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TWO METHODS TO CREATE FREE ENERGY

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ABSTRACT

Today, the best way to get free energy is nuclear, through fission, and hopefully soon through fusion. The best way to get clean and friendly energy in a sustainable way remains the start of the nuclear fusion reaction at an industrial scale. Nuclear fusion is the combination of two light nuclei in a heavier nucleus. Fusion or thermonuclear reaction of light elements are typical reactions that occur in the Sun and other stars. Indeed, in the Sun, every second, 657 million tons of hydrogen are converted into 653 million tons of helium. The 4 million tonnes missing are then converted to radiation - this phenomenon assuring the sun's shine. A fusion reaction in which a relatively large amount of energy (27.7 MeV) is released is one in which four protons interact leading to the formation of a helium nucleus (an alpha particle). The paper proposes two modern methods of obtaining free energy, one of which is somewhat strange, the capillarity. Until one of the two new ideas proposed, the first for the start of the nuclear fusion reaction, and the second one for the possible construction of capillary power plants in the future, it is still necessary to keep the green energy of any type already existing and nuclear fission.

Keywords: Nuclear power, Nuclear energy, Nuclear fusion, Capillarity, Water, Energy, Hydraulic plant

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1. INTRODUCTION

In its elementary form, matter condenses when moving at higher speeds, although mass increases significantly with impulse, energy, and power, its dimensions are drastically reduced at the same time.

If one tries to determine the dimensions of the elementary particles based on the static hypothesis, we obtain completely erroneous values and therefore the static calculations used over time have led to huge errors in the theories created so that the hydrogen fusion element is not possible the hydrogen fusion reaction at high or low temperatures can not begin as long as the actual dimensions of elemental hydrogen have been completely altered in relation to their speeds. On the other hand, the elementary particles move constantly, so static assumptions cannot be applied in any form.

Let's imagine the hot fusion of hydrogen as it happens in the stars. In order for the brunch of the particles to be intense enough to generate natural fusion reactions, it takes massive temperatures and pressures that we have not imagined or even imagined, so there is no real chance of making the Earth in the laboratory and fewer industrial conditions. Such huge temperatures cannot yet be performed in the laboratory and we do not have at least the tools to measure them (HALLIDAY; ROBERT, 1966).

An atom consists of a small central nucleus, but very dense, positively charged (negatively), surrounded by a cloud of electrons (positrons). The range of the static nucleus ranges from about $1x10^{-15}$ m for hydrogen to about $7x10^{-15}$ m for the heaviest known atom. Also, under these conditions, the outer diameter of the atom (the external electron cloud) is in the range of $1\text{-}3x10^{-10}$ m, ie approximately 10^5 times the diameter of the nucleus. The so-called static measurements are made at low atomic or nuclear velocities. In reality, when a nucleus moves at a higher velocity, it changes its dimensions, a change that can be significant depending on its linear displacement velocity v (PETRESCU; PETRESCU, 2011; PETRESCU; PETRESCU, 2012; PETRESCU; PETRESCU, 2014; PETRESCU; PETRESCU, 2018; PETRESCU; PETRESCU, 2019; PETRESCU; CALAUTIT, 2016a; PETRESCU; CALAUTIT, 2016b; PETRESCU et al., 2016a; PETRESCU et al., 2016b; PETRESCU et al., 2016c; PETRESCU et al., 2017a; PETRESCU et al., 2017b; PETRESCU et al., 2017c; PETRESCU et al., 2017d; PETRESCU, 2012; PETRESCU, 2018; PETRESCU, 2019).

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Instead, the simple fusion of elemental hydrogen can only be achieved if the particles involved are initially accelerated to the required energy and speed so they can overcome the electrostatic force barrier.

If the mixture is heated to obtain a slight movement of the natural particles, additional conditions can be created for the fusion of the industrial or industrial laboratory with elemental hydrogen. We can also talk about hot or combined fusion, but the main condition remains the required acceleration of elemental particles, usually in particle accelerators that circulate. Normally, another obligatory condition is to make the plasma state, to ionize the mixture so that we do not work with hydrogen atoms, but with positive ions, because only they can be accelerated (PETRESCU; PETRESCU, 2011; PETRESCU; PETRESCU, 2012; PETRESCU; PETRESCU, 2014; PETRESCU; PETRESCU, 2018; PETRESCU; PETRESCU, 2019; PETRESCU; CALAUTIT, 2016a; PETRESCU; CALAUTIT, 2016b; PETRESCU et al., 2016a; PETRESCU et al., 2016b; PETRESCU et al., 2016c; PETRESCU et al., 2017a; PETRESCU et al., 2017b; PETRESCU et al., 2017c; PETRESCU et al., 2017d; PETRESCU, 2012; PETRESCU, 2018; PETRESCU, 2019).

Ionization is required irrespective of the type of hydrogen isotope used. The most commonly used are deuterium atoms, the second isotope of hydrogen, which produces deuterium ions that can accelerate and thus create optimal conditions for triggering the nuclear fusion reaction. However, in a forthcoming paper, we will show that a faster fusion reaction may be triggered from the third hydrogen isotope, the tritium atom which, when ionized, generates a slightly accelerated Triton.

It cannot be said that under the laboratory conditions it would be possible to fuse the first isotonic hydrogen (countercurrent) with its ionic protonic state to accelerate, but in the future, such attempts would make it possible to find a reality that would answer an important question.

