OVER UNITY PROPULSION OF A ZERO POTENTIAL CASING ASYMMETRIC CAPACITOR SYSTEM

© 2004 Nassikas A.A.

Technological Education Institute of Larissa
10, Ethnikis Antistaseos Str., 41335 Larissa
E-mail: a.a.nass@teilar.gr

Purpose of this paper is to describe a system for developing a thrust by means of asymmetric capacitors which are created when a set of metallic elements are placed in a non-symmetric way inside a solid strong insulation dielectric means that in turn is placed inside metallic casing of zero potential. This thrust, when the system works without having corona effects, leads to over unity energy production; this can be explained within a physics theory, which is based on the claim for minimum contradictions.

Introduction

It is already known from existing patents that the asymmetric capacitors develop a non-regular (abnormal) thrust as a result of high voltage imposed between the positive and negative plates. Indicatively the patents [1-7] are mentioned. It is also mentioned A. Frolov's asymmetric capacitor system which is described in [8,9]; in these papers a reference has been made to the experimental confirmation for the thrust development possibility in asymmetric capacitors having horizontal and vertical metallic plates. Recently the "lifter" device has been reported whose thrust is of the order of 2,5N [9,10]. In the above patents and papers there is not used an electrostatic arrangement with a solid strong insulating dielectric means, surrounded by a metallic casing of zero potential. A basic advantage of the system proposed is the fact that the mechanism described herein is externally electrically neutral. This fact constitutes an advantage concerning on the one hand the use and on the other hand the thrust force multiplication capability by placing similar devices in contact. Another advantage is that the strong solid insulator dielectric contributes to the performance of the system proposed due to its insulating capability, independently of its specific inductive capacity (dielectric constant). The use of a strong insulation material as dielectric means in combination with the geometry of the interposed metallic elements, as well as the connection way of the insulation dielectric means with the metallic elements and with the metallic casing provide the capability of a light construction and a very high thrust; e.g. system whose main weight is the one that would have a plastic plate of 5 mm thickness, can provide a thrust of 40 kp/m^2. Ten parallel such systems of total thickness 50 mm can provide a thrust force of 400 kp/m^2. When the system is working without having corona effects this means that the energy offered to the system is practically zero. Thus, when, according to calculations, the system is moving we have energy production of an over-unity effect. This effect can not be explained within a classical physics; it could be explained with a physics theory, which is based on the claim for minimum contradictions [11,12]. According to this theory space-time is matter itself and it has both mass-gravitational (g) and charge-electromagnetic (em) components. The charge space-time is regarded as an imaginary gravitational space-time which coexists with the real one the two of them being interconnected. This point of view permits us to explain the thrust and the energy, of the system mentioned, since there is something material i.e. the gravitational space-time, which offers the momentum and the energy required. In a moving electrostatic system, where there is not charge motion with respect to the existing electric field, the energy produced could be due to the gravitational space time energy absorbed through a gravitational matter space time field created due to the existing electric field; the thrust could be due to gravitational space time absorbed momentum change; such a moving system is the system under study.

2. Proposed Asymmetric Capacitors System

2.1 General

Inside a dielectric means 1 (fig. 1) are placed metallic conductors 3 which are electrically charged in relation to the metallic casing 2, which is electrically neutral. This is achieved by means of high voltage imposed between the conductors 3 and the metallic casing 2. We assume that the electrostatic field equation is everywhere in force, which concerning isotropic materials with constant specific inductive capacity (dielectric constant) is as follows:

$$div\vec{E} = -\nabla^2\phi = \rho/\varepsilon \quad (1)$$

where $\vec{E}$ is the field intensity ϕ the potential και ρ the density of spatial charge.

