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The Theoretical Foundation of Chemistry

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This paper deals with the atom, the table of elements and the standard model and how they are challenged by the new table of relations, i.e. the principle of relations.

The accepted opinion is that physics is the most fundamental science and that chemistry, medicine and other disciplines are built on it.

I´m not sure this is the final answer and I will argue that, most likely, the fundament and foundation of science is not based on different matters/materials as in physics, but on the logic of principles, dealing with *the behavior of the objects in all sciences*, i.e. *how the behavior of the physical reality occurs, regardless of its content*.

It might as well be chemistry that is the starting point for all sciences, by launching this new principle – as shown in this paper.

Within science we always want to structure reality in boxes and by formulas. Then they are looked upon with certain appearance and constitution. This is what both the Table of Elements and the Standard Model do. Furthermore, since both the Table of Elements and the Standard Model are based on the concept of atom we need to investigate the atom as phenomena and the concept very carefully.

The reality, based on the Principle of Relations[1], has quite different properties. Reality is in continuous change, where atoms and all alike are just manifestations of deeper and more fundamental properties.

The Principle of Relations, P_R, claims to represent all aspects of reality, based on I-III:

I. Requirement for a complete theory:
Every concept has to represent the reality[2] directly and concretely.

II. Postulate:
Nothing exists in isolation, i.e. everything exists in relations.

III. Basic concepts:
a) Mass, i.e. m.
b) Wave, i.e. Ψ(x,t).
c) Relation, i.e. $p_{1\text{-}n}$ = flow of packages.

The concept of relation relates to reality by showing that there are relations between all parts in the physical reality, where:
1) **a, b, c** … are any system, subsystem, unit or part in any field of the Universe, e.g. suns, planets, moons, galaxies, atoms, molecules, cells, organs and species.
2) The relation, **R,** is a flow (wave) of packages, $p_{1\text{-}n}$, e.g. quarks, protons, neutrons, electrons, photons, proteins, fats, polysaccharides, between a, b, c … in any field of the Universe.

Based on the postulate - nothing exists in isolation, i.e. everything exists in relations –in combination with 1and 2 above, the principle of relations is **X=aRb,** where X stands for gravitation, forces, interaction and energy.

The same organizational principle rules at all levels, i.e. aRb organizes all masses and all matter at all levels of the reality.

For each level and for each system there is different masses/matter and for each level and for each system adequate masses/matter occurs. So, the atom uses quarks and leptons when an atom occurs and the solar system uses the Sun, planets and moons when it occurs.

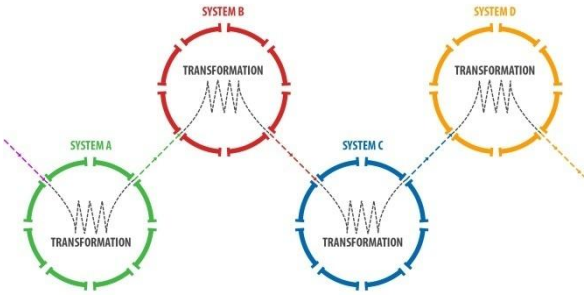
In the Universe continuous flows of packages goes in "tubes" between all systems, resulting in gravitation, force and energy. These flows contain all mass in the Universe, including dark matter and dark energy. The key concepts are flows of packages, gates, transformers and systems.

When any flow of packages arrives at any system there are gates transforming the content to fit in to the system, and then the content will change appearance.

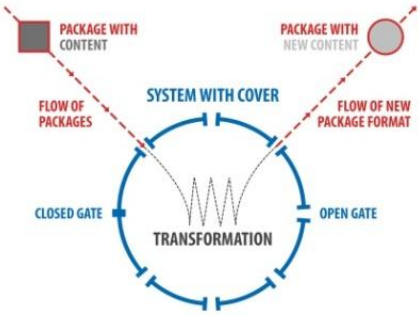
A Transformer is *the mechanism which directs and leads packages*, e.g. protons, electrons and nutrient molecules, within the cells in the human body.

Throughout reality the same principle applies to the mechanisms of a Transformer´s functions, e.g. the Earth, the Sun, the Moon, the human body, galaxies, organs and cells.

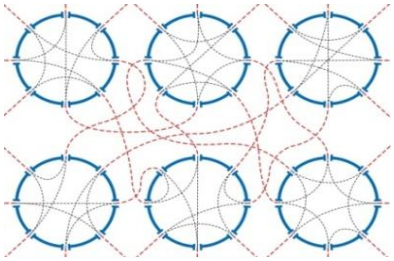
Please accept this simple illustration, where A, B, C and D are planets, suns and galaxies as well as atoms, molecules and conglomerates of molecules:



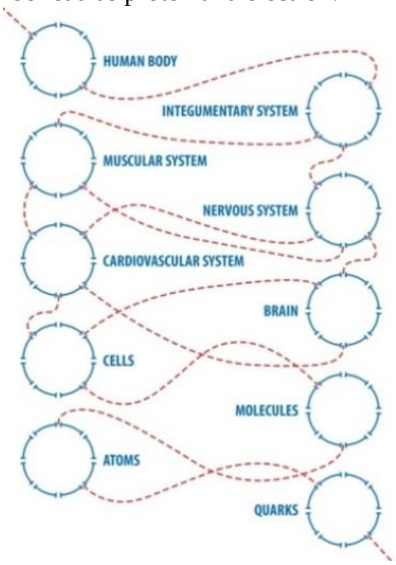
For each system there are gates, i.e. the transformation mechanism by the transformer, where the content of the packages is transformed for the next level of physical reality.



