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### **WHAT IS THE CRYSTAL CELL?**

**By Marus Reid**

The Crystal Cell is a capacitor like device that generates a steady electric current. Concerning its basic construction, the Crystal Cell is similar to an electrolytic capacitor which contains a solid polycrystalline silicate instead of an electrolyte.

The function of the Crystal Cell is related to a solar cell. Instead of sun light coherent quantum fluctuations are used to create a charge separation.

**The emission free Crystal Cell can generate a direct electric current over an unknown period of time (since 1999). !**

Within the Crystal Cell processes play a role, which are similar to a hydropower plant. Just like a hydropower plant draws its energy from the flow of water the Crystal Cell draws its energy from an external source of energy. Our hypothesis is, that the Crystal Cell extracts energy from the quantum vacuum. The power output is today at (11mW/kg/25°C).

The polycrystalline silicate contains nano-structures. The manufacturing process of the silicate includes a complex chemical reaction.

### **Direct Conversion of Coherent Quantum Fluctuations into Electric Energy**

Concerning its basic construction, the Crystal Cell is related to an electrolytic capacitor. Crystal Cells contain a solid polycrystalline silicate instead of a typical electrolyte. The Crystal Cell exhibits an entirely novel mode of generating electric energy. Here the statement "entirely novel mode" has to be taken literally.

Current research status suggests, that the function of the Crystal Cell is related to a solar cell. Instead of sunlight coherent quantum fluctuations are used to create a charge separation. The power output is today at (11mW/kg/25°C).

The current phase of development aims at the increase of the power-weight ratio. After it is intended to introduce them into the market.



### **A short description of the most important measurements:**

The power output is highly dependent on the ambient temperature. That is why it was assumed that the Crystal Cell converts the ambient temperature into electric energy. Up to now calorimetric measurements do not support this assumption since there is no corresponding cooling or heating under load.

Crystal Cells in a Faraday cage show a broadband radio signal upon the voltage. The amplitude of an arbitrarily chosen frequency can change when the power output and/or temperature changes.

The discharge and self-recharge voltage-curve shows a cyclic behavior.

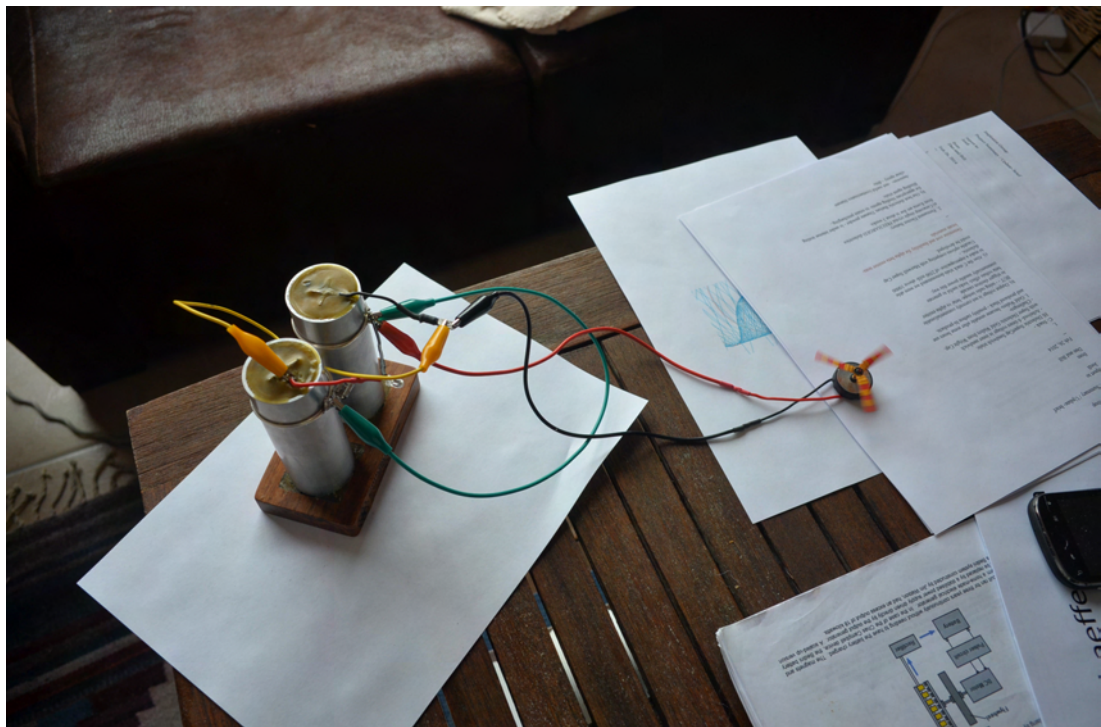
The self-recharge curve indicates that the charge separation does not only occur at the surfaces of the electrodes but throughout the silicate material at the same time.

