A Philosophical Approach to Cold Fusion

Abstract
To our experience, cold fusion processes describe the interaction between matter and antimatter. The asymmetry between the material particle and its antimatter prevents matter and antimatter to collapse instantaneously and is based on the setting that antimatter is in time advanced to matter. We postulate the existence of antimatter right here on earth as the specific movement which any material particle is surrounded with and from which mass, as the time dependent physical unit, of the material particle is generated. Reversing time from negative to positive makes matter and antimatter symmetrical so that they collapse instantaneously yielding significant excess heat and generating electric current of less resistance similar to superconductivity. This reversing process as dematerialisation can be likely achieved by carrying out long term electrolysis and, if progressively ongoing, results in a successive nuclear transmutation through the quantum states. The use of electrolysis is essential to combine matter and antimatter to a single vortex current in the zero point energy state. This model shows a plausible explanation for cold fusion processes to circumvent the entirely heated discussions about the coulomb barrier potential as the main cause to ignore results indicating low energy nuclear transmutation.

Introduction
With the upcoming drastic climate change and the sold out of fossil fuel sources, the search for alternative and renewable energy becomes increasingly essential. In addition to recently developed promising technologies to generate alternative energy, cold fusion – the nuclear transmutation at room temperature – still plays, among all sources of new energy technologies, a lees important role in public. The research on cold fusion and the development of innovative technologies for commercial application becomes interesting as well as the need for a physical understanding of the mechanism and a suitable philosophical interpretation.
It is obvious that cold fusion is not similar to thermonuclear hot fusion processes. An appreciable number of available documents reports on different methods by which nuclear reaction is produced and controlled at low temperature[1]. Those methods are ranging from the use of gun-powder technique to the attempt to electrochemically induce nuclear fusion and fission with large excess heat in a deuterium containing metal lattice[234]. The emphasis is directed towards the fabrication of so called “cold fusion devices” with unique commercial potentials demonstrating the power of low temperature nuclear reactions as one of the alternatives to fossil fuels.
The idea of cold nuclear fusion has lead to endless discussions about the kinetic impossibility of intense nuclear reactions with high coulomb barrier potentials. With the memorable Pons-Fleischmann experiment[4] in 1989, in which an electrochemical cell

filled with heavy water and corresponding electrolyte in the solution was used, significant excess heat and change of the surface morphology of the palladium rod used as the electrode were discovered. In discussing the experimental result M. Fleischmann could only attribute this behaviour to a nuclear fusion process electrochemically induced by loading deuterium into the palladium metal lattice, and with this interpretation he obviously challenged the scientific community to think about a new adequate atomic model. The attention has been focused to approach new ideas ranging from nucleon-cluster to the electron charge–cluster model[1], as examples mentioned here. The search for a new atomic model and a new physics, in general, is urgently required to reasonably explain this exceptional experimental outcome and to make it reproducible. However, reproducibility of cold fusion reactions has been hardly obtained, and no research group has fully resolved the problems associated with the special preparation of the metal electrode, the loading of heavy water and the turning on of excess heat.

Cold fusion has been normally regarded as a hydrogen – hydrogen or a deuterium – deuterium reaction, and most of the research scientists have commonly prioritised this idea as a main stream from which to carry out and interpret their experiments. Based on the working hypothesis described by Pons and Fleischmann to electrochemically induce nuclear reactions within the metal lattice, cold fusion research scientists mainly focused on the metal electrode system. This implies the application of appropriate potentials to allow hydrogen to penetrate through the metal surface right into the metal bulk. Penetrating into the metal bulk hydrogen and/or deuterium are then likely to occupy interstitial sites within the metal so that the distance to each other becomes closer making the collision and fusion reaction between the nuclei much more probable. Assuming that cold fusion is likely to be achieved with the electrochemical insertion of hydrogen and/or deuterium into the metal, palladium, able to absorb hydrogen/deuterium in large quantities, has been regarded as the appropriate metal on which to focus the research over the years aiming to provide reproducibility of cold nuclear reactions. However, experimental results showed that nuclear fusion reactions are not restricted to palladium, used as electrode, but also occurred in the presence of other metals such as nickel and gold, as examples[1].

