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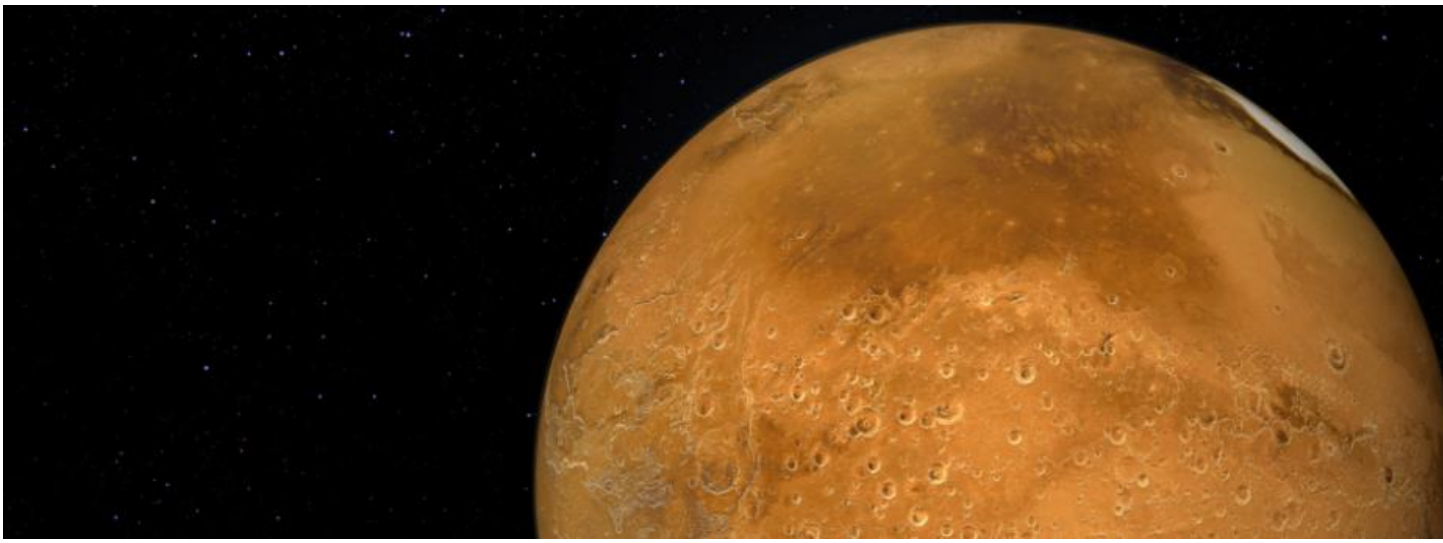
The Current State of Astronautics



The July 21, 1969 Neil Armstrong imparted the first human footprint on the moon. The company was exhilarating and rightly praised by the media around the world with appropriate titles. In many of them shone the pride of belonging to a race that had managed to break free from the constraint of the planetary surface and the race seemed to unfold unlimited horizons and unthinkable only twenty years ago; outer space, despite the fact that the light of reason, the distance covered would be considered infinitesimal compared to the galactic distances, seemed at hand; the fantasy sbizzarriva flights in increasingly daring and boundless, underpinned by the positive results of the subsequent missions already planned programs of the Apollo project.

Today, not only outer space has not been conquered, not only Mars has been colonized, not only the man has implanted a permanent settlement based on the moon, but it is also far from able to return. Indeed, pants and gasps among the problems related to simple stay in orbit around the planet of origin, very poor result compared with the claims of omnipotence in the press of 22 July of that year.

What has caused this decline? Certainly it not to the technical impossibility: what has been done once, twice three times, is definitely repeatable and better. There are documents that testify as the **'astronautics pioneer** of the first 50 years, Werner Von Braun just to be clear, he was able to lead an expedition of a dozen men on **Mars** without major problems if not to determine who should pay the bill. Well the point is all, now more than 40 years ago.

To clarify the concept is good to remember that the technique missile that is based on chemical propulsion, that is to say the one used up to now, as far developed, showing the rope on some well-defined limits:

- the costs inherent in the same, linked to the high cost of fuel;
- the relatively low speed which results, especially at manned missions, cost of security and survival in the space that arise in relation of exponential progression with increasing duration of the trip;
- the abnormal disproportion between the weight of the payload compared to that of the starting pitcher, quantifiable around one per thousand for hypothetical missions round trip to Mars, and we have the full picture. Now, in such an environment of rising costs hyperbolically, national budgets shrinking and cuts investment on space activities in favor of other sectors that are considered socially useful, it will be possible to better understand the reasons for what, after 'initial euphoria, today can not be called anything but a failure. Suffice it to say that to bring the **Shuttle** into orbit low 1 kg of commercial cargo the fare is around 50,000 Euros, to imagine that any public or private entity nor dares to risk huge sums of money to allow another Aldrin to make four steps, practically useless, on the moon or, worse, on Mars. And 50,000 € was the rate of the Shuttle, means partially recoverable operating on a low orbit!

Hence the search of various artifices to reduce costs. If in the field of interplanetary missions we go on the road to gravitational slingshot, which requires also the counterpart of a stretch to excess flight time and thus to make more and more critical cases of human missions in the technical sector was the frantic search of savings materials with often tragic results.

Apollo 13 was a case which resolved without damage thanks to a good dose of luck, but the same can not be said for the crew of the shuttle Challenger. And if it's good for people, cases of economic loss on the equipment are continuous. Suffice only a few examples of the best known to the public opinion: the Mars Observer, the two satellites on a leash tethered. However in this industry all nations bring their contribution. The Europeans for their part have met with Hermes, brother poor and modest copy of the Shuttle, abortion and inglorious with Ariane their troubles even before the disaster of Ariane 5. Many accidents have gone and continue to go unnoticed in the east.

The Russians lost Phobos Phobos I and II but also saw their **astronauts** to the brink of famine on the orbital station Mir because they no longer had the money to get them to go back; if their farce had a different ending was thanks to an international collection.

