The Dutch Paradigm

Jac C. van den Broek

The Periodic Table of the Elements is available in the new Atomic Model

The Dutch Paradigm

A New Thinking for Modeling Particle Physics

Stichting The Dutch Paradigm

Broek, Jac C. van den

The Periodic Table of the Elements is available in the new Atomic Model. The Dutch Paradigm. A New Thinking for Modeling Particle Physics

ISBN 978-90-829075-9-9

NUR 925

Published 2025 by Stichting The Dutch Paradigm

Stichting The Dutch Paradigm, Herinkhave 4, 5655JL Eindhoven, The Netherlands

www.thedutchparadigm.org

CONTENTS

1. INTRODUCTION

This fifth volume in the series, titled The Dutch Paradigm, delves deeper into the principles underlying the transformation of nuclei into their atomic arrangements. The proposed structure of these nuclei consists of alternating He-4 'sticks' and sticks that contain a single exogenously active proton to which neutrons can be added. Across the Periodic Table of Elements, these sticks' logical structure and arrangement can be organized into a bundle along a common orthogonal direction.

The nuclei in these bundles do not initially support a spherical structure. However, this is the atomic outcome we observe in nature. Niels Bohr proposed such a spherical model, and while his atomic model has its flaws, it remains the best foundation for understanding atomic behavior to date.

In the following chapters, it will be explained that the newly proposed nuclei model in the Periodic Table of Elements permits spherical atomic structures and can account for unusual characteristics, such as superfluidity and patterns for spectral lines.

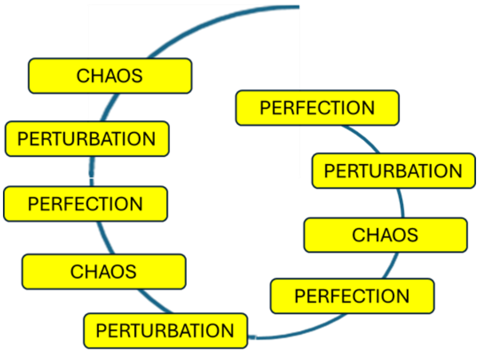
The limitations of the Bohr model have been surpassed.

2. SUMMARY OF COMPLEX NUCLEI BEFORE THE INTRODUCTION OF ATOMIC ASSEMBLY

The Dutch Paradigm includes models for the electron, neutron, and proton as compositions of electrons arranged in double dodecahedrons. These constructs consist solely of gamma photons and gamma neutrinos.
We determined through careful observation that creating these constructs involved rearranging gamma photons and neutrinos, which resulted in an impressive sequence of

- Perfection
- Perturbation of the perfection
- Chaos
- Rearrangement to a perfect but more complex construct
- Chaos
- And so on

This process is illustrated schematically as follows:



The entities involved in this cycle are photons and neutrinos. Both entities exhibit an inherently bound causal interaction pattern, forming the electromagnetic system. According to the conjecture known as The Dutch Paradigm, this system was active in an endogenous, instantaneous, and causal manner prior to the Big Bang, while externally, it exhibited complete rest.

The Dutch Paradigm posits that the causal sequence was interrupted for one Planck time.

As a result of that event, an electrical quant with a duration of 1 Planck time and an energy content of **hf** occurred before the causal settlement for each entity involved. This perturbation shifted the entity's electromagnetic system from a state of potential to one of kinetic activity, allowing the entity to be released into space. The subsequent trajectory of the free electrical quant then dictates the path of its associated entity moving forward, leading to chaotic interactions with the electromagnetic systems of other entities.

The free electric properties of photons and neutrinos enable them to interact in space, leading to electromagnetic effects. As a result, the characteristics of these entities become intertwined and are updated at each Planck time interval. This interconnection evolves over time, reflecting the current state of each other's free electric properties. The stability and durability of this connection can change over time.

In isolated models, we can view the electron and the dodecahedron as stable, sustainable connections formed by photons and neutrinos.

This perspective allows us to indicate their properties. The durability of this composition is evaluated as a form of perfection seen in the steps of their interconnectedness.

The entities retain their identity in the constructs generated by the interference of their free electric quants of photons and neutrinos.

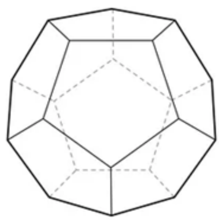
THE ELECTRON

The interaction between a photon and a neutrino, when they are entangled in the geometric configuration of an electron, causes the photon's electromagnetic magnetic action to rotate in the plane of the neutrino. This rotation affects the electrical aspect of the photon, leading to an asymmetric equalization.

The limitation to restrict the manifestations of the photon and neutrino with and within the electron to a maximum displacement of 1 Planck length over 1 Planck time generates gravity through a resulting free magnetic quant.
The arrangement of photons and neutrinos within electrons causes the electric properties of photons to manifest externally in the physical world. This phenomenon forms the basis for the laws of classical physics related to electricity. Additionally, the influence of freely moving electric particles is evident in the presence of generating gravity.

This dual effect leads to the creation of dodecahedral models in the later settlement period.

The dodecahedrons have mirror-wise opposite electrical effects, which externally neutralize the impact of the strong Coulomb forces.



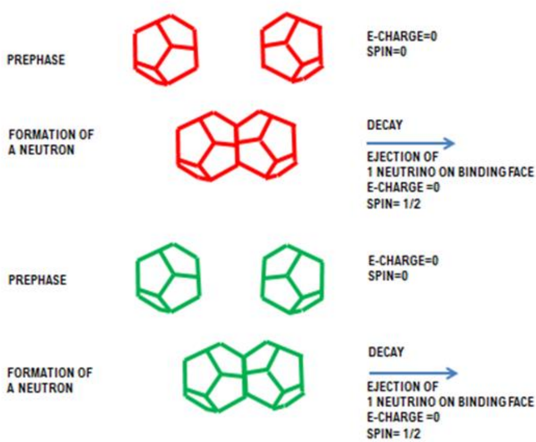
Due to its geometry, the dodecahedron demonstrates properties resembling an electron on each of its 12 faces, with a specific interference. The 12 electrons exhibit their electromagnetic manifestations synchronously, maintaining three-dimensional symmetry.

A naked dodecahedron cannot electromagnetically share a common plane with another dodecahedron. Inside each plane of the dodecahedron, a neutrino entity is located at the center of the relevant electron. According to the Pauli Exclusion Principle, two neutrinos with the same chirality cannot occupy the same geometric position. The Dutch Paradigm explains this phenomenon: the rotating electrical manifestations of neutrinos with the same chirality would exceed the speed of light when they interfere.

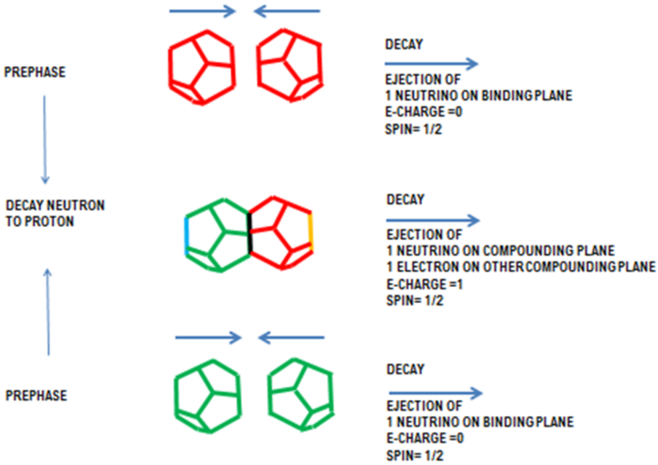
Two dodecahedrons can approach each other up to a small distance but do not form a bond. Naked dodecahedrons behave exogenously, almost inertly, being electrically ‘dark matter.’

Under extreme pressure, it is possible to force two dodecahedrons to bind together. This process involves breaking one of the electrons and requires high pressure, which was achievable shortly after the Big Bang.

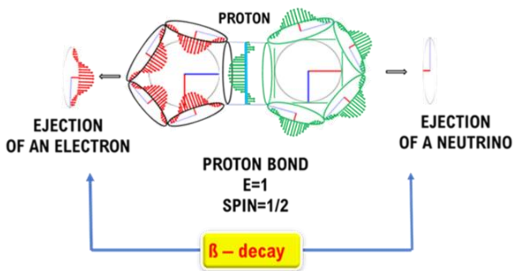
During this complex process, two dodecahedrons can create a neutron under high pressure by emitting a neutrino from their shared surface, forming a relatively weak but precisely balanced neutron bond.



The electrically neutral neutrons cannot bond with electrons and are often considered a form of dark matter when isolated.
If a neutron becomes out of sync with the oscillation of the dodecahedra due to a disturbance, it may undergo β-decay. This decay results in the ejection of an electron and a neutrino on one mirror-image plane and, after the subsequent oscillation, an electron on the other mirror image.



After a neutron decays into a proton through β-decay, the remaining electron in the double dodecahedron structure exhibits the Coulomb effect on the bonding face to the outside world.



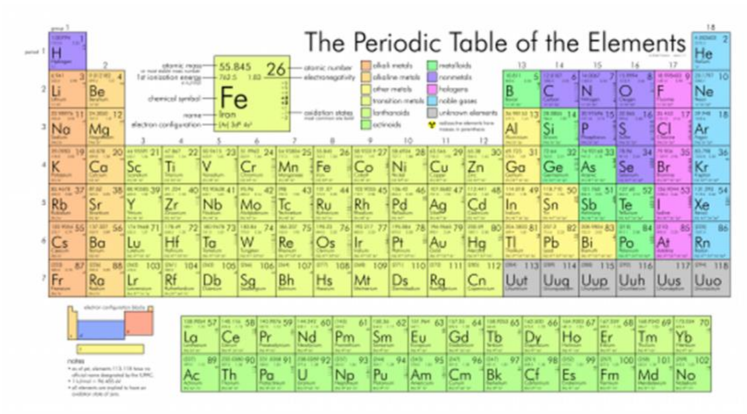
On the two planes outside and mirror parallel to the bonding surface, the proton no longer has electrons; therefore, bonding with another dodecahedron is possible. With its strong Coulomb force, the proton is ideally suited for further expansion into geometrically larger enclosed spaces. This formation occurs along the linear axis perpendicular to the proton's bonding plane.

After another period of chaos, more complex nuclei can be formed.

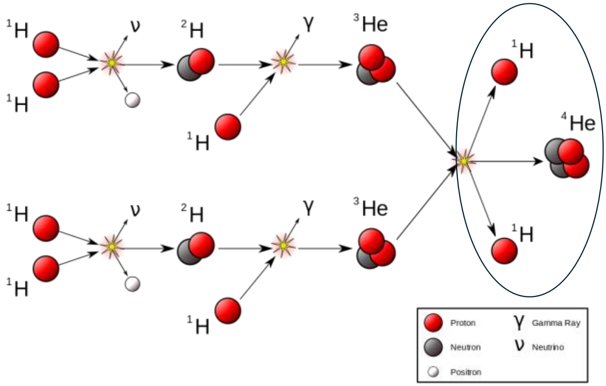
We can now focus on developing models of complex nuclei using the Periodic Table of Elements.

It is essential to understand that complex nuclei, which can exert *an exogenous Coulomb effect*, can form at the atomic level.

Initially, the formation of complex nuclei was theorized to involve an alternating arrangement of helium-4 (He-4) and a single proton.



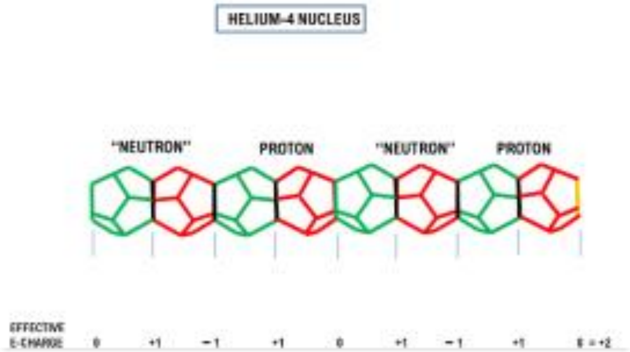
The assumption is that the Periodic Table of Elements illustrates how elements are structured according to a geometric model. This model includes a parallel arrangement of a proton and a helium-4 (He-4) nucleus containing protons. These constructs are produced in large quantities due to the nuclear fusion processes occurring in stars.



In the current representation of the existing paradigm, He-3 and, by extension, He-4 are proposed as the starting point for forming a close spherical packing. However, it remains unclear why the current paradigm assumes that a proton and a neutron can geometrically enclose a spherical space like a dodecahedron does. In the Standard Model of Elementary Particles, only point particles are considered, which raises questions about how these particles can arrange themselves into a spherical configuration.

It is also unclear what role quantum fields play in forming complex nuclei.

According to The Dutch Paradigm, the configuration of He-4 is linear, as demonstrated below.



After the chaos caused by nuclear fusion, a settlement follows on the next step of the staircase to perfection.

A stick of dodecahedrons appears to be vulnerable to collisions with other dodecahedra within its structure. Consequently, a stick containing two protons and two neutrons likely decays quickly. In contrast, only sticks with protons paired with dark matter seem to form a virtually indestructible configuration. Additionally, it is possible that when a neutron is paired with a proton, further β-decay may occur in the neutron.

> *It is, therefore, plausible that He-4 is entirely composed of dodecahedra, all belonging to protons, with two protons coupled to dark matter.*

The He-4 stick shows two resulting exogenous protons with an 'electric charge.' The dark matter protons show analogous behavior as previously shown before β-decay occurred. The dark matter protons in opposite configuration can be mistaken for neutrons.

The He-4 sticks will arrange themselves parallel whenever spatially possible. This is determined by balancing with the intrinsic momentum from the neutrinos in the electrons of the proton bond. The proton bond has two types of torques: an intrinsic one from the neutrino and an angular momentum from the exogenously active photon.

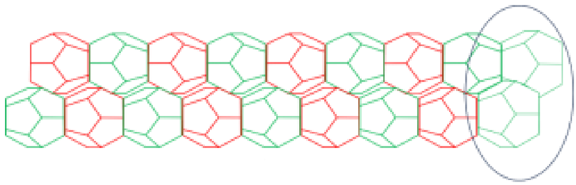
In the ongoing process of forming parallel He-4 sticks, there is likely an organization of the loose protons released by the fusion of two He-3 nuclei. These protons can be combined with neutrons or dark matter. Further discussion on this topic will be included in a later chapter.

The parallel arrangement of the He-4 nuclei creates several possible configurations for more complex cores. Many of these configurations likely occur in nature, but their stability may also differ.