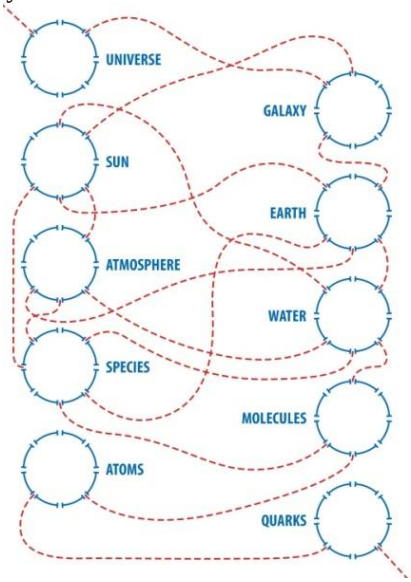
The physical reality is a complex of billions and billions and billions and billions … of R.



The model of relations applied to the Human Body, where atom should be read as proton and electron:



The entire system:



In the system the content will change "colour" and via flows of packages will be transported to the next system. The demanding questions are:

1) What is the content?
2) Which systems exist?
3) How are the packages transported and how do these "tubes" for transportation act and appear?
4) How does the mechanism of gates and transformers function?
5) When the flows of packages approach any system, e.g. a molecule and the Earth, where do we find these gates and transformers?
6) What happens to the packages inside the system?
7) How is the transformation performed by transformers?

The behavior of very small masses, such as that of atoms and subatomic particles, is today explained by the principle of Quantum Theory and the Standard Model.

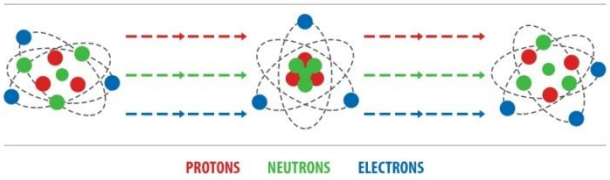
However, it all dates back to September 1905, after Planck´s famous equation of black bodies in 1900, when Albert Einstein published his two papers "*On a Heuristic Viewpoint Concerning the Production and Transformation of Light*" and"*Does the inertia of a body depend upon its energy-content?"* using the famous equation $E = mc^2$.

All discussions concerning *Inertia* are based on misunderstandings, since motion is a fundamental quality of the physical reality based on aRb; i.e. there is no such thing as a body at rest and no such thing as a body in linear motion, since flows of packages continuously affect bodies and make them move and put them in motion and affect their direction.
Even the concept *Energy* is not valid, since itdoes not fulfil the stated requirement.

Now we have to ask how aRb works between bodies.

The conclusion in Einstein´s paper is that if the theory can be tested we will find out if the theory corresponds with the facts; i.e. that "radiation conveys inertia between the emitting and absorbing bodies". This conclusion might be correct regardless of the theory of Einstein. It might as well be aRb that is tested, since aRb states that between two bodies there are flows of packages affecting the content of both bodies: their mass, size and structure.
So, the conclusion can be the same, but based on different theories.

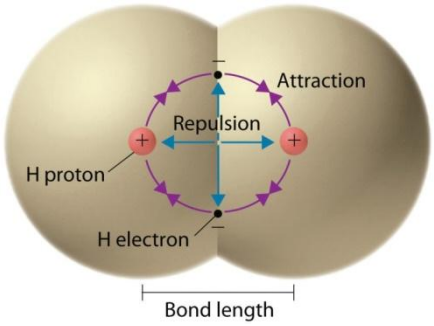
The atom occurs when protons, neutrons and electrons are in flows of packages, and shows up as chemical structures, i.e. it is *the flow that has the so-called nuclear power* and not the strong force via gluons, as shown in the model below:



The figure shows how the packages, i.e. the elementary particles, move. Then at one point the curve looks like an atom such as we are used to visualizing it.

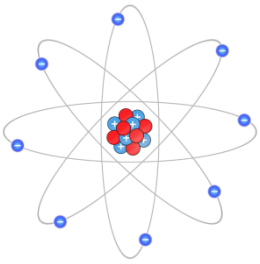
In the figure below the red arrow is R, which organizes the elementary particles, looking like an atom:

Then the model below is not valid, i.e. the usual interpretation of the atom.



How do we know that this atomexists over time, i.e. from t_1 to t_2? It can be this shape of its structure at t_1, but until t_2 happens, R exists. R has structured the atom, so without R, there is no atom.

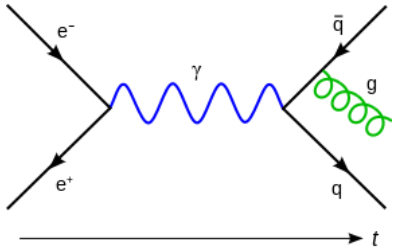
Based on the postulate the atom does not exist in isolation, which the traditional model for an atom, as below, tells us:



With P_R we can investigate how the atom at t_1 occurred and how R changes, continuously, the structure of the atom. Since an atom manifests, rather than exists, with protons and neutrons, which are organized from leptons and quarks by R, any atom does not exist in itself, isolated from other masses.

