Advances in thrust generated by closed systems electric devices

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Advances in thrust generated by closed systems electric devices

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I. Motivation and Background

Is it possible to create thrust without the exhaust of a propellant or ion acceleration?
Some closed systems electric devices presumibly contradict the law of momentum conservation and also violate the Newton's third law.
But we have investigated about last eleven years and our studies are consolidating that there are no really closed systems if we consider that there are a reality of preexisting quantum state of generalized entanglements between all existing particles [1][2][3].
Those quantum effects on the macroscale seem to be extremally weak but they can be locally amplified in some special conditions where a myriad of electric dipoles in dielectrics, magnetic dipoles in solenoids or electric moving charges in conductors or superconductors transits mutually to the same quantum state by application of strong local fields such as electric or magnetic.
This explain why some considered unexpected thrusts can be measured in different electric devices as capacitors [4][5][6], solenoids [2], electromagnetic cavities [7][8], magnetic rotors [9], dielectric rotors [10], semiconductor laser diodes [11][12], piezoelectric discs [13][14][15][16] and superconductor devices [17][18].
Considering our studies, the answer of the initial question is "yes".
The real possibility for promising applications motivated us to present our enhancements via this abstract to the business association in future congresses.

II. Approach

We have been carrying out a lot of experiments involving different electric devices mainly related to the generation of thrust, as published in our several peer reviewed papers [2][4][5][6][7][8][9][10][11][12][13][14][15][16][17][18][19].
Each different device is being systematically characterized in order to understand the technical parameters that determine the magnitude and behavior of the produced thrust.
For example, in case of the thrust carefully measured in our experiments with shielded capacitors [6], its magnitude is directly associated with the dipolar force, that is, the amount of force related to the polarization of a myriad of electric dipoles inside of the dielectric subject to a strong electric field. The dipolar force is directly proportional to the square of magnitude of electric field applied on the capacitor dielectric.
As the electric dipoles (atoms or molecules) of the dielectric interact continuously with the external environment as all other existing particles considering the preexisting generalized quantum entanglements, they suffer a reaction force (the real thrust origin) when polarized via strong local electric field.
The enclosure of the capacitors inside the metallic boxes (Faraday cages) and also shielding of its supplying cables in our experiments evidences that there is no possible to explain the upward thrust (weight loss) in our experiments via electrostatic field leaked with the environment or reaction force via ions acceleration.
The very weak interaction with the Earth's magnetic field cannot explain such a magnitude of thrust either, given the very low magnitude of the magnetic field well below 10^{-8} T caused by the leakage small current inside the dielectric.
The figure 1 shows the photo related to the shielded capacitor setup in the left-hand and the graphics of the curve related to the weight loss versus the square root value of the voltage applied on the capacitor in the right-hand. The same care in the research about the capacitors was taken for all other electric devices.

III. Preliminary and / or Anticipated Results

Our studies of characterization concluded that the magnitude of the thrust for each different electric device

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is governed by some main equations as the following examples (1),(2) and (3) where some macroscopic classical variables are supposed to represent entanglement witnesses [2][3] as the magnetic susceptibility and the electric susceptibility where the effects of a myriad of entangled particles (dipoles) are quantified:

$$\boldsymbol{F} = \mu_o \, I^2 \qquad (1);$$

$$\boldsymbol{F} = \frac{SBI}{16\pi^2\theta} \qquad (2);$$

$$\boldsymbol{F} = \frac{Sa^2}{Sb} \left(\frac{\varepsilon_r - 1}{\varepsilon_r + 2}\right) \frac{\varepsilon_o E^2}{16\pi^2} \qquad (3).$$

The equation (1) determines the thrust (F) in Newtons proportional to square value of the current (I^2) and the value of vacuum permeability (μo) for the electric devices such as the Electromagnetic cavity without dielectric, Semiconductor laser diode and Superconductor device.

The equations (2) and (3) governs the thrust (F) in Newtons respectively for the cylindrical solenoids and capacitors. In equation (2), S,B,I and θ represent respectively the circular area, magnetic flux density, current and radius of cylindrical solenoid. In equation (3), Sa,Sb, ε_r, εo and E^2 represent respectively circular area of larger electrode, circular area of small electrode, relative permittivity, vacuum permittivity and square value of electric field between electrodes of an asymmetric capacitor (it is considered $Sa = Sb$ for a symmetric capacitor).

The maximum magnitude of the upward thrust measured and also theoretically forecast in the dielectric rotor device (its diagram is showed in the left-hand of the figure (2)) was 1.2 gram-force, that is, 25% of the weight of the dielectric rotor (active element where the electric dipoles are polarized). The right-hand of the figure (2) shows the curve of variation of weight loss of the dielectric rotor versus the high voltage applied. This related experiment was recently published in our last article [10].

The variables of the equations (1),(2),(3) and others give us subsidies to understand which parameters should be optimized in terms of thrust for each different electric device as showed in the table (1) which in the case of the dielectric rotor are dielectric breakdown, permittivity and rotation speed.