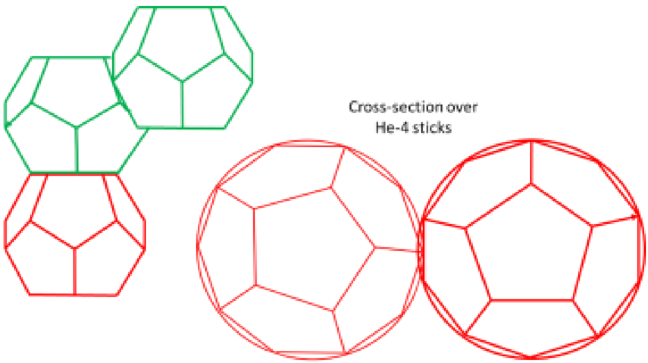
A dense linear arrangement of helium-4 (He-4) atoms can be envisioned, with each He-4 atom positioned in a sequence with a slight shift from the previous one. The parallel dodecahedrons experience a small force that allows them to maintain a minimal distance from adjacent dodecahedrons. Additionally, they can rotate slightly at an angle perpendicular to their linear arrangement.

> **Note**: There is likely a Van der Waals force at work between the dodecahedrons of the parallel sticks. This force may result from the interaction between a free electric quant and the magnetic activity of the neutrino associated with the adjacent electron. I assume this phenomenon is similar to the mechanism by which electrons were formed shortly after the Big Bang through the interference of a free quant of a gamma photon and the

electromagnetic properties of a gamma neutrino.

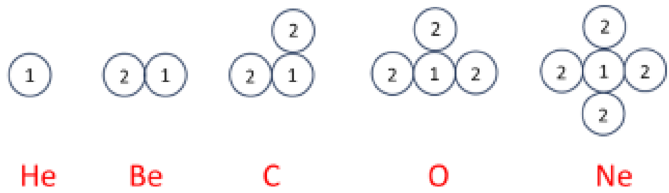


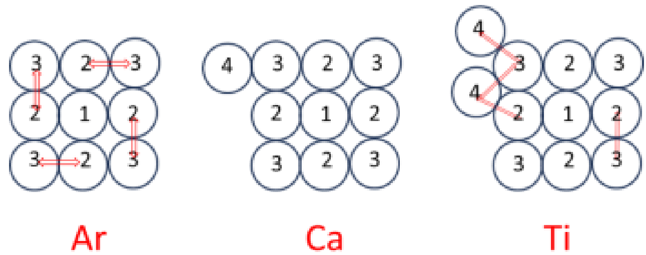
The head side neutron is turned to show two sets of parallel faces



This adjustment enabled the sticks to arrange themselves efficiently, minimizing spatial use. The set of dodecahedrons on the end face can represent either a neutron or a proton.

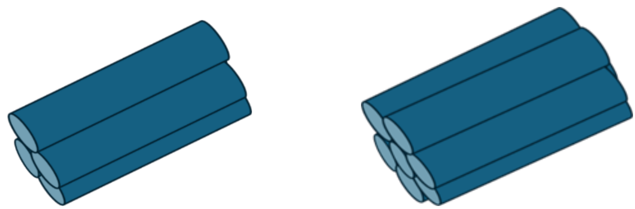
In the fourth book, the parallel arrangement of the He-4 sticks is explained with examples, including connections on the end face based on the number of neutrons in stable isotopes.





Note: The name and configuration provided are examples and not unique to the specified element. There can be at least two elements available for each stick position. This will be elaborated on in a later chapter.

The structure of the complex nuclei is illustrated in the sketch below:

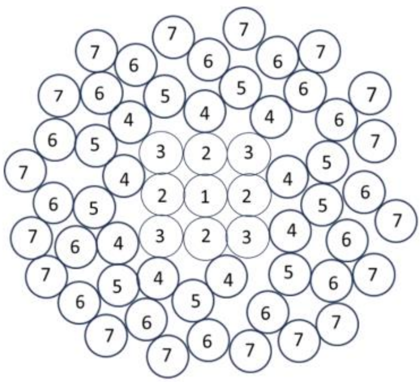


Variations in stacking are possible, as there is spatial freedom between the He-4 sticks, allowing angular rotation at the ends.

Each stick has at least two possible configurations: it can be occupied by a proton (H) or a helium-4 (He-4) nucleus. When a proton occupies a stick, there is the potential for neutron capture or, more commonly, the presence of two protons in opposition. The stick with the helium-4 nucleus is 8 dodecahedrons long, while the proton stick consists of 6 dodecahedrons.

And this continues throughout the entire Periodic Table of Elements.

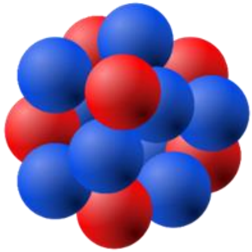
In book 4, I have schematically shown this:



This structure of complex nuclei is flexible, allowing the He-4 to bond while the proton can stably twist in the longitudinal direction.

Additional details should be considered for this configuration; however, a comparison can be made with the models that exemplify the current paradigm.

In the current paradigm, the models are not geometrically defined by a boundary. The assumption is that the complex cores are spherical, regardless of size.



The red dots represent protons, while the blue dots represent neutrons. No established rules exist for pairing protons with neutrons to minimize mutual repulsion.

The spheres are equal in diameter and are generally arranged according to the principles of the closest spherical packing. Various models illustrate this arrangement, including the electron cloud, cluster, and liquid drop models, including the electron cloud, cluster, and liquid drop models, illustrate this arrangement. The spherical shape is assumed that the spherical shape has a radius that approximately adheres to specific guidelines.

Wikipedia on the Atomic nucleus:

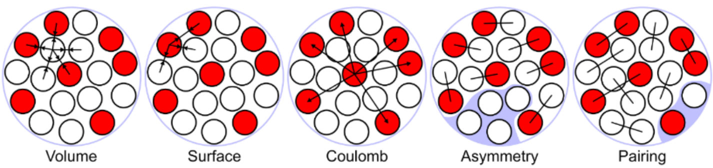
> The stable nucleus has approximately a constant density and therefore the nucleus radius R can be approximated by the following formula:
>
> $$R = r_0 A^{1/3}$$
>
> Where A=Atom mass number (the number of protons Z, plus the number of neutrons N) and=1,25 x 10^{-15} m. In this equation, the “constant” r_0 varies by 0.2 fm. Depending on

the nucleus in question, this is less than 20% change from a constant.

In other words, packing protons and neutrons in the nucleus gives approximately the same total size result as packing hard spheres of a constant size (like marbles) into a tight spherical or almost spherical bag (some stable nuclei are not quite spherical but are known to be prelate).

In the current paradigm, Protons are assumed to possess an isotropic electric charge, which is equal in magnitude but opposite in sign to the charge of an electron.
Since protons in the nucleus repel each other, strong binding forces come into play, ensuring that the distance from the innermost proton to the outer edge of the complex nucleus is fully enclosed.
Also, in the current paradigm, different forces are acting on the protons and neutrons:

Wikipedia on the **Atomic nucleus**:



Volume energy. When an assembly of nucleons of the same size is packed together into the smallest volume, each interior nucleon has a certain number of other nucleons in contact with it. So, this nuclear energy is proportional to the volume.

Surface energy. A nucleon at the surface of a nucleus interacts with fewer other nucleons than one in the interior of the nucleus and hence its binding energy is less. This surface energy term takes that into account and is therefore negative and is proportional to the surface area.

Coulomb energy. The electric repulsion between each pair of protons in a nucleus contributes toward decreasing its binding energy.

Asymmetry energy (also called Pauli Energy). An energy associated with the Pauli exclusion principle. Were it not for the Coulomb energy, the most stable form of nuclear matter would have the same number of neutrons as protons, since unequal numbers of neutrons and protons imply filling higher energy levels for one type of particle, while leaving lower energy levels vacant for the other type.

Pairing energy. An energy which is a correction term that arises from the tendency of proton pairs and neutron pairs to occur. An even number of particles is more stable than an odd number.

All the particles involved are regarded as elementary point particles according to the Standard Model. From the perspective of quantum physics, these particles are thought to create disturbances in the uniformly existing quantum field that fills all of space. In this framework, each particle has its own spatially uniform quantum field available to it.
Despite the widespread use of computers, performing anything other than approximate calculations for core operations is not feasible.
So far, in brief, the representation of the state of thinking and modeling within the current paradigm.
The model of The Dutch Paradigm will be detailed in the following chapters.

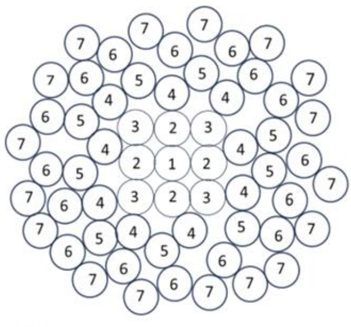
3. DETAILS OF THE CONSTRUCTION OF COMPLEX NUCLEI

It has been discussed that the model for the complex nuclei of the elements in the Periodic Table of the Elements is structured schematically, as shown below.

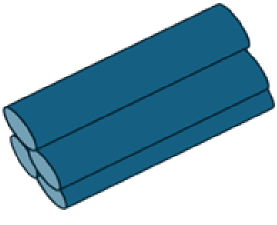
Their period number indicates the spatial arrangement of elements across different periods.

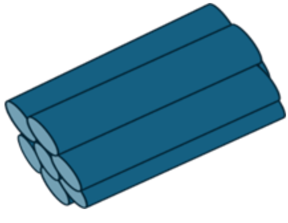
Each circle represents the position of one of two possible elements within a period of the Periodic Table of Elements.

Front view



Examples of side views

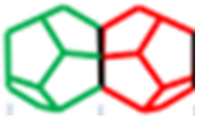




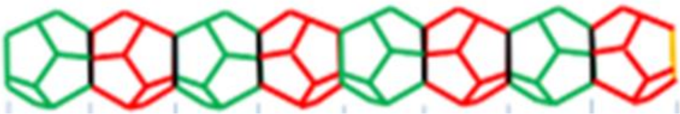
At the center of the front view is the proton of hydrogen, an element in period 1.

The stick along the length of the pack contains alternately at least one proton or one He-4 stick.

- Proton



- He-4 stick



The lengths of these sticks vary. The longest stick symbolizes the stable structure of the helium-4 (He-4) nucleus. When an adjacent stick has only one proton, it decreases the stability of the more complex nucleus.
This stability can be enhanced if an additional neutron occupies a free position aligned with the single proton in that stick.

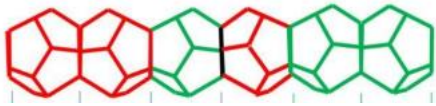
> *Thus, the stability will likely be improved when an additional neutron is captured in a vacant spot. This suggests a tendency to form stable isotopes.*

Each nucleus of an element forms in a specific and unique isolation from its environment. Variations in structure among the different layers can occur due to the distinct formation processes of each complex nucleus. As more particles are bundled or more complex nuclei are created, various structures can emerge within the same element. Although these nuclei have the same number of observable protons, they can vary in stability. Early decay can allow for the potential reorientation and restructuring of these nuclei.

There are several possibilities for expanding a single proton, and two specific isotopes of hydrogen are essential.

- Deuterium

- Tritium



For tritium, there are two variants, one with two neutrons and the other with two extra protons in opposition, the dark matter variant.

> *A proton, not part of the He-4 stick, can accommodate a maximum of three neutrons for each proton position in any element with an odd atomic number.*

This process can be completed to deuterium or tritium with or without an additional neutron.

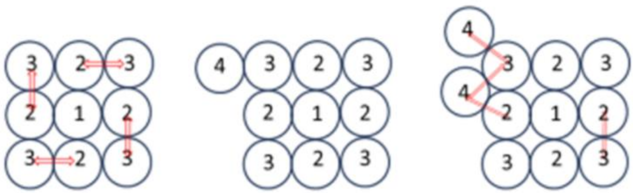
As mentioned, the process of filling and increasing atomic numbers occurs for each nucleus. For the nuclei of heavier elements, this means that the nucleus undergoes a process of capture and/or fusion to add a single proton, which helps to enhance stability.

According to The Dutch Paradigm model, the nucleus develops from the inside out, starting with lighter nuclei and progressing to heavier ones. This means that for a heavier nucleus to achieve lasting stability, it must absorb additional isotopes or neutrons to build up its structure geometrically.

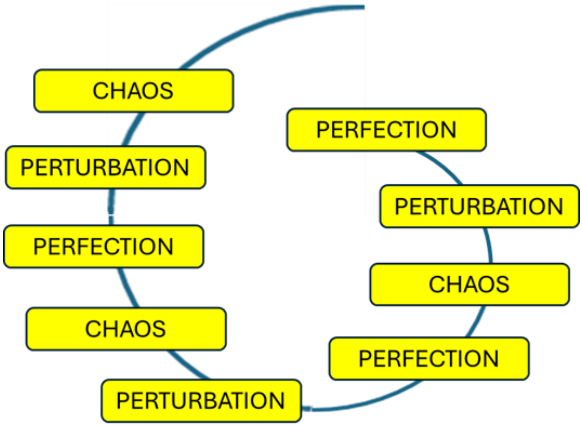
When a nucleus adds a single proton, the atomic number increases by 1. This process occurs at the outer layer of the linear stack. There may still be an incomplete proton extension within the bundle. Since each stick is rotatable and can shift positions diagonally, the unfinished stick can turn to the outside while a new He-4 stick takes its place in the vacant area. The Van der Waals forces between the sticks are so weak that they do not inhibit this rotation.

Neutron capture typically occurs on the exterior of the beam.

Thus, we can expect that the formation of complex nuclei involves several spatial variables. The resulting nuclei may vary in stability, with the most stable persisting

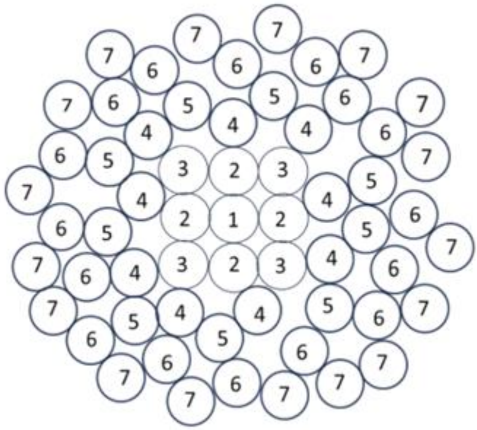


Here again, we find the operation of the cycle as previously discussed



As described, the process of the origin, growth, and stabilization of a complex nucleus is both autonomous and endogenous. A recovery process involving the two resulting nuclei may follow when nuclear fission occurs due to limited stability. Of course, there are boundary conditions to consider, and the situation outlined pertains to a non-atomic constellation. However, the logic of self-construction and recovery is evident.