The more the physics is in need to give a plausible explanation for the cold fusion phenomenon, the more the construction of an adequate and renewed Philosophy is required. In this presentation we attempt to give a reasonable philosophical model explaining matter and antimatter, movement and frozen movement, energy and mass, space and time. The physics of cold fusion is necessarily to be seen in a philosophical context on which the attention is focused in this paper. We present a general concept, not only restricted to hydrogen and deuterium as solution compartments and palladium as electrode mostly used in the experiments, but describing the cold fusion phenomenon

in a complete different sense as a permanently ongoing natural process which, for a better understanding, requires to change our perspective

The New Science of Axioms

Long term electrolysis for several days in an electrochemical cell compartment has been found to be the most convenient tool to achieve cold fusion reactions. Although in some cases evidence for cold fusion reactions could have been provided, cold fusion is still the most striking and controversial topic in science. It is on the one hand reasoned by the fact that this system is still lacking of reproducibility, and on the other hand, proceeding from the traditional scientific viewpoint, it is hard to believe that nuclear fusion reaction is possible at ambient conditions. The most favoured argument to object the possibility of cold fusion has certainly something to do with the coulomb barrier potential that makes the approach and finally the collision of equally loaded particles kinetically impossible. Therefore, to consider cold fusion as a meaningful option in physics seems undoubtedly to be much provoking and challenging, especially because cold fusion scientists claim that the nuclei penetrate through this barrier potential. To work on the basis of the hypothesis that this barrier allows hydrogen and/or deuterium nuclei to penetrate and so to collide effectively with a yield of significant excess heat and with the drastic change of the surface morphology of the electrode used, is disruptive and game changing to the conventional nuclear physics and to our general perspective from which we used to explain scientific results.
The philosophy which we present is based on a complete different view and understanding of science and specifically of matter and antimatter. To provide the background of our philosophy from which then we can derive a construction to explain cold fusion, we set up five axioms[5].

1) We distinguish three different states: zero point, antimatter and matter state.
2) Cold fusion as interaction between matter and antimatter
3) Antimatter as specific movement to each material particle
4) Matter and antimatter as a coil similarly vortex current
5) Antimatter is in time advanced to matter

Following the first axiom we set up, we consider three different states in general. This axiom is based on the fundamental assumption that our entire being, our universe, consists of three states, which are arranged to each other in a circuit, in a way that the zero point energy state transforms to the antimaterial state, and the antimaterial state transforms to the material state (**figure 1**). On the basis of this axiom we conclude that the energy is always present, and this circuit implies the permanently ongoing transformation between these three different states in which any material particle, any being in this whole universe, including the human race, is embedded.

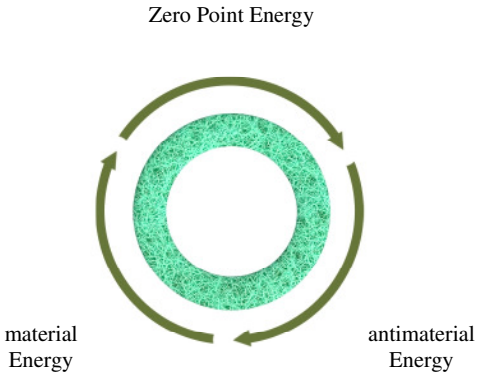

Figure 1: The general concept and basis of the philosophy described here is illustrated in a so called circuit of energy. This circuit describes the permanently ongoing process in which the zero point energy transforms into antimatter and the antimatter transforms into matter.

The human race has been always searching for the energy required to initially start life, to make one step after the other, to induce new living, processes, events and to enhance economical growth. Our human existence has been thoroughly about the never ending search for energy, the ruthless exploitation of sources, once found and commercially used. It is hard to imagine that this zero point energy truly exists as so called “Free Energy”. It seems untouchable and not in the framework of scientific conventions. However, based on the science of axioms presented in this paper, we derive a sort of conclusion from this setting, in a way, to proceed from the existence of a “Free Energy” source which to discover seems rather unlikely unless we include this energy source as zero point energy in a circuit to describe a permanently ongoing transformation between zero point energy, antimatter and matter. Of course, there is no denying the fact that the definite proof cannot be given for this; what we actually do, is to initiate a totally different and, for sure, peculiar construction leading to a new way of thinking with the aim to explain experimental results from a perspective we never thought of, but a perspective from which then we may find a plausible and unambiguous mechanism for cold fusion reactions. But having this circuit of energy in mind all the time through our discussion, we end up with a very unusual and exceptional view of what the world is like and what cold fusion might be about, but it will bring us to a new way how to see cold fusion. We all aim to find a conclusive explanation of how it works. But so far there is no clear consensus about the mechanism of what cold fusion is like, and it is not easy to come up with a plausible explanation to suggest a profound deeply thought through mechanism that might bring cold fusion to work and to yield excess heat and transmutation to order whenever the experiment is running. It is about finding an

explanation, a mechanism, as thought provoking as it might be. However, from all we know today, this implies the change of the perspective, the different view and very probably the change of the physics.