In **China** and **India** pitchers exploding with their cargo of billions are more than those who fail to take off. **Japan** itself, despite the reputation of precision and organization, is not free from egregious failures. Finally, the space agencies of other countries, **Australia, Brazil** and the company, are little more than pathetic spectra. In this atmosphere of general disengagement, one can not but regret the great, wonderful failed chance that the firm of Apollo 11 looked like it could give to humanity.

The final blow was given by the recent and definitive retirement of the Space Shuttle (2012) which was supposed to open the way to an easy and cheap access to space circumterrestrial humanity.

Aside from the pure and glorious gallop among the *stars*, it was reasonable to assume that many of the great problems that plague us today, and in future will afflict our children, they could find in space exploration, if not a radical solution, or at least a safe remedy just a starting point for further action: immediate application in scientific and technological research; energy and industrial exploitation of the asteroids or terrestrial planets; radical solutions to many problems of pollution; less hassle nightmare of overpopulation. All realistic assumptions although some have a long term.

However, all this is now confined to science fiction, and it will remain so in the future if humanity will not be able to radically change not only the technology of space missions, freeing it from the limitations imposed by the chemical propulsion rocket but also to evolve the principles of basis of mechanics.

To name things with their exact, we are in a period of stalemate with the risk of further involution that determines, in a fairly narrow, the final closing of the doors of the national agencies and then the remaining space activities around the world. The flights will be increasingly limited to the commercial sector still paying, and managed almost certainly only by private companies, in the field of sub-orbital launches, orbital or, at most, geostationary, telecommunications, sociological sciences, military and weather forecast .

The big courted epic space is likely to be here if not all evolves the basic physics which makes propulsion.

The solution method to overcome this impasse is to use a theoretical possibility incredible electrodynamics which allows the inviolability of the principle of action and reaction Newtonian in order to build a propulsion system which overcomes the need to expel the reaction mass to move.

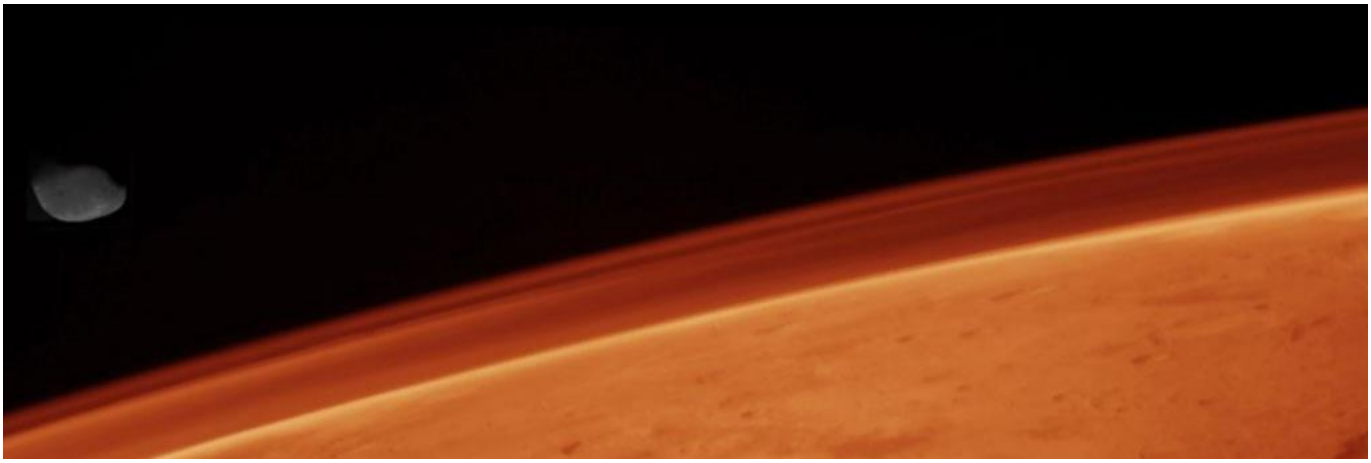
To solve this problem BASIC was born in 1979 ' SSPA and were discussed by all the concepts that year drivers of PNN **(Engine not Newtonian),** propulsion is based precisely on NOT mass ejection reaction.

The **PNN** has at its base an innovative concept of electrodynamics never put to use before or the ability to create a propulsion system that it moves without expulsion of the reaction mass. *The propulsion system thus becomes cheaper, more efficient and less cumbersome rockets.*

This will make transport lighter and electrically powered by a nuclear reactor. Usable nuclear hot versions and, hopefully in the near future, cold.

https://translate.google.com/translate?hl=en&sl=it&u=http://www.calmagorod.org/inerzia-della-pnn/&prev=search

PNN: It's Genesis



Until 1979 the '**SSPA (Association Development Space Propulsion** www.asps.it) reported experiments intended to prove the possibility of violating the principle of action and reaction that makes it possible to realize a new type of propulsion called **PNN** *(Engine not Newtonian*) with characteristics quite revolutionary.

The majority of physics texts, do not even consider the fact that the principle of Newtonian action and reaction cannot obtain a theoretical sense in electrodynamics. On the other hand you have to remember that Newton did not know electrodynamics, born long after him, and also the concept of Newtonian simultaneity between action and reaction cannot be formulated for an electrodynamic system consisting of charges and electromagnetic fields as Electromagnetic radiation propagates at a finite speed and not infinite. Consequently,

in this case, the Newtonian concept of simultaneity of an action at a distance between two masses is intrinsically wrong.

The importance of research in this area is demonstrated by the fact that NASA is trying for some time to overcome the limitations of chemical rocket propulsion promoting theoretical research in this direction but remain in a perpetual speculative phase (http: //www.nasa .gov / centers / Glenn / technology / warp / warpstat.html)

We intend to emphasize the authority of the double affirmation of the above with the following considerations.

The invalidity of the principle of action and reaction in electrodynamics

leading some examples that testify to this assertion.

Valter Moretti, in response to Andrea Francinelli newsgroup **it.scienza.fisica** on 02.23.2000 wrote:

In Newtonian mechanics the third principle and 'thus stated. "In reference to an inertial system, assigned two bodies A and B, if A exerts a force, F on B then B, at the same time, exerts a force -F on A".

F and -F are carriers.

In stronger form, the third principle also states that if A and B are bodies punctual forces F and -F lie along the line joining the two bodies.