As previously stated, the conditions for implementing stabilization change as the cores become increasingly complex.



Additional neutrons can be captured, as illustrated here. These neutrons can form a weak bond with helium-4 stick (He-4) through the Van der Waals force. A neutron that is bound in this manner can undergo β-decay, potentially transforming into sodium. However, if there is no external disturbance, the weak Van der Waals bond may break before the neutron undergoes oscillation and β-decay.

Currently, available modeling provides a solid basis for analyzing the experimental results on the formation and decay of isotopes.

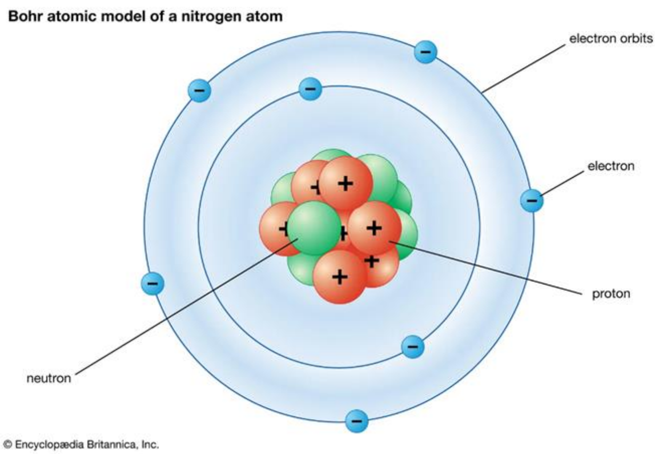
The next step in modeling is to explore how atomic formation adjusts under different conditions. This involves understanding the orbitals in which electrons occupy and the process of electron pairing. The details discussed in this context, as outlined in Book 4, will also be crucial for this analysis.

4. PHENOMENOLOGY OF THE CONSTRUCTION OF THE ELECTRON SHELLS

Until now, we have described the model of The Dutch Paradigm for constructing complex nuclei.

This creates a somewhat unexpected peculiar image of stacked bundles of helium-4, hydrogen, and its ionized form (deuterium, tritium).

Initially, this model does not seem to provide a strong foundation for understanding the spherical atomic structure. Bohr and Rutherford have outlined their ideas as follows.



The modeling of The Dutch Paradigm differs significantly from other approaches regarding the core. The structure and occupation of the electron shells are well-established through geometrical experiments.

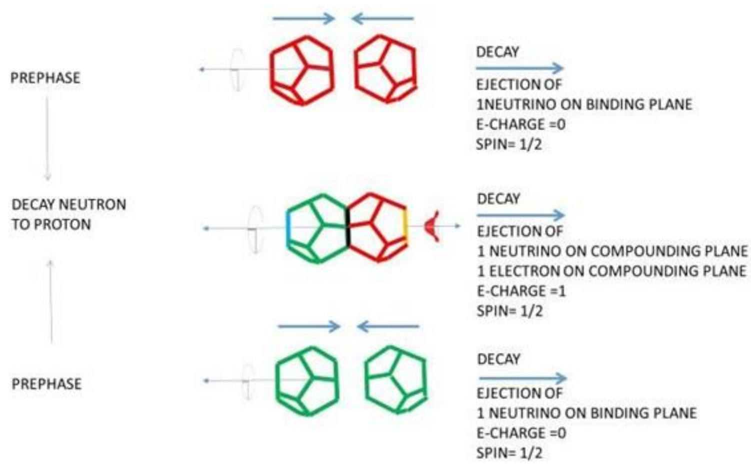
Additionally, various peculiarities in the behavior of electrons in these orbits have been experimentally observed. However, a definitive theory explaining these peculiarities has not yet been established.

By exploring the phenomenology, we can investigate how electrons may arrange themselves around this new model of complex nuclei defined by The Dutch Paradigm.

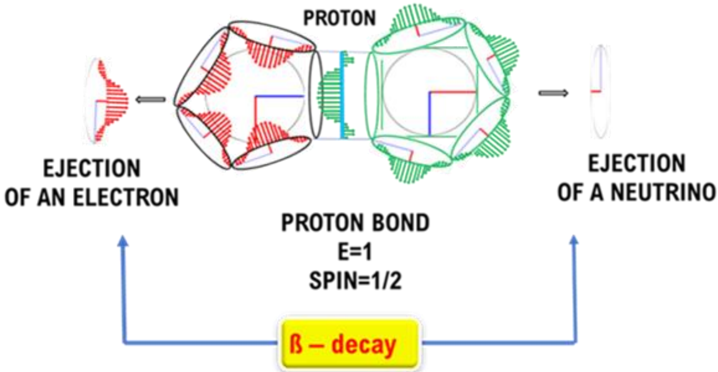
As a test, let's consider a single proton. This proton can combine with an electron to form a hydrogen atom. The electron revolves around the proton in a specific orbital at a certain distance. The radius of this orbital is known, though it can vary slightly.

The question is: how can a proton bind an electron from a distance, or vice versa?

We then revisit the formation of the proton.

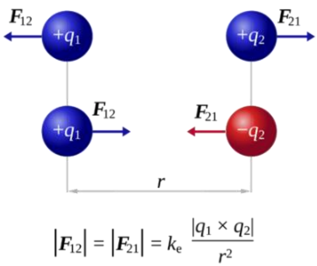


More specifically:



By β-decay, the proton in formation ejects an electron by the Coulomb action from the proton bond.

The Coulomb action proceeds according to the well-known law:



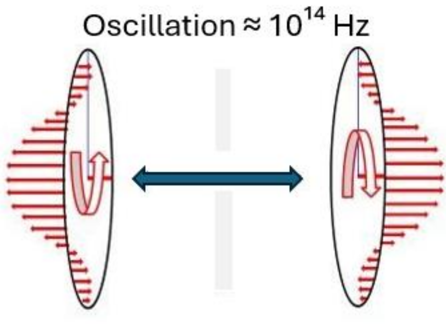
The magnitude of the electrostatic force F between two point charges q1 and q2 is directly proportional to the product of the magnitudes of charges and inversely proportional to the square of the distance between them. Like charges repel each other, and opposite charges attract each other.

The first book of The Dutch Paradigm explains that with the formation of the neutron, it became possible for an atomic structure to be created from the proton. It is important to note that the electron and proton are not permanently bound to each other. Instead, sufficient electrons are released in the immediate vicinity to facilitate atomic formation.

There are two reasons for this:

1. Each proton formed releases one electron
2. Each released electron undergoes the action of spinor unwinding during oscillation

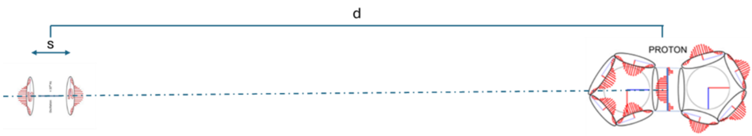
In β-decay, an electron is ejected, resulting in the formation of a proton. The repulsive force between the two charged particles decreases with the square of the distance between them. At the same time, oscillations occur, followed by a spinor effect, mainly when another electron or a bare proton is in close proximity to the ejected electron.



Let's only consider the Coulomb effect without taking other influences into account. We can conclude that there is a specific moment— and therefore a particular distance— when the repulsion of an electron by a proton transforms into an attraction during the spinor process.

> *At a certain distance from the proton, a fixed pattern of repulsion and attraction is established due to the proton bond's influence.*

This attraction and repulsion cause the electron to move in a stabilized motion at the frequency of oscillation s, maintaining an average fixed distance d from the proton.

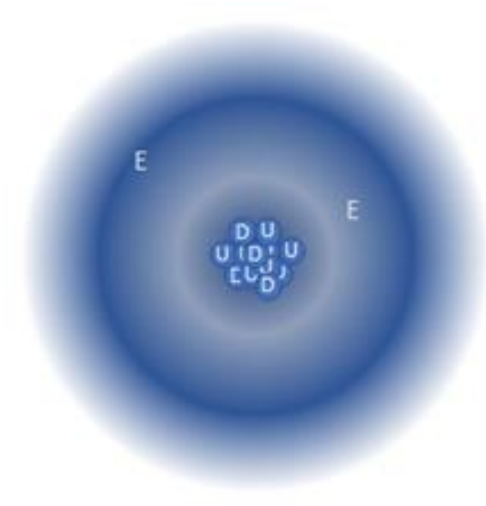


Phenomenologically, this can be described as the transition of the ejected electron from an anisotropic repulsive action to quasi-isotropic behavior.

The distance **d** is large compared to the diameter of the core.

> **Note**: It's important to note that the Bohr atomic model is still primarily rejected because it violates Maxwell's laws. Additionally, the assumption that the electron is a point particle with isotropic electric charge is not accurate. Once we accept the model proposed by the Dutch Paradigm, it becomes clear that while the Bohr model for electron shells has its merits, its correctness is based on different reasons.

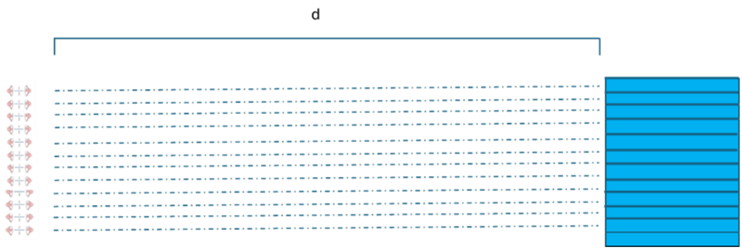
Although a reality check still needs to be performed, we know that the first orbital of the hydrogen atom lies at a distance of approximately 10^{-10} meters from the nucleus. Given a core diameter of 1 femtometer (fm), the scaling factor is 100,000 times larger. I have not yet found literature that provides information about the locations of the other orbitals or shells. Most sources avoid the topic of orbital locations, often stating that the uncertainty in an electron's position, as defined by quantum physics, makes it impossible to pinpoint these locations



Reference is made to the well-known cloud of place uncertainty.

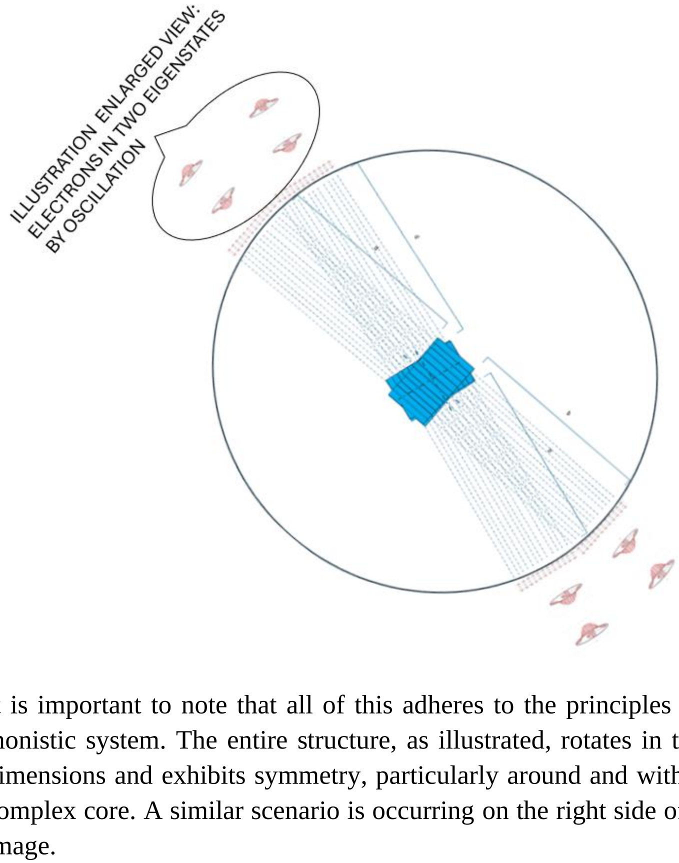
Now that the principle of the fixed position in space of the electron's orbit around the proton is clear, we can also examine the rules for the other orbitals or shells.

This is illustrated in the sketch below, which again shows the orbits as stationary.



On the right side of the illustration, there is a model of a complex nucleus. On the left, we can see the electrons positioned at a distance (**d**) and exhibiting a stroke (**s**). These electrons maintain a fixed pattern of positions relative to the protons, to which they are connected linearly by the Coulomb force.

The entire atomic system rotates around an imaginary center, which is the virtual origin of the electron orbits



It is important to note that all of this adheres to the principles of a monistic system. The entire structure, as illustrated, rotates in three dimensions and exhibits symmetry, particularly around and with the complex core. A similar scenario is occurring on the right side of the image.

Although the scale in the drawings is inaccurate, the underlying principle becomes more apparent with a slight enlargement.

Several conclusions can be drawn from this configuration, highlighting how effectively this model facilitates one-to-one relationships between events inside and outside the atom. Additionally, the difference in the diameters of the shells is minimal, comparable to the dimensions of the complex nucleus.

Niels Bohr provided an equation that can be used to determine these orders of magnitude:

The radius of Bohr's orbit in hydrogen and hydrogen-like species can be calculated using the following formula

$$\text{radius of orbit} = r = \frac{n^2h^2}{4\pi^2me^2} \times \frac{1}{Z} = 0.529 \text{ x } \frac{n^2}{Z} \text{ Å}$$

Where

n = principal quantum number of orbit.
Z = atomic number
m= mass of the electron
h = Planck constant
e = charge on an electron

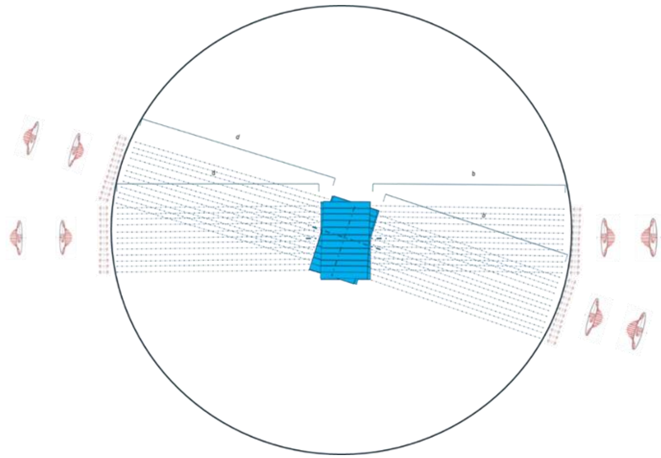
Theoretically, these possible orbits can count up to infinity since there are infinite values of n. However, practically, an infinite number of electrons can’t be present in a single atom since the inter-electronic repulsion (due to the same charge) would far exceed the attraction between the electrons and the nucleus.