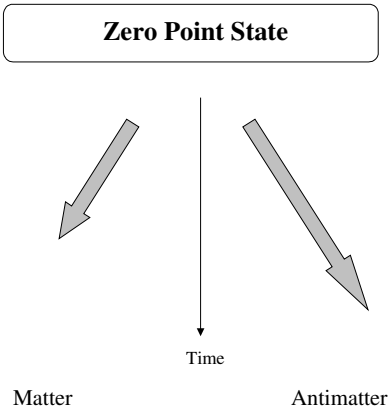

Figure 2: Matter and antimatter both exist in a dualistic scheme as pole and corresponding counterpole. Antimatter is in time advanced to matter.

The proposed circuit of energy postulates the existence of antimatter right here on earth. This postulation is quite strange and again peculiar leading very probably to an endless discussion about what antimatter is like. According to this axiom, it does not make so much sense to assume antimatter light years away from here. The far more we believe the antimatter to be found, the more difficult it is, to my mind, to come up with a conclusive mechanism to make the cold fusion phenomenon reproducible. I see the antimatter right here on earth although there is no proof about what I am saying. We just followed the axioms we set up beforehand. This has formed our new fundamental view of how things might work. If we consider the dualistic world in which we are presumably embedded and in which our whole being, our universe, in the macro and microscopic world exists, it makes much more sense to proceed from the assumption that the antimatter may be found right here. This belongs to the basis of our philosophy, and we consider in this dualistic world to live in a sort of environment consisting of pole and the corresponding counterpole, we therefore may exclude the existence of antimatter so far away. We consider the zero point state which divides into two opposite to each other existing poles, the matter and the antimatter. Even if we do not agree with this; we still have to admit that the physics claimed once the existence of antimaterial particles to material particles such as electron – positron ; proton – antiproton, to maintain the conservation law of mass and energy.

Then, it is essential to assume and to proceed from the axioms that the antimatter as coil similarly vortex current (same as matter) appears as specific movement to matter (thoroughly discussed later), in a way that the antimatter is in time advanced to matter. This only makes sense because if matter and antimatter were in time equal they were symmetrical and would collapse instantaneously so that both states would actually not exist. Antimatter and matter need to be asymmetric to maintain their existence. This asymmetry can only be found in the time difference between both, so that the one, the antimatter, is in time advanced to matter. In case of symmetry both would collapse and would fall into each other as though they never existed before (**figure 2**).

A New Way of Thinking

From what it has been written so far, the reader might have come to the conclusion that the philosophy presented here reverses the way of thinking we are used to. And exactly this the point. It is about a new way of thinking, a new approach to our problems, a strange but new scientific approach.

Once a problem in our laboratory research occurs we often tend to investigate this problem very much in detail, without knowing where to go, and without remembering where we came from. To be honest with us, I observe a strong tendency to detailed and again detailed investigations, without putting the findings in one context, simplifying the results and not overcomplicating them. It is about simplification that we are missing in our studies. Our way of thinking goes slightly branched, then ends up finally in a sort of jungle from which we might not see to possibly come up.

Reversing our way of thinking based on a complete different fundament that says that we are not missing anything, everything we are surrounded with is just in excess to us, would make it possible to change our perspective of probably 180 degrees contrary to the initial direction. And then we might be able to open a door, we never thought of in the past, we never imagined that it could be possible, and opening this door we can see that the world is very much different from what we have originally suggested. The solution of our problems becomes clear, the dysfunction, previously very much uncomfortable for us, returns into functioning. In viewing through this door, in the opposite direction to any other original one, we note that the world is functioning in the opposite way we never thought of, and we might come to the painful and destroying but also necessary conclusion that the fundamental physics from which we derived so far the laws and conventions, the viewpoint of observing experimental results and from which we derived and constructed our way of thinking determining our scientific view over the last decades, needs to be questioned and re evaluated.

Questioning the fundamental physics and the basics of our scientific understanding becomes more important and strongly advisable as we know more about the experimental evidence for low energy nuclear reactions. These experimental findings outlining the possibility about cold fusion are permanently knocking on our door, trying

not to be ignored and pushing the physics to re evaluate the current theory about nuclear reactions. From all the experimental results obtained (also shown here in this book) cold fusion seems to be a real phenomenon, and regarding the upcoming climate change and the necessity to replace fossil fuels in the nearest future it is even more urgent than ever before to deeply investigate this issue. However, as cold fusion does not fit well with theory and mechanism of how to see nuclear reactions in a standard way, we might think about re evaluating our scientific viewpoint, which obviously has hampered the fruitful discussion on this issue. It means to discuss cold fusion with an open mind, clarifying and finding the true mechanism, and this may will lead us to a new science, a complete change of our perspective, unfortunately urgently required to handle economical growth with respect to environmental impact and to think problem solving in dealing with the climate change. Regarding the upcoming climate change i personally think that we will forcefully come to the painful conclusion that our scientific perspective needs to be changed, needs to be reversed.

Asymmetry and "Energetic Imbalance"

In the next, we will discuss a quite new way to describe the universe in approaching a new atomic model. Having the axioms we set up beforehand in mind, the basis of this philosophy, presented here, is the permanent circulation of energy.