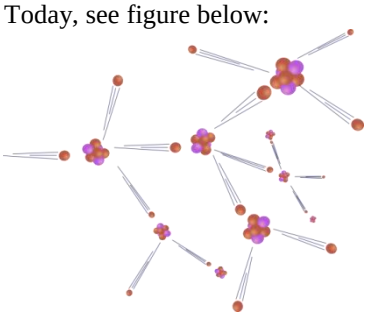
*Based on P_R the atom does not exist.*The shape is the result of packages in constant flow. The atom does not live in isolation, based on the postulate. The shape looking like a fixed atom is an optical illusion.

Compared to the Feynman diagram, we can see that no gluon is needed and there is no need for the positron, as well as thereis no need for quarks and antiquarks. Consequently there are no distinctions such as matter and antimatter. The Feynman diagram below shows that an electron and a positron produce a photon, which then becomes a quark–antiquark, and the antiquark later radiates a gluon. This has not and cannot be shown in reality. It is purely based on mathematics. See figure below:

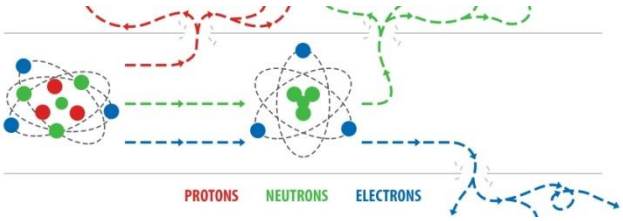


Based on the postulate and the requirement, the Feynman diagram is false.

Now, another example, i.e. based on P_R an atomic bomb explosion is the effect of a broken R. This, is the application of Physics of Today, see figure below:



With P_R it is the opposite, i.e. when R is disordered there will be an explosion, since it is R that holds all elementary particles together. R on this level has a cover over the elementary particles, i.e. R organizes the particles.
Imagine a balloon full of gas, which is struck by a needle.
There will be a bang, a minor explosion.
Then, by analogy, the neutron is the needle that strikes the cover of an atom in a tube.
When R_A breaks, we will have an atomic explosion, as shown in this figure:



The organization of any structure on any level in physical reality is made by $R_{1\text{-}n}$

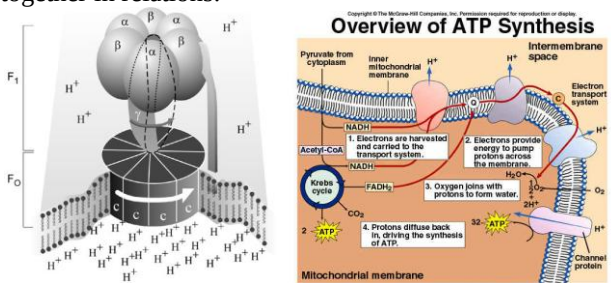
1) What is in R?
2) What is in $p_{1\text{-}n}$?
3) How, concretely and in what way, is b changed by R?
4) What is a?
5) Which mechanisms transport $p_{1\text{-}n}$?
6) The movement of masses is explained by R and aRb. The content of R between a and b explains the movement in the micro-cosmos.
7) Interpretation of masses based on the principle of relations X = aRb will lead us in another direction with new equations.

Based on the postulate "Nothing exists in isolation, i.e. everything exists in relations", it is problematic to isolate the so-called atom. Once we isolate any entity, there is a risk of misunderstanding, since we will not find out how the entity functions in its surroundings together with other entities.

Reality is not a house made of parts, e.g. bricks, glass and tree. It is not built by carriers and bondage between quarks, protons, electrons, atoms and molecules.

Reality is a weave of continuous flows between all parts in the Universe. It is built on relations, i.e. aRb.

Then, the true picture of reality will be more like these two well-known images below, i.e. all parts of reality hangs together in relations:



"It may be compared to a water-driven hammer minting coins. The F $_o$ part is the wheel, *the flow of protons* is the waterfall and the structural changes in F_1 lead to three coins in the ATP currency being minted for each turn of the wheel."[3] (my italics)
In the field of medical chemistry the ATP synthase has been studied. At first glance it looks too complicated; there must be a simpler solution, even if the analogy to a water-driven wheel sounds simple enough.

However, we are not to deal with this functionality. Instead the ATP synthase raises some questions and some preliminary answers concerning the proton:

1) How can the protons act outside the atom, as they do in the ATP synthase?
2) Where is the electron of the hydrogen atom when the proton acts alone? Are the electrons only present in the chain of transports?
3) Do the elementary particles behave different ways depending on the situation and which system they are in?
4) Then the proton plays different roles: when it is together with one electron, then it shows up as hydrogen; when it shows up alone it can take part in any bridge for transportation as in the ATP synthase; when the proton goes together with one electron and one other proton with its electron, in combination with eight protons which are together with eight electrons, i.e. ^{16}O = 8 protons and 8 electrons, - then we will get H_2O.
5) How do different systems "use" the elementary particles?
6) Etc.

Based on aRb there is a continuous flow of packages in physical reality and now it seems that the elementary particles can occur in different shapes depending on the situation.

Based on aRb the atom does not exist. The shape is the result of packages in constant flow. Based on the postulate, the atom does not live in isolation. The shape looking like a fixed atom is an optical illusion.

The spin of protons is not carried by gluons and quarks; it is simply the flow that makes it happen. (Once we accept that our brains are biased and one-sided, we can turn our heads 180 degrees around. Then we will see it all from this different angle, i.e. from *the concept of flow*.)