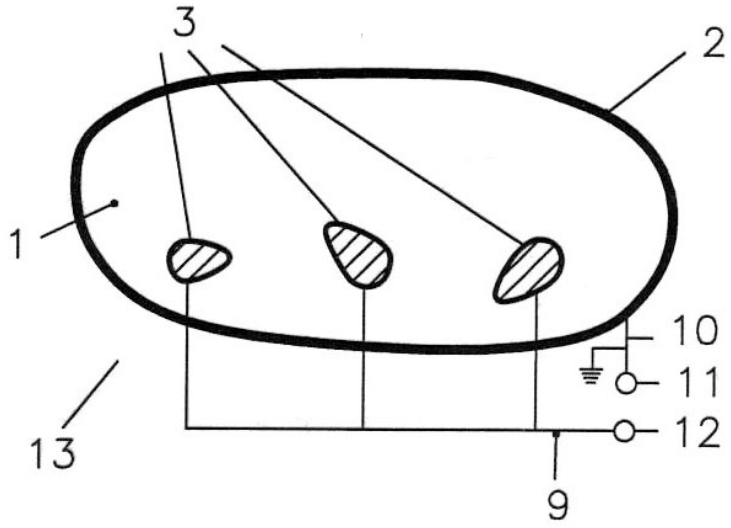

Fig. 1. Zero potential casing asymmetric capacitor system
General arrangement

The force $\vec{F}$ according to equation (1) for an area enclosed by a surface S is[13]:

$$\vec{F} = \frac{1}{2}\oiint_S [\vec{E}(\vec{n}\vec{D}) + \vec{D}(\vec{n}\vec{E}) - \vec{n}(\vec{D}\vec{E})]ds \quad (2)$$

where $\vec{D}$ is the electric displacement and $\vec{n}$ the orthogonal unitary vector on the surface S directed outside the area enclosed by the surface S. Consequently the resultant force $\vec{F}_{tot}$ on the whole system, according to equation (2) will be:

$$\vec{F_{tot}} = \frac{1}{2}\oiint_{out2} (D\vec{E})ds = \frac{1}{2}\oiint_{out2} (dq/ds)\vec{E}ds = 0 \quad (3)$$

where ds is an elementary surface unit and dq the surface charge corresponding to the surface ds. The force $\vec{F}_{tot}$ is equal to zero because the field intensity $\vec{E}$ on the outer surface of the casing 2 is equal to zero. In reality a charge dq on a metallic surface creates by induction a charge $-dq'$ on the dielectric 1 surface so that:

$$dq - dq' = \frac{dq}{\varepsilon_r} \quad , \quad (4)$$

wherein ε_r is the relative dielectric constant of the dielectric means 1 [14,15].

Due to the equation (4), the total resulting force $d\vec{F}$, exerted on the charges $dq, -dq'$ because of the existing electric field of intensity $\vec{E}$ corresponding to a surface element on the surfaces 2in or 3out, will be:

$$d\vec{F} = \frac{1}{\varepsilon_r}\vec{E}dq = \frac{1}{\varepsilon_r}\vec{E}\frac{dq}{ds}ds \qquad (5)$$

A coefficient 1/2 is needed because of $dq, -dq'$ distribution[16]; Eq.(5) shows that at the system surfaces always an acting force exists. Because of Eq.(5) we have:

$$\vec{F}_{tot} = \frac{1}{2\varepsilon_r}\oint_{2in,3out}(dq/ds)\vec{E}ds = \frac{\vec{F}_M}{\varepsilon_r}, \qquad (6)$$

wherein $\vec{F}_M$ is the total resultant force exerted on the conductors 2, 3, being derived if we assume that equation (2) is in force. Then $\vec{F}_{tot}$, according to equation (3) should be equal to zero. When however the total resultant force $\vec{F}_M$ exerted on the metallic elements 2,3 is not equal to zero, then, according to equation (6), $\vec{F}_{tot}$ will not be equal to zero as well. The aspect that, according to equation (3), $\vec{F}_{tot}$ is zero, is compatible with the fact that the work of $\vec{F}_{tot}$ must be equal to zero when the externally offered energy is equal to zero (constant voltage and absence of leakages). However, the equation (3) does not take into consideration the exact forces which are exerted on the sum of the charges $dq, -dq'$. Eq.(6) takes into account the forces and the particularities of the boundary conditions between the surfaces 2in, 3out and the dielectric means 1. At the same time Eq.(6) calculates $\vec{F}_{tot}$ on the basis of the simulation being derived if we assume that the equations (1,2) are in force, i.e. on the basis of the classic solution of the field of fig.1 (boundary conditions of constant voltage on the elements 3, zero voltage on the casing 2 and dielectric constant of element 1).