At the zero point state matter and antimatter would instantaneously collapse, so that both states, initially formed from the zero point state, cannot exist. The zero point energy transforms into antimatter in pushing the antimatter one quantum state ahead of the matter state. Antimatter materialises into matter, and considering the circuit of energy, outlined at the beginning, the energy transforms from the zero point state via the antimatter state finally into the matter state. In the next, another quantum of zero point energy transforms into antimatter, pushing the antimatter again ahead, precisely one quantum state further ahead of the matter state. This results in a progressively growing asymmetry between matter and antimatter. This asymmetry, originated in the time difference between matter and antimatter, as declared beforehand, can be seen as an "Energetic Imbalance".

Referring this asymmetry to an "Energetic Imbalance", that we found necessary to set up in this context, is meant to demonstrate the relation between matter and antimatter, the time difference, the materialisation and dematerialisation process which then in this paper turns out to be relevant to explain our viewpoint of cold fusion. In **figure 3** it is illustrated what we understand under "Energetic Imbalance" on a time scale. It shows the time difference between matter and antimatter, saying that the antimatter is in time advanced to matter, and in this paper this has been regarded as "Energetic Imbalance" which totally includes the materialised energy. The more the antimatter is in advance to matter the more the "Energetic Imbalance" increases.

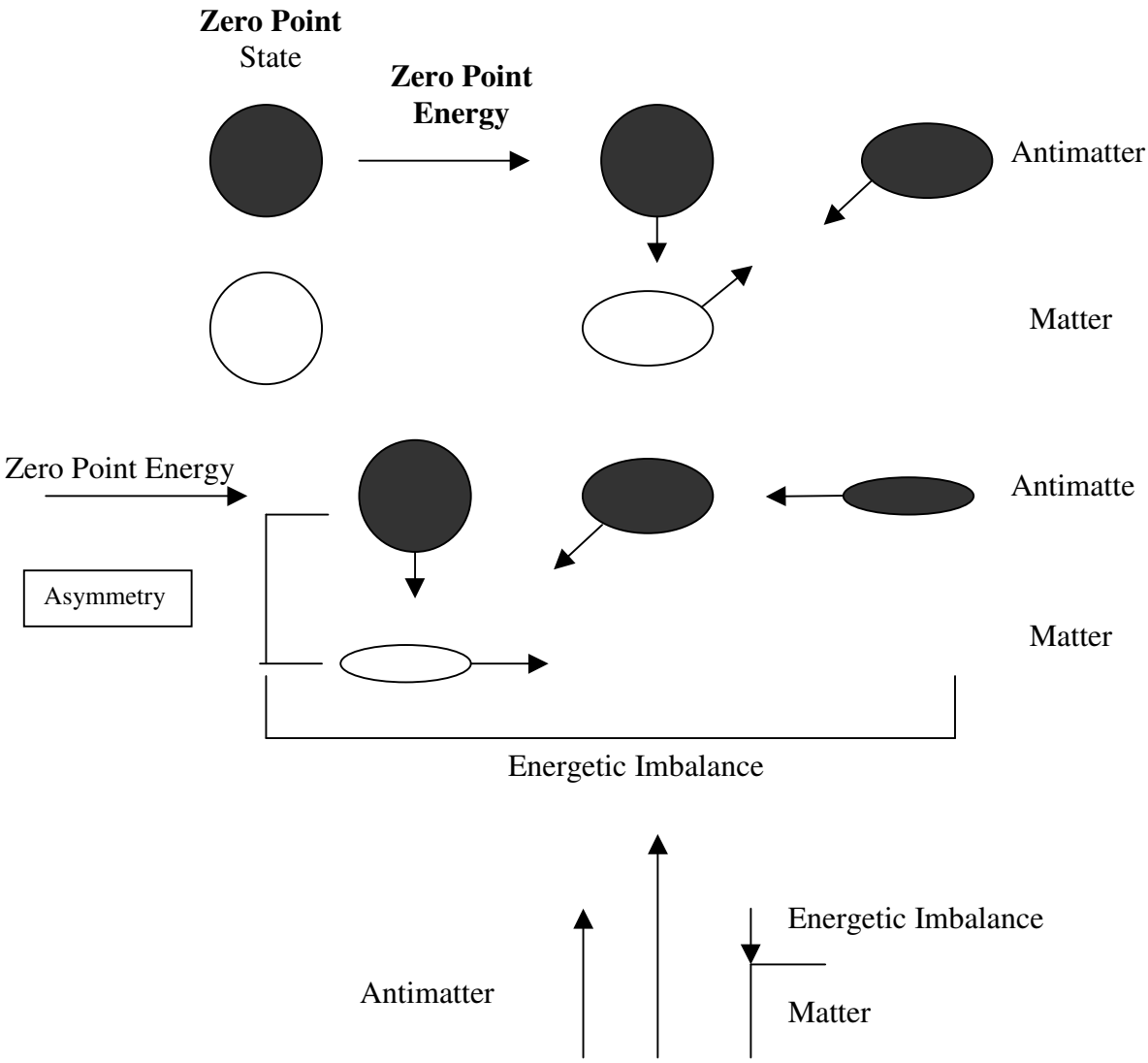

Figure 3: It shows a quite different approach of how the universe might be seen. In considering the circuit of energy outlined above antimatter, permanently pushed by the zero point energy quantum states ahead, is in time advanced to matter from which then the Energetic Imbalance, as declared in this context, is originated.

The Universe from a Different Perspective