In the current understanding, this equation is incorrect because it assumes a repulsion between electrons. This issue is significant as it stems from a long-standing misconception about the electron's electric charge. The Dutch Paradigm clarifies that this phenomenon is anisotropic, indicating that the Bohr equation remains a valuable approximation for understanding the behavior of atomic radii.

5. EMARKABLE FINDINGS IN THE ATOMIC MODEL OF THE DUTCH PARADIGM

According to The Dutch Paradigm, the orbitals' shapes differ distinctly from those proposed in various particle physics models.

The schematic overview is illustrated in the figure below:



This model needs further clarification. Various important points of interest will be briefly discussed.

1. The electrons will be arranged symmetrically on both sides of the sticks.

The electrons have different eigenstates, represented in the usual notation as +½ and -½ spin.

2. Each electron is at a distance oriented along the length of the stick.

Each He-4 stick is paired with two electrons with different spin eigenstates.

3. The electrical behavior of each electron is perpendicular to its rotational movements.

An electron orbits the nucleus in a motion perpendicular to its electrical charge. This means the electron can move freely within its orbital without any external magnetic influence slowing it down or speeding it up. As long as its motion remains perpendicular to the direction of the electrical charge, each electron can travel unimpeded through its orbital in all directions.

4. The electrons in the shells are bound to the stick they are paired with.

This concept also applies to the pairing of the oppositely rotating electrons for He-4 sticks.

5. The electrons do not interfere with each other's movement through their orbitals.

The structure of the complex nucleus geometrically determines the distance between electrons. As a result, the three-dimensional movement of the nucleus is linked to the movements of the electrons in their orbitals, as discussed in chapters 41 and 43 of the first book in The Dutch Paradigm series.

6. External factors can easily influence the electrons in the orbital.

7. Electrons exhibit different frequencies of oscillation based on their spin eigenstates.

This phenomenon was observed in the 1920s by Arnold Sommerfeld and is partly expressed in the fine structure of the spectral lines.

8. The proton in each stick shows anomalous behavior in the proton bond.

In book 4, this is discussed in chapter 24.

9. The hydrogen nucleus, which is essentially a naked proton, holds a unique position in the realm of atomic structures.

A single proton serves as the nucleus of hydrogen, which contradicts the rule that each nucleus should have a size comparable to that of the helium-4 nucleus. Therefore, one could argue that hydrogen cannot be directly assigned a logical position in the Periodic Table.

10. Electrons transfer between different orbits.

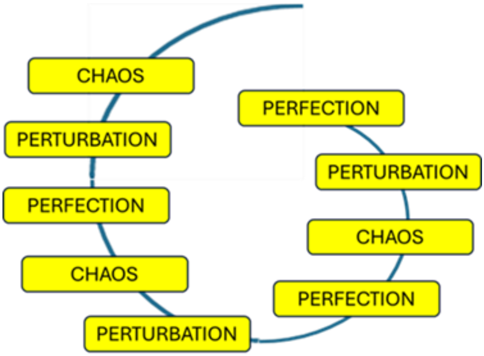
Considering the orbital's position along the tangent, electron exchanges may occur between different orbitals.

11. And so forth.

This list is not exhaustive and can be elaborated or expanded as needed.

6. WHY ELECTRONS DO NOT FORM DARK MATTER, DESPITE POTENTIAL PAIRING OCCURRENCES

The model for atomic formation represents another advancement toward achieving higher levels of perfection.

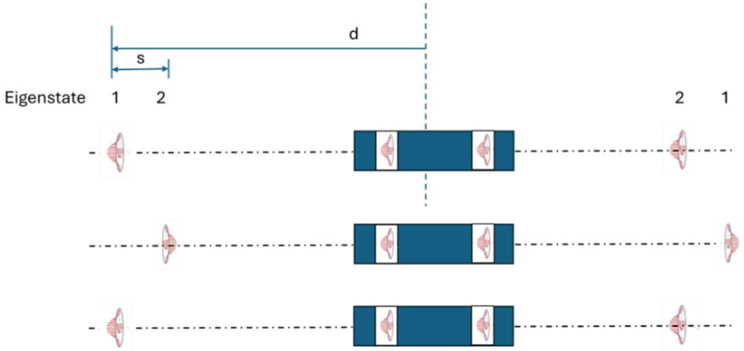


The atomic structure significantly expands the operational range of the nucleus.

The increased geometric range results from the interaction between free electrons and the exogenously active protons in the sticks. In the complex nucleus, these sticks are arranged along the parallel longitudinal axis.

In atomic configuration, each stick contains one or two active protons that interact with the electrons in their shells.

The two electrons will oscillate at a distance d until they can also make a spinor rotation. The Coulomb repulsion is then gradually reduced over a distance s. This situation is shown below:



Electrons will periodically perform a spinor rotation, presenting the proton in the nucleus with two different states: one state corresponding to co-rotation and the other to counter-rotation. Both of these eigenstates are thus alternating exhibited to the active proton. This alternation continues with each subsequent oscillation and spinor rotation, as illustrated in the second and third scenario of the sketch.

An electron in an atomic arrangement adjusts to a repetitive linear motion in its vector direction. The system is monistic in nature, making the course of this repetitive motion predictable.

This repetitive motion depends on the electromagnetic frequency of the electron in question. This frequency varies between the two eigenstates. A co-rotating system exhibits a higher frequency than a counter-rotating system. Thus, the electron alternates between two spinor rotation positions along the axis of linear motion.

Why won't two unbound electrons form a stable dark matter pair?

Two unbound electrons that encounter each other in space cannot form a stable dark matter pair because they lack the necessary frequency synchronization. Unbound electrons exhibit chaotic behavior in absorbing photons. They can freely perform spinor rotations and adjust to potential interactions they encounter. As a result, when two unbound electrons meet, their oscillations quickly fall out of sync at temperatures above absolute zero. Pairing can only occur if their frequencies are tuned to match, similar to what happens in atomic structures. This phenomenon is known as Cooper pairing, and it can only be maintained under specific conditions, like a temperature near **0 Kelvin**.

It is important to note that the two opposing eigenstates of the electrons in an atom are different, which gives rise to fine structure in the spectral lines produced when photons are reflected in the visible spectrum.

In a subsequent chapter, it will be discussed that repetitive linear motion is essential for forming chemical bonds with other atoms.

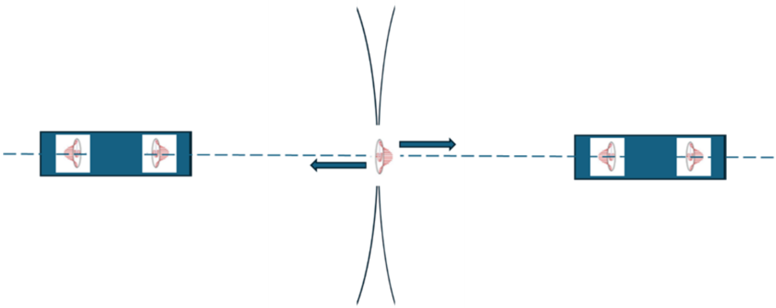
7. THE TRANSFER OF ELECTRONS BETWEEN ATOMS

In the formation of a chemical bond between atoms, the exchange or sharing of electrons is crucial. Every atomic model must account for this process, allowing for a chance-based transfer or sharing of electrons.

With the appropriate caution, it seems that the described model can deliver this outcome.

The concept here is that an electron can be geometrically attracted to two active protons during oscillation, provided that one of the two positions is unoccupied

The drawing below effectively demonstrates this point



At this stage of my analysis, I assume that it is dynamically feasible for the constructs to move at the involved speeds. It seems plausible that the two active protons, due to their differing levels of attraction, pull the electron closer to them accordingly. These variations in attraction exist, and as a result, the electron follows a path that aligns with the dominant force.

Whether this exchange occurs directly or through a medium like water is irrelevant. The fundamental possibility of exchanging an electron does not appear to be accidental.

8. WHAT OPTIONS ARE AVAILABLE FOR PARAMETERIZING THE ATOM MODEL?

The properties and dimensions of elements in atomic configurations can be studied through experimental methods. Data obtained from experiments are useful for practical applications but can be misleading when investigating the fundamental principles underlying a system. These basic principles form the basis of the phenomena exhibited by the system in isolation. They dictate what can be achieved concerning external interactions. Therefore, the fundamental principles can also be derived from the system's observable behavior under varying conditions.

The data obtained through experiments typically enable the testing of theories for falsification.

While this seems like a promising path, I have unfortunately had to adjust my expectations regarding the clarity of the connection between the current Particle Physics curriculum and the fundamental principles related to the constructs being studied.

For atomic formation, I use the Periodic Table of Elements as the central overview of insights gained.

The Periodic Table was developed over decades of meticulous experimental research, which involved stating expectations and measuring results. It reflects the coherence and trends observed in experimental data more than it reveals findings based on the first principles of atomic structure. Aside from their existence as spatial constructs, there is little information about protons and neutrons besides their classical properties of mass, electric charge, and assigned spin numbers. The properties of neutrons and protons are assumed to arise from elementary point particles, as the Standard Model outlines. A similar situation applies to the electron: it has mass, a spin of ½, is considered an elementary point particle, and exhibits electromagnetic behavior. No widely accepted fundamentally different insights have been proposed regarding these particles.

If I want to parameterize the model for more complex nuclei, using the experimentally obtained data from the hydrogen atom as a reference seems logical.

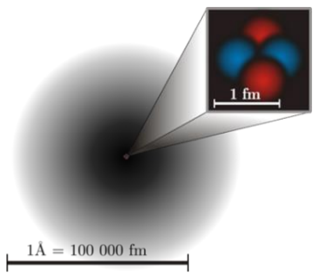
Unfortunately, this results in a bizarre model.

According to our current understanding of chemistry, a hydrogen atom—composed of a single proton in its nucleus and one electron in its orbital—cannot be stable or even exist. When an electron, which is assumed to have an 'isotropic active electric charge,' encounters a proton with an equal but opposite electric charge, this interaction results in a nuclear event. The electron will become part of the nucleus, meaning that the spatial structure we recognize as an atom will not form.

From an ontological perspective, this conclusion is meaningless.

Atoms exist and can be understood as containing a relatively large amount of empty space, with one or more electrons orbiting around the nucleus. To logically explain our observations, we can no longer rely on the simplistic explanations used in the early 20th century to account for the isotropy of electric charge.

The atomic model advocated by particle physics in transfer to other sciences is, at present:



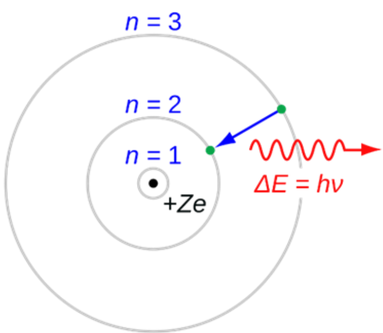
This cannot serve as a reliable basis for accurately measuring an atom. In practice, different methods are employed to determine the diameter of an atom for a given element. Each technique provides insights about the atom, but they do not always yield the same results. I will refrain from going into further detail at this time.

This discussion began early in the last century and remains relevant today. Over time, our understanding of the electron has shifted from viewing it as a point particle to seeing it as a cloud of probability. Jean Fourastié proposed a similar idea, suggesting a boundary that Fourastié forces would need to maintain the coherence of this cloud. However, the Fourastié forces have never been widely acknowledged. Additionally, the cloud model itself lacks clarity.

For practical reasons, the Periodic Table of atomic structure relies on the Bohr model as the least improbable option when necessary. The errors introduced by the isotropically universally acting electric charge are then selectively overlooked.

Because we physically observe atoms, we have to make models that can clarify the first principles of atomic form. If you do that from classical physics, you arrive at the ideas Niels Bohr had in mind.

For Hydrogen, that looked like the following:



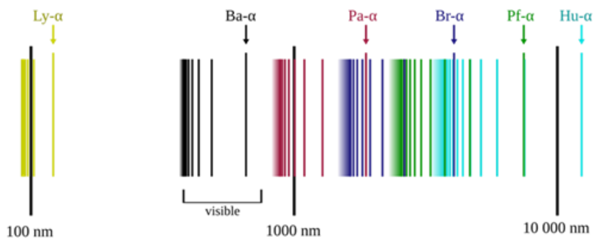
Bohr predicted that electrons at specific energy levels move within spherical bands as they occupy their orbitals. Since the hydrogen atom has only one electron, it provides a clear context in which fundamental principles can be observed. Bohr also indicated the existence of regions between the orbits that are ‘forbidden’ for orbital presence.

It is generally accepted that a single electron can appear spherical to an observer. However, the reasons for an electron's high-speed movement in its orbital remain unknown.

The reason why a single electron moves at high speeds is not yet understood, and it becomes even more complex when considering multiple electrons in a shell or band as they move through their orbitals. In these situations, mutual repulsive Coulomb forces come into play, causing each electron in its orbital to exhibit an erratic motion. This erratic motion involves accelerations and decelerations, which in turn generate magnetic ‘field’ reactions, both endogenous and exogenous.

In the model of The Dutch Paradigm, I, therefore, first assume that a single electron is sufficient to classically show a spherical shape to the observer.

Orbits can be indirectly measured and recognized by spectrometers, including for the hydrogen atom. This illustrates the presence of hydrogen in celestial bodies:



The hydrogen spectrum displayed on a logarithmic scale for wavelength

More varied emission is found than just the emission of photons in the single band of the Hydrogen atom.

This involves the results of measurements by various researchers, namely:

1	Rydberg
2	Balmer
3	Paschen
4	Bracket
5	Pfund
6	Humphrey

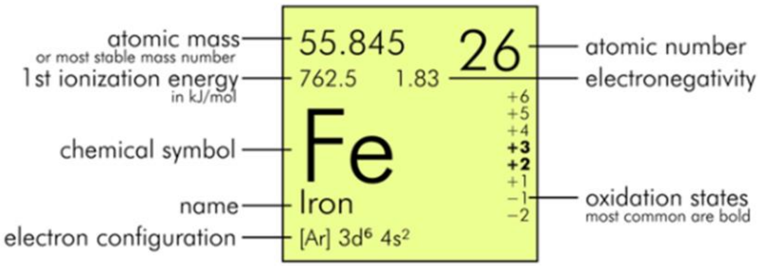
The measurements were not taken in isolation. Furthermore, hydrogen, with its single proton and electron, is an outlier in the Periodic Table. The hydrogen atom appears to be an anomaly within the Periodic Table, and The Dutch Paradigm model also indicates this.

For a study of the first principles, using the element He-4 as a basis seems more obvious. The He-4 atom was first thought to be constructed according to the view of Niels Bohr, the classical atomic model.