Now in electrodynamics if the two bodies are charged, because of the delay effect you mention due to the mediation of the electromagnetic field, the third principle as I set out above does not apply. The EM field can not 'be considered a body for various reasons (even in theory because it does not define an essentially continuous range of speed ...) for which the third principle can not even be formulated for the system charges + EM field.

I must say that as stated above by V. Moretti: "..... While electrodynamics the third principle does not apply or and 'informulabile according to taste, the conservation of the total momentum, if you include in the system also the EM field, continues to hold just as you say .... "Is very significant and It lends to its logical level to a subsequent redefinition of the principle of conservation of momentum in the field of electro magnetic ..

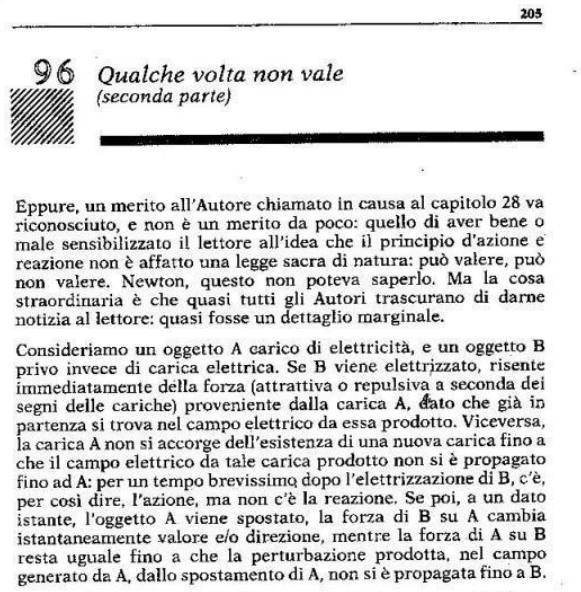
As stated above by *Moretti* and his subsequent sentence;

".... While electrodynamics the third principle does not apply or and 'informulabile according to taste, the conservation of the total momentum, if you include the EM field in the system, continues to hold just as you say .... "

They are particularly significant and lend themselves to its logic level to a subsequent redefinition of the principle of conservation of momentum in the field of electromagnetics.

Identical concept is shown with various interpretations in various texts of physics:

Edoardo Amaldi "Physics II" Marves Ed. 1965 pag.290, Eligio Perucca "and Experimental Physics II" Union Tipografico-Editrice Torinese pag.627-628 1949, as well as in popular literature such as: Tonzig "100 errors physical "page. Sansoni Publisher 205, where it is clearly reaffirmed the invalidity of the principle of action and reaction.



205

96 *Qualche volta non vale*
(seconda parte)

Eppure, un merito all'Autore chiamato in causa al capitolo 28 va riconosciuto, e non è un merito da poco: quello di aver bene o male sensibilizzato il lettore all'idea che il principio d'azione e reazione non è affatto una legge sacra di natura: può valere, può non valere. Newton, questo non poteva saperlo. Ma la cosa straordinaria è che quasi tutti gli Autori trascurano di darne notizia al lettore: quasi fosse un dettaglio marginale.

Consideriamo un oggetto A carico di elettricità, e un oggetto B privo invece di carica elettrica. Se B viene elettrizzato, risente immediatamente della forza (attrattiva o repulsiva a seconda dei segni delle cariche) proveniente dalla carica A, dato che già in partenza si trova nel campo elettrico da essa prodotto. Viceversa, la carica A non si accorge dell'esistenza di una nuova carica fino a che il campo elettrico da tale carica prodotto non si è propagato fino ad A: per un tempo brevissimo dopo l'elettrizzazione di B, c'è, per così dire, l'azione, ma non c'è la reazione. Se poi, a un dato istante, l'oggetto A viene spostato, la forza di B su A cambia istantaneamente valore e/o direzione, mentre la forza di A su B resta uguale fino a che la perturbazione prodotta, nel campo generato da A, dallo spostamento di A, non si è propagata fino a B.

It is thus clear that we want to consider the principle of action and reaction as an inviolable law of nature is based on the almost comical and tragic forgetfulness that "almost all the authors fail to give notice to the reader: if it were a minor detail."

Finally electrodynamics of **James C. Maxwell** (which was not the physical experimental) lends itself to be used in such a way as to overcome the constraint p = E / c of the radiation pressure.

Maxwell himself defined http://www.fisicamente.net/FISICA/index-119.htm

or that the displacement current in his equations suitably analyzed at the experimental level leads to new

horizons in terms of propulsion without expulsion of the reaction mass.

The conclusion is that you ***can overcome the constraint*** for which the amount of motion of only the electrodynamic field cannot exceed E / c, where E is the energy used and c is the speed of light.

It describes the operating diagram of a propulsion system whose thrust is generated without expulsion of reaction mass through the interaction between the magnetic field of the displacement current, http://www.asps.it/displacementcurrent.htm, and the current flowing in more conductors immersed in said magnetic field. The interaction produces a pulse on the system p such that p> AND / c where E is the energy used and c is the speed of light.

The propulsion system unit is composed of 3 armature discs that define a capacitor top and a bottom capacitor. The central disc is an ***armature*** common to the two capacitors.

The first and the third armature are at the same potential. The center plate is at a potential different. Feed the two capacitors with a ***variable (ac) potential*** generate two Maxwell electrodynamics of two magnetic fields B1 (t) and B2 (t) variable of the type of Fig. D1 between the plates of the two capacitors.