Contemporary science views ATP synthase as a catalysed reaction, shown as below:
$ADP + P_i + 3H^+_{out} \rightleftharpoons ATP + H_2O + 3H^+_{in}$
ADP consists of $C_{10}H_{15}N_5O_{10}P_2$ and ATP consists of $C_{10}H_{16}N_5O_{13}P_3$.

The reversible reaction, i.e. ⇌, means equilibrium, i.e. balance and no net change between the components, as explained by the constant K_{eq}.

$K_{eq}$is the equilibrium constant expressing the ratio of products and reactants at equilibrium.
The meaning is that if a system is not at equilibrium, the system itself will direct moves towards equilibrium.

However, the principle of relations challenges this notion.
Then, when we apply the logic of aRb to our understanding of ATP synthase, the conclusion is different:

1) There are flows of packages in one direction only, e.g. flows of packages are transported into our cells.
2) There are two pathways in the cell, one into the cell and one out of the cell.
3) Equilibrium does not exist in nature.
4) The symbol ⇌ and its meaning of "reversible" reaction are not valid.
5) Carbon-hydrogen bonds do not exist, since it is packages of flows that fulfil the task.

Flows of packages through the body are enabled by the blood pressure securing continuous flows throughout the body.

The circulatory system manages the flow of packages, consisting of blood with its contents of nutrients, such as amino acids and oxygen, waste and carbon-dioxide, which are all transported by vessels.

As it seems, *the blood-pressure is enough* to fulfil the function of supplying the cells and mitochondria with what is needed and then to clean up and transport the waste. This happens in a continuous performance.

Then, is the ATP synthase, the so-called molecular machine, an illusion? Where can we see this "Nano machine"? Are there any photos of this phenomenon? Is it only an image made by man?

As it seems, it is only an image made by man.

Based on the principle of relations both the image and the equation are illusions.

To further understand how the theory of relations impacts the ATP synthase we must find out all connections in the body and how all flows depend on each other.

Based on X = aRb and S = $ap_{1-n}b$, any system is and can be described as complex flows. We might call them wave functions, since a wave function is a flow of masses. It functions as a logistic system. Any (transportation-) system has the same logic. It contains instructions as to how masses are delivered. There are addresses, carriages, details of how the masses are to be loaded and unloaded, sizes of the masses, how the masses fit into different parts of the transport system, calls for masses, "doors" to the cover of a system, and a mechanism to open "doors". At all points of delivery the masses will change appearance. They will look different. They will be transformed.

Let us call the mechanism of transformation a *Transformer*. The Transformer transforms incoming packages, such as the molecule of carbonic acid CH_2O_3, the molecule of sugar $C_{12}H_{22}O_{11}$, the molecule of protein $C_9H_{11}NO_3$, the molecule of fat $C_{18}H_{34}O_2$ and the molecule of oxygen O_2.

The circulatory system manages the flow of packages, consisting of blood with contents of nutrients such as amino acids, oxygen, waste and carbon dioxide, which are all transported by vessels, ending in the cell.

The question to be asked now is whether the blood pressure itself is enough to fulfil the function of supplying the "end-stations" in the cell, e.g. mitochondria, and then move out the waste. Or does the cell need the molecular machine?

Based on the principle of relations the hypothesis is that there is only one specific pathway for every piece of mass, i.e. when any particle approaches the membrane of a cell, the cell´s structure will accept the one that fits.

This goes for every membrane, the outer and inner membranes for all cells, as well as for all levels of any system, e.g. the entire human body and any specific organ.

Then, as one consequence, the so-called "Brownian motor", based on the so-called "Brownian motion", does not exist and cannot do so, since randomness is impossible. If randomness, in terms of desultory and casual events, occurs, then the flow of packages will be damaged.

The same principle of flow applies to all systems and all levels and all masses of reality, e.g. the Earth, the Universe, the human body, organs and the cell.

Now we are back to the phenomenon of the Transformer.

Since the concept *energy* is not valid, based on requirement 3, *ATP synthase is a Transformer*. It is not dealing with energy supply, but with the transformation of masses to fit in the next step in the flow.

A Transformer is *the mechanism which directs and leads packages*, e.g. protons, electrons and nutrient molecules, within the cells in the human body.

Any system has covers. It can be just one cover, but mostly there are many covers within the same system. One cover protects the next layer and by the transformer the flow of packages fit into next level of the system. There can be many layers in a system, e.g. the human body is entered via hands and mouth - stomach - small intestine – large intestine – kidney – liver – cell; it has its gate and its transformer – mitochondria – chromosome – DNA – gene – ATGC.

ATP synthase is one transformer which functions in membranes, i.e. the thylakoid membrane and the inner mitochondrial membrane.

Since ATP synthase is an enzyme protein, we can expect that all enzymes are transformers.

In the cover, e.g. cell membrane or the crust of the Earth, there are Transformers. *Flows are directed via the Transformer* into the systems and different subsystems, and so on for all systems and subsystems.

The equation $ADP + P_i + 3H^+_{out} \rightleftharpoons ATP + H_2O + 3H^+_{in}$ will now change, since it is an unusable and not valid equation.

Instead, we must find out the components in all chains of flows. Like a train with wagons, as our first imagination, proteins, carbohydrates and fats can show up like this; the commonest components and the most used are these:
… C – H – O – H – N – O – H – C – O – O – H …

Depending on the position and seating, the formula will show up in different shapes. The most common contents are the following:

1) The atoms C – H – O will be present in the flows of fats, e.g. for Cerotic acid $CH_3(CH_2)_{24}COOH$, and for the flows of Carbohydrates, e.g. Sugar $C_{12}H_{22}O_{11}$.
2) The atoms C – H – O – N will also be present in the flows of proteins, e.g. Insulin $C_{257}H_{383}N_{65}O_{77}S_6$, where S stands for Sulphur.