The general circuit of energy distinguishing between zero point energy, antimatter and matter, can be seen in a microscopic way on small dimensions but also at a level of macroscopic dimensions on a large scale. It only depends on the angle of view. Thinking about this model and putting it on a larger scale we certainly end up discussing the general concept of how the universe might work. And so, my question is,

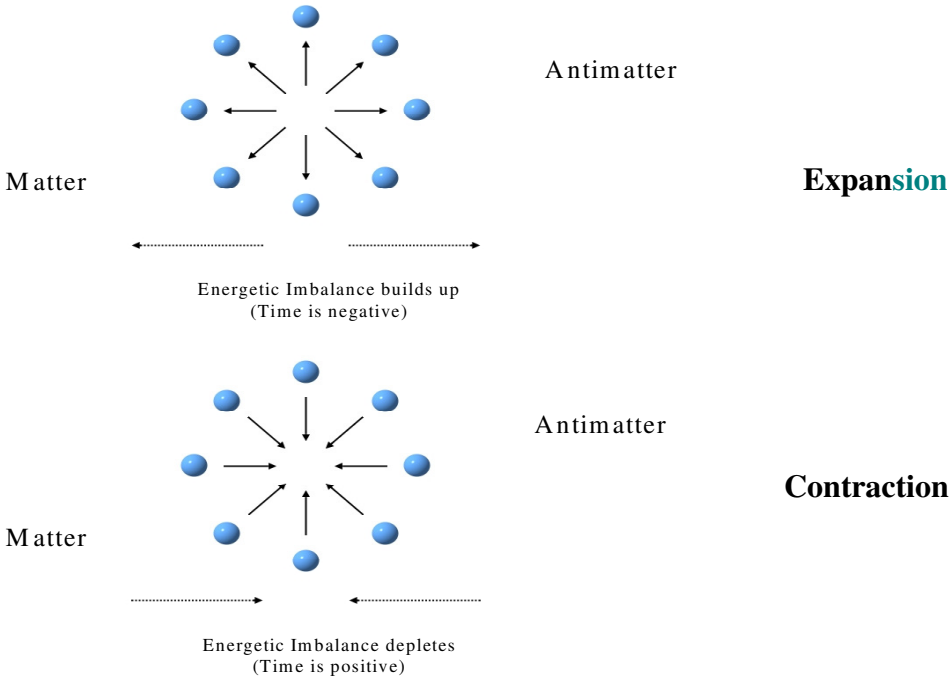

Figure 4: Based on the science of axioms presented here, the scheme outlines a theoretical approach of what the mechanism of the universe could be like. The Energetic Imbalance is used to describe the element building up (expansion) and consuming (contraction) reaction of opposite direction from which we distinguish two directions of time and with which materialisation and dematerialisation processes can be reasonably explained.

as to whether this endless ongoing discussion in academic science about the "big bang" helps us to understand what the mechanism of the universe is like? Is this really a necessary contribution to our understanding of how the universe works or does it only fill papers and papers without revealing problem solving ideas? Whenever science tends to be endless in discussing research and never ending questions, it might remain purely academic without any help and without any significant contribution to the understanding of the law of nature.

Figure 4 shows our viewpoint of the universe, considering the antimatter and matter states and embedding the Energetic Imbalance as the key factor to describe broadly the mechanism. In doing this, we start addressing a key question which automatically arises when discussing the origin initially responsible for the "big bang", and this key question is about the origin of the energy, so where it came from to cause the "big bang". If this question is not prioritised, the "big bang research" really tends to be endless and not purposeful. Where is the energy originated? With respect to the conservation law we know that the energy cannot disappear and cannot be re originated. If we consider the science of axioms presented here and hence the energy states, deeply determining this philosophy, we might come up with the only feasible conclusion that the energy, as it is always present, just only transforms from one state to the other in a process which can be described as circulation of energy.