The best way to get clean and friendly energy in a sustainable way remains the start of the nuclear fusion reaction at an industrial scale. Nuclear fusion is the combination of two light nuclei in a heavier nucleus. Fusion or thermonuclear reaction of light elements are typical reactions that occur in the Sun and other stars. Indeed, in the Sun, every second, 657 million tons of hydrogen are converted into 653 million tons of helium. The 4 million tonnes missing are then converted to radiation - this phenomenon assuring the sun's shine. Extreme and high-

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pressure temperatures create a highly ionized state of matter, called plasma, and which is maintained in the volume by gravitational forces.

A fusion reaction in which a relatively large amount of energy (27.7 MeV) is released is one in which four protons interact leading to the formation of a helium nucleus (an alpha particle). Because hydrogen isotopes are used in this process, and hydrogen is virtually all around us, the idea of getting energy from its fusion is extremely attractive: it basically provides an unlimited source of energy for future generations!

Fusion reactions, however, are not easy to achieve on Earth. It should be borne in mind that the necessary temperatures are extremely high, generally in the order of hundreds of millions of Kelvin degrees. and once the hot plasma created remains the problem of maintaining it that is not a very easy one.

Our anthropic gas and natural carbon dioxide (CO2) are released daily into the earth's atmosphere and can last for the next 100 years. Carbon dioxide, the main greenhouse gases emitted by anthropogenic activities, is naturally present in the atmosphere as part of the earth's carbon cycle that has been altered by human activities, affecting the ability of natural CO2 reservoirs to eliminate this gas. Global carbon emissions per year (C) of fossil fuels were around 10,000 gigatons (equivalent to 36,700 gigatons of carbon dioxide per year) in the past few years and steadily increased at a rate of 1%.

This increased carbon dioxide content favors the global warming of our planet. Response to global warming is the exchange and upgrading of current alternative technologies with comparable or even higher performance.

A serious crisis in energy resources characterized the 1970s and 1980s. Hydrocarbon-based energies were polluting while tired. Vehicles combined with fossil fuels and large industries (large energy consumers) have grown continuously. Then there was an urgent need to develop new energy resources. Nuclear fission energy has been introduced into these dramatic scenarios as a necessary evil. Nuclear fission power plants have supplied a great deal of energy to our blue plant (PETRESCU; PETRESCU, 2011; PETRESCU; PETRESCU, 2012; PETRESCU; PETRESCU, 2014).

These nuclear power plants have great advantages but also many disadvantages: the nuclear fission power has managed to overcome the existing energy deficit and give more time to large oil companies to discover new oil, gas and shale deposits. In addition, under controlled conditions, nuclear fission energy is generally cheap and safe. However, even if nuclear fission

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uses a fuel (uranium) that exists in large quantities on the planet, it starts to decrease, as is already the case for hydrocarbons. Moreover, the most thorny problem in the nuclear fission facility remains that both fuel (enriched uranium) and depleted by-products are radioactive and dangerous.

The power of nuclear fission was then a necessary but hardly tolerated evil. Despite all the associated risks, using this type of energy manages the critical crisis of human energy growth until new advanced technologies allow us to move to cleaner alternative energies.

Fusion nuclear power, once again implemented, could be the most powerful source of energy for mankind. Although significant progress has been made in this direction, fusion facilities have not yet been implemented. Nuclear fusion power could not yet be done, but their season is rapidly approaching. The advantages of nuclear fusion energy are enormous.

First, the fuel used in this technology (hydrogen or water) is not radioactive. Of course, this is not the first isotope of hydrogen or of normal water, because the fusion reaction between two protons is extremely difficult (only at high temperatures of the stars). It usually uses the second hydrogen isotope (deuterium which is the nucleus of a proton and neutron) or heavy water (a molecule containing an oxygen atom and two deuterium atoms). Water is found everywhere so that the fuel required for the fusion reaction is infinite, inexpensive, easy to find, friendly and non-toxic or radioactive. The technology of heavy water production in today's waters is well planned.

The products resulting from the fusion reactions are a large amount of energy and helium (an inert gas), so without radioactive waste (such as nuclear fission). The reaction itself is much easier to control (DE NINNO et al., 2002).

Because it is unpredictable when fusion plants will operate in large quantities, it is convincing to offer our green energy farms in advance. Environmental protection through the implementation of green energy becomes a daily reality. Various sources of green energy have been introduced, especially in recent years, across the planet. The process, which has just begun, but ultimately led to the acceleration and implementation of new green energy sources, is still affected by major emerging hurdles.

The most difficult obstacle in the world was the unpredictable and fluctuating green energy production. new energies must not have disagreeable consequences, such as those produced for fossil fuels or nuclear energy. The values of alternative planetary energy sources

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must be renewable and are considered as "free" energy sources. These sources have to have low carbon emissions compared to conventional energy sources.

These may include biomass, wind, photovoltaic, geothermal, hydroelectric, tidal, wave or nuclear (PETRESCU; PETRESCU, 2014).

The most numerous nowadays, because they are easy to build and exploit, are wind and solar photovoltaic farms. But their reliability and technical problem are phases when they produce less or do not produce at all.