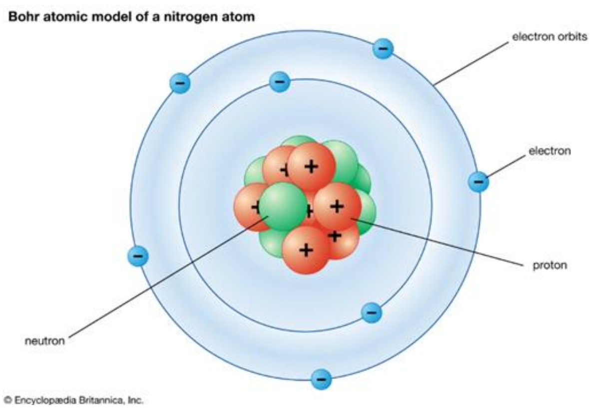
Before discussing the potential of the Dutch Paradigm to support a spherical model of the atom, it is important to highlight the experimental data that must be understood in relation to any atomic model.

9. SPECTROMETRY AS A SOURCE FOR IDENTIFYING ELEMENTS

The nucleus of an element in the Periodic Table is defined by its measurable and assignable properties, for example:



Different orbits are designated for electron configuration based on Niels Bohr's atomic model:



Subshell label	ℓ	Max electrons	Shells containing it	Historical name
s	0	2	Every shell	**s**harp
p	1	6	2nd shell and higher	**p**rincipal
d	2	10	3rd shell and higher	**d**iffuse
f	3	14	4th shell and higher	**f**undamental
g	4	18	5th shell and higher (theoretically)	*(next in alphabet after f)*[24]

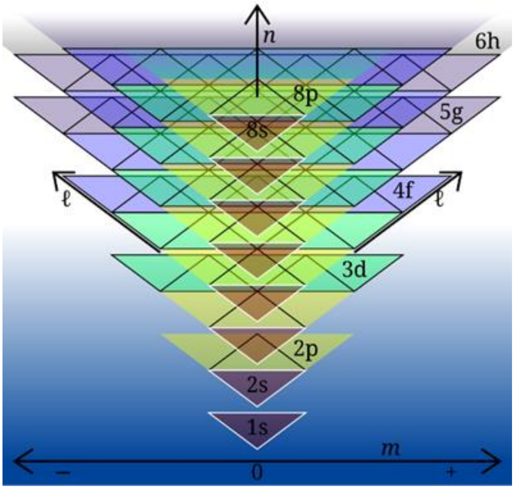
The representations above include additional rules to distinguish the energy levels of shells or subshells.

We can identify several potential sources for the differences in energy levels across the electron shells.

To mention are:

1. An electron is assumed to be an elementary particle with a fixed mass and electric charge. Variations in energy levels can relate to differences in kinetic energy due to fluctuations in speed.
2. The interaction of electrons and protons concerning repulsion and attraction is evident in experiments.
3. Electrons can interact with photons. Emission and absorption of photons modify the combined energy of the electron in a shell.

It is schematically illustrated that the reported values become increasingly approximate as the number of electrons involved increases



Incnis Mrsi

Many variations of the Bohr model have been proposed for heavier elements, but they still need to explain the observed phenomena in a more coherent way.

The Bohr model is, therefore, still the basic idea, specifically for the hydrogen atom.

Wikipedia on the Bohr model:

> The Bohr model of the hydrogen atom (Z = 1) or a hydrogen-like ion (Z > 1), where the negatively charged electron confined to an atomic shell encircles a small, positively charged atomic nucleus and where an electron jumps between orbits, is accompanied by an emitted or absorbed amount of electromagnetic energy (hν).

Researchers have sought a suitable theoretical foundation for decades to explain the phenomena observed in frequency measurements obtained using a spectrometer. While spectrometry provides valuable insights into this topic, it would be overly ambitious to explore the details in depth within the scope of The Dutch Paradigm.

De spectrometry certainly gives essential information on this subject, but it is too ambitious to discuss that in detail for this subject.

My conclusion aligns with the common viewpoint that the Bohr model and its derivatives are valuable for understanding practical applications.

Therefore, the next step is to explore how the model of the Dutch Paradigm can contribute to a theoretical understanding of nuclear reality.

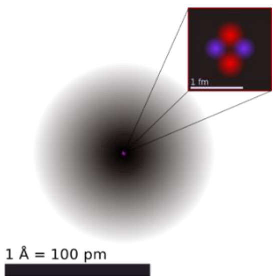
10. PRIMING THE REALITY CHECK: HELIUM

A significant amount of information exists about helium. Helium-4 (He-4) is the second most abundant element in the universe after hydrogen, accounting for up to 24% of the total elemental mass.

For this analysis of the atomic model in The Dutch Paradigm, the description will be referenced as published and updated in the international edition of Wikipedia:
https://en.wikipedia.org/wiki/Helium.

Wikipedia's description is extensive, containing 200 references and many bibliographies. It attempts to discuss the atomic model based on quantum mechanics.

In **Wikipedia**, the cloud model is presented as the atomic model.



The helium atom. Depicted are the nucleus (pink) and the electron cloud distribution (black). The nucleus (upper right) in helium-4 is in reality spherically symmetric and closely resembles the electron cloud, although for more complicated nuclei this is not always the case.

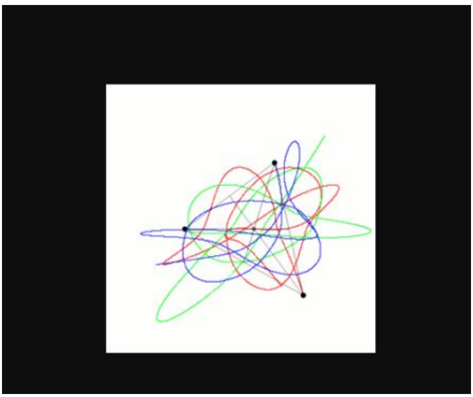
No clear reality check is given in Wikipedia as to why the cloud model solves the problems that falsify the Bohr model.

Wikipedia on Helium atom:

In quantum mechanics

> In the perspective of quantum mechanics, helium is the second simplest atom to model, following the hydrogen atom. Helium is composed of two electrons in atomic orbitals surrounding a nucleus containing two protons and (usually) two neutrons. As in Newtonian mechanics, no system that consists of more than two particles can be solved with an exact analytical mathematical approach (see 3-body problem) and helium is no exception. Thus, numerical mathematical methods are required, even to solve the system of one nucleus and two electrons. Such computational chemistry methods have been used to create a quantum mechanical picture of helium electron binding which is accurate to within < 2% of the correct value, in a few computational steps [88]. Such models show that each electron in helium partly screens the nucleus from the other, so that the effective nuclear charge Zeff, which each electron sees is about 1.69 units, not the 2 charges of a classic "bare" helium nucleus.

This description refers to the Three-Body Problem. https://en.wikipedia.org/wiki/Three-body_problem .



The issue described does not pertain to the model of The Dutch Paradigm. This three-body model considers three-point particles, each with an isotropic charge.

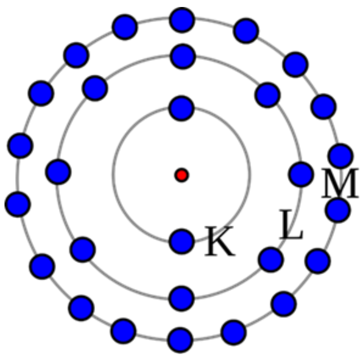
According to a numerical method, when two electrons shield each other from the He-4 nucleus, each electron perceives only 1.69 units of charge from a classical helium atom. Ref. 88:

88. ^ Watkins, Thayer. "The Old Quantum Physics of Niels Bohr and the Spectrum of Helium: A Modified Version of the Bohr Model". San Jose State University. Archived from the original on 2009-05-26. Retrieved 2009-06-24.

This article explores modifications to the Bohr model to compare helium's spectral lines with experimental values. Although these adaptations show promising results, they still face challenges due to the ‘quantum spin values’ of +½ and -½ and the behavior of ‘electric charges.’ Additionally, despite using a numerical approach, the problem of repelling electrons remains unresolved.

These issues arise already with helium, the second simplest atom, and they will become even more complex to understand as we study more intricate atoms.

As an example:



This representation illustrates an ordered situation based on the Bohr model, which shows electrons distributed across three shells. The electrons are neatly arranged in this model, and their orbitals are in motion. However, a quantum physicist, working alongside a mathematician, would conclude that this system is chaotic. It is not merely a 3-body problem but rather a 28-body problem. Furthermore, one must also consider various restrictions, such as forbidden regions between the shells and other influencing factors that come into play.

In summary, the Bohr model aids in understanding practical applications, but validating its theoretical explanation is nearly impossible.

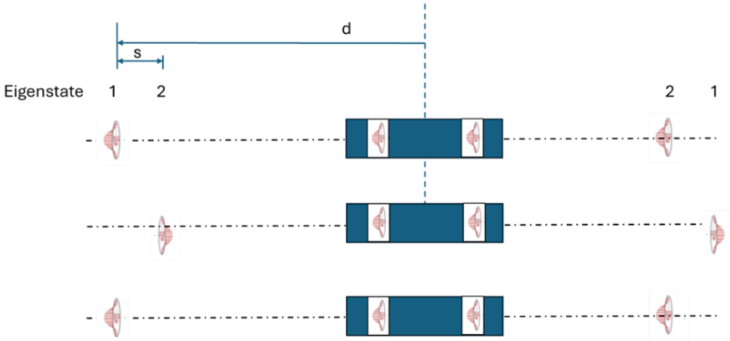
> *The model of The Dutch Paradigm addresses the significant issues associated with the Bohr model.*

In this proposed model, each electron acts as a construct that exhibits anisotropic electric charge phenomena, characterized by a periodic spinor that unwinds during the electron's rotation. Each electron in a shell has a fixed point that anchors its vector, as well as the vectors of the helium-4 (He-4) sticks. This configuration prevents one electron from shielding another. The electrons are arranged in a fixed pattern that aligns with the structure of the bundle of sticks that collectively form the nucleus, ensuring parallelism. Additionally, the previously mentioned internal mobility of the nucleus—referring to the rearrangement of the sticks due to various factors—does not impact this arrangement.

> *The factor of 1.69 units of charge, which is currently attributed to shielding, clearly requires a thorough explanation*.

To fully understand this observation, exploring alternative interpretations of the Bohr model is essential.

The He-4 model is described within The Dutch Paradigm as a linear representation of a He-4 nucleus, which became atomic by having two opposite electrons that oscillate and exhibit two distinct eigenstates relative to the nucleus.



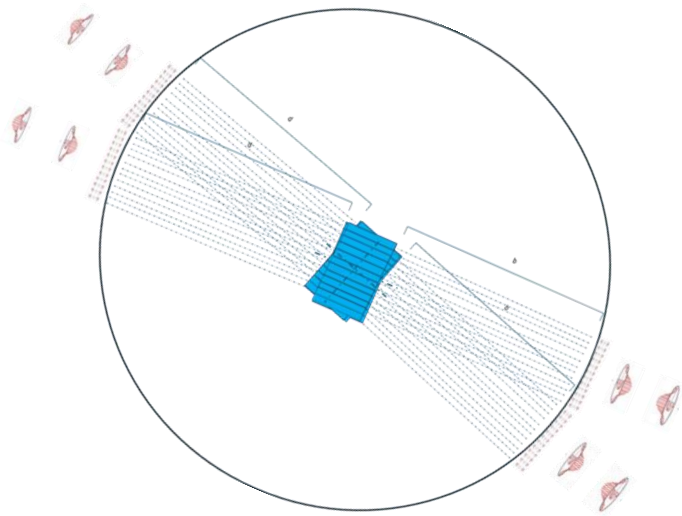
The factor of 1.69 units of ‘charge’ is likely due to differences in the oscillation frequencies of electrons between the two eigenstates. From the perspective of the Dutch Paradigm, this difference can be attributed to the rotation of the gamma photon and gamma neutrino, which are in equal or opposite rotational modes. In a spherical model, this would result in kinetic energy variations, impacting the orbit's orbital speed and radius. This kinetic energy can be the equalizer for the differences in gamma frequency between the constituent photon and neutrino.

It is important to note that the Dutch Paradigm currently is assumed to operate under a linear model instead of a spherical one.

The currently accepted scientific model indicates that the electron's counterpart is the anti-electron, or positron, which has a different quantum spin. In the current understanding, phenomena such as oscillation, spinor behavior, and variable electric charge remain unknown.

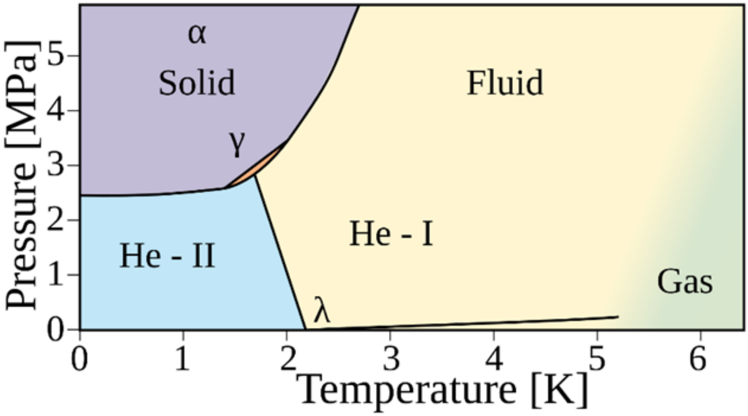
However, this new model must accommodate the spherical arrangement of electrons around the nucleus. It must align with our observable reality, thus accounting for this behavior.

In an illustration:



Hence, a logical explanation is needed to clarify why electrons exhibit orbital speed and behavior.

To arrive at the logical explanation, we must understand the unique phenomenon that occurs with helium-4 (He-4) as it approaches absolute zero. We must analyze a phase diagram constructed at temperatures near 0 Kelvin, illustrating two distinct forms of He-4.



The liquid phase of helium is unique and quite surprising.

Wikipedia:

Liquid phase

Main article: **Liquid helium**

Helium liquefies when cooled below 4.2 K at atmospheric pressure. Unlike any other element, however, helium remains liquid down to a temperature of absolute zero. This is a direct effect of quantum mechanics: specifically, the zero point energy of the system is too high to allow freezing. Pressures above about 25 atmospheres are required to freeze it. There are two liquid phases: Helium I is a conventional liquid, and Helium II, which occurs at a lower temperature, is a superfluid.

Helium I

Below its boiling point of 4.22 K (−268.93 °C; −452.07 °F) and above the lambda point of 2.1768 K (−270.9732 °C;

−455.7518 °F), the isotope helium-4 exists in a normal colorless liquid state, called helium I. Like other cryogenic liquids, helium I boils when it is heated and contracts when its temperature is lowered. Below the lambda point, however, helium does not boil, and it expands as the temperature is lowered further.