Based on the model shown here, it is conclusive to explain the global functioning of the universe with the existence of the “Energetic Imbalance” as the key factor to describe materialisation and dematerialisation processes. The “Energetic Imbalance”, which stands for the time difference between matter and antimatter and hence for any materialised energy at all, is to be regarded here in this paper as the key instrument to explain expansion and contraction of the universe. The increasing “Energetic Imbalance” is meant to be initially responsible for the process in which the antimatter is pushed more and more quantum states ahead to the matter state, so that antimatter is progressively in time advanced to matter. As the “Energetic Imbalance” grows continuously the net energy is caught in the material state, the more the antimatter is advanced to matter. This materialisation process implies the element building up reaction. On the other hand we need to conclusively predict the element consuming reaction in the case that the “Energetic Imbalance” depletes and the matter state approaches the antimatter state in time. Proceeding from the “Energetic Imbalance”, increasing or depleting, we distinguish two different processes of opposite direction, and in this way it is clearly important to consider two directions of time. The expanding universe, characterised by an increasing “Energetic Imbalance” and by an element building up reaction stands for the materialisation process (time difference between matter and antimatter is growing) while the contracting universe, characterised by the element consuming reaction, is equivalent to the dematerialisation process (time difference between matter and antimatter depletes). Both processes are determined by the characteristics of the “Energetic Imbalance” and behave contrary to each other so that materialisation is opposed to dematerialisation and time runs in two directions opposite to each other.

This theory is based on the axioms set up beforehand, and it has been derived in a construction of thinking for which we provided the fundament. Within this frame we kept thinking logically as we proceeded from a different but profound and fixed basis, and in this way a feasible and at least thought provoking theory has been given with the attempt to explain how the universe might work in a broad angle. The current scientific discussion about the materialisation process starting with the “big bang” is mainly caught in a frame of a fraction of a fraction of a nanosecond, and based on this we need to question ourselves how deep to possibly investigate this case addressing the use and sense of it and the question, where are we going with this?

It is probably much more convenient somehow to abandon the deeply rooted and pronounced branches in which we have been thoroughly caught discussing endless the “big bang” and how matter came to exist without bearing in mind the simplicity with which then we are likely to get to the point to efficient solutions required nowadays on a rapidly accelerating time scale. This broader angle of viewing, science opened up in this presentation, might provoke conventional science and conventional thinking but it can be also regarded as a chance to re evaluate our understanding about nature, finding the

true law of nature and the solutions we can proudly present to face the problems coming up this century. Scientific research, as we have been trained to, ought to be tough, hard and, for sure, unexpected as we believe to be matter dependant, and therefore, in considering the widely branched research topics science has fallen in, we are undoubtedly caught in a deeply structured way of thinking that only allows the one direction to go and to carry out research, and if this way finally and very soon turns out to be hopeless and destructive, loosing the purpose and the origin of our research, then we honestly need to ask ourselves: where are we going with this? So, what about a new way of thinking, a new perspective, a new science that could bring us up to the point at which we are able to be problem solving especially when considering the climate change!

Materialisation, Dematerialisation and Movement

In the next, we focus again on the antimatter, but this time, as specific movement any material particle is surrounded with, as we proposed in one of the axioms at the beginning of this paper. Movement is the basic requirement in our theory, apparently the basis together with the circuit of energy that we postulated and discussed. The fundamental assumption is movement; everything is moving in the universe, in microscopic or in macroscopic dimensions, on a small or on a large scale. Any particle and, in general, any part of the universe is moving continuously, consistent with the view of antimatter and matter that we proposed. The antimatter, as described, transforms into matter by moving ahead, so jumping a few quantum states ahead of matter. In this context the zero point energy, always present as one of the three parts in the circuit of energy, plays the significant role. According to this, the zero point energy acts as a force pushing the antimatter state one or more quantum states ahead of the matter state. The zero point energy appears as a transition state between matter and antimatter, precisely once the matter dematerialises and converts in an element consuming and time reversing process, and then this zero point energy transforms instantaneously into antimatter[5].

Movement is the basic requirement of this philosophy, and we then assume the matter to be the inner movement, the frozen movement to the outer moving antimatter. This outer moving particle appears as antimatter in a fraction of a moment to a specific particle which in this specific case is directly adjusted to the surrounding antimatter and hence is called matter. Antimatter and matter are not static, in the sense that antimatter does not remain antimatter for the time being a particle, and consequently matter is not meant to be matter for all the time being. In the next step, matter may also appear as antimatter if surrounding another particle specifically adjusted to it for a fraction of a moment. Hence matter and antimatter may change their roles to function as matter but also simultaneously as antimatter. This derivation would be consistent with the axioms we set up right at the beginning and taking the circuit of energy into consideration. The

search for the so called "Free Energy" and the never ending discussion aiming to construct a device to catch "Free Energy" is as senseless as everything the industrial world has done before to generate energy, as this circuit of energy provides energy apparently at full time in a way that materialisation occurs in an ongoing process. Cold fusion, therefore, may be seen as materialisation and dematerialisation process (**figure 5**), and from this dematerialisation process the "Free Energy" may be generated which then, purposefully arranged, transforms into a sort of energy whatever the human race requires to run efficiently devices of either choice. Once we understand that the energy is always present, and once we realise that the human being is embedded into this process, the question of how to find an alternative energy source will have been solved.