One can build nuclear power plants specially designed to represent a factual energy buffer. These specially designed nuclear power plants can become an efficient energy buffer capable of operating at a minimum capacity when the wind or wind (eg when the wind turbine or photovoltaic power operates at full capacity) increases regularly but gradually increases when wind energy is reduced or stopped (HALLIDAY; ROBERT, 1966; PETRESCU; CALAUTIT, 2016a; PETRESCU; CALAUTIT, 2016b; PETRESCU et al., 2016a; PETRESCU et al., 2016b; PETRESCU et al., 2016c; PETRESCU et al., 2017; PETRESCU et al., 2018; PETRESCU, 2018).

However, even if nuclear fission uses a fuel (uranium) that exists in large quantities on the planet, it starts to decrease, as is already the case for hydrocarbons. Moreover, the most thorny problem in the nuclear fission facility remains that both fuel (enriched uranium) and depleted by-products are radioactive and dangerous.

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non-toxic or radioactive. The technology of heavy water production in today's waters is well planned.

The third element of the Mendeleev meal (lithium) is found in nature in sufficient quantities. Neutrons required to produce reaction 5 (with lithium) develop from the second and the first and third reactions. This means that deuterium (heavy water) should be added to lithium.

The raw materials for fusion are deuterium and lithium. All fusion reactions displayed ultimately generate energy and He is recognized as an inert element. For this reason, the fusion reaction is clean and far superior to nuclear fission.

The fusion merger occurs spontaneously at very high temperatures. Getting the high temperature required for hot fusion is still difficult and that is why we must now focus on cold nuclear fusion. To induce cold fusion, we need to accelerate deuterium nuclei in linear or circular accelerators. The adequate energy of accelerated deuterium nuclei should be well calibrated for a final positive yield of fusion reactions (to induce more fusion cores than fusion).

The electromagnetic fields required to keep the plasma (cold or hot) (especially during cold fusion) should be maintained to narrow the core more closely.

One must to destroy the fuel with accelerated deuterium nuclei. The fuel will be made of heavy water and lithium. The optimal lithium ratio should be tested. To achieve strong ionization of fuel, it is necessary to keep the fuel in the plasma state. Under these conditions, instead of deuterium atoms, deuterium nuclei (positive ions) are produced, which can be accelerated by electromagnetic fields.

Environmental protection, through the implementation of green energies, is gradually becoming a daily reality. Numerous green energy sources have been introduced in recent years. Although this process initially started with difficulties, it has led to the acceleration and implementation of new green technologies. However, new major obstacles arise. The most difficult global hurdle encountered, especially in the case of wind and photovoltaic power plants, is the production of irregular and predictable green energy.

This study proposes solutions designed to address this unpleasant aspect of irregular green energy production. The basic idea is building nuclear power plants specially designed to act as energy reservoirs. Nuclear power plants can really function as suitable energy reservoirs that can operate at a minimum capacity when green energy (eg wind or PV) is produced

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constantly (ie when the energy generated by turbines or photovoltaic panels has a constant maximum capacity) or stopped.

Wind farms are reliable, economical, sustainable, friendly and affordable (DUBĂU, 2015; EL-NAGGAR; ERLICH, 2016; PINEDA; BOCK, 2016; RAMENAH; TANOUGAST, 2016).

Nuclear fission power stations have provided a great deal of energy for the blue planet, however, when nuclear fusion plants are rapidly approaching.

In the first part this paper has two major contributions:

1 - proposes the creation of an energy buffer for the use of nuclear power plants (currently for nuclear fission);

2 - presents some important theoretical aspects of the fusion reaction.

A systemic approach embracing all R & D activities that support the expansion of eco-efficient industrial and social systems that respond to market and socio-cultural constraints is necessary to meet the challenge of competitiveness and sustainability, alongside a more dynamic and complex development. More complex scenarios, industrial and cultural. Protecting the ecosystem by implementing green energy becomes a daily technological reality.

Especially in recent years, different green energy sources have been introduced in Technosphere and Valuesphere. The process, which started with difficulty, but ultimately led to the acceleration and implementation of new green technologies, is still affected by the major limitations that arise. The biggest obstacle in the world was the unpredictable and fluctuating green energy production.

Hydraulic energy has been one of the oldest used on our planet and continues to play an essential role today. The problem that limited it was that the hydro potential was generally used to the maximum and a strong further development is no longer possible (DUBĂU, 2015; EL-NAGGAR; ERLICH, 2016; PINEDA; BOCK, 2016; RAMENAH; TANOUGAST, 2016; AVERSA et al., 2017; AVERSA et al., 2016a; AVERSA et al., 2016b).

In this paper, want to briefly present a new original idea that could restore the hydro energy potential of our planet.

There is more and more talk about free energy, but little of it is captured by people today, although technologies have advanced a lot and would allow such operations without too much cost. Capillarity is the tendency of a liquid in a capillary tube or absorbent material to

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rise or fall as a result of surface tension. Capillarity is the ability of a porous body or a tube to attract a liquid, which occurs in situations where the intermolecular adhesion forces between the liquid and the solid are stronger than the intermolecular cohesion forces within the liquid.

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Capillarity can induce an upward movement of water, contrary to gravity-induced descending. Capillary is a set of phenomena due to interactions between liquid and solid molecules (e.g., walls of a container) on their separation surface. The forces that emerge in this phenomenon are the cohesion, adhesion and surface tension. For example, it appears on the surface of the liquid in contact with solids that may appear high (in the case of water) because the forces of adhesion between water and the container containing it are greater than the forces of cohesion between the water molecules, or depressed mercury case), than the rest of the surface, because in this case cohesion is obliged to prevail in terms of adhesion forces.