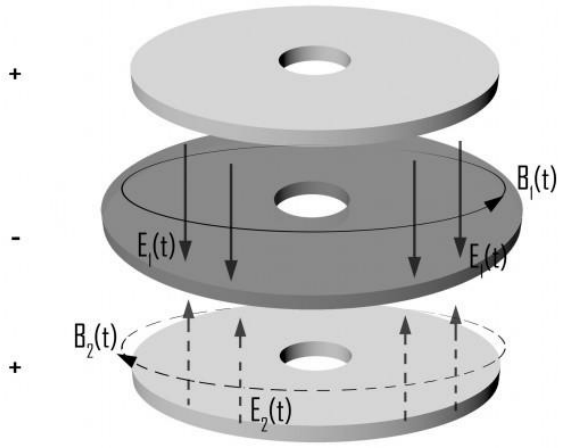
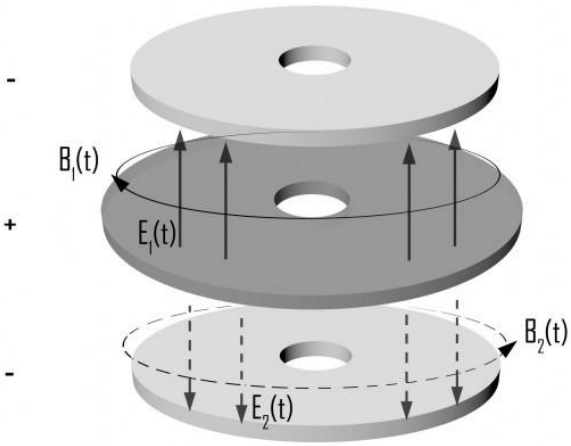


FIG. D1



By passing in the center hole of the central armature, no insulated electric wires with respect to the armature discs and wrapped radially in the manner of a coil on the central armature, if in the upper part of the central armature variables currents i (t) flowing from the inside to outside, the opposite happens in the lower part of the central armature for the lower currents i (t) as shown in fig. D2.

These two groups of opposing currents in the wires in the two zones are immersed in the two magnetic fields, one clockwise and one counterclockwise in the direction of the displacement current.

The result of the interaction between fields and currents is that they generate forces F1 (t) and F2 (t) of Lorentz time-varying forces both above and below the center frame.

The two Lorentz forces F1 (t) and F2 (t) in the two groups of wires, both above and below the center armature, however, have the same direction and our summed towards determining as the resulting a total thrust F (t) of the type illustrated in FIG. D2 for all the windings of the n-turn radial wire wrapped coil.

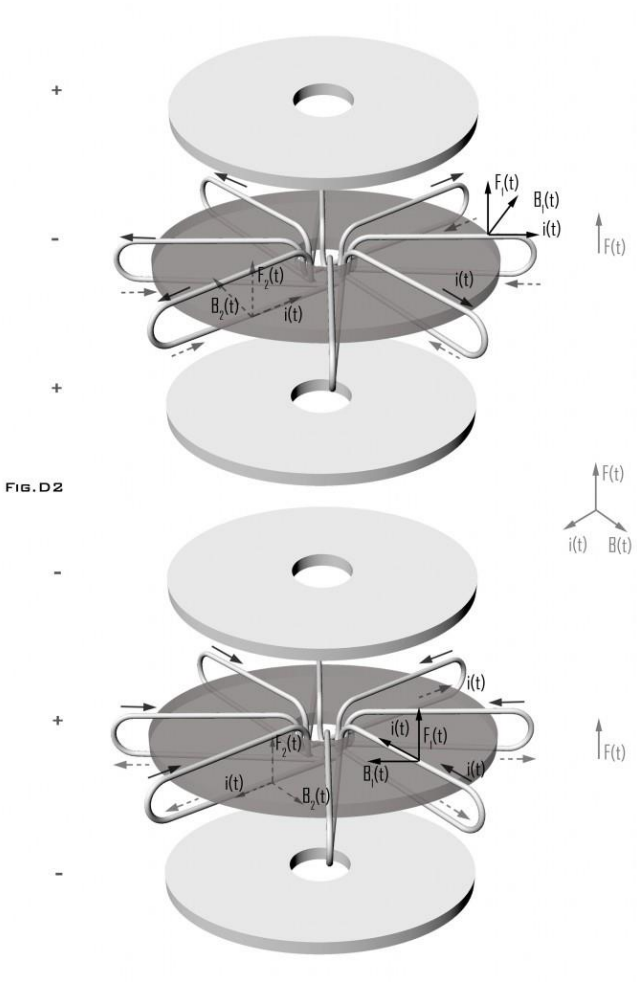


FIG. D2

More descriptive details of the system are given in the official organ SSPA Nova Astronautics

We reiterate that the use of the magnetic field of the displacement current is very special in the experimental sense and provides us with a procedure that a Maxwell implementation would not be found by an experimental physicist could not have predicted the experimental configuration.

They are shown below some clips in which this procedure has been applied in order to demonstrate the propulsive aggirabilità constraint p = E / c. The prototype hanging on the ballistic pendulum is called "Fear of the Lord VF2"

More succinctly **"TOS VF2"**

https://www.youtube.com/watch?v=BFQhsbt8qLo

Timore del Signore VF2 - Calmagorod.org

Summary of what you see in video-clip

The LED bow button indicates the implementation of the procedure of inserting the ***phase quadrature*** *(90 degree phase shift) between the electric and magnetic fields. For it to be implemented the state of phase between magnetic fields of the displacement current and the currents in the wires to generate a resultant force F always (t) it is necessary that the currents in the wires are driven in quadrature (90 degree phase shift) with the variable electric field in the armatures of the capacitors.*

As soon as the useful power to the thrust system it is sent to the other three LEDs flash (two laterally sideways at bow and one at the stern) the prototype is moved forming an angle with the vertical, while maintaining the state of oscillation of departure.

When several seconds after the power is turned off the prototype moves back to the previous position.

More detailed and specific dates will be on Nova Astronautics Official Organ dell'ASPS http://www.asps.it/na.htm , before and during the test of experimental verification with counterparts (employees and lenders-related scientific teams).

Our request is that our counterparts as proof of their scientific and financial audition to rebuild the prototype "TOS VF2" using the know-how in this url and Nova Astronautics is given so that when you present with a high probability of Physical and technological problems will be easier to start a procedure of interaction and collaboration.

Preprints of the SSPA Conference in Accumoli (RI)

December 30, 2013

https://translate.google.com/translate?hl=en&sl=it&u=http://www.calmagorod.org/inerzia-della-pnn/&prev=search

The new law of inertia of the NNP than Newtonian leads to possibilities unheard about the shortening of the time of each journey to nearby planets and stars. It presents itself beyond the thrust of a propeller PNN as the only procedure to overcome the relativistic mechanics that is slow in reference to the speed that the distances interstellar require.