Helium I has a gas-like index of refraction of 1.026 which makes its surface so hard to see that floats of Styrofoam are often used to show where the surface is. This colorless liquid has a very low viscosity and a density of 0.145–0.125 g/mL (between about 0 and 4 K),[95] which is only one-fourth the value expected from classical physics. Quantum mechanics is needed to explain this property and thus both states of liquid helium (helium I and helium II) are called quantum fluids, meaning they display atomic properties on a macroscopic scale. This may be an effect of its boiling point being so close to absolute zero, preventing random molecular motion (thermal energy) from masking the atomic properties.

Helium II

Main article: **Superfluid helium-4**

Liquid helium below its lambda point (called helium II) exhibits very unusual characteristics. Due to its high thermal conductivity, when it boils, it does not bubble but rather evaporates directly from its surface. Helium-3 also has a superfluid phase, but only at much lower temperatures; as a result, less is known about the properties of the isotope.

A cross-sectional drawing showing one vessel inside another. There is a liquid in the outer vessel, and it tends to flow into the inner vessel over its walls.

Unlike ordinary liquids, helium II will creep along surfaces in order to reach an equal level; after a short while, the levels in the two containers will equalize. The Rollin film also covers the interior of the larger container; if it were not sealed, the helium II would creep out and escape.

Helium II is a superfluid, a quantum mechanical state of matter with strange properties. For example, when it flows through capillaries as thin as 10 to 100 nm it has no measurable viscosity. However, when measurements were done between two moving discs, a viscosity comparable to that of gaseous helium was observed. Existing theory explains this using the two-fluid model for helium II. In this model, liquid helium below the lambda point is viewed as containing a proportion of helium atoms in a ground state, which are superfluid and flow with exactly zero viscosity, and a proportion of helium atoms in an excited state, which behave more like an ordinary fluid.

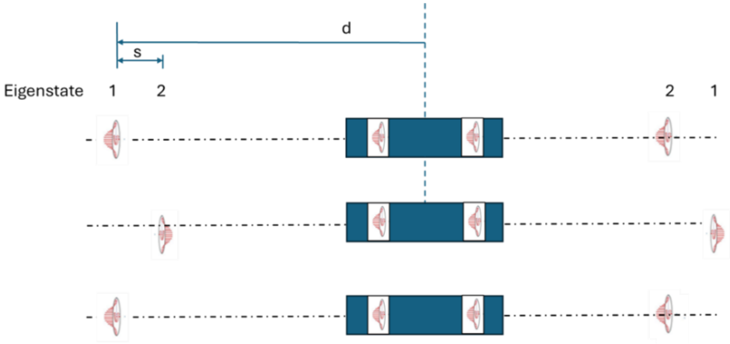
In the fountain effect, a chamber is constructed which is connected to a reservoir of helium II by a sintered disc through which superfluid helium leaks easily but through which non-superfluid helium cannot pass. If the interior of the container is heated, the superfluid helium changes to non-superfluid helium. In order to maintain the equilibrium fraction of superfluid helium, superfluid helium leaks through and increases the pressure, causing liquid to fountain out of the container.

The thermal conductivity of helium II is greater than that of any other known substance, a million times that of helium I and several hundred times that of copper. This is because heat conduction occurs by an exceptional quantum mechanism. Most materials that conduct heat well have a valence band of free electrons which serve to transfer the heat. Helium II has

> no such valence band but nevertheless conducts heat well. The flow of heat is governed by equations that are similar to the wave equation used to characterize sound propagation in air. When heat is introduced, it moves at 20 meters per second at 1.8 K through helium II as waves in a phenomenon known as second sound.
>
> Helium II also exhibits a creeping effect. When a surface extends past the level of helium II, the helium II moves along the surface, against the force of gravity. Helium II will escape from a vessel that is not sealed by creeping along the sides until it reaches a warmer region where it evaporates. It moves in a 30 nm-thick film regardless of surface material. This film is called a Rollin film and is named after the man who first characterized this trait, Bernard V. Rollin. As a result of this creeping behavior and helium II's ability to leak rapidly through tiny openings, it is very difficult to confine. Unless the container is carefully constructed, the helium II will creep along the surfaces and through valves until it reaches somewhere warmer, where it will evaporate. Waves propagating across a Rollin film are governed by the same equation as gravity waves in shallow water, but rather than gravity, the restoring force is the van der Waals force.These waves are known as third sound.

In the following chapters, observations and properties will be logically derived from the characteristics of the new atomic model presented by The Dutch Paradigm.

This model aligns with a configuration suggested by scientists who interpret in terms of quantum mechanics and assume the lowest energy state of the atom at nearly 0º K.



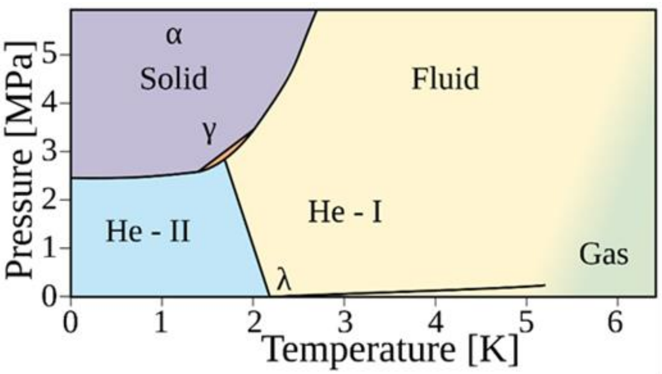
The characteristic dimensions are significantly smaller than the diameter of spherical helium-4 atoms, and no disturbances are anticipated in the isotropic nature of the current assumption regarding the isotropic electric charges of protons and electrons.

In a vertical context, Van der Waals forces can act perpendicular to the lines of attraction or repulsion. These forces are analogous to those discussed among multiple sticks in complex nuclei.

It is possible that this linear model represents the basic atomic model, while the spherical atomic model is a derivative based on this fundamental model. The subsequent chapter will explore this idea.

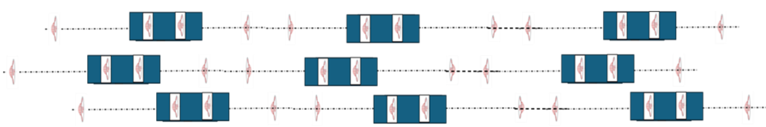
11. PRIMAL FORM OF HELIUM

In the previous chapter, we discussed a phase diagram of helium (He-4), which is close to absolute zero Kelvin.

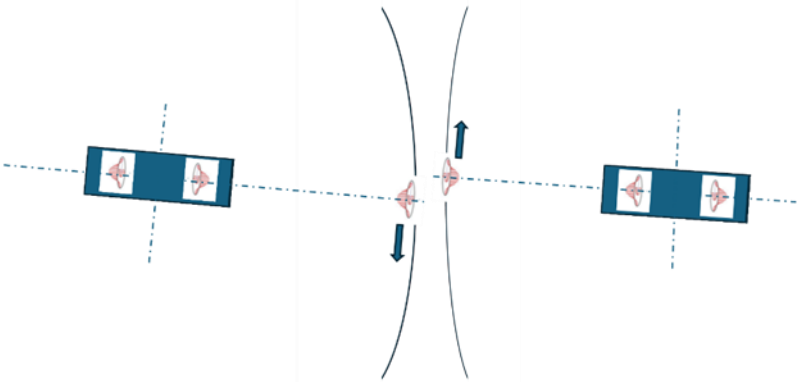


In this diagram, we discuss Helium I and Helium II. This illustration raises numerous questions, many of which remain unanswered—or at least lack widely accepted answers—within the current paradigm. Additionally, these answers do not have a solid ontological foundation.

If you then put the two manifestations side by side, then I have expressed the suspicion that Helium II is the version with the serial arrangement of the He-4 sticks and the electrons



At temperatures slightly higher above absolute zero, we observe that the geometric configuration of the spherical shape of the atom is adopted. This is identifiable in the phase diagram as Helium I,



The spherical shape of a helium atom appears to be unstable at almost absolute zero, causing it to adopt a linear configuration.

From another perspective, it can be argued that at temperatures just above absolute zero, the linear arrangement of electrons becomes unsustainable. At this point, photons can apparently interfere chaotically with the electrons' linear configuration, leading to a random increase in temperature. This phenomenon is comparable to Cooper pairing, but here it involves the electrons in their shells and a limited degree of attraction to the nucleus.

> ***Note**: This will raise questions about the evidence for Cooper pairing in the BCS (Bardeen, Cooper, and Schrieffer) theory.*

This phenomenon indicates that there are conditions for a meta-stable equilibrium to allow for the linear arrangement. This will be discussed in a subsequent chapter.

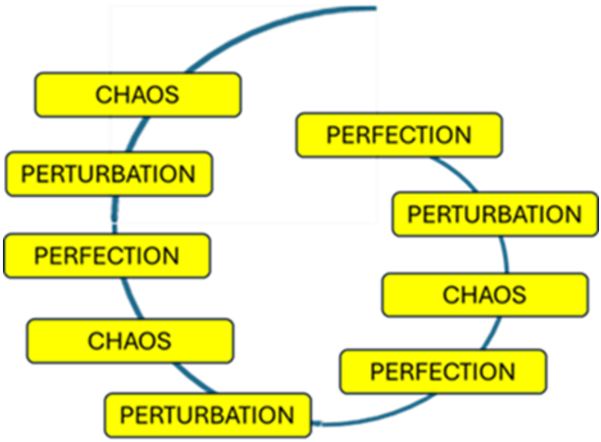
The illustration above shows that when two electrons from different atoms repel each other, this imbalance of forces generates a torque that causes both atoms to rotate. This rotation affects not only the electrons but also the nuclei of the atoms. The torque generated influences the electric vector of the proton bond, contributing to this rotation. The inertia of the ‘mass’ is centered around the nucleus. As a result, the excited electron begins to orbit the nucleus in coordination with its rotation and the mass inertia of the nucleus, which determines the direction of movement. This scenario serves as an example of angular momentum in action.

There are no significant electromagnetic reactions acting on the excited electron, as its vector is perpendicular to the direction of rotation. This new configuration results in a spherical shape, which is stable because it does not receive a primary electromagnetic balancing control from either of the two sources for forces involved: the gamma photon or the gamma neutrino associated with the electron in question. Therefore, once at speed in their orbitals, the electrons continue unimpeded on their path through space and will not decelerate to an ultimate standstill.

It can be argued that this spherical manifestation of the electrons in electron shells represents the optimal conditions for the energy-balanced and sustained shielding of the nucleus.

> *It appears that the spherical shape of the atom results from external interference.*

Once again, a step can be noted in the path to further perfection. The spherical shape effectively shields the core and enhances the possibilities for interaction with the environment.

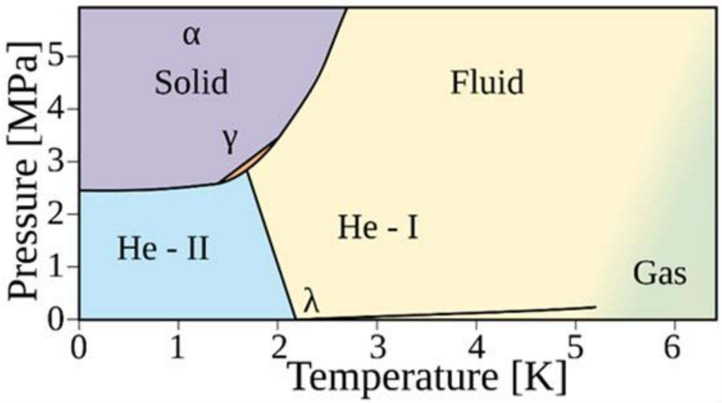


Helium-II is a fundamental form of Helium that facilitates chaos through external interference, followed by the perfect shielding of the Helium nucleus. This process will enable atomic shielding for the subsequent elements in the Periodic Table.

12. THE ‘UNIQUE’ PROPERTIES OF He-4 AT ABSOLUTE ZERO.

He-4 II exhibits superfluidity at an extremely low temperature.

The phase diagram of helium-4 up to 6 K is indicated in Fig.1.



Wikipedia on superfluidity:

> **Superfluidity**
>
> Superfluidity is the characteristic property of a fluid with zero viscosity which therefore flows without any loss of kinetic energy. When stirred, a superfluid forms vortices that continue to rotate indefinitely. Superfluidity occurs in two isotopes of helium (helium-3 and helium-4) when they are liquefied by cooling to cryogenic temperatures. It is also a property of various other exotic states of matter theorized to exist in astrophysics, high-energy physics, and theories of quantum gravity.[1] The theory of superfluidity was

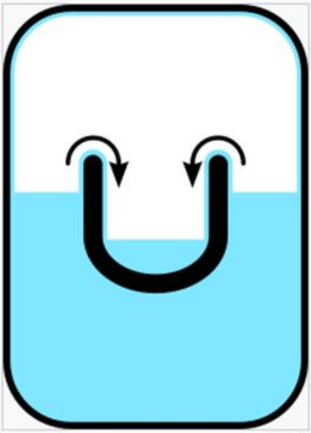
developed by Soviet theoretical physicists Lev Landau and Isaak Khalatnikov.

Pyotr Kapitsa[2] and John F. Allen and Don Misener[3] independently discovered superfluidity in helium-4 in 1937. Onnes possibly observed the superfluid phase transition on August 2, 1911, the same day that he observed superconductivity in mercury.[4] It has since been described through phenomenology and microscopic theories.

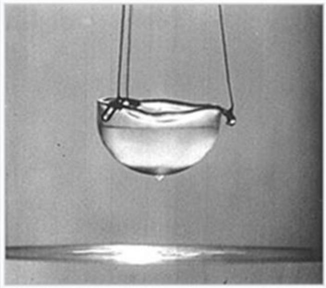
The phenomenon of superfluidity has been recognized for many years, and there is an old video documenting this on the internet: https://www.youtube.com/watch?v=2Z6UJbwxBZI. Helium-4 (He-4), when cooled to a temperature below 2.7 K, can flow through solid materials as a superfluid. See Fig. 2.

The 1996 Nobel Prize in Physics was awarded to David Lee and Robert Richardson for their discovery of the unusual liquid state related to the helium-3 isotope.

Nearly 90 years after its discovery, superfluidity is now a standard topic in university curricula, as Dr. Matt O'Dowd of SpaceTime illustrates: https://www.youtube.com/watch?v=Ia2GwIpEdk4. A quantum physics explanation for this phenomenon has been developed and is widely accepted among physicists



Helium II will "creep" along surfaces in order to find its own level—after a short while, the levels in the two containers will equalize. The Rollin film also covers the interior of the larger container; if it were not sealed, the helium II would creep out and escape.