Table 1 Relevant parameters of electric devices for thrust optimization

Type of device	Parameters
1-Capacitor	Dielectric breakdown and permittivity
2-EM cavity with dielectric	Dielectric breakdown and permittivity
3-Piezoelectric	Dielectric breakdown and permittivity
4-EM cavity without dielectric	Current limiting
5-Laser diode	Current limiting
6-Superconductor	Current limiting and temperature
7-Solenoid	Magnetic saturation and permeability
8-Magnetic rotor	Magnetic saturation, permeability and rotation speed
9-Dielectric rotor	Dielectric breakdown, permittivity, rotation speed

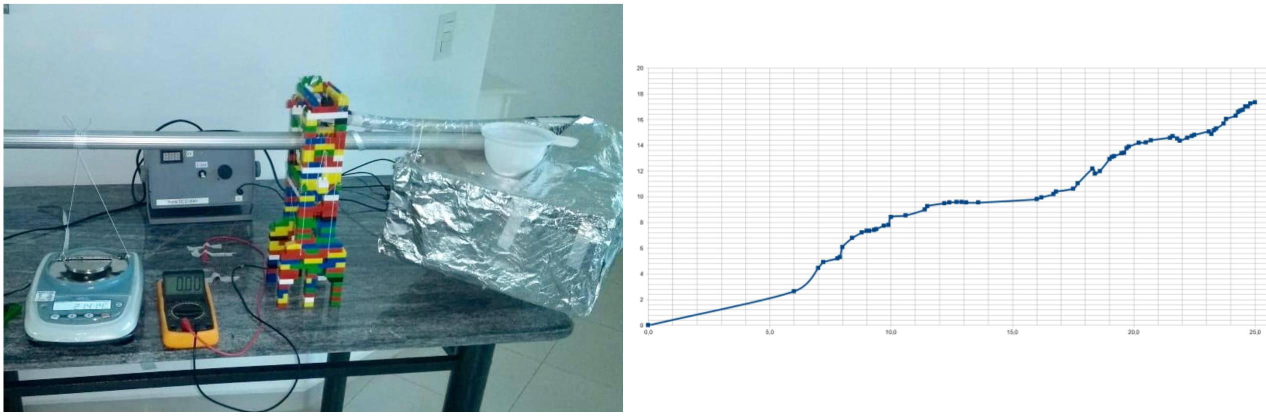

Fig. 1 The photo of the shielded capacitor setup [6] in the left-hand and the graphics of the curve related to the weight loss versus the square root value of voltage applied on the capacitor in the right-hand.

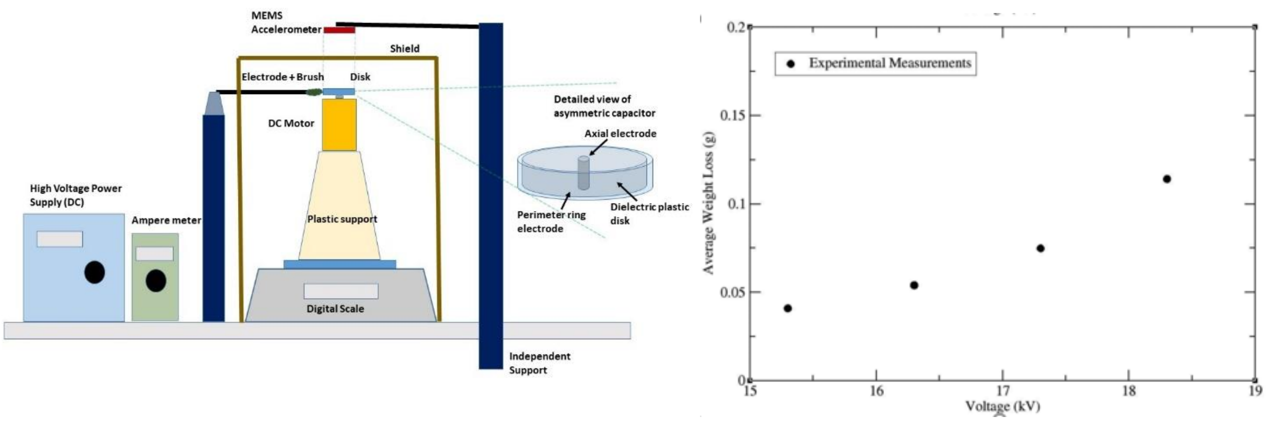

Fig. 2 The diagram of the dielectric rotor setup, as used in our experimental investigation [10] in the left-hand and the graphics of the curve related to the weight loss versus the voltage applied on the dielectric rotor in the right-hand.

The knowledge of relevant parameters can support us to implement new materials in order to optimize the thrust produced by those mentioned electric devices and also it is possible to combine them in some types of devices as performed in the dielectric rotor device where rotation and electric field are applied together. Further, arrays or stacks of devices can also be assembled to multiply the thrust produced for each one.

In our last preliminary experiment still unpublished with the little improved new version of the single dielectric rotor, the 0.4 gram ordinary polymer dielectric generated 2.2 gram-force of thrust, that is, more than 5 times than its own weight. Certainly a much greater magnitude of thrust can be produced considering the enhancements indicated in the previous paragraph in order to much more overcome the own weight of the electric device and its coupled frame (e.g. vehicle or craft).

The great immediate advantage of these electrical devices considering these new properties is that if they equip certain vehicles, they will be able to navigate in any medium, that is, under water, in the air or in outer space; this does not depend on aerodynamics or fluid dynamics. Other major advantages are being also researched.

IV. Conclusion

Our studies with different type of electric devices working in closed systems are showing that they really produce small thrust considering there is not really any closed systems, by supposing that there is quantum interaction between the system and the environment in microscopic scale by means of quantum entanglement. In this way, the momentum conservation and the third Newton's law are preserved accordingly. Relevant parameters have been determined and their implementation may enhance the magnitude of the generated thrust and consequently provide a new generation of vehicle boosters that will be able to navigate in any medium such as underwater, air and outer space. The real possibility for promising applications motivated us to present our enhancements via this abstract to the business association in future congresses.

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