A strange idea proposed by this paper (in the third part of the paper) is to use capillarity and water in order to produce free energy. A hydropower plant that works by capillary seems, at first sight, a dangerous idea, but today it is likely to catch up with existing advanced manufacturing technologies and nanotechnologies. The construction of tens, hundreds or thousands of capillary vessels that can climb water to higher levels could be possible today. In this way we will raise the water to a higher level freely without the energy expenditure through the capillary processes, then release the high water under high pressure, letting it fall from the height to move the turbines of the respective power plant.

The energy thus obtained is free, clean, sustainable, regenerable, friendly, easy to mount and used in any desired location. Moreover, it will be possible to build such small-sized plants that work directly within an enterprise, institution, hospital, dwelling, shop, stadium ... Such small power plants can be sized to accommodate a block of flats or directly for apartments, meaning that each apartment has such a mining power plant. It would be more appropriate for them to function as a district or city center with large dimensions not to fit within each block or apartment, but in the country areas where homes are isolated they can be adapted and used as a mini energetic central per apartment for individual households.

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Capillary action (sometimes capillary, capillary, or capillary effect) is the ability of a liquid to flow into narrow spaces without the help or even contradiction with external forces such as gravity (fig. 1).

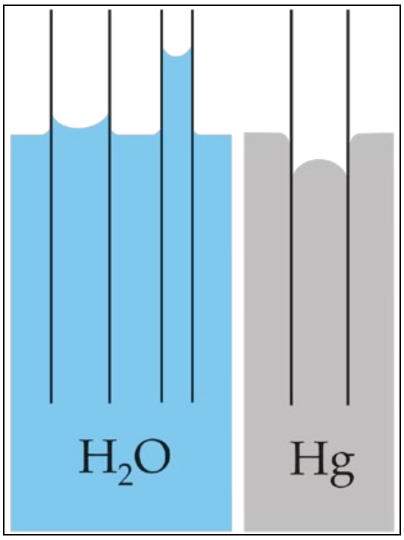

Figure 1: Capillarity of water compared to mercury, in each case considered to be a polar surface, such as that of glass
Source: https://ro.wikipedia.org/wiki/Capilaritate#/media/File:Capillarity.svg

The effect can be seen in the process of raising liquids between the hair of a paintbrush, in a thin tube, in porous materials such as paper and plaster, in some non-porous materials such as sand and liquefied carbon fiber, or in a cell. It occurs because of the intermolecular forces between the liquid surface and the surrounding solid surface. If the diameter of the tube is small enough, then the combination of surface tension (which is caused by cohesion inside the liquid) and the adhesive forces between the liquid wall and the container, act by pushing the liquid.

A capillary experiment to investigate capillary fluxes and phenomena onboard the International Space Station showed that the phenomenon occurs anywhere regardless of gravitational conditions, which may justify the main idea of this work to use capillarity to raise water to height, that is, at a higher level, in hydroelectric power stations, in order to obtain hydraulic power through the hydraulic water through the known classical variants acting on hydraulic turbines.

A common device used to demonstrate the phenomenon is the capillary tube. When the lower end of a vertical glass tube is placed in a liquid, such as water, a concave meniscus forms. Adhesion occurs between the fluid and the solid inner wall that draws the liquid column until there is enough liquid for the gravitational forces to overcome these intermolecular forces.

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The contact length (around the edge) between the top of the liquid column and the tube is proportional to the radius of the tube, while the weight of the liquid column is proportional to the square of the tube radius. So a narrow tube will allow a larger column of liquid than a larger tube since the inner water molecules have a coherent consistency with the outer ones.

Capillary action is observed in many plants. The water is brought up into the trees by branching; evaporation to the leaves creating depressurization; probably through the osmotic pressure added to the roots; and possibly in other locations within the plant, especially when collecting moisture with airborne roots.

The capillary action for water absorption has been found in some small animals, such as the Exotic Ligia (Sea beetle) and the Moloch horridus (Spiny Dragon).

Capillary action is essential for the drainage of tear fluid that is constantly produced from the eye. Two small diameter canals are present in the inner corner of the eyelids, also called lacrimal channels; their openings can be seen with the naked eye in the torn bag when the eyelids are twisted.

Capillarity is also the absorption of a liquid through a material in the form of a candle wick. Paper towels absorb liquid by capillary action, allowing the transfer of liquid from a surface to the towel.

The small pores of a sponge act as small capillaries, causing the absorption of a large amount of liquid. Some textile fabrics are said to use capillary action to absorb sweat from the skin. These are often referred to as absorbent fabrics.

Capillary action is observed in thin layer chromatography where a solvent moves vertically onto a plate by capillary action. In this case, the pores are voids between very small particles.

The capillary action attracts ink to the tips of pen pens or a cartridge inside the pen.

In some pairs of materials such as mercury and glass, the intermolecular forces in the liquid outweigh the forces between the solid and the liquid, so that a convex meniscus is formed and the capillary action works in the reverse direction.

In hydrology, capillary action describes the attraction of water molecules into soil particles. Capillary action is responsible for the passage of groundwater from wet soil into dry areas. Differences in soil potential (Ψm) lead to capillary action in soil.

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An electric capillary power plant will pick up water like trees using capillary, with the help of trillions of capillary vessels that will climb the water to the desired height in several steps. The force that raises the water is that of the capillary vessel systems (MIRSAYAR et al., 2017). Once raised water to the desired level, it can be released directly as in the classic hydroelectric systems to produce energy by rotating powerful turbines.