Of what will now be exposed stresses that prospects are where tests math and then only theoretical and therefore necessarily require the certification test.

For a Newtonian system the absence of external forces void leads to the law of inertia or that the second derivative of the space s (t) with respect to time vanishes.

Pertanto da $md^2s(t)/dt^2 = 0$ si trova che $s(t)= s_0 + v_0t$

Where s0, v0, are respectively the initial displacement and velocity at time t = 0

The law of inertia is established with the procedure that if the resultant of the external forces is zero then it is the inertia of Galileo and the motion is rectilinear uniform

Also for the PNN the resultant of the external forces void defines its law of inertia.

Except for the NNP "no" are the only existing forces. If the forces are zero externally, internally they are different from zero and they are counted in the definition of the law of inertia.

Inside the Mobile PNN, or in reference solidarity with mobile is an internal force that is exerted on the total mass determines an acceleration to me, "but" not nothing:

$$ma = md^2s(t)/dt^2 =/= 0$$

Or an acceleration other than zero.

The external reference solidarity to the fixed stars observed this acceleration within the system pnn least as a change of acceleration / dt

(It is obviously possible also temporal variations of higher order).

So the internal strength should equal to a constant K at the outside because we are talking about the same force seen by two different references.

But that is k = mda / dt

This leads to the differential equation

$$1)\ md^2s(t)/dt^2 = k\ md^3s(t)/dt^3$$

Now there is a single function whose derivative is always the same: the exponential function!

The solution of 1) then is:

$$2) \quad s(t)= s_0 + v_0t + a_0k^2\exp(t/k)$$

$$\exp= e =2,71828....$$

The constant **k** that appears in the law of inertia has units of time ...

Now although the suspects do not know what it means now ka experimental level, how I do not know if the masses of the equation 1) does not depend on the reference system, as well as temporary variables.

What we can deduce for now is that if it were true the second) you could cross from one side of the universe in no time!

The law of inertia has the same time dependence of the one studied in 1981 in the first studies on the law of inertia for mechanical and PNN defined in 9 Vol.1 1981 Nova Astronautics under the title: "The inertia exponential" (page 23).

The way you configure this law of inertia could circumvent relativistic mechanics as its speed increases occur at constant energy

PNN the **law of inertia** does look like an engine PNN more to a star-gate that a motor engine.... This will call for the constant k constant gate.

Returning to 2) of the ballistic pendulum in equilibrium with the gravitational field a0 is canceled precisely the component of the force relative to the gravitational field and the term exponential 2) vanishes.

I always doubted and I doubt the inherent capabilities of mathematics to give something more than what has already inside from the start so my only conclusion is that you have to carry (even with a missile propulsion system) prototype PNN (with integrated power supply, amplifiers and equipment options) near a geostationary orbit and make him go, always in acceleration and deceleration tangentially to the orbit around the Earth, at a fixed distance, in order to see the stretch of path if it is:

$$2) \text{ esponenziale o la classica } s(t)= s_0 + v_0t + .5a_0t^2$$

Experiments will judge.

If by chance it was true in any way the presence of an exponential term in the law of inertia would occur as already foretold "always on a mathematical level" in www.asps.it/velox.htm ...
The new law of inertia leads to conclusions equally revolutionary for the status quo Newtonian relativistic.

a) The speed of light can be overcome only by changing the law of inertia

b) The mass of the new law of inertia for PNN in reference of the fixed stars, decreases with increasing speed (exactly the opposite of what predicts relativity!)

Ho detto che il motore pnn sembra uno stargate perché con k=1sec e a_0=1m/sec^2

1 light year is traversed in less than 30 seconds!

Proxima Centauri is about 4.24 years light is achieved in less than 32 seconds

The Ursa Major, about 75 light years in less than 35 seconds

The Andromeda Galaxy 1 million light years, is reached in about 44 seconds!

If after the above the law of inertia for pnn received an experimental demonstration of the limitation to the knowledge of the universe it would not be due to the distances but the number of places that you could visit ....

Faced with this possibility the only thing to do is to fly low and wait for the experimental confirmation in geostationary orbit.

Then only experiments can give a definitive answer about the real behavior of all individuals involved in levariabili 2).

E 'to point out that in the second) you can start initially with movement and speed negligible but that as the time the exponential term is so impressive.
So in the future the law of inertia allows pnn
the Speed ever larger in TOTAL ENERGY USED CONSTANT.

The **law of inertia** exponential for interstellar flight is more important and determinant of the amount of thrust that a propeller **PNN** is able to generate.

https://translate.google.com/translate?hl=en&sl=it&u=http://www.calmagorod.org/inerzia-della-pnn/&prev=search

WHAT WE OFFER AND WHAT IN EXCHANGE

Our project was for years, to the precision from 1979 to pass to the industrialization of the prototypes propelled non-Newtonian **(PNN)** through an initial phase that was exclusively associative from which was derived a reality associative organization.

Initial goal was to industrialization managed primarily by that association, goal that unfortunately the facts have proved impractical when you have to interact with counterparts that are enormously stronger than us in terms of economic and generally operating in different sectors. Once obtained, after years and years of research, at the end of 2001 a working prototype to **PNN** little push, it was realized only at the beginning of 2013, the actual *know-how* that is expressed now in a prototype completely different from the previous ones , with a return around **450 times greater than the NNP in 2005 with an acceleration of about 1/32 g**. But the most revolutionary and unpredictable was the development, inland mathematical, of a law of inertia that makes the **PNN** something extraordinary for space exploration even in the presence of relatively low pressures.

At this point, the possibilities for industrial development, in our opinion, depend only on the development of specific technology that has only recently been identified and the details of which will be communicated only to those who will be part of our program.

It is believed important to remember that **NASA** capital spent in the search for alternative propulsion, specifically those that provide non-ejection of the reaction mass, obtaining up to now complete failures.

Therefore today **ASPS** is the only entity capable of holding and report a comprehensive know-how to do so. Theoretically, and we intend to repeat it: as a hypothesis entirely theoretical based on extrapolation exclusively of a physical-mathematical, but especially after the necessary experimental tests, this may allow the overcoming of the speed of light, and then the exploration in times completely acceptable for commercial returns, not only of the solar system and beyond our galaxy.