Thus the question is raised of whether the classical approach, where $\vec{F}_{tot}$ is zero, or Eq.(6) where $\vec{F}_{tot}$ can be non zero, is valid. From Eq.(1) derives that we have charges in the whole extend of the dielectric 1 if the potential second derivative is not zero; this usually is valid in asymmetrical capacitors and it can be verified by the aid of finite elements calculation in various systems and more specifically in the system proposed as it will be later described. According to the classical point of view [Eq.(2)] the charges in dielectric 1 are virtual and they are used only for the purposes of the electrostatic field solution. Obviously this point of view is arbitrary; therefore Eq.(6) is more consistent since it takes into account the existing real charges.

2.2 Specific Arrangement [16]

The specific arrangement proposed is depicted in fig.2. The elements 3 (3.1 and 3.2) are formed by metal deposition (e.g. by means of the "e-beam evaporation technique") on the strong insulation solid dielectrics 1a and 1b, excluding the surfaces 8, wherein the elements 1a and 1b are formed by casting plastic material, e.g. polyethylene. The surfaces 8 may be covered by a mask and using a technique like lithography, in the case of metal deposition they can be cleaned and remain uncovered. On the contrary, all the rest surfaces of the sections 1.a and 1.b are covered by a metallic substance e.g. chrome or nickel. The sections 1.a and 1.b are joined along the surfaces 8 by an insulation adhesive forming plates of dimensions e.g. 5 mm X 300 mm X 300 mm. In the case of metal deposition on dielectric, the developed cohesion is high enough to exclude the creation of gaps, which could be the cause of voltage breakdown; voltage breakdown is also avoided due to the curvature of the lower parts of element 3. The metal elements 3 and 2 are connected to the high voltage ends 11 and 12 through the conductors 9 and 10, where the conductor 9 is electrically isolated in such a way that electrical leakage to be avoided. In this way a thrust is created mainly due to the electric interaction of the element 3.1, the element 2.1 and the interposed dielectric 1a.