The height of a meniscus can be seen in Figure 2. Based on this extremely important diagram, one can design how the capillary vessel will climb water. At what height can water rise depending on the thickness of the capillary, and some engineering optimizations will fix the number of steps of the capillary systems necessary to raise the water to the desired final level.

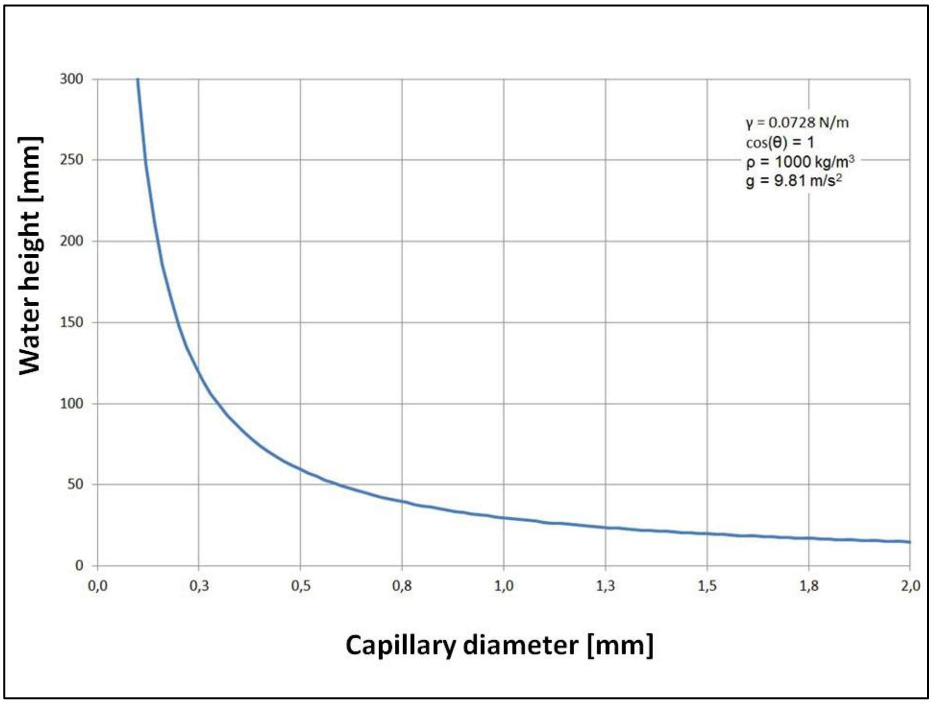

Figure 2: The height of water in a capillary plotted against the capillary diameter
Source: https://www.setthings.com/ro/capilaritatea/

If one want fewer water lifting steps to the required level, then we will design capillary vessels with a very small internal diameter, but if we can build more water lifters levels then we can design capillary vessels with a slightly larger internal diameter.

In the most appropriate case where a mega power plant of this type will be built, if it is positioned in a windy area with wind power stations, when the wind blows at a high and very high speed, producing more energy in the wind than it can be taken over by the national energy system, the wind energy surplus that is normally lost can be used to drive pumps that will climb

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the water in the plant in addition to the capillary systems thus bringing the plant power to even greater capacities.

2. MATERIALS AND METHODS

All organic (organic) and inorganic materials are made up of elemental particles called atoms. Atoms are formed around the nuclei by capturing electrons that will rotate around nuclei in the form of electron clouds. Generally, a normal atom will contain electrons equal to the number of protons that are inside its nucleus. The core of the atom consists of two types of nucleons, protons (each charged with a positive charge) and neutrons (uncharged or neutral, zero) (HALLIDAY;D ROBERT, 1966; PETRESCU; CALAUTIT, 2016a; PETRESCU; CALAUTIT, 2016b; PETRESCU et al., 2016a; PETRESCU et al., 2016b; PETRESCU et al., 2016c; PETRESCU et al., 2017; PETRESCU et al., 2018; PETRESCU, 2018).

