

Nuclear Transmutation in Non- equilibrium Systems by Ultra-closed Range Casimir Effect

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Abstract. Quantum physics predicts the existence of an underlying sea of zero-point energy at every point in the universe. The breakthrough of seeing, understanding and devising a converter of the energy available in quantum oscillation might be the opening point of an energy filled 21st century for humanity.

It is well known that phenomena of electrical discharge always bring on transient energy concentration temporally and spatially. Highly localized nuclear activation in electrochemical systems and other electrical discharge processes had been observed at many laboratories in the world. Based on the theory of vortex dynamics, the strange phenomena of “cold fusion”, such as the excess heat, anomalous nuclear transmutation and so forth, are considered to be interpretable by torsion coherence with the zero-point energy induced by localized intense field emission of micro-protrusion of the cathode, and the dynamic Casimir effect of transient evolution of triple region of gas, liquid solution, and electrode protrusion. In fact this process induces a variety of high energy, deterministic nuclear fusion reactions between relatively large nuclei, “triggered” by low input energies, generally not considered possible in the conventional physics frame. A logical extrapolation of this discovery is that the strong force of the nucleus is in fact an ultra-close range Casimir effect. Fusing ions capturing electron to convert excess protons to neutrons is a common occurrence and a key to the production of stable isotopes without neutrons or radiation.

A system as an anomalous transmutation reaction discovered by Yuguang Zhang is described in this paper. A micro-emission exhaust gas handling device(publication number of patent: WO 2008 083530) due to nuclear transmutation by vortex dynamics, is provided, which is a container only having inlets. A model of sonic black hole with the acoustic version of Hawking radiation by using de Laval nozzle is supposed to explain the behaviors of micro-emission exhaust for the system.

1. Introduction

“No problem can be solved from the same level of consciousness that created it”—Albert Einstein.

Researchers fail to explain the phenomena related to so called “Cold Fusion” within the framework of main stream physics. The theories of tapping the zero point energy, dynamic Casimir effect and the torsion field including the spin and rotation movement, are suggested to be used for describing the phenomena of “cold fusion”[1,2].

Many scientists have long been aware that our earth is immersed in an extremely dense sea of energy, which permeates every nook and cranny of the universe[3]. Recently it was realized that this huge reservoir could be an available source of usable energy. Science employs a variety of names to describe

this new field: space energy, vacuum energy, dark energy, the quantum vacuum, and Zero Point Energy (ZPE). Until about twenty years ago, scientists did not consider it possible to tap it for practical use. Nikola Tesla, the genius who gave birth to alternating current, said in a talk to electrical engineers in 1891: "Ere many generations pass, our machinery will be driven by a power obtainable at any point in the universe. ...Throughout space there is energy." Trying to unravel this mystery has taken many paths, Cold Fusion, bubble fusion, LENR, cavitation and Casimir cavities to name a few.

For Bohm, "an invisible, intrinsic connectedness uniting everything in the universe was merely perceived, but fundamentally real." In his words: " Ultimately, the entire universe (with all its 'particles,' including those constituting human beings, their laboratories, observing instruments, etc.) has to be understood as a single undivided whole, in which analysis in separately and independently existent parts has no fundamental status."

Kovac explains the cold fusion and transmutation processes in term of Gauss' pseudosphere-catenoid geometry determining the bending of space to form the toroid knots[4]. The tightly wound toroid (centripetally bound and compressed) mass can then either unwind back through its axis(as it turns inside-out) as energy production (heat, electricity, and light), or it can unwind equatorially as a catenoid spiral in secondary mass formation to form various elements.. Thus mass-energy transmutations occurring as in Russell' descriptions of motion to and from wave field cube well boundaries to and from mass spherical center boundary. The creation of mass 5 element is offered as support for the notion that cold fusion, ultra subatomic particles, electricity, and magnetism are each a consequence of special interrelated geometric formation moving in microscopic space

2. Nuclear transmutation in non-equilibrium system

For discuss of nuclear transmutation, the issues of low-energy nuclear synthesis and transmutation of stable and radioactive isotopes in non-equilibrium systems listed as following: such as (1)diffusion processes of hydrogen and deuterium gases in a new type "Solid Fusion Reactor" of two types of nanomaterial (ZrO₂_Pd₃₅ and ZrO₂_Ni₃₀Pd₅) by Arata and Y.C. Zhang; (2) piezonuclear reactions occurring in stable iron nuclides contained in aqueous solutions of iron chloride or nitrate by A. Carpinteri, F. Cardone, G. Lacidogna; and (3)the anomalous characteristics of nuclear transmutation by V. Vysotskii and A. Kornilova observed in biological cells (including numerous Kervran's experiments evidencing the nuclear transmutation of chemical elements in animals and plants) should be mentioned.

Sonoluminescence can be explained in terms of quantum radiation by moving interfaces between media of different polarizability. The long distance quantum radiative phenomenon associated not with atoms but with fast moving surfaces in the collapsing bubble following the dynamical Casimir effect..