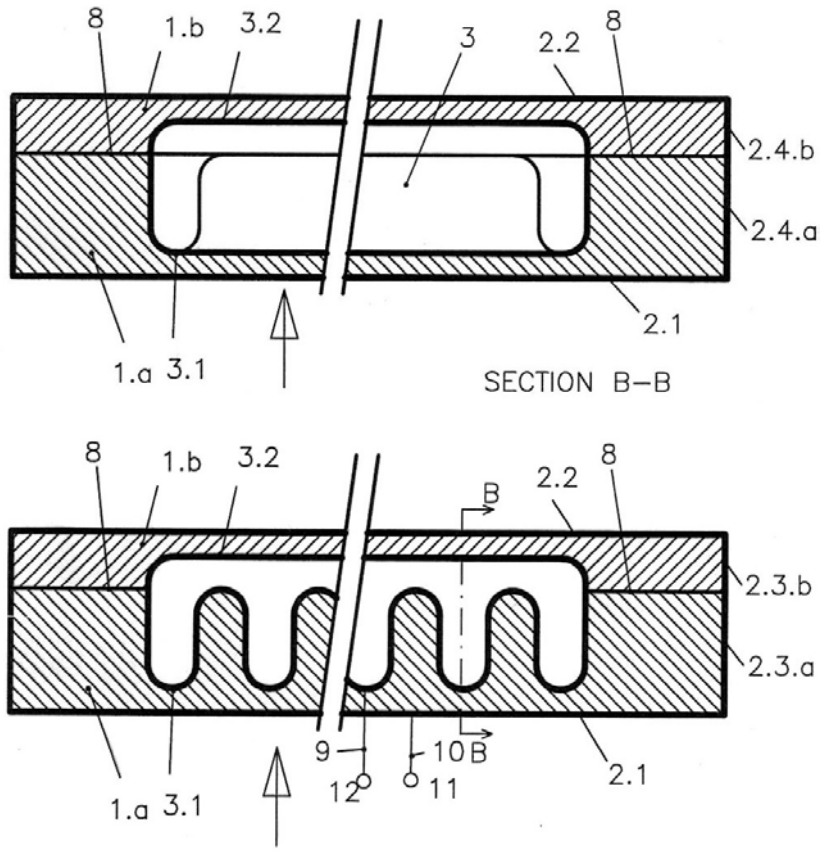

Fig. 2. Zero potential casing asymmetric capacitor system
Specific arrangement

We use the method of finite elements for the arrangement of figure 2 with the following boundary conditions[16].
The voltage on the elements 3 is 20.000 V
The voltage of the casing 2 is equal to zero.
The relative dielectric constant of the dielectric means 1 is ε_r=1,
The teeth height of the elements 3 is 2 mm
The minimum distance between the elements 3 and 2.1 is 1 mm
The minimum distance between the elements 3 and 2.2 is 1.5 mm
The distance between two consecutive corresponding points of the teeth of elements 3 is 2 mm
The curvature radius of the lower parts of the elements 3 is 0.5 mm,
On this basis we find a resultant upward thrust $\vec{F}_{tot} = 4{,}17 gr^* / cm^2$. The reduction surface of $\vec{F}_{tot}$ is the projection surface of the elements 3 on the inner surface of the element 2.1. This force is calculated-simulated according to the finite elements method, on the basis of Eqs.(1,6). Using the same method for various dielectric means 1 we notice that the force $\vec{F}_M$ exerted on the metallic elements 2 and 3 increase with the dielectric constant, not happening the same concerning the thrust $\vec{F}_{tot}$, because according to the equation (6) this force is inversely proportional to the dielectric constant. Thus, it is:

For $\varepsilon_r = 1$, $\vec{F}_M = 4.17 gr^* / cm^2$, $\vec{F}_{tot} = 4.17 gr^* / cm^2 = 41.7 Kp / m^2$
For $\varepsilon_r = 2{,}3$, $\vec{F}_M = 9.6 gr^* / cm^2$, $\vec{F}_{tot} = 4.17 gr^* / cm^2 = 41.7 Kp / m^2$
For $\varepsilon_r = 5$, $\vec{F}_M = 20.85 gr^* / cm^2$, $\vec{F}_{tot} = 4.17 gr^* / cm^2 = 41.7 Kp / m^2$
For $\varepsilon_r = 100$, $\vec{F}_M = 417 gr^* / cm^2$, $\vec{F}_{tot} = 4.17 gr^* / cm^2 = 41.7 Kp / m^2$

In the case in which $\varepsilon_r = 2,3$ the dielectric means 1 may be polyethylene (PE). The maximum developed intensity is 230 kV/cm and lies under the limit at which the Corona phenomena for the PE start. In this context we observe that in order to have a high force $\vec{F}_{tot}$ it is of substantial meaning the dielectric means 1 to be a strong insulator, independently of its dielectric constant. Indeed, it is then possible for the same minimum distance between the elements 3 and 2.1 to appear higher allowable imposed voltage and consequently capability for higher thrust.
More specifically we can have the following data:
Mechanism as the one depicted in fig. 2

- Material of 1a and 1b, polyethylene
- Metal deposition, chrome or nickel
- Fig. 2 plate dimensions, 5mm X 300mm X 330mm
- Thickness (1a +1b), 4.5mm
- Weight 4kp/m^2
- Propulsion 40kp/m^2
- Propulsion of a system consisting of 10 systems in touch as described above 400kp/m^2
- Rest elements as described in finite elements method calculation

A simple and obviously working asymmetrical capacitor is the Frolov's one[8,9]. In figure 3 a Frolov capacitor is depicted. According to this figure the forces exerted on the central metallic plate are eliminated, while remaining the forces achieving an upward thrust. This capacitor is an open-type one i.e. it exists within an electrical field, which is extended to the infinity.