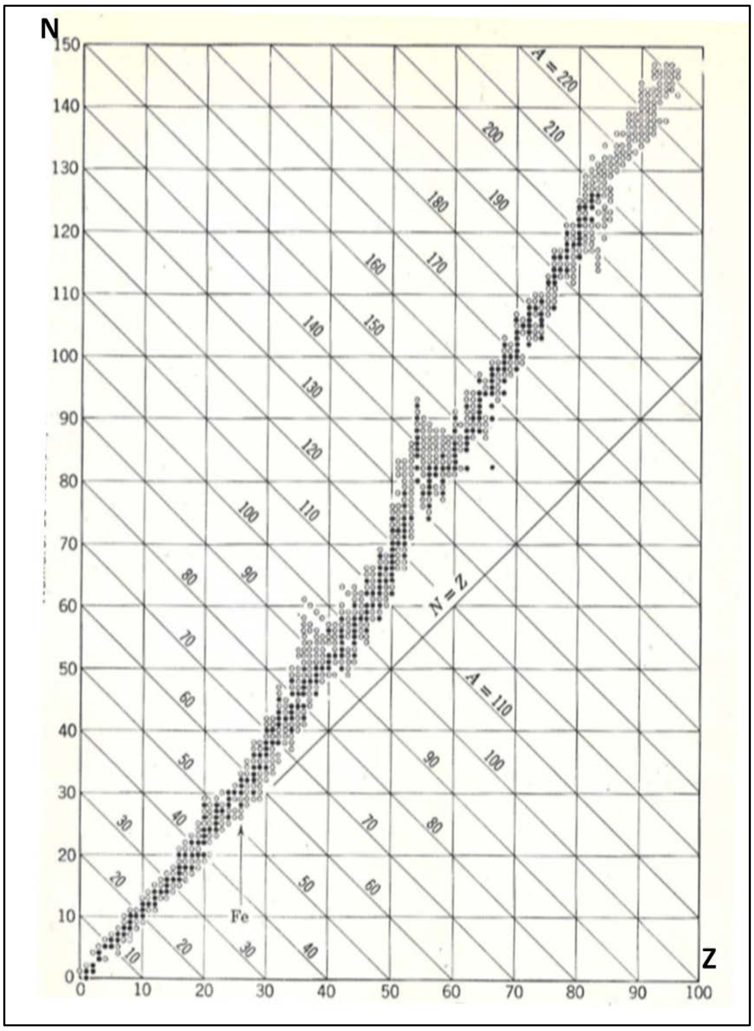

Figure 3: Diagram of atomic cores (atomic nuclei)

The nuclei are constructed from the minimal nucleus containing a single proton by the addition of nucleons.

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If the nuclei could resist the electromagnetic rejection forces, they could only be made of protons. Since the first pair of protons reunited with reciprocal forces are large enough to break the connection between them, it is already necessary to connect the nuclear forces (attraction) so that the core does not break. For this reason, for each proton added to the nucleus, at least one neutron should be added to contribute to kernel equilibrium.

For light atoms with light nuclei (found in the first part of the diagram in Figure 3), the required number of neutrons in the nucleus is lower, and when going to the right to heavier atoms and nuclei, more neutrons will be needed to connect nuclear powers do not break. In other words, since the nucleus is larger (heavier), it will contain a greater number of neutrons in its nucleons (HALLIDAY; ROBERT, 1966).

On-Line 45 there are nuclei that have an equal number of protons (Z = p) and neutrons (N = n), and above them, there are heavier nuclei at which the number of neutrons in the nucleus is higher than protons (HALLIDAY; ROBERT, 1966). Spontaneous nuclear spying can occur only on heavier and heavier nuclei located on the right on a larger surface of the graph, while nuclear fusion is only possible at the beginning of the left diagram for the very first very light nuclei such as the first three isotopes of hydrogen. The first circle drawn on the diagram in Figure 1 corresponds to the single nucleus formed by a single neutron (Z = zero protons) and (N = 1 neutron).

For Z = 1 (a single proton in the nucleus) there are three drawn variants corresponding to the three hydrogen isotopes). Neutron zero (N = 0) where the nucleus contains a single proton and will be called the proton (the first isotope of hydrogen, which the atom is called a certain nucleus and called the proton). The second variant with a neutron (N = 1) in which the nucleus contains a proton and a neutron is the second hydrogen isotope (as a deuterium atom and only the deuteron nucleus), which is located on the 45-degree line where the nuclei are balanced (Z = N). And the third variant at Z = 1 are the two neutrons (N = 2) representing the third hydrogen isotope (as a tritium atom and as a nucleus called triton), the triton nucleus containing three nucleons, a proton, and two neutrons (HALLIDAY; ROBERT, 1966; PETRESCU; CALAUTIT, 2016a; PETRESCU; CALAUTIT, 2016b; PETRESCU et al., 2016a; PETRESCU et al., 2016b; PETRESCU et al., 2016c; PETRESCU et al., 2017; PETRESCU et al., 2018; PETRESCU, 2018).

In order to better understand the nuclear mechanisms represented in the diagram in Figure 1, it should be noted that stable nuclei are represented as complete circles (black), while

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unstable nuclei are represented as hollow circles (white). So if the proton is stable, like the deuteron, the triton is unstable and even more, even the neutron is now considered unstable and can deform into a proton, an electron, and an antineutrino. Going to Z = 2 (two protons) we reach the helium with the three isotopes, the first two being stable (N = 1, N = 2) and the third is unstable (N = 4). An elementary mobile particle always moves and its kinetic energy is represented by relationship 1 (this being composed of two different entities: the kinetic energy of the translational motion and the kinetic energy of rotation motion), where J is the mass at the rotation movement of the element (particle) being the moment of mechanical inertia or moment of mass inertia, and M is the normal mass of the particle in translational movement, v is the velocity with which the particle moves in the translational motion, and w is the velocity of particle in its rotation motion around its own axis (HALLIDAY; ROBERT, 1966; PETRESCU; CALAUTIT, 2016a; PETRESCU; CALAUTIT, 2016b; PETRESCU et al., 2016a; PETRESCU et al., 2016b; PETRESCU et al., 2016c; PETRESCU et al., 2017; PETRESCU et al., 2018; PETRESCU, 2018).

$$E_c = \frac{1}{2} M \cdot v^2 + \frac{1}{2} J \cdot \omega^2 \quad (1)$$

The mass inertia moment of the particle J is a function of M, R at square, and a constant K (relation 2).

$$J = K \cdot M \cdot R^2 \quad (2)$$

Using relationship 2, expression 1 gets the form 3.

$$E_c = \frac{1}{2} M \cdot v^2 + \frac{1}{2} K \cdot M \cdot R^2 \cdot \omega^2 = \frac{1}{2} M \cdot \left(v^2 + K \cdot R^2 \cdot \omega^2\right)$$

(3)

Pulse of the particle is written using the relation 4.

$$p = M \cdot v \quad (4)$$

The wavelength associated with the particle can be determined with the relationship 5 (according to Louis de Broglie the pulse is conserved), where h is the Planck constant:

$$\lambda = \frac{h}{p} = \frac{h}{M \cdot v} \quad (5)$$

Wave frequency associated with the particle is determining by relationship 6, where c is the light velocity.