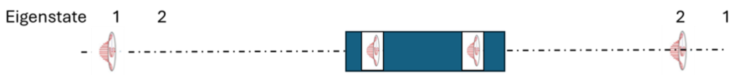


The liquid helium is in the superfluid phase. A thin invisible film creeps up the inside wall of the bowl and down on the outside. A drop forms. It will fall off into the liquid helium below. This will repeat until the cup is empty—provided the liquid remains superfluid.

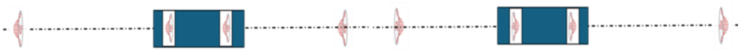
Fig. 2

This phenomenon is clearly evident through direct sensory perception. I provide a distinct explanation based on the Dutch Paradigm model and briefly discuss it in the previous chapter.

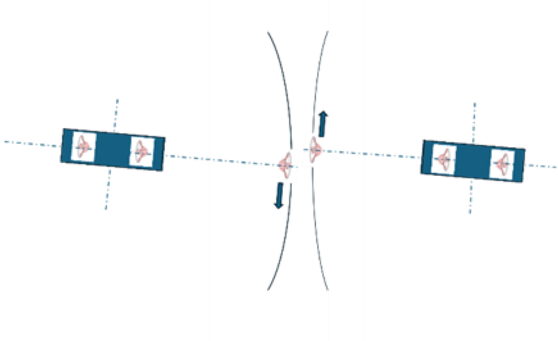
The conditions for superfluidity are met at absolute zero, as external factors that could create energy differences between two He-4 atoms are nearly nonexistent. This is demonstrated in Fig. 3



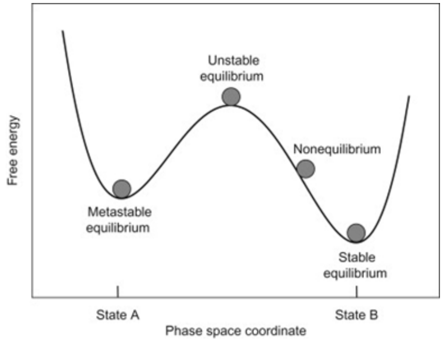
At this temperature, two helium-4 (He-4) atoms can approach each other with their elongated shapes aligned oppositely. Each end of the atoms is associated with an electron that occupies one of two possible eigenstates. As a result, the two electrons create an alternating pattern of attraction and repulsion concerning their respective nuclei and the electrons of the neighboring He-4 nucleus, all along the same longitudinal axis.



When external influences disrupt this balance along the same axis, a repulsion occurs, causing the two sticks to rotate due to the induced torque as shown in Fig. 5.



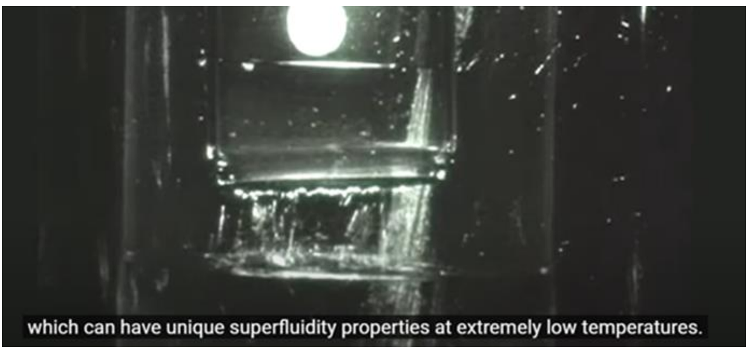
The parallel arrangement of the atoms, represented as sticks, is not unstable but rather metastable due to the acentric positioning of electrical activity present in every electron, including those involved in proton bonding. For an illustration of these stability concepts, refer to Fig. 6.



In our daily lives, we observe that atoms maintain a stable spherical form. The emergence of phenomena such as superfluidity and superconductivity is surprising because these behaviors occur only at extremely low temperatures and may seem very unusual at first glance.

At a temperature of 2.7 K, there exists a threshold for transitioning from a stable equilibrium in the spherical form to a metastable state that enables superfluidity.

This strange behavior can be demonstrated with a glass cup. Filled with He-I, the glass cup contains the fluid as a regular liquid, but at temperatures below 2,7 K, the liquid becomes superfluid and can drip through the bottom. See Fig. 7.



It all seems odd.

However, the insights provided by The Dutch Paradigm suggest that we need to rethink and reassess our understanding of this phenomenon.

> *In terms of the new model of The Dutch Paradigm, He-4 in condition I is a spherical atomic, and He-4 in condition II is in the stick format as in Fig. 5.*

This phenomenon is not limited to superfluidity and will be discussed from a broader perspective in the next chapters.

The primordial state of helium-4 (He-4) is characterized by a configuration resembling aligned sticks. This alignment becomes unstable when subjected to external interference, leading to a transition into a stable state. In this stable state, the electrons in the He-4 atom begin to orbit around the atom's center of mass. Once this spherical state is established, it is preserved within the atom, even under conditions where it is stripped of its surrounding environment. To return to its primordial state, the spherical atom must be cooled down again.

The conclusion can also be drawn from this reasoning that helium-4 (He-4) can exist in space as an atomic sphere, but it may also appear in a linear form, like a stick. In space, a temperature of approximately 3 K prevails in the shadow regions. When energy is extracted from the atom through photon emission, it can eventually return to its primordial shape.

The environmental conditions on Earth induce He-4 to take and preserve the spherical shape.

13. THE STABILITY OF AN ATOM’S SPHERICAL SHAPE

In the previous chapter, it was concluded that the geometric model of the atom is not unique or stable in form; instead, it will be dynamically reshaped relative to endogenous and exogenous influences.

He-4 sticks can be connected in series along the longitudinal direction at temperatures close to absolute zero, as shown in Fig 1.

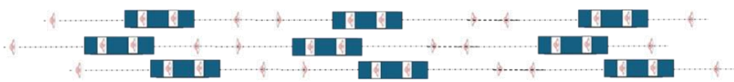


Fig. 1

The He4 sticks are separated vertically by weak Van der Waals forces and do not touch each other. When moving along the horizontal axis, there is no friction or viscosity.

The new model, depicted in Fig. 1, illustrates a shape that likely represents the primordial form of the atom.

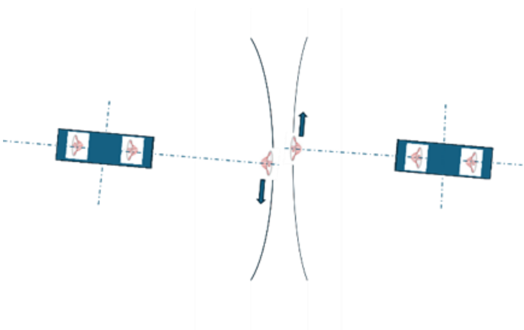


Fig. 2

The spherical shape depicted in Fig. 2 can arise from external interference with another atom, irrespective of that atom's shape. Scientists often value the aesthetic quality of symmetry, which is why the spherical shape of atoms is intuitively accepted as fundamental.

Intuition can be helpful but may also limit openness to considering other perspectives.

From the perspective of The Dutch Paradigm, it is understood that a linear arrangement of two electrons can evolve into a spherical form. This transformation occurs because the electrons tend to repel each other as they come closer together. However, when the two electrons are almost aligned along the longitudinal axis, they enter a region that achieves a metastable equilibrium, promoting attraction between them.

This phenomenon was addressed in the first book of The Dutch Paradigm as a specific trait of the electron formed through the interference of a gamma photon and a gamma neutrino.

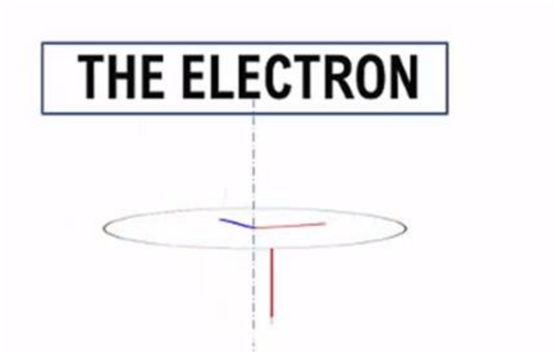


Fig. 3

The gamma photon actuates its electrical component in a circular path outside the center of the gamma neutrino, while the magnetic components of the gamma photon and gamma neutrino interfere. This is visually represented in the sketch of the electron, Fig. 3.

> *This property of the electron can be observed in many instances where two electrons interact with each other.*

The transition from the superfluid state of helium-4 to the formation of a spherical shielding around the nucleus represents only a complex 3D spatial rotation of the atom that ultimately suggests a spherical form of that atom when motion capturing is at a relatively low framerate.

> *This is evident for the atoms of other elements and forms the basis for the optical illusion combined with the tactile reality that humans perceive.*

The tactile nature of optical illusions is perceived not only by human touch but also by all atoms that can interact with one another. This interaction serves as the foundation for creating molecules and various types of bonds between atoms, including thermal and chemical bonds.

Therefore, when I investigate a parameterization of the new atomic model,

> *it becomes evident that the atom is formed phenomenologically and dynamically as a stable structure resembling a stick.*

This structure, as a stick, maintains its integrity despite subsequent interferences. The optical transformation of the stick into a spherical 3D representation aligns with the human perception of shapes and images as tangible illusions.

This outcome was anticipated because the fundamental components of the electron—the gamma photon and the gamma neutrino—move at high frequencies and close to the speed of light. Our understanding of the atom is built upon the compounding and synthesizing of our observations, which enables us to construct a mental image and model of it.

To determine the diameter of a sphere of, in this case, a single proton, we must consider two diameters:

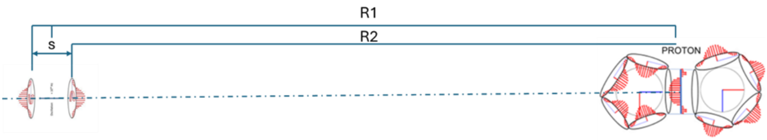


Fig. 4

1. The first diameter is primarily determined by the distance R1, which measures the farthest position occupied by the electron during its oscillation relative to the center of gravity of rotation of the single proton

2. The second diameter is mainly defined by the distance R2, representing the closest position occupied by the electron at the time of oscillation to the center of gravity of rotation of the single proton

For practical purposes, we consider the atom to have a spherical shape, assuming that this shape is the result of one or more external influences. This raises an important question: what influences should we consider, and which ones should be included in my further analysis?

The maximum diameter of a spherical object typically defines the volume that the atom can dynamically enclose. However, this measurement is influenced by environmental conditions such as pressure and temperature. These two factors—pressure and temperature—represent external influences. We need to exclude these environmental effects to accurately describe an atom’s dimensions in a vacuum.

Spectroscopy provides insight into the oscillation pattern of each element's atoms, as illustrated in the Periodic Table of Elements.

For He-4

Fig. 5

This pattern of oscillation is reflected in the spectral pattern in Fig. 6

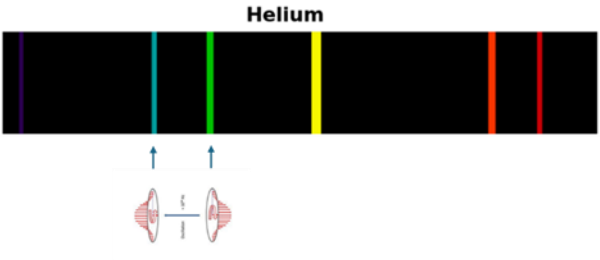


Fig. 6

The two electrons of He-4 oscillate between indicated positions in the sketch above. The oscillation frequencies are slightly different. Compared with the current paradigm, one electron has left-handed chirality, and the other is a so-called positron and right-handed

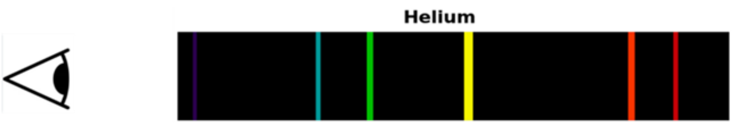


Fig. 7

The spectral lines only indicate the frequencies; they do not reflect a spatial position for each electron.

In fact, the spectral lines compound over multiple observations, providing snapshots in time of the He-4 stick as it emits photons within its oscillations cycles

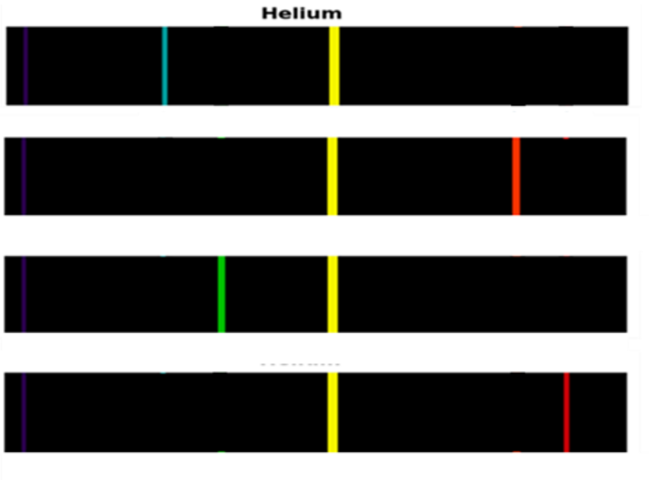


Fig. 8

When an electron emits a photon during oscillation, we can observe the atom because it can absorb and subsequently emit a photon at the same alternating oscillation frequency. This process results in a precise reflection, allowing us to place that reflection within the electromagnetic spectrum as a color experience. After all, each frequency in the visible spectrum corresponds to a specific color perception.

We can identify patterns using spectrometry, but obtaining a clear picture for mathematical interpretation is challenging. Observations are not straightforward, and environmental noise can interfere. However, we can still achieve a good approximation through iterative methods.

This phenomenon can also be observed in the hydrogen atom, which contains just one electron in an orbital space, and this can be compared with He-4, Fig. 9.

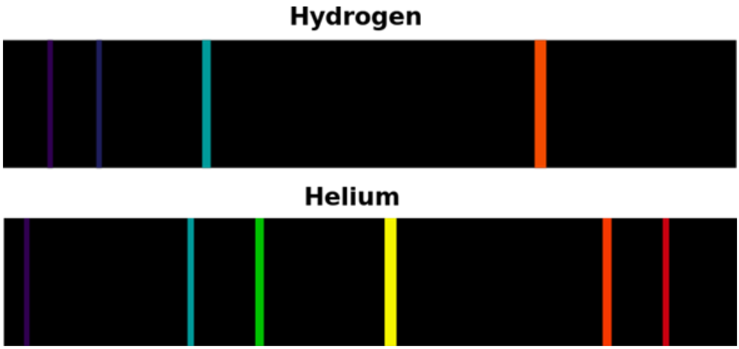


Fig. 9

The absorption and emission of photons occur at the same frequency as the oscillation of the corresponding electron.