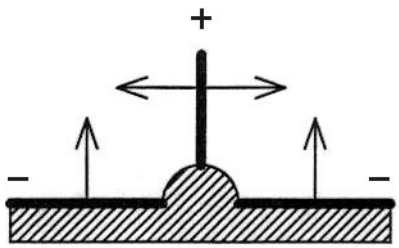

Fig. 3. Frolov's asymmetrical capacitor

The proposed asymmetrical capacitor system is investigated both for theoretical and for practical reasons. This system is restricted by an electrically neutral casing, which implies that the electrical field created is also restricted within this casing. Thus, if the system works, it does mean that it is not due to an electrostatic phenomenon; the system is rather gravielectrical as it will be later explained. The feature of metal deposition on wave formed strong insulation solid dielectric as indicated in fig.2 provide, for reasons mentioned above, a high thrust and a safe operation; this implies the existence of great measurable magnitudes which can assure an over-unity operation. Because of the fact that the elements 2.1 and 2.2 of fig.2 are metallic and electrically neutral, there is the possibility of multiplication of the resultant thrust force by means of two or more systems proposed by consecutively placing the next one on the former one, as depicted in fig.4 where the purpose is the energy production.
More specifically we can have the following data:
Mechanism as the one depicted in fig. 4

- Mechanisms – plates 13 as in fig. 2
- Material of 1a and 1b, polyethylene
- Metal deposition, chrome or nickel
- Radius of disc 16, 100mm
- Fig. 2 plate dimensions, 5mm X 50mm X 300mm
- Rest elements as described in finite elements method calculation
- Number of plates 13 within the ring defined by the elements 14 and 15, n = 125
- Torque M = 900kpcm
- Power N for 4000rpm N = 50HP

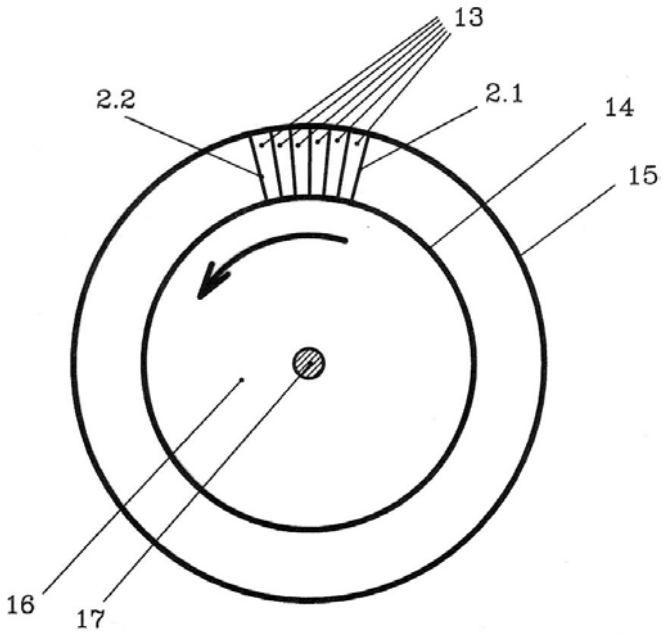

Fig.4. Zero potential casing asymmetric capacitor system
Energy production arrangement

3.Explanation Basis

When the system is working without having corona effects this means that the energy offered to the system is practically zero. Thus, when, according to calculations, the system is moving we have energy production of an over-unity effect. This effect can not be explained within classical physics; it would rather be explained with a physics theory which is based on the claim for minimum contradictions [11,12].

Our basic communication system, which consists of the Aristotle logic, the Leibniz sufficient reason principle and the claim that there is anterior-posterior in our communication, is contradictory [11,12]. Thus, any consequences of this system can derive with the aid of a claim for minimum contradictions. On this basis a physics theory is least contradictory when it is described in anterior-posterior and in extension in space-time terms. This leads to a matter space-time aether in which things exist and from which things are made. Lorentz's transformations derive on condition that a perfect (non-contradictory) physics theory can be stated; in this case, space-time is regarded as continuum. However, a physics theory is contradictory since it is expressed through the basic communication system. This leads, on the basis of the claim for minimum contradictions, to a stochastic matter space-time. The Claim for Minimum Contradictions, though being completely general, can lead by itself to the statement of minimum contradictions physics theory [11,12].