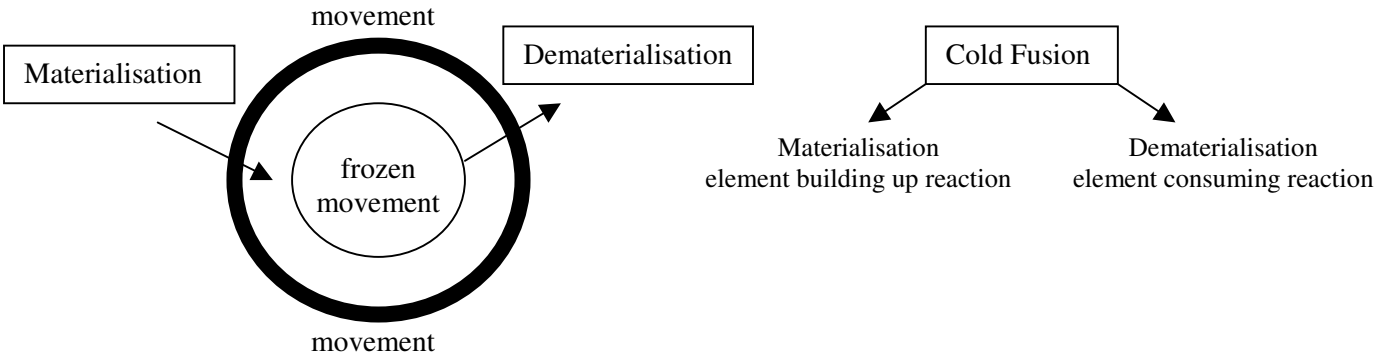

Figure 5: It shows our view of matter and mass as frozen inner movement and reflection to the outer moving antimatter. Cold fusion, therefore, cam be regarded as materialisation and dematerialisation process.

Cold Fusion in Light of Green Chemistry

Having said this, we may think about our future and this what we have to expect within the next decades. The climate change is going to play a significant role in our life, especially if we think what to leave behind us for our children and grandchildren. With the upcoming climate change in the nearest future, we need to re evaluate our view of living, the technology with which we gained so much economical growth, the current scientific perspective from which any kind of technique has been innovated and developed, and we will need to re evaluate our way of thinking.

The main part of the technical, economical and scientific progress we made in the past is closely correlated with the devastating and ruthless overexploitation of the earth's fossil sources combined with a huge amount of toxic waste disposed off. Our future life will be strongly determined by the climate change, and even if we changed our way of living completely from one day to the other, the ongoing and progressively growing climate change is unavoidable, and only decaying after decades or even centuries. But for now, if not escaping the track which we have followed over decades we will be

unfortunately successful in destroying our planet exploiting the rest of the fossil sources and poisoning our environment completely.
According to the model presented here, the energy is permanently present, even without exploiting the earth's fossil fuels. We have to learn to see the alternative energy. There is plenty of it, and we need to focus our attention on the development of devices making use of the circuit of energy outlined and intensively discussed in this paper. However, what we have done so far, especially within the last 150 years in combination with the industrial revolution, is to exploit rigorously the earth in burning plenty of fuels on the planet's surface and so to convert the dense matter into free moving particles that I attribute, according to this model, to the antimatter as outer surrounding movement specifically correlated to the inner frozen movement. The release of this dense matter, the burning out of fossil fuels, has tremendously increased the amount of moving particles we are surrounded with, and, if this model shown and explained in this paper is right, this finally can be regarded as antimatter from which the energy materialises. The concept of matter and antimatter embedded in this circuit of energy is shown to be relevant to explain theoretically the origin of any disease as excess of energy[6]. To my mind, this materialisation process is significantly enhanced, especially in terms of burning out the fossil fuel sources. With respect to the fact that 100 million tons of greenhouse gases are released on every day (without estimating the exponentially increasing economical growth in countries such as China and India within the next 10 – 20 years) the human race may approach the drastic and devastating climate change and probably the dead end in the nearest future if there is no change of the philosophy that originally trained us to this, finally, destructive way of living.
To my understanding, only a new science, a completely revolutionised understanding of the nature might help us to circumvent this problem and to avoid the catastrophe. And so, I consider cold fusion as one of the options to construct an alternative energy technology with which, to my understanding, it will be possible (**figure 6**) 1) to exploit a cheaply available, potentially useful energy source, 2) to liberate this planet from nuclear waste and toxic disposal 3) and to recycle contaminated water into drinkable water [5].

