Applied quantum mechanics as solution for the world’s energy demand and pollution problem

Conventional energy sources are finite and are polluting the planet – and still the industry and politics continue to bank upon them. Meanwhile an institute in Munich – corroborated with an expert opinion – has tapped the free energy in space and has also given a quantum-mechanical explanation of the working principal.

The common opinion prevails that quantum-mechanical effects exert a visible effect only on the smallest particles, such as atoms. An extended interpretation of quantum electrodynamics has now shown that this need not always be the case. It is proven that the entire visible reality is supplied energetically by space time or the quantum vacuum. This means that every action within our reality requires a hidden exchange of energy between the material “objects” and the energy which is in space.

What is in empty space?
There are different models that explain what is present in empty space. One of these models describes space simply as an empty space. This means that here on earth nothing other than air is present in space. The space outside of earth devoid of air would then be really absolutely empty. With respect to our daily life this approach certainly seems to make the most sense. However, if we want to understand how a radio works, then an absolutely empty space is not sufficient. As we know, radio waves travel through space at the speed of light regardless of the fact, whether we are present here on earth or in space outside of earth. In “empty” space, therefore must be a kind of medium, which enables the propagation of the radio waves. On the sea, for example, waves can propagate only because the sea (water) acts as a medium.

In the 1920s physicists developed a theory that explains what kind of a medium could exist in space. This medium is a carrier of electromagnetic fields. Since electromagnetic fields exists in space, it was decided to divide this field in small packets i.e. quanta. This gave rise to the quantum field theory. In the quantum field theory space is no longer empty, but filled with a virtual form of energy. For this reason in the quantum field theory the expression “space” or “space-time” has simply been replaced by another name, namely the term “quantum vacuum”. In order not to complicate this article unnecessarily, the author will use the term "quantum vacuum" synonymously with the terms “space” and “space-time”.

The exciting thing about this energy present in this new space is that this energy already exists in infinite density at every possible point. Naturally one can now ask why we do not notice this infinite energy, which surrounds us all the time. The reason for this is that this energy is distributed very uniformly (symmetrical). It is the same as if we were diving. When we dive under water to a depth of 20 meters, the water around us exerts a pressure of 2 bars onto our body. However, we do not notice it because the pressure is distributed uniformly. If 20 meters below water we suddenly had the normal air pressure in front of our hand, our hand would probably get torn away. So if we want to perceive pressure, we always need a difference in pressure.

The same is also true for the energy in space. As long as the energy is distributed uniformly (symmetrical), we do not notice it. Symmetry means that the energy exists in a virtual (invisible) form. If we now create a pressure difference (in physics this is known as breaking the symmetry), then the energy which is within space suddenly becomes visible. Breaking the symmetry means converting something virtual into something observable. A typical example of generating a pressure difference in space energy is an electric field. A 1.5 volt battery produces a smaller pressure difference in the space energy than a 12 volt battery. The stronger the electric field, the stronger the broken symmetry (pressure difference). In quantum mechanics one even considers a particle like an atom as a broken symmetry or as a difference between two infinite energy densities.

One can imagine an atom or a collection of atoms (for instance a ball pen) as the tip of an iceberg. When we see an iceberg, we know that the iceberg exists only because below the water surfaces an invisible and a much bigger block of ice exists. This invisible block of ice is permanently busy with pushing the visible tip of the iceberg above water. The energy that pushes the iceberg out of the water on a continuous basis, therefore, comes from an invisible source. If we now observe the ball pen, then it is like just seeing the tip of the iceberg. The energy contained in the atoms of the ball pen, therefore, does not originate directly from the visible part of the ball pen, but from the space within and around it.

The surprising part is that the matter of the ball pen does no differentiate itself from the energy contained in the surrounding space. The visible ball pen is not an isolated “object”, but instead rather a quality of space-time. It is just as in the case of the iceberg. The visible iceberg consists of water. The energy that keeps the visible iceberg out of the water also consists of water. The only difference is that the visible part (tip of the iceberg) comprises of visible water, whereas the other part comprises of invisible water. The apparent empty space is filled everywhere with an invisible energy. At the place, where matter is present, this energy becomes visible. For this reason the entire physical reality is supplied with energy from space.

The space energy has a fundamental importance in our daily life. We all know, for instance, the issue of the expensive energy supply. The energy costs are increasing and the environment is getting polluted.

Today most people believe (including the power plant operators, physicists and electric engineers) that the coal and nuclear power plants supply energy to our electrical household appliances. Now, from a quantum-mechanical point of view this is not correct.