As above we are now in the presence of stringent, absolute need to verify and test experimentally the correspondence of the new prototype boosted to the physical law that we have obtained by means of a test carried out in geostationary orbit.

This is feasible through the following program to be shared with lenders-collaborators.

1) - Search for one or more serious partners and reliable to put us in a position to perform this test.

2) - Preparation of a cooperation agreement.

3) - Construction and assembly of:

- 3 units PNN for the attitude control in the vacuum of the prototype and of a primary unit of thrust;
- An electric power supply by solar panels;
- An electromagnetic source in frequency between 35 MHz to 500 MHz, from 3 to 10 Kw;
- Power rails for communications and remote control.

4) - Execution of a research preparatory to the ground via a ballistic pendulum long enough.

5) - Mass in geostationary orbit.

6) - Command to earth with tracking orbital trajectories of variable length during acceleration and deceleration.

7) - Sharing with lenders **PNN** patent and its industrial development, bearing in mind that they are already aware that the **NNP** will become leaders in the aerospace industry and determine a turning point is difficult to predict, because, touching science fiction, It exceeds the limit of current scientific knowledge.

8) - As a basic requirement for an effective and serious cooperation between the parties say the deposits with the lenders of a technical-scientific team perfectly able to acquire the first concepts of know-how so that they can, in itself, make a prototype incomplete. This will, as well as evidence of his ability, even in developing reciprocal opportunities for practical cooperation to be implemented with the construction of the final prototype.

9) - Massimo prominence by the lenders on the different media of the ongoing project.

10) - L **'SSPA** reserves the right to make changes to this program if in the meantime these events occur, experimental and / or commercial, that the warrant.

https://neolegesmotus.wordpress.com/2015/06/12/the-electromagnetic-non-newtonian-propulsion-or-pnn-e/

The Electromagnetic Non Newtonian Propulsion or PNN-E

Posted on 12 giugno 201529 novembre 2015 da sergioz82

In the last post we've left ASPS realizing that PNN-M was unpractical, as the Superposition principle can't be applied to the mechanics of SC23/a.

The Association then transposed, in 1992, the concept behind PNN-M to electrodynamics, where the Superposition principle is applicable. The result was the birth, in 2001, of SC23, a new kind of device that actually can violate (yep: the right word is violate) Newton's third law.

The prototype casts electromagnetic fields which interact to generate a force. By exploiting the interaction between those fields and driven by accurate superposition calculations that can predict and organize the behavior of electromagnetic waves, the reaction force can be set to null or at least heavily reduced (phase opposition maybe?) whilst action force can be boosted. And this is only the first breakthrough!

The second one is that since the magnetic field is independent from the system once emitted, the PNN thruster can create on its own the medium where the modulated E.M waves can "have grip" and thus generate thrust! To make this statement more clear, let's use this metaphoric example:

Imagine a strange cartoonish creature similar to a fish, that lives in space. This fish has a unique peculiarity: it can create bubbles of water around itself. When a bubble is created, it wags its tail to swim forward. When the fish is near the end of the bubble, it expels another bubble, and so on. This way it can move wherever it wants in space. Obviously you shouldn't take too seriously this example because the physics doesn't work that way.. unless we're talking about E.M fields and Superposition principle!

Those two breakthroughs imply that a PNN-E thruster can work as long as the energy source is active. It doesn't require to expel mass because since its "reaction" mass is the magnetic field, it virtually doesn't exists until emitted, therefore the reaction mass is the energy source itself!

The PNN-E is, quoting Emidio Laureti, "the Sacred Grail of propulsion".

It really is the Holy Grail because the implications in space propulsion are paramount: a ship equipped with PNN-E drive can thrust as long as the energy source is functioning. This means that it can reach speeds that are inconceivable for modern astronautics: theoretically we can even start talking about FTL travels! Moreover as long as the energy source is active the ship can visit different celestial bodies in a single misson, without being bonded to fuel availability, small speeds and the need of gravitational slingshots.

In short, a PNN-E ship becomes a real Caravel of the space, in contrast with the expensive and elaborate one-way projectiles that we send among planets with conventional propulsion.

ASPS is jealous about their know-how (they're absolutely right, I must say) so the formula to actually produce thrust has never been released. However they stated that the key to PNN lies in the antennas that everyone has on his rooftop. In fact the prototypes work using the antenna dipole.

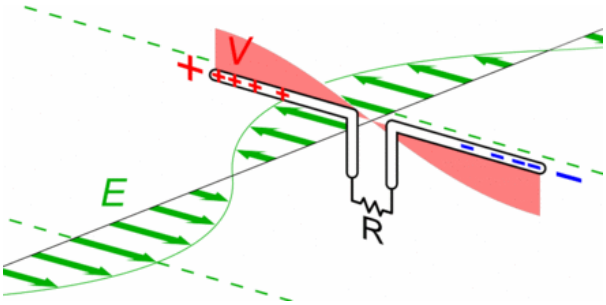


Figure 1: the operation of an antenna dipole

We're not given to know how the action force is obtained but I can speculate that a controlled interaction between two or more dipoles is involved.

In fact, in this article (in Italian) Laureti discusses the boosting of PNN-E by organizing hundreds of small dipoles in arrays. These structures can interact and then amplify the magnetic fields and thus strengthen the thrust. Those arrays can be arranged to fit the size of a small tile. If then we could cover the hull of a spaceship with those tiles the ship itself would become a thruster! Oddly enough, Laureti said that PNN-E produces luminous radiation when functioning, so this hypothetical spaceship would shine like some of those Unidentified Flying Objects.. but we're trespassing in the fantasy realm.

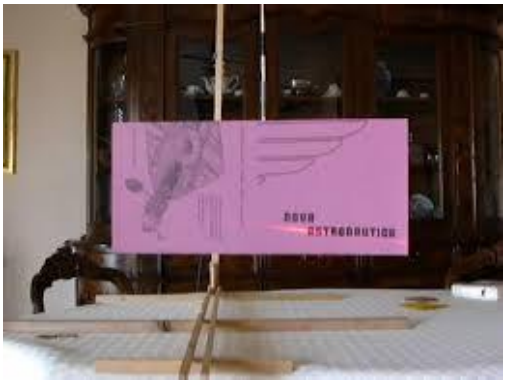
Over the years ASPS has improved their prototype.