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$$\gamma = \frac{c}{\lambda} = \frac{c \cdot M \cdot v}{h} \tag{6}$$

The angular velocity of the particle and its square can be calculated with the relationships 7.

$$\begin{cases} \omega = 2\pi\gamma = \dfrac{2\pi \cdot M \cdot c \cdot v}{h} \\ \omega^2 = \dfrac{4\pi^2 \cdot M^2 \cdot c^2 \cdot v^2}{h^2} \end{cases} \tag{7}$$

Using expressions 7 the relationship 3 takes the form 8.

$$\begin{cases} E_c = \dfrac{1}{2} M \cdot \left(v^2 + K \cdot R^2 \cdot \omega^2\right) = \dfrac{1}{2} M \cdot \left(v^2 + K \cdot R^2 \cdot \dfrac{4\pi^2 \cdot M^2 \cdot c^2 \cdot v^2}{h^2}\right) = \\ = \dfrac{1}{2} M \cdot v^2 \cdot \left(1 + \dfrac{4\pi^2 \cdot K \cdot c^2}{h^2} \cdot M^2 \cdot R^2\right) \end{cases} \tag{8}$$

The kinetic energy of the moving particle can be determined and by the relationship 9.

$$E_c = E - E_0 = M \cdot c^2 - M_0 \cdot c^2 = \left(M - M_0\right) \cdot c^2 \tag{9}$$

Identifying the relationships 8 and 9 are obtained the expression 10 which can determine the radius of an elementary moving particle, where M is the particle mass in moving and M_0 is the mass of the stationary particle.

$$\begin{cases} \begin{cases} E_c = \dfrac{1}{2} M \cdot v^2 \cdot \left(1 + \dfrac{4\pi^2 \cdot K \cdot c^2}{h^2} \cdot M^2 \cdot R^2\right) \\ E_c = \left(M - M_0\right) \cdot c^2 \end{cases} \Rightarrow \\ \Rightarrow \left(M - M_0\right) \cdot c^2 = \dfrac{1}{2} M \cdot v^2 + \dfrac{1}{2} M \cdot v^2 \cdot \dfrac{4\pi^2 \cdot K \cdot c^2}{h^2} \cdot M^2 \cdot R^2 \Rightarrow \\ \Rightarrow 2\left(M - M_0\right) \cdot c^2 = M \cdot v^2 + M \cdot v^2 \cdot \dfrac{4\pi^2 \cdot K \cdot c^2}{h^2} \cdot M^2 \cdot R^2 \Rightarrow \\ \Rightarrow R^2 = h^2 \cdot \dfrac{2\left(M - M_0\right) \cdot c^2 - M \cdot v^2}{4\pi^2 \cdot K \cdot c^2 \cdot M^3 \cdot v^2} = \dfrac{h^2}{4\pi^2 \cdot K \cdot c^2} \cdot \dfrac{2\left(M - M_0\right) \cdot c^2 - M \cdot v^2}{M^3 \cdot v^2} \\ \Rightarrow R = \dfrac{h}{2\pi \cdot \sqrt{K} \cdot c} \cdot \dfrac{\sqrt{2\left(M - M_0\right) \cdot c^2 - M \cdot v^2}}{M\sqrt{M} \cdot v} \end{cases} \tag{10}$$

The mass of particle is quantum determined with the Lorentz relationship 11. Using the quantum form for the mass M, the expression 10 takes the form 12.

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$$M = \frac{M_0 \cdot c}{\sqrt{c^2 - v^2}} \tag{11}$$

$$\begin{cases} R = \dfrac{h}{2\pi \cdot \sqrt{K} \cdot c} \cdot \dfrac{\sqrt{2M_0 \cdot c^2 \cdot \dfrac{c - \sqrt{c^2 - v^2}}{\sqrt{c^2 - v^2}} - \dfrac{M_0 \cdot c}{\sqrt{c^2 - v^2}} \cdot v^2}}{\dfrac{M_0 \cdot c}{\sqrt{c^2 - v^2}} \sqrt{\dfrac{M_0 \cdot c}{\sqrt{c^2 - v^2}}} \cdot v} \\ R = \dfrac{h}{2\pi \cdot \sqrt{K} \cdot c^2 \cdot M_0} \cdot \dfrac{\sqrt{c^2 - v^2} \cdot \sqrt{2 \cdot c^2 - 2c \cdot \sqrt{c^2 - v^2} - v^2}}{v} \end{cases} \tag{12}$$

Mechanical moment of inertia of a sphere around of one of its axes could be determined by using the relationship 13 (HALLIDAY; ROBERT, 1966; PETRESCU; CALAUTIT, 2016a; PETRESCU; CALAUTIT, 2016b; PETRESCU et al., 2016a; PETRESCU et al., 2016b; PETRESCU et al., 2016c; PETRESCU et al., 2017; PETRESCU et al., 2018; PETRESCU, 2018).