As it was mentioned according to this theory space-time is stochastic and it can be regarded as matter -aether. However, matter can be either mass or charge. Thus, there exist both mass-gravitational (g) and charge-electromagnetic (em) spacetime. The (em) spacetime behaves as a (g) spacetime , since both are spacetime and obey the same principles but it is not. Thus, any time interval in the (em) spacetime is incomprehensible with respect to a coexisting (g) spacetime and it can be regarded as an imaginary number which is incomprehensible too. A basic conclusion of this theory is that *"The energy of any oscillating infinitesimal spacetime is equivalent to its internal time";* where as internal time is defined a time τ of a phenomenon of comparison. *According to this conclusion the energy of an infinitesimal (em) spacetime can be regarded as imaginary since it is equivalent to an (em) time interval. Therefore, in general, the electromagnetic energy can be regarded as imaginary.* A gravitational spacetime energy E_g can be converted into an electromagnetic spacetime energy E_{em} by means of photons and vice versa this being compatible with the first thermodynamic axiom. In extension (em) mass and momentum are imaginary as well. Because of the fact that the interactions between the (g) and the (em) space-time take place though photons we may assume that the momentum conservation principle is valid [17].

On this basis a space-time-matter field in general, locally behaves as a particle-space-time field; if we put $c = \hbar = 1$ the following equations are valid[11,12,17,18].

$$\partial_{xi} \frac{\Box\Psi_g(\vec{r},t)}{\Psi_g(\vec{r},t)} = 0\,, \quad \partial_{xi} \frac{\Box\Psi_{em}(\vec{r},t)}{\Psi_{em}(\vec{r},t)} = 0 \qquad \text{(i=1,2,3,4)} \tag{7}$$

$$\partial_t \left(\frac{\partial_t \Psi_g(\vec{r},t)}{\Psi_g(\vec{r},t)} + i\alpha \frac{\partial_t \Psi_{em}(\vec{r},t)}{\Psi_{em}(\vec{r},t)}\right) = 0 \tag{8}$$

$$\partial_t \left(\frac{\nabla\Psi_g(\vec{r},t)}{\Psi_g(\vec{r},t)} + i\alpha \frac{\nabla\Psi_{em}(\vec{r},t)}{\Psi_{em}(\vec{r},t)}\right) = 0 \tag{9}$$

$$\vec{g}(\vec{r},t) = \frac{c^2}{P(\vec{r},t)} \nabla P(\vec{r},t) \tag{10}$$

$$\vec{g}_{em}(\vec{r},t) = \frac{i\alpha c^2}{P_{em}(\vec{r},t)} \nabla P_{em}(\vec{r},t) \tag{11}$$

where α is the fine structure constant, $\Psi_g\,, \Psi_{em}$ are the gravitational and the electromagnetic space-time wave functions, which are identical with equivalent particle Ψ functions, and $(\vec{r},t)$ is a point of a hypothetical measuring field(HMF)[11,12,18] . Eqs.(7) describe Schroedinger relativistic equations; Eq.(8) describes the energy conservation principle; Eq.(9) describes the momentum conservation principle. Eqs.(10,11) describe the gravitational acceleration of the (g) and the (em) space-time; the probability density $P_g(\vec{r},t)$ is function of $\Psi_g\,, \Psi_g^*$, and their time partial derivatives; the probability density $P_{em}(\vec{r},t)$ is function of $\Psi_{em}\,, \Psi_{em}^*$, and their time partial derivatives. Geometry of (g) and (em) space-time can be defined by means of $\Psi_g\,, \Psi_g^*\,, \Psi_{em}\,, \Psi_{em}^*$ and their time partial derivatives[18].

Eqs(7-9) describe any kind of energy and momentum interactions between the (g) and the (em) space in the whole extend of a system including its surrounding space. We don't know if this equation system can be solved since it rather refers to a fractal space[11,12]. However we can get useful information for gravielectrical problems.

In a circle motion of a particle e.g. electron an outside momentum is always required so that its momentum is always continuously changing; this could take place through gravitational energy absorption which would imply a momentum interaction; since electron's energy remains constant the energy absorbed should be radiated. This is compatible with Kozyrev radiation[19]. It is also compatible with electron's radiation as it has been described by C. Whitney[20].