According to online publications, its evolution is:

SC23 (2001) – Thrust unknown

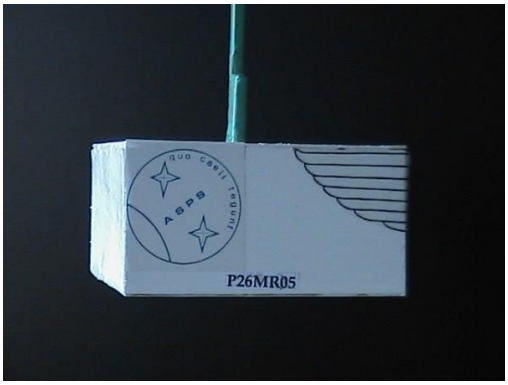

ASPS never released pictures of the prototype

SC2.12 (2001) – Thrust: 2 mN

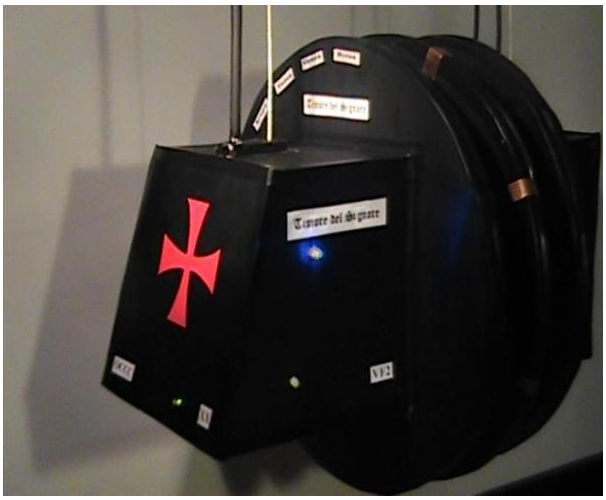


Tds1/P10F02 (2003) – Thrust: 120 mN

P26MR05 (2005) – Thrust: 250 mN



TDS VF2 (2013) – Thrust:1/32g = 0.3065 m/s^2



Edit (11/29/15): ASPS announced a new thruster conceived to compete against EmDrive

Fert242(2015) – Thrust:~600uN , Input power: 150W


Picture not available yet

If SC2.12 was competitive with ion propulsion, TDS VF2 is an another world: according to the released information it has an acceleration of 1/32g and the Association is working to improve this value and reach 1.1g. With this acceleration the prototype can literally take off! When ASPS will achieve this not so far result (I hope), the PNN will be ready to be publically presented.

TDS VF2 is a beast, in this video you can se how it bends the ballistic pendulum when powered:

There is a lot left to say about PNN-E but I don't want to overload this article: that will be material for further posts.

https://neolegesmotus.wordpress.com/2015/08/04/aspss-electromagnetic-engine-tds-vf2/

ASPS's Electromagnetic engine TDS VF2

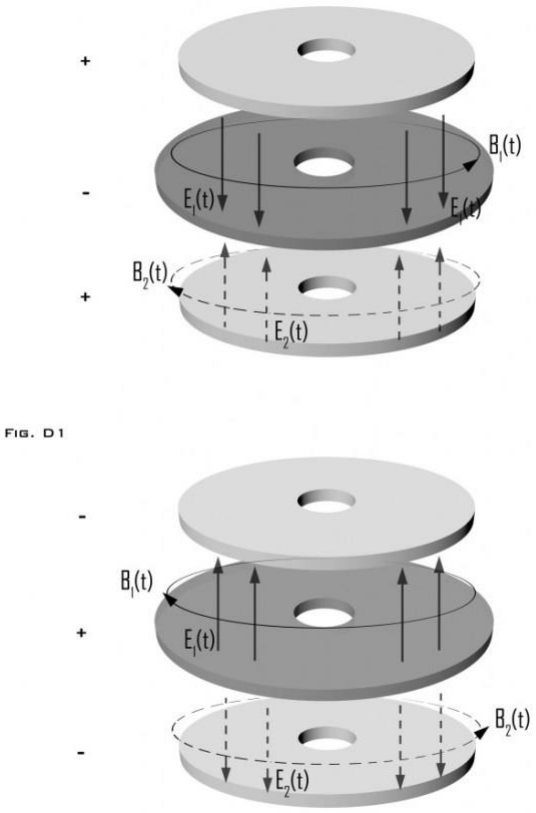
Posted on 4 agosto 201510 agosto 2015 da sergioz82

The TDS VF2 – thrust: 1/32g (2013 specs.)

It is time to have a look at the state of the art of E.M engines: TDS VF2 [1]. If you're new to the blog, for a better comprehension, I invite you to read my last post, where I deepen the working principle of electromagnetic propulsion.

In ASPS's engine, the basic thruster unit is composed by 3 disc-shaped plates that define two capacitors with a shared central plate. The capacitors work at the same potential using AC

current. While the external plates have the same potential, the internal plate is always at a



different potential.

Fig. 1 – Magnetic fields in double capacitor central plate

As shown in Figure 1, once powered with AC the charge movements *E1* and *E2* between the plates creates magnetic fields *B1* and *B2* inside the capacitors. Due to the mirror configuration of the thruster unit, the magnetic fields always move in opposite directions and the central plate is exposed to both fields: this is an excellent position where to generate a Lorentz force!

In fact as shown in Figure 2 on the central disc is wound up a wire, which is electrically isolated from the surface of the plate. When the current *I* flows through the spires, a Lorentz force is generated by the interaction with magnetic fields *B1* and *B2*. As the current follows the circular path of the wire, it moves outward in the upper side of the disc and inward in the lower side, then, when the AC phase changes, the direction of the current reverses. This means that the flow direction is synchronized with both magnetic fields and then Lorentz forces *F1* and *F2* always thrust in the same direction. In the engine description on Calmagorod is omitted the part that explains how the device actually nullify the reaction force, however, this is the secret behind this engine [2], so we have to wait the deposit of the complete patent.