$$\begin{cases} J = \dfrac{2}{5} \cdot M \cdot R^2 \\ J = K \cdot M \cdot R^2 \end{cases} \Rightarrow K = \frac{2}{5} \tag{13}$$

For such a spherical elementary particle, the radius R can be determined by the particular relationship 14.

$$R = \sqrt{\frac{5}{8}} \frac{h}{\pi \cdot c^2 \cdot M_0} \cdot \frac{\sqrt{c^2 - v^2} \cdot \sqrt{2 \cdot c^2 - 2c \cdot \sqrt{c^2 - v^2} - v^2}}{v} \tag{14}$$

3. RESULTS AND DISCUSSION

If one takes an electron in motion and will apply the relationship 14, it obtains the results tabulated in Table 1, where beta is the ratio of the speeds given by the help relation 15 (HALLIDAY; ROBERT, 1966; PETRESCU; CALAUTIT, 2016a; PETRESCU; CALAUTIT, 2016b; PETRESCU et al., 2016a; PETRESCU et al., 2016b; PETRESCU et al., 2016c; PETRESCU et al., 2017; PETRESCU et al., 2018; PETRESCU, 2018).

$$\beta = \frac{v}{c} \tag{15}$$

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Table 1: The electron radius in function of β

β	0.000009	0.00002	0.0001	R[m]	4.93E-16	4.07E-16	8.15E-17
β	0.001	0.01	0.1	R[m]	3.05E-16	3.05E-15	3.04E-14
β	0.2	0.3	0.4	R[m]	6.04E-14	8.94E-14	1.16E-13
β	0.5	0.6	0.7	R[m]	1.41E-13	1.62E-13	1.78E-13
β	0.8	0.9	0.99	R[m]	1.83E-13	1.66E-13	7.47E-14
β	0.999	0.9999	0.99999	R[m]	2.61E-14	8.51E-15	2.71E-15
β	0.999999	0.9999999	0.99999999	R[m]	8.62E-16	2.72E-16	8.63E-17

Using the original method proposed by the authors, the moving electron beam can be determined with great precision, depending on the speed at which it moves. It can be seen from the results presented in Table 1 that the electron has no constant radius. The electronic phase depends primarily on the speed of movement and, secondly, on the rest mass.

From the table shown, the average radius of an electron 1.09756E-13 [m] and a maximum electronic value of 1.83152E-13 [m] corresponding to a β = 0.8 can be determined. The minimum radius value (in real cases) is about 8.15E-17 [m], but may decrease more when the limits are reached. Electrons that normally move at low speeds of about 0.01c will have a range of 3.05E-15 [m]. Only this value can be found using classical relationships already known.

One can determine the value of average radius of a proton (or neutron) 5.9779E-17 [m], and its maximum value 9.97547E-17 [m] ≅ 1E-16 [m] obtained for β =0.8 (Table 2).

Table 2: The proton radius in function of β

β	0.000009	0.00002	0.0001	R[m]	2.68E-19	2.21E-19	4.43E-20
β	0.001	0.01	0.1	R[m]	1.66E-19	1.66E-18	1.65E-17
β	0.2	0.3	0.4	R[m]	3.29E-17	4.87E-17	6.36E-17
β	0.5	0.6	0.7	R[m]	7.71E-17	8.86E-17	9.69E-17
β	0.8	0.9	0.99	R[m]	9.97E-17	9.08E-17	4.06E-17
β	0.999	0.9999	0.99999	R[m]	1.42E-17	4.63E-18	1.48E-18
β	0.999999	0.9999999	0.99999999	R[m]	4.69E-19	1.48E-19	4.70E-20

4. CONCLUSIONS

The paper provides researchers or theoretician an exact tool for calculating the parameters of elemental, atomic and nuclear particle.

This new work, one comes back with a new dynamic hypothesis designed to fundamentally change again the dynamic particle size due to the impulse influence of the particle. Until now it has been assumed that the impulse of an elementary particle is equal to the mass of the particle multiplied by its velocity, but in reality, the impulse definition is different, which is derived from the translational kinetic energy in rapport of its velocity. This produces an additional condensation of matter in its elemental form.

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Hydraulic energy has been one of the oldest used on our planet and continues to play an essential role today. The problem that limited it was that the hydro potential was generally used to the maximum and a strong further development is no longer possible.

In this paper, want to briefly present a new original idea that could restore the hydro energy potential of our planet.

Capillarity is the ability of a porous body or a tube to attract a liquid, which occurs in situations where the intermolecular adhesion forces between the liquid and the solid are stronger than the intermolecular cohesion forces within the liquid. Capillarity can induce an upward movement of water, contrary to gravity-induced descending.

The idea proposed by this paper is to use capillarity and water in order to produce free energy. A hydropower plant that works by capillary seems, at first sight, a dangerous idea, but today they can be realized with existing advanced manufacturing technologies and nanotechnologies.

The construction of trillions of capillary vessels that can climb water to higher levels could be possible today. In this way one will raise the water to a higher level freely without the energy expenditure through the capillary processes, then, release the high water under high pressure, letting it fall from the height to move the turbines of the respective power plant. The energy thus obtained is free, clean, sustainable, renewable, friendly, easy to mount and used in any desired location.

Until one of the two new ideas proposed, the first for the start of the nuclear fusion reaction, and the second one for the possible construction of capillary power plants in the future, it is still necessary to keep the green energy of any type already existing and nuclear fission.

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