The silicate material is a solid. X-ray diffraction analysis of the material shows silicates that are not known to ion conduct at room temperature. The silicates are no redox materials (chemical reactants).

At specific temperatures and loads the Crystal Cells show resonance effects with an unknown source (no conventional external source) that can increase or decrease the power output. Therefore it is assumed that drawing the power in a cyclic way could increase the power output.

The Crystal Cell rather behaves like a current source instead of a voltage source. This observation suggests that the Crystal Cell has a fixed charge separating speed that is linked to a vibrating source.

Taken together the measurements indicate, that the generated electric energy is related to vibrations within the silicate material. The first Crystal Cells were developed in 1999. The total energy generated between 1999 and 2013 exceeds commercial Lithium Ion batteries of the same size.



**Above picture shows the crystal cell battery running a small fan and it never needs to be re-charged!**

## **Quantum Electrodynamic Theory**

The concept of “Free Energy” has several different connotations. The scientific community describes it for example as the energy released during phase transitions within crystalline materials. Free Energy is also known as the energy within the quantum-vacuum. The quantum-vacuum is everywhere and fills the entire space-time. Within material bodies, between the nucleus and the electron and within the physical vacuum of empty space the energy of the quantum-vacuum is available in enormous quantities.

The quantum electrodynamic theory suggests that virtual photons emerge from the quantum-vacuum at an extremely fast rate and immediately thereafter return to that field. In this process virtual photons carry and cause the electromagnetic interaction. The creation and annihilation of virtual photons is a dynamic and permanently ongoing process. On this account a so called static electromagnetic force has in its background (quantum-vacuum) a virtual energy flow system. The force field, for example in the area of interaction of a permanent magnet, is steadily renewed due to the energy exchange with the quantum-vacuum.

“The quantum electrodynamic theory attributes the electromagnetic interaction to the exchange with a particle, which is the photon. This process works in such a way, that an electron produces a photon, then it travels to another electron and thereafter disappears again into the vacuum. During this process the photon produces the electromagnetic force. The exchanged photon, which has caused the classic electromagnetic force, is in reality a virtual photon.”

*(Prof. Phys. Lisa Randall, Harvard University, -Warped Passages. Unraveling the Mysteries of the Universe’s Hidden Dimensions- Nov. 2006, German version)*

The Research Laboratory for Vacuum Energy conducts experiments, which are orientated on its own ideas and on concepts from quantum electrodynamics. An asymmetric electric system uses the energy inherent in quantum-vacuum in the same way, that a hydroelectric power plant uses the water flow as a source of energy. But according to the current state of knowledge, the energy density of the quantum-vacuum is extremely large. So the consequent advantage of an emission free asymmetric electromagnetic energy conversion technology, which is based upon the extraction of energy from the quantum-vacuum, is obvious.

### **Energy and electromagnetism**

Current textbooks for engineers and physicists claim, that an electric charge is a source of electromagnetic fields and potentials. But what is only being described in the field of quantum electrodynamics is that an electric charge is a generator, which causes the polarization of the quantum-vacuum. Therefore an electric field is being

expressed by an ongoing polarization of locally appearing virtual photons (particle pairs). This polarization propagates with the speed of light.

In common ideal electromagnetic systems the energy received in the output is equal to the input energy. Usually one would expect that we are dealing with a common form of energy conservation. However, we would like to bring to mind that this need not necessarily be the case.

Out of the quantum-vacuum energy is permanently created and destroyed. This steady generation and annihilation process is usually balanced, which means that in the end of an observable energy conversion process no net production or loss of energy will be noticed.

However, a so called asymmetric electromagnetic system can break the symmetry between the generation and annihilation process and therefore a coefficient of performance of greater than 100% becomes possible. The law of the conservation of energy does not forbid the generation of energy from the quantum-vacuum and a coefficient of performance of greater than 100% in open systems it just says, that in balanced (symmetric) systems you will never observe the net production or annihilation of energy.

#### **A new class of electric systems: Asymmetric electric systems**

If one desires to extract electromagnetic energy from the quantum-vacuum with a coefficient of performance of greater than 100% we first have to understand the concept of the self-symmetrizing mechanism. The self-symmetrizing mechanism is from the view of the author a fundamental property of nature. In a tricky way, this mechanism keeps us from seeing the steady and symmetric energy exchange between the electric system and the quantum-vacuum. The self-symmetrizing mechanism describes the symmetry between the energy from the quantum-vacuum which supplies the load and the energy from the quantum-vacuum destroying the input dipole at the same time. If we want to realize an asymmetric electromagnetic system with a coefficient of performance of higher than 100 %, then the self-symmetrizing mechanism has to be bypassed.

#### **'VIRTUAL PHOTONS IN ELECTROMAGNETISM' - BY MARCUS REID**

The book "Virtual Photons in Electromagnetism" is the first book that explains the meaning of the virtual particle in common electric systems and how a "quantum open system" can be built with experimental demonstrations.



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