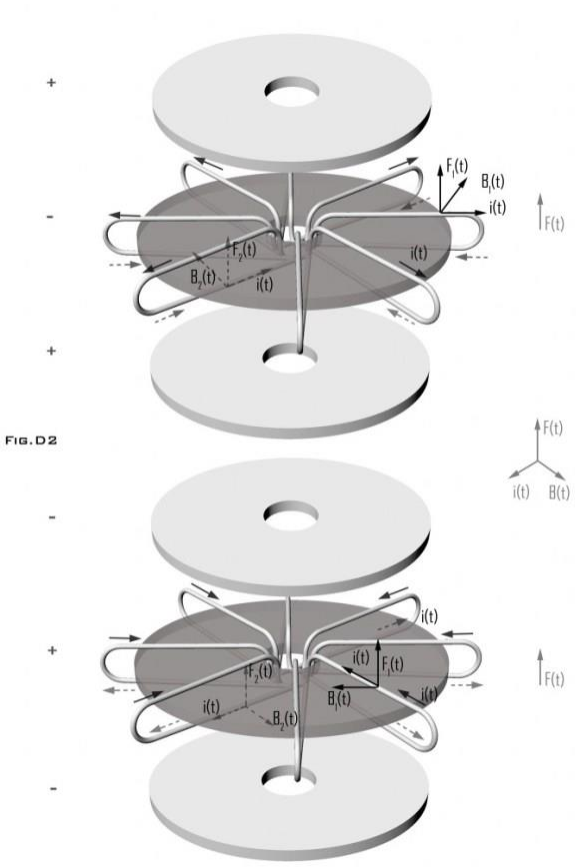
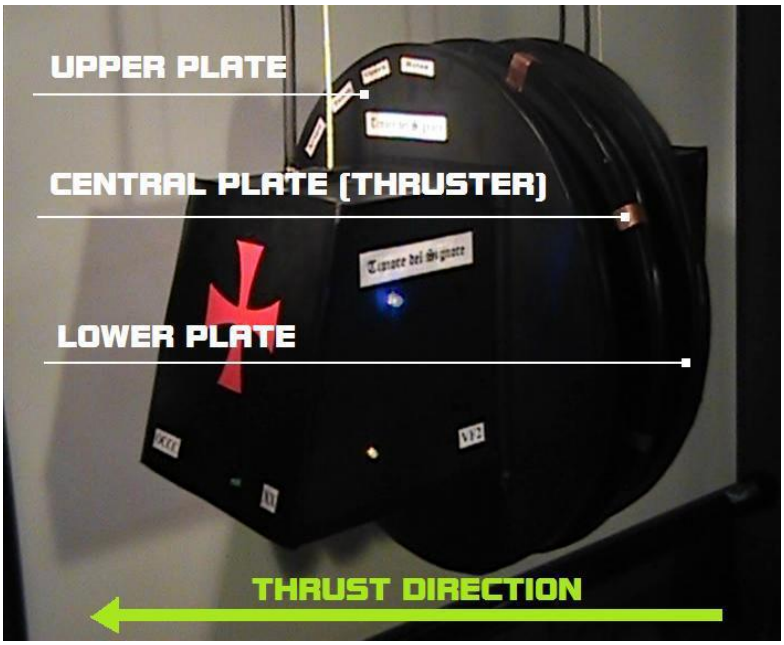


Fig. 2 – Lorentz force inside the spires using alternate current

In Fig.3 is shown in detail the actual realization of central disc (upper), where we can notice the wiring, and external disc (lower). The white substance is a dielectric paste.

Fig. 3 – Plates details

If we look at TDS VF2 it's easy to locate the thruster unit:



Please notice how it bulges out of the prototype shape. This configuration changes the architecture of a future E.M starship because part of the cylindrical hull must be modified to accommodate the three discs. However future thrusters might be optimized and thus reduced in size to fit in the hull.

As stated before, ASPS is working to improve the engine thrust to 1.1g, because its goal is the prototype take-off. Unfortunately the Association is facing a lot of technical challenges to reach this ambitious goal and the success is bound to the overcome of these difficulties.

One big problem, as we can sense from Fig 2, is that E.M waves between the capacitors must be focused on the central plate instead of being irradiated like in a common antenna. It's not easy for the Association to solve this problem because antenna researches aim toward the improvement of range and thus irradiation, so ASPS is practically alone in this kind of experimentation.

The biggest problem however is that the system impedance must be drastically reduced in order to obtain as much power as possible in form of current. Here on Neo Leges Motus Laureti commented that he needs to obtain 30A from 900W input power. This would be possible only if the impedance is 1 Ohm or less. With higher values the power is dissipated in heat, so intense that literally fries the circuitry. Unfortunately the impedance can't be decreased easily in PNN-E, because when it falls below a given value, the system generates a SWR that destroys the power supply.

Last but not least, when functioning PNN-E produces massive E.M radiation, so who works in proximity of the prototype must wear a protective suit. Laureti found a curious but effective solution: he modified a medieval chain mail to work as a Faraday cage.

As personal comment, I would like to add “secondary” variables that affect system behavior:

- the choice of the material to use for plates and dielectric
- the optimal spires number in the central disc coil and how this value affect Lorentz force
- the working frequency : Laureti wrote that from its value depends the prototype dimension. 144 MHz means a 2 meters-wide prototype, while higher frequency means smaller devices. In practice PNN-E follows the rule for antenna dimensioning: Length = 300/f(MHz). This make sense since dipole is synonymous for antenna.

However, while testing PNN-E and in particular TDS VF2, ASPS discovered that the thruster doesn’t follow the common law of inertia, because E&M propulsion literally “accelerates on its own acceleration”. Hence there is the need for ASPS to define a totally new law of inertia that would allow an E.M starship to cover several light years in few seconds! It sounds astonishing but ASPS seems confident in theory effectiveness.

IF practical experimentation (orbital tests) will validate this theory, it means that mankind has found the key for expanding through the stars!

EDIT August 10th 2015: I forgot to mention that ASPS is not looking for funding, because they haven’t this problem anymore. The official presentation of PNN is uniquely bound to the solution of all technical problems related to take-off.