3. Vortex dynamics and torsion field

During the period of March to May, 1989, Xingliu Jiang detected nuclear tracks with solid detector of CR-39 by on site of the tip of cathode electrode in a electrolyte cell. A manuscript, "Micropinch in cold nuclear fusion" about the experimental results by Xingliu Jiang, Ning Xu and Lijun Han was sent to Editor of Nature magazine at September 1989, Dr. Philip Ball, Assistant Editor wrote on this manuscript (Registration no: J10535 PB/HH):" The referee finds your results interesting", "The referee clearly feels that your experiments represent an interesting approach to studies of cold fusion". For the referee, he wrote: "I found manuscript J10535 quite interesting and recommend that you publish it ".The tracks of



Fig. 1 - Tracks of nuclear reaction products on the CR-39 detector under the torsion field effect.

highly directional particles (Fig. 1) might be products of nuclear reactions in the electrolyte cell, such as protons and alpha particles including clusters of high density charge of electrons with different size according the experimental results by Shoulders. Such pattern of tracks offers the evident factors for channeling effect of crystalline metal electrodes and particle acceleration by torsion field.

The experimental results of anomalous nuclear reaction reported by Jiang, Borkris, Miley and Patterson plus similar results reported by Mizuno, et al challenge the current atomic model[5,6,7]. The phenomenon seems highly reproducible. It appears that there are situations in which nuclei split open at the stimulus only chemical energies. Ronald J. Kovac reported [3]that elemental transmutation appears to have occurred when a vacuum tube containing only nitrogen(^{14}N) was exposed to an electromagnetic force field. Gas spectrometer analysis revealed that the contents in the tube after electromagnetic shaping included substantial amounts of helium ^4He and lithium ^7Li .

Recently, Ron Kovac and Toby Grotz of Colorado, repeated Russell's 1927 work, which was verified at the time by Westinghouse Laboratories. Russell found a novel way to change the ratio of hydrogen to oxygen in water vapor inside a sealed quartz tube, or to change the vapor to completely different elements. Their conclusion agrees with Russell: the geometry of motion in space is important in atomic transmutation. Kovac short hands that idea to geometry of space-bending. It is well known “matter” is a wave form energy-pattern in the medium. Quanta turned out to be more like waves than like corpuscles. According to Russell’s description of the Wave of Creation: The wave is described as causing “the integration of matter at poles and disintegration at equators. Matter integrates by the contraction of one pair of spirals around the shafts which wind it into spheres by the way of its poles, and disintegrates it by the expansion of the other pair which unwinds it by the way of equators”.

A system as an anomalous transmutation reaction discovered by Yuguang Zhang is described in this paper. An micro-emission exhaust gas handling device (publication number of patent: WO 2008 083530) is provided, which is a container only having inlets. At least two stages of exchangers (2) are provided in series in the container from an exhaust gas inlet (1) and a mixing gas chamber (3) is arranged at the communicating location between two stages of exchangers. An exchanging gas chamber (23) in the first stage of the exchanger (2) is provided with an orifice (4) communicating with air and each of the mixing gas chambers (3) from the second to the last stage of exchangers is disposed with a return pipe (4) communicating with the inlet of the first stage of the exchanger.

For the gas handling device, the straight pipes or cylinder channels with the geometry similar to the de Laval nozzle will generate supersonic gas flow with vortexes in the form of turbulence in order to brake the flow of straight line, laminar motion [8]. A model of the sonic black hole with Hawking radiation

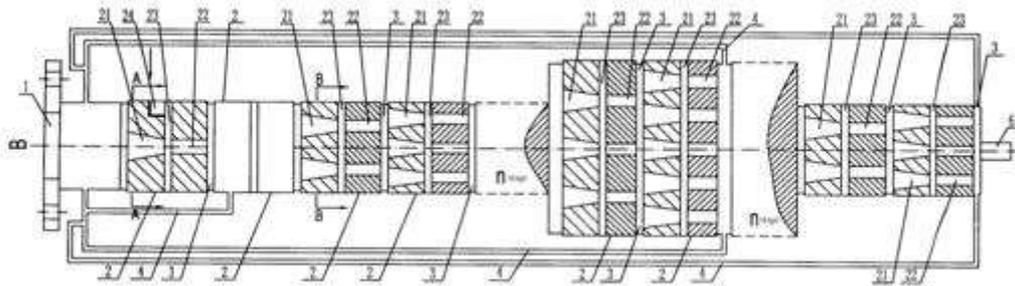


Fig. .2 - A micro-emission exhaust gas handling device

could be used to describe the annihilation of exhaust gas [9,10]. Thus the vortex body and the mass of the medium is affected toward the dissipation and breaking apart. Such dissipation, expansion and slow explosion of many natural elements could be observed in the micro-emission exhaust gas handling device due to dynamic Casimir effect and torsion coherence with zero point energy [1]. The polarization of particle spin and angular moment generate the torsion field. The filamentation of turbulence flow shows the effect of dynamic Casimir force with the zero point electromagnetic fluctuation. The axial acceleration and memorial effect (heat after death) of character for torsion field have been observed in many laboratories.

4. Conclusion

The vacuum is the matrix that contains all matter and all energy. Our current understanding of science is like a puzzle with a large missing piece-quantum vacuum zero point energy. Various scientists have been discovering anomalies of phenomena attributed to the conversion of the zero point energy.. The combination of ion vortex or vortex rings with abruptly pulsed bucking electromagnetic field or turbulence fluid could result in the direct manifestation of energy and matter transformation. Based on the theories of quantum vacuum zero point energy, torsion field, further study of sonic black hole should be carried out for explanation of anomalies [10].

5. References

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