A nuclear power plant is no energy provider. All that a nuclear power plant does is to open a door. Opening a door means that a pressure difference is created in space (breaking the symmetry of space). As soon as a pressure difference in the space energy is created, the space energy becomes visible to us. As soon as the door is opened, the energy from space can be integrated into our system.

The energy contained in the nuclear fuel rods is used only to open this door and to keep it open. That is all. As soon as the door is open, the energy present in space flows freely and permanently without emissions into the electric generator which is present in the nuclear power plant. Subsequently, this free energy is routed from the electric generator to the lamp in our living room via the high-voltage wires. In the lamp then this space energy is converted into a visible form of energy, such as light and heat.

One could now assume that the lamp could also be lit even without the power plant, if the energy does not come from the nuclear power plant. But as we know, this does not happen. The reason is that a special communication exists between the lamp and the power plant. As soon as the lamp starts to glow, it sends an “e-mail” back to the power plant. In this e-mail it is written that the lamp has done its job (has given out light) and that the power plant can close the door again. But as soon as the door gets closed, the free and permanent flow of energy from space stops. When the flow of energy from space ceases then the lamp also stops glowing. If the lamp shall keep glowing, then new energy from the nuclear fuel rods must be used to open the door again. For this reason, the law of conservation of energy (the first law of thermodynamics states that energy can neither be created nor destroyed) lies in the fact that the free and permanent energy from space, which supplies the lamp, matches exactly the free and permanent energy from the space that closes the door in the power plant at the same time.

Normally, the law of conservation of energy is interpreted in such a way that energy can neither be created from “nothing” (space) or be lost into the “nothing” domain. In the sense of quantum mechanics, however, energy is always and exclusively created from “nothing” (quantum vacuum). The reason, why this does not become apparent is that the generation of energy from “nothing”, exactly matches the quantity of energy, which has been given off previously to the “nothing” domain at the point of energy induction.

Here, a practical example
The energy contained in space plays a fundamental role in every electric system. The reason why this fact does not become obvious is that the electric energy input into an ideal electric motor, matches the same quantity of energy, which is given off mechanically. It seems as if the electric energy is converted directly into mechanical energy. What goes in at the input comes out again from the output.

However, this is not the case!

The induced electric energy is first given off to space and is completely lost in an observable sense. This energy now exists in a virtual form and spreads in space with the speed of light. Thereafter, this virtual energy helps integrating energy from space into a mechanical (visible) form of energy. This mechanical energy can now be tapped at the shaft of the electric motor. Depending upon the load on the axis of the motor, a reverse induction flows back to the electromagnet. This reverse induction destroys the magnetic field in the coil and closes the door. Since the principle of action and reaction always remains in balance, the energy lost to space is exactly equal to the quantity of energy that can be taken out of space at some other place.

The reason, why exactly only so much energy is converted into a mechanical form as was "lost" earlier in electrical form, has to do with a phenomenon of symmetry, which the author calls the "self-symmetrizing mechanism in electromagnetic systems". The self-symmetrizing mechanism enforces the conservation of the observable energies involved. This is the reason why energy is conserved anyway. The author is convinced that the self-symmetrizing mechanism also exists in other interactions. The first law of thermodynamics (conservation of energy) now gets a new meaning. The energy in space must be taken into account. All electromagnetic systems are energetically open systems. Only because they are in equilibrium with the exchange of energy which is within space, they behave like closed systems. If an asymmetric electromagnetic system shall be realized, which has a coefficient of performance of greater than 100%, then the self-symmetrizing mechanism must be bypassed.

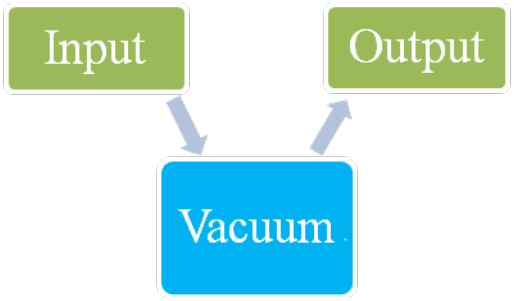

Figure 5. Scheme of the energy conversion mechanism in an electromagnetic system. The process 1 – input-vacuum and process 2 – vacuum-output are in equilibrium in all common electromagnetic systems.

The interesting thing about this view is that already 70 years ago a theoretical basis was developed, which shows that every electric system works in this way. Two Nobel prizes were awarded in this context. The quantum electrodynamic theory, developed in the '40s, is the only theory today that explains what electromagnetism is and it is considered even today as one of the best theories in physics.