Based on aRb there are no bonds between atoms, there are flows of packages that push and pull the particles together. Then the formula will be
$S_1 = (a_1R_1b_1)R_2(a_2R_3b_2)$ …

S_1 is a complex of relations between all parts and elements in the system, i.e. a, b, and c are complicated subsystems, that send and/or receive flows of packages, i.e. p_{1-n}.

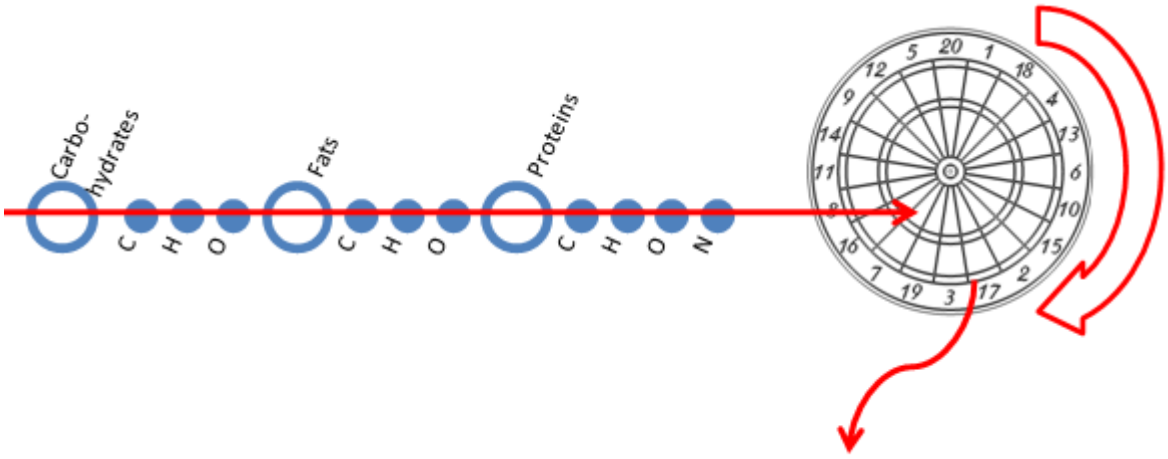
Examining the entire idea of the ATP synthase being a molecular machine must be redone. Taking the Transformer in mind, the conception about ATP synthase may be the most misunderstood part of the human body. When using the concept and phenomenon of a Transformer the conclusion is different. In the following I will explore this path and establish the groundwork for seeing the ATP synthase in relation to the Transformer.

The cover of any system has a gate where the Transformer is located. When particles get close to the cell, only those particles that fit perfectly can come in. The transformer can be seen as a paddle wheel, where each paddle can only accept and take one specific particle at a time. The paddle

wheel, i.e. Transformer, takes in one package, particle, after another, e.g. O, H, N, P and C, and out comes a new molecule, e.g. ATP: $C_{10}H_{16}N_5O_{13}P_3$.

The shape of a paddle wheel will differ depending on where it is located. Some examples as below might stimulate our imagination (the size will be measured in nanometres, approximately 50-200 nm), where each number can accept only one specific particle from a molecule, e.g. H, N, P, C and O, at the left side, and then a new molecule will occur, e.g. $C_{10}H_{16}N_5O_{13}P_3$, at the right side:

The blood transports carbohydrates, proteins and fats, and blood cells contain molecules with the content of C, O, H, N, S and P and of course many others. Schematically it can be illustrated like this:



ATP: $C_{10}H_{16}N_5O_{13}P_3$

ATP synthase is a Transformer between molecules using the masses of elementary particles. The conclusion it that ATP synthase does not exist, it is not found in the cell. It is only an imaginary thing, based on wrong and not valid postulates and theories of physics and chemistry.

The paradox of the strong nuclear force

The weight of an atom is almost nothing. If you hold an atom in your hand - of course impossible, but imagine - you will not feel the weight and if you hold a proton, with even lighter weight, you will not have any sense and feeling of having mass in your hand. The weight of hydrogen is 1.67 x 10^{-24} grams.

If you take the Earth in your hand - of course impossible, but again imagine - it is too heavy to carry. The weight of the Earth is approximately 6 x 10^{24} kilograms.

Then, based on common sense, it is really confusing and strange that it takes more strength to hold quarks together than to hold the solar system or the Earth in place, since the quantities are so totally different.

The strong force at the distance 10^{-15} meters is approximately 137 times the electromagnetic force, 10^6 times the weak force and 10^{38} times that of gravitation we are told.

The strong force between quarks has been estimated to be the strength of 10.000 Newton.

This does not make sense. It is not reasonable.

It must be the opposite.

Once we discover the “tubes”, we will have the answer.

The postulate and its relational postulates

Before we approach the atom specifically, we also need these postulates:

Any world is differentiated into component parts, each one of which stands in relation to another.