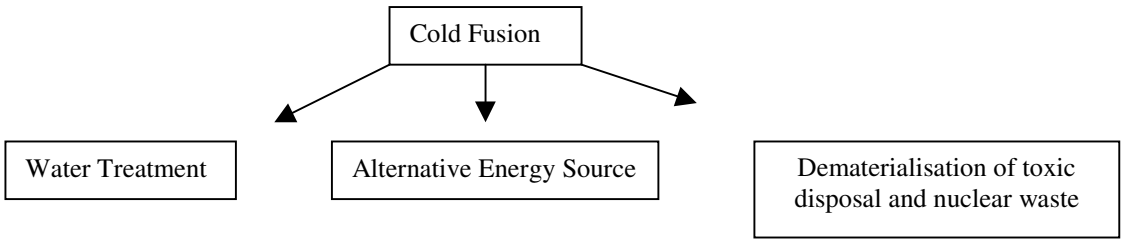

Figure 6: The scheme briefly outlines the potential use of cold fusion as a clean environmental energy technology.

The "Cold Fusion Philosophy" for Practical Use

So far we presented more or less a philosophical approach to cold fusion without getting practical and without supporting experimental results. It is the focus of this part of our article to include experimental findings in our discussion to develop a quite new approach for cold fusion reactions.

From all the results obtained by scientists working in the cold fusion field we note that most part of these scientists proved nuclear transmutation to occur at room temperature after carrying out the long term electrolysis. The electrolysis seems to play a significant role in this matter to achieve cold fusion, but giving a reasonable explanation for this to convincingly provide a new understanding in science has been found to be very difficult. There have been plenty of experiments proving the transmutation effects, not only restricted to palladium as often presumed, but also extending this to other metals such as gold, platinum and also non noble metals such as nickel. The electrolysis is undoubtedly the key experimental method to possibly achieve low energy nuclear reactions, and in addition to this, there seem to be important key factors, such as current density, surface morphology of the sample used, pulsing procedure, design of the electrochemical cell etc, taking influence on this issue [1].

What actually happens during the long term electrolysis when considering the nuclear transmutation effects? We have to deal with this question and try to outline a few aspects on the basis of the philosophy presented here. Again, this ought to be a kind of philosophical approach to cold fusion, it is not the target of this paper to show and prove a plausible mechanism, but to present an option how cold fusion might be possibly seen. However, somehow, we need to view cold fusion from a complete different perspective nobody ever thought about, and I personally do not think that cold fusion is only restricted to deuterium – deuterium fusion. Thinking different does also mean, to extend the cold fusion phenomenon, away from the presence of deuterium to the presence of any element, of any material particle.

To accomplish this theory as good as possible and to develop this for practical use, we consider further, based on the axioms we set up, that matter and antimatter can be regarded as coil similarly vortex currents. We might consider the combination of these coils (matter and antimatter) approaching each other, presumably when carrying out electrolysis, which itself provides a continuous flow of current, a stream of current which might (under consideration of different parameters) make both coils of matter and antimatter to approach so that in the ideal case the matter and the antimatter coil delete each other successively to be seen in our experiments as nuclear transmutation at room temperature. In a way, the electrolysis probably re-polarises the flow of current of matter and antimatter so that their initial physical and chemical qualities change. In this respect we might achieve a successive transmutation through the quantum states. Matter and antimatter approach each other, and in doing this, time is reversing from the initial

direction to the opposite one, so that the materialisation process converts into the dematerialisation process.
This process may be enhanced in using metals of nanoarchitecture as electrodes during the electrolysis. These nanostructured metals are determined by pores of nanometer sized dimensions puncturing the film and running through the film continuously. As the surface to volume ratio is very much enlarged, the kinetics is not the rate limiting step in this process of diffusing hydrogen into the metal bulk so that the hydrogen absorption into the pores and into the walls occurs rapidly, and this process even speeds up when adding surface species such as crystal violet to the solution. As adsorption is not the precursor to absorption, as clearly found out and shown [7 8], the hydrogen diffuses right into the pores and desorbs on the way back again very rapidly. We see here the stream of current provided by the electrolysis, and likely if this process is carried out for long term, it probably re-orientates the stream of matter and antimatter so that matter and antimatter approach each other and deplete successively with the generation of excess heat.
To summarise, cold fusion, according to the philosophy presented here, is a real phenomenon, a natural permanently ongoing process, site – directed to all other so far discovered chemical and physical reactions. To understand this reaction, the scientific world is strongly in need to re-evaluate its perspective about nuclear fusion processes and to discuss a more adequate atomic model.

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