(Prof. Richard Feynman, Nobel Prize in physics 1965. He was significantly involved in the development of quantum electrodynamics (QED). The QED shows that the electromagnetic interaction is based on the exchange of virtual particle pairs, which continue to arise from space "nothing" constantly. These virtual particle pairs generate all forces and real energies i.e. the electromagnetic interaction)

(Prof. T. D. Lee, Nobel prize in physics 1957. He received the Nobel Prize for parity violation (violation of symmetry) in the weak interaction. One of these broken symmetries refers to the electric source charge. In quantum electrodynamics an electric dipole as well as its associated electric field e.g. at a battery is a broken symmetry with reference to the constantly arising pairs of virtual particles).

To describe electric systems, electric engineers and physicists use a theory, which is based upon a modified version of the actual Maxwellian equations' (1964). In simple classic electrodynamics (around 1900) it was first assumed, that the propagation of electromagnetic fields is instantaneous. It is known that electromagnetic fields do not propagate instantaneously but at the speed of light. If an instantaneous propagation of electromagnetic fields were assumed then the transmission of electromagnetic energy would also be at unlimited speed and the input energy in an electromagnetic system would be converted in a direct way into the output energy.
input -- output

In the modern Maxwellian theory (the equations which are known today under the name „Maxwellian equations") electromagnetic fields propagate at the speed of light and contain energy. Looking at an energy conversion process via electromagnetic fields and the energy generation within electromagnetic generators the law of the conservation of energy is at work. In addition the Maxwellian theory does not contain an energy conversion process between the electromagnetic system and space-time or the quantum vacuum. The transmission of electromagnetic energy is not considered to be instantaneously but the input energy in an electromagnetic system is still converted in a direct way into the output energy.
input -- output
To make a direct conversion of electromagnetic energy possible the electromagnetic field was distanced from space-time. But the problem is that the electromagnetic field and the electromagnetic source charge are connected with space-time and that is why it is actually not valid to disconnect them from each other.

Using QED the carrier and causative agent of the electromagnetic interaction is the virtual photon. Since these virtual photons emerge just like that from seemingly empty space-time or the quantum vacuum real energy at an electric source charge emerges also just like that from local space-time. In this case real observable energy is literally created from space-time or the quantum vacuum. That also means that the energy conversion process in an electromagnetic system does not work in a direct way i.e.
input -- space-time - space-time -- output
Using this view the electromagnetic field itself becomes a quality of space-time or the quantum vacuum. The cause for the conservation of energy must now be newly described. See: „The self-symmetrizing mechanism in electromagnetic systems".

This perspective which seems to make most sense has motivated especially in recent years more and more researchers to find a way to apply quantum electrodynamic ideas to electromagnetic systems.

The Research Laboratory for Vacuum Energy succeeded with applying the quantum electrodynamic theory to practical electric systems in a schematic way. In September 2009 a film was produced with the title “Symmetric electric systems and the energetic exchange with the quantum vacuum”. This film shows the energy flow in a simple electric circuit from the view of QED and provides an answer to the most important fundamental questions associated with it.

How does an “Asymmetric Electric System” work
As shown above, a power plant is always needed, if a lamp shall be powered. If the power plant uses radioactive fuel rods or burns coal to keep the door opened to receive the free energy flow which is present in space, then we have to pay a high price for this free energy. One could solve the problem by opening the door once by expending a little energy and then putting a “foot” in the door. In this way, the door-closing mechanism would get blocked and the free energy flow from space could flow forever and get supplied to the lamp. Research till now has shown that it is not possible to suppress the door-closing mechanism.

Since one cannot block this door closing mechanism, one has to do something different. The trick is to tap energy from space directly and to use this free energy to keep the door open.

The realization of a permanently running energy generator has already been successful. An independent expert opinion as well as several credentials from academics are at hand. The so-called “crystal cell” is a device similar to a battery, which can generate emission free a direct current for an unlimited period of time. Practically, it is doing so since 1999. Instead of a fluid electrolyte it contains a solid polycrystalline silicate. The silicate takes over the role of an energy converter. The functional principle of the crystal cell is based on the fact that a way has been found to achieve a charge separation ("door opening") within the silicate. Several physical effects are combined to put this into execution. One effect is as follows: Within the silicate a resonance coupling arises between the electrons and an external source of energy. This additional source of energy helps keeping the door (breaking the symmetry) open constantly. Since the additional external energy source is the energy of the quantum vacuum, a constant and emission-free source of energy is accessed, which does not get exhausted. The resonance coupling with the quantum vacuum now takes over the role of the chemical reactants.

The current power density of the crystal cell is 2mW/kg/23˚C. With a crystal cell weighing 300 grams a wall clock can be operated continuously.
See: www.vakuumenergie.de

Even if the power is only small the new class of “Asymmetric Electric Systems” have arrived.

Marcus Reid, January 2010