Eqs(10,11) show that the gravitational acceleration of the (g) space-time is interconnected with the gravitational acceleration of the (em) space-time since they are functions of $\Psi_g\,, \Psi_g^*\,, \Psi_{em}\,, \Psi_{em}^*$ and their time partial derivatives which, because of Eqs(7-9), are interconnected. Thus we can state that an electrical field creates a gravitational one and vice versa.

Photon emission because of energy level swift of an electron in the hydrogen atom could be due to gravitational energy absorption and not due to potential difference in proton's field; thus, the energy produced in various chemical interactions could originate from something material (matter space-time absorption) and not from a pure mathematical notion as the notion of potential does[21].

On this basis we can explain the thrust and the energy, of the system proposed, since there is something material i.e. the gravitational space-time which offers the momentum and the energy required. In a moving charge within an electrical field, the energy produced is due to the gravitational space time energy absorbed; the force exerted is due to gravitational space time absorbed momentum change. In a moving charge within an electrical field, the energy produced is due to gravitational space time energy absorbed; the force exerted is due to gravitational space time absorbed momentum change. In a moving electrostatic system, where there is not charge motion with respect to the existing field, the energy produced could be due to the gravitational space time energy absorbed; the thrust could be due to gravitational space time absorbed momentum change; radiation might take place for

energy balance; a gravitational field can be created because of the existing electric field; thus it can provide the energy and the momentum required.

R E F E R E N C E S

1. T.T.Brown, A method of and an apparatus or machine for producing force or motion. GB Patent N°300311, 1928.
2. T.T.Brown, Elektrokinetic Apparatus. US Patent N°2949550, 1960.
3. A.H.Bahnson JR, Electrical thrust producing device. US Patent N°2958790, 1960.
4. T.T.Brown, Elektrokinetic Transducer. US Patent N°3018394, 1962.
5. T.T.Brown, Elektrokinetic Apparatus. US Patent N°3187206, 1965.
6. A.H.Bahnson JR, Electrical thrust producing device. US Patent N°3227901, 1966.
7. NASA (US)- Campbell J. (US), Apparatus for generating thrust using a two dimensional, asymmetrical capacitor module. US2002012221, 2002.
8. A.V.Frolov "Frolov's Asymmetrical Capacitors". New Energy Technologies, Faraday Laboratories Ltd. St Petersburg Russia, Issue #5 (8), 2002.
9. A.V. Frolov, The Application of Potential Energy for Creation of Power, New Energy News, USA, 1994.
10. http://jnaudin.free.fr/lifters/
11. A.A.Nassikas, "The Relativity Theory and the Quantum Mechanics under the Claim for Minimum Contradictions", Hadronic Journal, Hadronic Press, Inc, Vol. 5, No. 6, pp. 667-696 (2002).
12. A.A.Nassikas, "Minimum Contradictions Physics as a New Paradigm". NPA Conference, CT USA. Proceedings in Press, Journal of New Energy, 2003.
13. Quick Field, User's Guide. Tera Analysis Ltd, 2002.
14. J. D. Kraus, Electromagnetics. McGraw Hill, 1984.
15. Halliday, Resnich, Physics. John Wiley & Sons, Inc, 1976.
16. A.A.Nassikas, Developing a thrust force by means of an electrostatic device equipped with a strong insulation dielectric and a casing of zero potential. Patent Application 20040100246/11-06-2004, Industrial Property Organization, OBI Greece, 2004.
17. A.A.Nassikas, "On Minimum Contradictions Physics". AAAS-NPA Conference. Denver Colorado USA, 2004.
18. A.A.Nassikas, The Hypothesis of the Quantum Space Time - Aether. Galilean Electrodynamics, Special Issues 2, 2000.
19. A.N. Dadaev, Astrophysics and Casual Mechanics. GED Vol. 11, Special Issues, 2000.
20. C.K.Whitney. Do Atoms Really Have "States"?. PIRT-VIII 2002. London.
21. A.A.Nassikas ,"The Cold Fusion As a Space Time Energy Pumping Process". Proceedings of the 8th International Conference on Cold Fusion. Nuovo Cimento, 2000.