1) It all hangs together.
2) Nothing exists in isolation.
3) It all hangs together through a relation - R.
   3.1 Since it all hangs together, nothing is in isolation.
   3.2 The relation is superior to the parts**, a, b, c …**
4) If the relation is superior, there will be no cause and effect between the parts.
5) The relation makes the parts´ existence possible.
   5.1 Without relation the part will die and disappear.
6) The concept of relation explains the concept of system.
7) All systems are arranged in a logical hierarchy. If a superior system collapses, then all subordinate systems will collapse.
8) All systems of relations, at a certain time, constitute the world.
   8.1 Everything happens only one time.
   Nothing that happens will happen again.
   The unique disappears and will never come again.
   8.2 Everything which is will become something new.

Consequences for the atoms and the molecule of H_2O based on the postulates

1. H is the atom of hydrogen, O is the atom of oxygen and R is the relation between H and O.
2. H_1 is one unique H and H_2 is another unique H.
3. When there are many H, then the first 1 in H_{11} is the individual of H and the second 1 in H_{11} is at the time t_1.
4. Then the molecule of water is $H_{11}R_1H_{21}R_2O_{11}att_1$.
5. At t_2 the molecule is $H_{12}R_1H_{22}R_2O_{12}$.
6. $H\Delta=H_{11}–H_{12}$.

7. On the basis of the laws of relations, the atoms H and O do not exist unless the laws of relations structure matter to these atoms. The same is valid for the molecule H_2O.
8. Logical and consistent, the weight of the atom is not constant. The weight is also different when H and O are single atoms or when related in the molecule.
9. OΔ, i. e. the difference between O_1 and O_2.
10. HΔ, i. e. the difference between H_1 and H_2.
11. RΔ= OΔ and HΔ.

Consequences for the concept of energy:

1) E is energy in existing theories. Now a, b, c … are units and R is the relation between a, b, c … The consequence is that R will replace E, i.e. E = R, E = aRb, $E = m_1Rm_2$, $E_{1\text{-}n} = R_{1\text{-}n}(a,b)$; $E_{1\text{-}n} = R_{1\text{-}n}$;
2) So, based on P_R and aRb, we understand that the formula $E= mc^2$ has many difficulties, since the concept of energy is not a valid scientific concept. To use the concept energy as representation seems to be a detour, while the concept of package goes straight to the point.
3) The speed of light is c, which means that c^2 is pure mathematics, i.e. not valid.
4) In Nature there is no rest energy E_0.
5) In Nature there is no rest mass m_0.
6) The equation $E_0 = m_0 c^2$ is as a consequence not valid.
7) How does a pion change after every circle within the atom? What from "outside" changes the pion, in what way and during what time?
8) Reciprocal action is a relation of flows, not a static movement.
9) Based on R nothing lives in isolation, neither a part nor a system. Everything is connected, with continuous flows and impacts between all parts and all systems.

Consequences for the concept of time:

1) t is time, R is the relation.
2) t =f(R).
3) $t_{1\text{-}n} = f(R_{1\text{-}n})$.
4) If no R, no time.
5) Consequently there are as many times as there are R.
6) t is in R; t is with R, i.e. t is connected with R.
7) Time is the change, i.e. the difference between $a_2 – a_1$.
8) Nature is!
9) Nature has no time. Time as a concept is invented by humans, defined as the difference between $a_2 – a_1$.

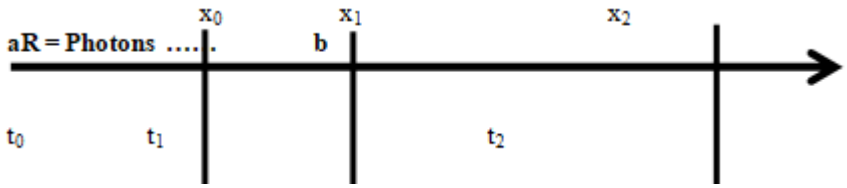
Consequences for the concept of temperature:

1) Temperature, T, is dependent on R.
2) When R, i.e. $p_{1\text{-}n}$, is slowing down, T will decrease and vice versa.
3) T is a function of R.
4) T = f (R)

The relations R in Nature are the fundament, and the concepts E, T, t and Gravitation are all manifestations of R.

The principle of uncertainty is not certain, it is uncertain

When light manifests as a beam of photons, we can measure particles at two points x_1 and x_2 at two times, t_1 and t_2, based on aRb, which I have exemplified in the model below:



Postulates:

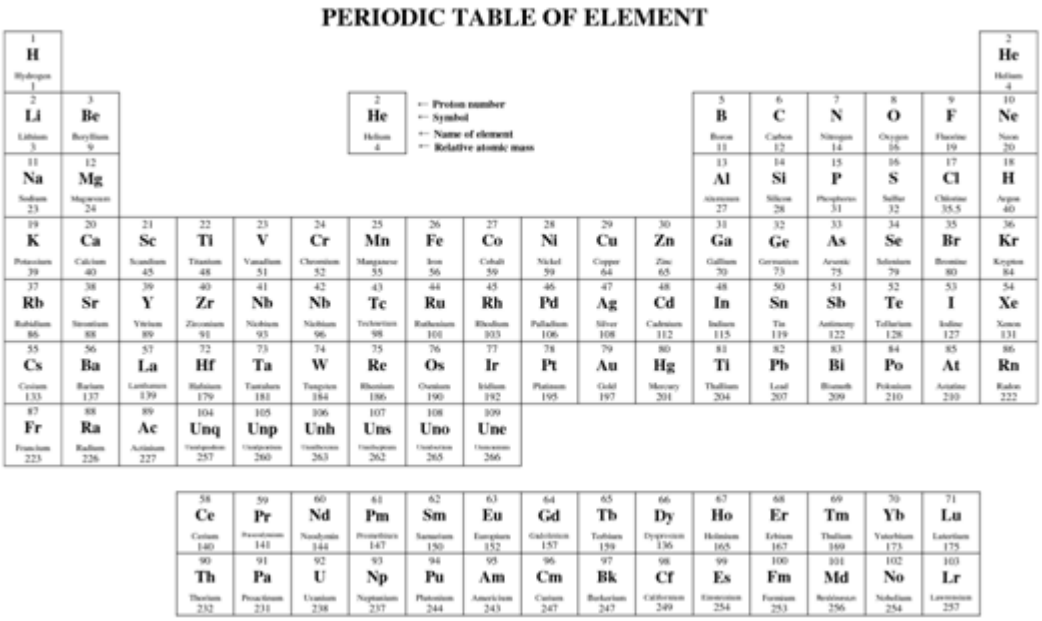
1) The speed of light is 300.000 m/s.
2) The distance between x_1 and x_2 is 10.000 meters.
3) The speed of the particle is 300.000 m/s at x_1 and x_2.
4) The positions of the particle are x_1 and x_2 at t_1 and t_2.

Conclusion:

1) The times at x_1 and x_2 are respectively 10.00 and 10.00003.
2) The difference in time is 0,00003s.
3) As the flow of packages between a and b is continuous, we might experience Nature as determined, based on the Principle aRb, which is valid for the entire reality.

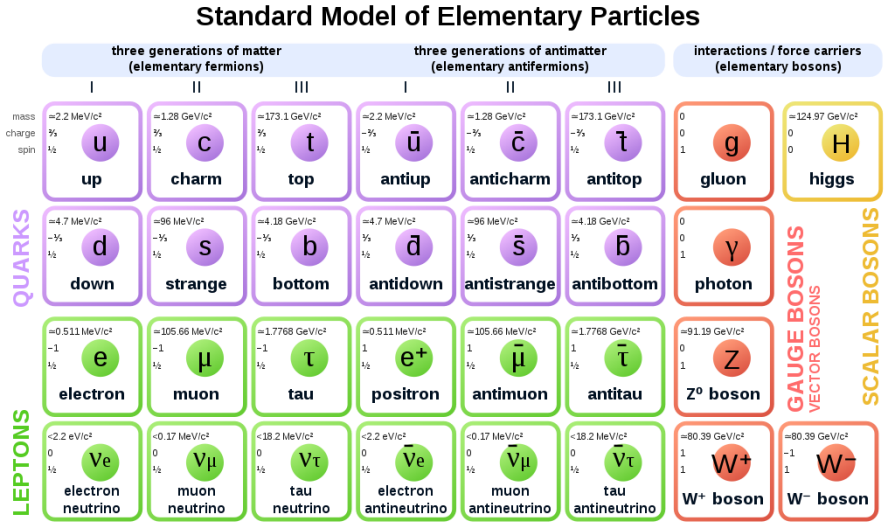
Consequences for the Table of Elements and the Standard Model

Now, based on the new standpoint of the behaviour of the so-called elementary particles, i.e. that any particle can show up in any flow of packages, (for example the proton can be involved in different systems flow of packages), the Table of Elements can no longer be seen as fixed. Instead we have to identify the Table of Relations. Looking at the Periodic Table of the Elements and the Standard Model, we can work out how many combinations are possible for the elementary particles, e.g. how protons and electrons can occur in different shapes. Below is the famous Table of Elements, once created by Dimitri Mendeleev, presented in 1869 to the Russian Chemical Society, as the first acceptable, even if there had been some knowledge earlier about some elements.



Now we can add atoms with other properties and reach an enormous amount of atoms. Please feel free to use your imagination.

Besides the Periodic Table of Elements we have to deal with the Standard Model of Elementary Particles:



Consequences for the Standard Model

1) According to the Standard Model, SM, the Elementary Particles are Quarks, Q, (u,c,t,d,s,b), Leptons, L, (e,μ,τ,Ve,Vμ,Vτ), Bosons, B, (g,γ,Z,W) and Higgs boson (H). The bosons (we can add graviton particle G) are so-called force carriers; quarks and leptons are masses (matter). H, the Higgs boson, is the missing part in SM that gives mass to Q, L and B.
2) Based on P_RQ, L and B cannot exist without mass.
3) Consequently Q, L and B do not exist, or H does not exist.
4) Again the Nobel Prize 2015: "for the discovery of neutrino oscillations, which shows that neutrinos have mass".
5) So, since Q, L and B exist, and then H does not exist.
6) Other postulates often mentioned are these: Nature prefers simplicity and shortcuts. Nature is lazy and not complicated. Nature is beautiful, but SM is not beautiful. "The more success the quantum theory has, the sillier it looks. How non-physicists would scoff if they were able to follow the odd course of developments! " Albert Einstein.
7) R is flow. Any flow → force, interaction, attraction and repulsion.
8) H and B = R.
9) R is the force carrier.
10) R has content.
11) $R = \sum p_{1\text{-}n} = p_1 + p_2 + p_3 \ldots p_n$
12) The content is different from one system to another.

Three models of Nature´s elementary particles, i.e. the Periodic Table of the Elements, the Standard Model and the Table of Relations; view the behavior of elementary particles in different ways.

