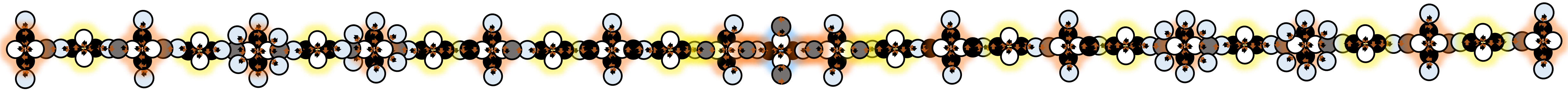
Bi*-210/ 83p 127n; is just stable when the 127th neutron goes to the left proton at the edge, but in the case of wandering to the right, it is decaying by ß- into Po*-210:



Po*-210/ 84p, 126n; This nuclide seems to be stable because of its perfect symmetry. But it is too long. It decays over alpha emission into Pb-206 after a long lifespan of 199 d. In analogy to Bi*-209 while one neutron is wandering to the proton, left or right:

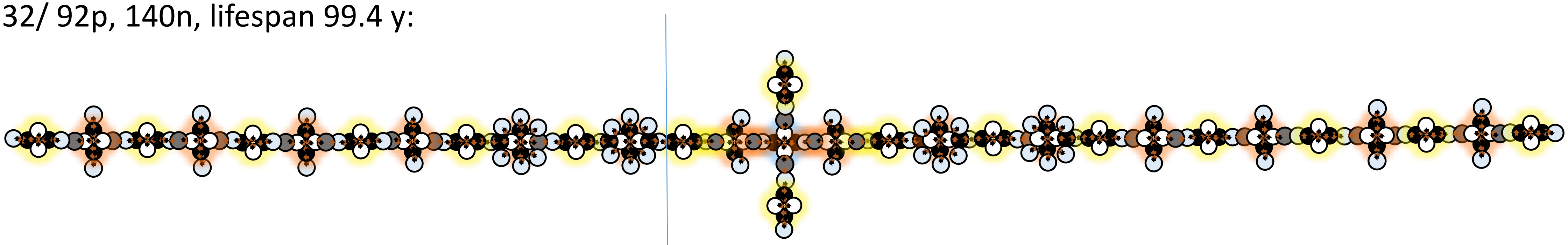


Pb-206/ 82p, 124n



By wandering neutrons it is not the question, where do they stay. They don‘t stay! Ring formations can be at the next-to-last position at an alpha of the chain. The flywheel definitely will get bigger. Breaking forces increase. It might be the reason of instability and of spontaneous decay of U*-232 for example.

U*-232/ 92p, 140n, lifespan 99.4 y:



Kr*-90/ 36p, 57n, 3n escape:

Ba*-139/ 56p, 83n

2n from above and below, plus one n from the parted coupling position, just if there are more ring neutrons. The ring structure has to shift by wandering at this position. Then the break comes.

If it was not a chain it would not be able to be parted by breaking off into 2 parts. If we had 2 chains, we had to part into less rests than above, relations were not 2/3 but rather ¼. Although, we stand in contradiction to measurements of nuclide radii measured by interactions of positive charge. I think, I stay by my constructions of nuclide chains. Don‘t forget: All the chains made here as examples can change their neutron positions. Might be more neutrons go to the center. Physical models have to examine a lot of structures. I am not a physicist.