Only those photons can be reflected with razor-sharp clarity.

The new model can directly explain this behavior and the specific frequencies of the oscillations.

A wealth of information will be available for analyzing the data from the atom model of The Dutch Paradigm.

14. SPECTRAL LINES FOR PARAMETRIZATION

In the previous chapter, H and He-4 were discussed regarding their spectral line fingerprints. This document utilizes spectral lines to analyze the photon emission patterns of more complex nuclei.

When comparing the spectral lines of hydrogen and helium, as shown in Fig. 1,

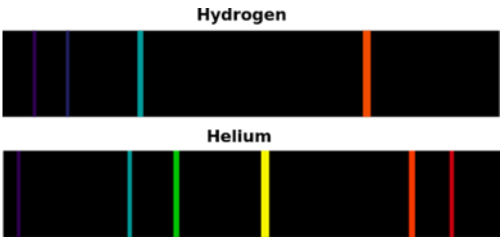


Fig. 1

we observe that hydrogen, having a single electron, produces two distinct frequencies corresponding to the electron's oscillations. These oscillations occur within the bandwidth of visible light.

A helium atom contains two electrons outside the nucleus, resulting in four spectral lines due to the oscillations associated with absorption and emission. It is also important to note that additional lines from fine-structure splitting accompany each spectral line, although that is not the main focus of the discussion in this chapter. As far as I understand, the yellow spectral line arises from the characteristics of the light source used for irradiation.

The oscillation frequencies in helium differ from those observed in hydrogen's spectral image. In hydrogen, the interaction with the single electron is determined by the bond with a single proton. In contrast, helium consists of the He-4 isotope, which contains two protons. The behavior of these proton bonds varies depending on their chirality—

whether they are left-handed or right-handed—as well as the configuration of the electrons, which are aligned but opposite to one another.

As we progress through the Periodic Table of Elements, each additional proton bonding with a paired electron contributes two spectral lines.

An examination of lithium, containing 1 He-4 atom and 1 H atom, reveals 6 spectral lines, as shown in Fig. 2. In contrast, beryllium, which has 2 He-4 atoms, is expected to exhibit 8 lines but displays 12 spectral lines, as illustrated in Fig. 2.

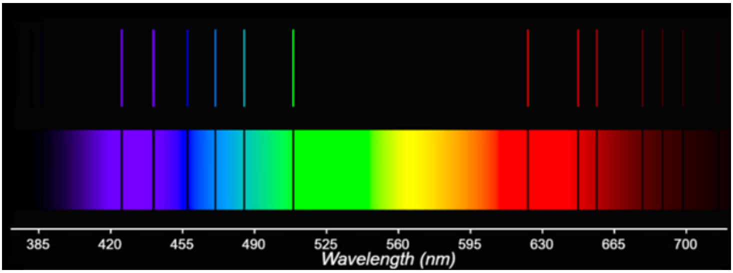


Fig. 2

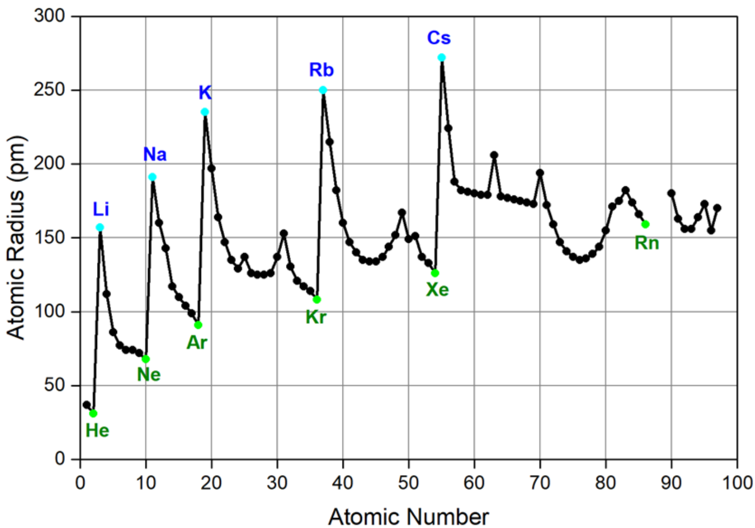
In simplified terms, it can be understood that the two He-4 sticks have two possible orientations, resulting in a display of 8 + 4 spectral lines. This suggests that the spectral lines represent a combination of two types of beryllium atoms. Indeed, these two orientations are viable within the framework of the Dutch paradigm.

Spectrometry can also be used to analyze molecules made up of various elements. These measurements can be taken with high accuracy and consistency, provided that the environmental conditions remain stable and similar to those found on Earth. This indicates that there is a cohesive and predictable progression over time in highly dynamic yet non-random processes, all based and within interferences of the monistic electromagnetic systems involved.

In the new model, many parameters are geometrically interconnected due to the development of elements in the Periodic Table. Consequently, extensive calculations are needed to accurately trace these parameters and simplify them into individual components.

The radius of the spherical shape of orbitals can only be described in terms of bandwidth. This bandwidth does not represent uncertainty in the electron's position but defines the area within which the outer electrons oscillate.

The experimentally determined variation in atomic radii can be depicted in this scheme.



https://wisc.pb.unizin.org/chem109fall2021ver02/chapter/periodic-variation-in-atomic-radius/

When considering the entire structure of the complex nucleus and its electrons within the atomic system, we recognize that:

1. The dynamic geometry of the new atomic model is clear and unambiguous, without any shadowing or forbidden areas.

2. Each proton bond is paired with an electron in the helium-4 nucleus.

3. It evolves through variants by enhancing the complexity of the core, resulting in increased stability from one noble gas configuration to another.

4. This behavior is evident in each element of the spectral image, which shows the spectral lines corresponding to the different possible configurations of the complex core. These configurations can be observed both radially and parallel to the direction of the electric vector of the proton bond.

5. As the configuration approaches the next noble gas arrangement, the number of variants decreases until it reaches a complete filling, matching that of a noble gas.

6. An additional mix can occur due to the equal and opposite direction of helium-4 sticks

The various influences can be studied in isolation, allowing us to calculate their effects.

15. THE STRUCTURE OF AN ATOM AND VARIATIONS IN RADII ACROSS THE PERIODIC TABLE OF ELEMENTS

The previous chapter showed that experimental evidence indicates adjacent He-4 and proton sticks influence the atomic radius of elements, Fig. 1.

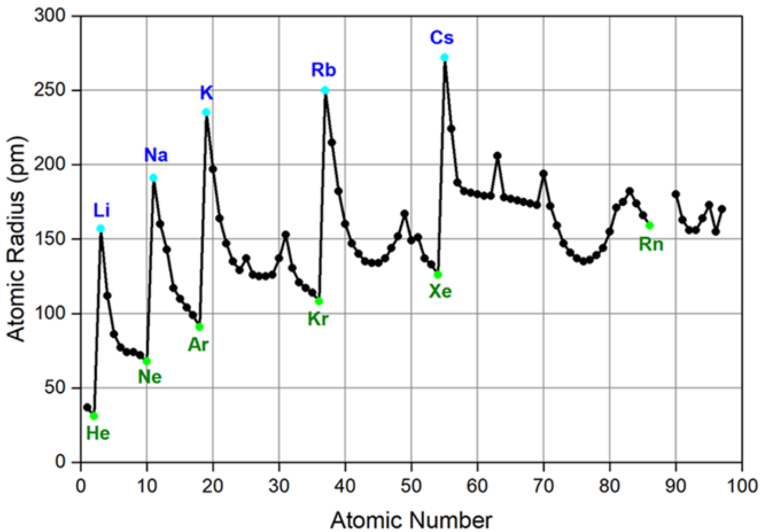


Fig. 1

This illustrates the previously discussed cross-section over the He-4 and proton sticks. As a reminder, each position signifies the spatial position of two elements in the period

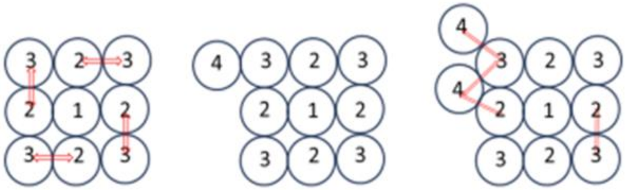


Fig. 2

To clarify, Argon is a noble gas located on the periodic table at the end of period 3. Its densely packed nucleus results in a relatively small atomic radius for the electrons in the outer shell. On the other hand, potassium is the first element in period 4, with all different positions in this period being unoccupied initially. As a result, its additional electron for Potassium moves between the two eigenstates with minimal influence from adjacent electrons, leading to a larger atomic radius. The next element in period 4 will experience more interference from the electrons of elements in periods 2 and 3.

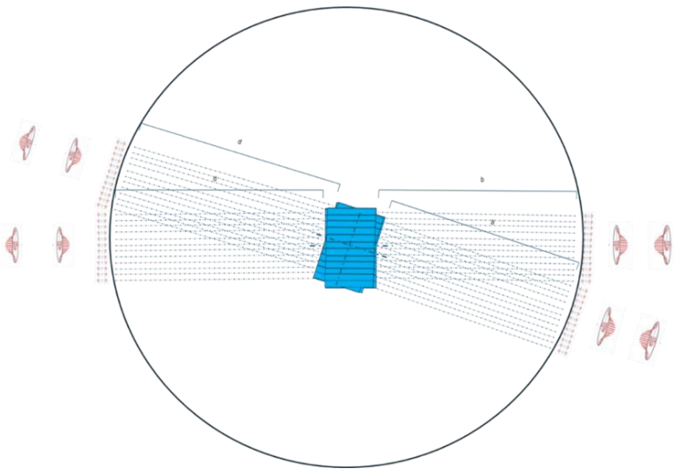


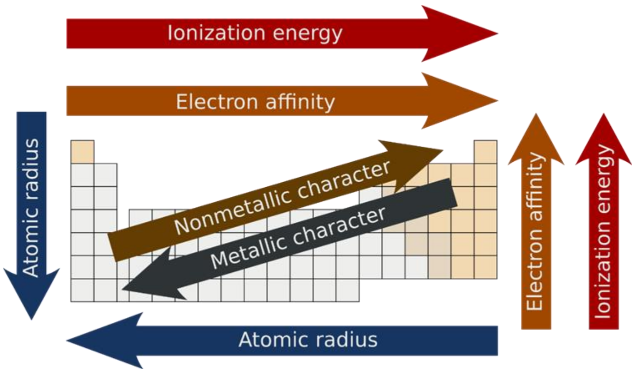
Fig. 3

Fig. 3 illustrates the radii for noble gases, while the intermediate elements within the periods show a slightly concave pattern that extends until the next noble gas.

This position of the outer sticks in each period correlates to the character of the element for interference

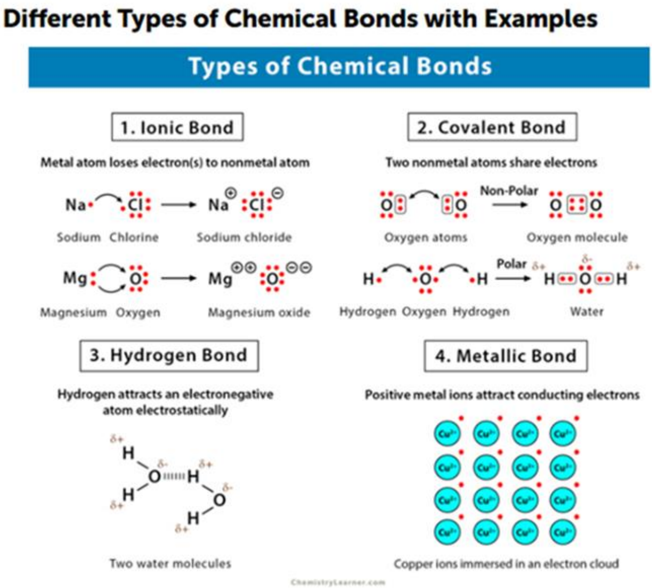
Fig. 4 illustrates these trends:

Wikipedia on Periodic Trends



Within chemistry, a distinction is made between different types of bonds.

Within chemistry, a distinction is made between different types of bonds.



In an ionic bond, an electron is transferred from one atom to another, specifically to the atom that can bind the electron more strongly. This process can be predicted by analyzing the properties of the two atoms involved in the exchange. The electron is transferred to the atom, which offers a more robust bond due to its more significant electromagnetic interaction with adjacent electrons in the same shell or period.

The transfer occurs along an imaginary line connecting the two atoms, which can be visualized using helium-4 (He-4) or hydrogen (H) representations that can both accept the electron. After the electron is transferred, the two atoms with the newly involved electron form a new interaction, as illustrated in Fig. 6.

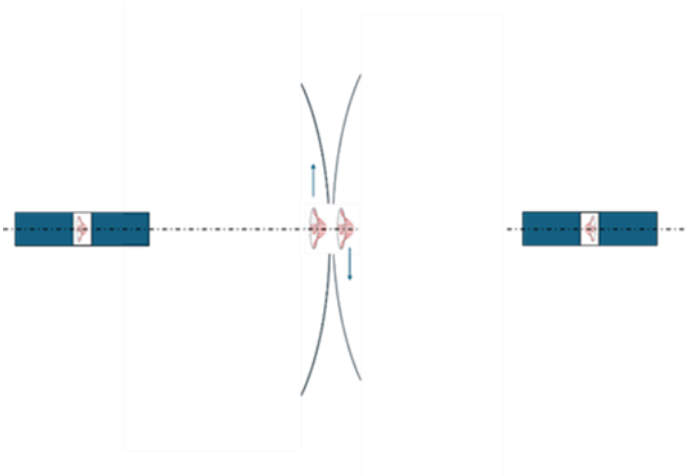


Fig. 6

After the transfer of electrons, the two atoms form a bond and rotate around each other. This rotation requires only kinetic energy; no additional energy is needed to sustain it. In other words, the two atoms maintain their atomic spherical shape even in an ionic bond.

Both atoms maintain their spherical shape and can rotate in three dimensions, allowing them to engage in exchange situations once again. This means that multiple ionic bonds can be formed per atom, even with atoms of different elements

Given the extensive knowledge available about chemical bonds, I assume there is an opportunity to connect a logical theoretical foundation based on the models suggested by The Dutch Paradigm with practical experiences.