Questions and comments about SM:

1) What is the interaction between quarks and gluons?
2) What is the interaction between particles in an atom?
3) What are the interactions between atoms in a molecule?

4) What is interaction in itself?
5) Which interactions exist?
6) Are there interactions between a quark and electrons?
7) What happens in these interactions? What happens in an interaction?
8) What is the strong force/interaction?
9) Force and interaction are the two concepts that fundamental theories in physics are based on. The strong force/interaction is assumed to have the following properties:
   a) Short range, i.e. a distance of femtometres.
   b) Nature´s strongest force.
10) Particles involved:
   a) Quarks that form protons and neutrons.
   b) Gluons, that holds quarks together.
   c) Hadrons, such as proton and neutron.
   d) Gluons are the particles that exchange particles as quarks, antiquarks and other gluons.
   e) Gluons, leptons and quarks are massless particles.
   f) What does a gluon look like?
   g) How can we see a gluon, since gluons are massless?
11) If anything is massless, it does not exist, based on PR.
12) But now we know. Nobel prize 2015: “for the discovery of neutrino oscillations, which show that neutrinos have mass.”
13) Does pionreally interactin anatom?
14) In SM the elementary particles have no internal structure and no mass, except bosons, gluons and photons. In SM neutrinos have exactly zero mass. As we know now, neutrinos have mass, according to experiments showing oscillations. This means that SM has weaknesses in the fundamental equations.
15) The axiom of the Principle of Relations, called PR, is that the elementary particles have mass and structure. So PR comes to a different conclusion, i.e. that particles with no structure cannot interact with the Higgs Boson particle.

There are many questions, and we need to address them, even if we do not have any answers.
Now we have to investigate the *Table of Relations*, where the elements have relations to each other and where gluons, Higgs, photon, z boson and w boson, i.e. the force carriers, are absent, since they are not needed when flows of packages in “tubes” play an essential role for motion, gravitation and energy.

In the table below there are many interesting relations for further research, where the relations1-27 are very interesting, but of course also the relations 73 and 46. Please feel free to choose the one you find most interesting. The table should be read so that each number represents one specific relation; e.g. no. 28 describes the relation between a proton and a molecule. Where can we find no. 28 in the physical reality?

Entities, relations and system of relations									
Entities	Proton	Electron	Atom	Molecule	Cell	Planet Earth	Solar system	Galaxy	Intergalaxy
Proton	1	2	3	4	5	6	7	8	9
Electron	10	11	12	13	14	15	16	17	18
Atom	19	20	21	22	23	24	25	26	27
Molecule	28	29	30	31	32	33	34	35	36
Cell	37	38	39	40	41	42	43	44	45
Planet Earth	46	47	48	49	50	51	52	53	54
Solar system	55	56	57	58	59	60	61	62	63
Galaxy	64	65	66	67	68	69	70	71	72
Intergalaxy	73	74	75	76	77	78	79	80	81

We may also show this table illustrating different systems, their flows, elements and relations.

		Systems, parts and elements		Relations	Systems, parts and elements		Broken relation	Disorder/disease	Repair of relation
Nature	Flow	a	Structure of a	Content of Packages	b	Structure of b			
Universe	Light	sun		photons	skin				
	Carbon	sun		photons	plants	photosynthetic			
		sun			planet				
		galaxy			sun				
		atom			molecules				
		quarks			neutrons				
		neutrons			protons				
		protons			electrons				
		electrons			atoms		explosion		
		atoms			cells				
		moon							
		planet							
		sun							
		galaxy							
		universe			galaxies				
		trees			air				
		ocean							
		atmosphere							
		earth							
	River	sea		rain and water	land		no water	desert	stop climate change
		atoms			particles			explosion	

By the combination of these tables and models we can view physical reality as dynamic, built on relations and not built as a house.

The elementary particles are present in all chemical elements, but they are also present in all molecules without any atom, i.e. in any molecule there are elementary particles in other roles than in the atom. This means also that the amount of atoms can be millions, as can molecules, organs and all systems. I hope you can imagine this reality.

Notes

1. The theory was first published by Cambridge Scholars Publishing: *The Principle of Relations*. 2018. The theory has been developed in the book *The Theoretical Foundation of Physical Reality*, authorHOUSE, 2020.
2. Once we define the concepts *physical* and *reality* to mean the same object and thing; i.e. in saying "reality" we are also saying "physical", they are just two concepts denoting the same "thing", then concepts dealing with different sciences will only use the concept reality and not, as in physics, physical reality. In the science of medicine and the science of chemistry, the concept reality will be used, since by this definition they all deal with reality.
   The accepted opinion is that physics is the most fundamental science and that medicine, chemistry and other disciplines are built on it. I´m not sure this is the final answer and I will argue that, most likely, the fundament and foundation of science is not based on different matters/materials as in physics, but on the logic of principles, dealing with the behavior of the objects in all parts of reality and in all sciences, i.e. how *the behavior* of reality occurs, regardless of its content.
   Gottlob Frege in his paper *On Sense and Nominatum* distinguishes between "sense" and "nominatum", which makes the conclusion that the concepts *physical* and *reality* are the same and more complicated, since "sense of a proper name is grasped by everyone who knows the language of the totality of designations of which the proper name is a part"; but the following example given illuminates the distinction: "The nominata of ´evening star´ and ´morning star´ are the same but not their senses". However, we have to change the sense of these two concepts.
3. Press release 1997 Nobel Prize in Chemistry for ATP.