

## Full Paper

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## Some thoughts about the Morningstar Energy Box - Operation of a Poynting vector motive device

### Abstract

The Morningstar Energy Box is a revolutionary derivative based upon both a Searl and the Russian device by Godin and Roschin. The game-changing technology Energy Box is similar to a mechanical cage per the Russians, uses laminated rollers per Searl and a unique main ring with a ferromagnetic fluid reservoir to enhance electrical and magnetic properties. During early experimental test, this electromagnetic device only lost 2 to 5 pounds of its 190 pounds at steady-state rotation. Thru transient rotation changes, the weight change dropped as much as 20 to 40 pounds. During these last test series, the device unexpectedly showed a 14-pound weight reduction or 7.3% loss during steady-state; loss of 12% occurred during transient situations.

An investigation examined some potential explanation(s) for the unusual performance of this nonlinear device. Three approaches were initially identified for why the weight might change during operation. Some of these plausible explanations included:

- The conversion of angular momentum into linear momentum.
- Gravito-Electro-Magnetism (GEM) effects- A Poynting vector force uses induction.
- Retarded Potentials- The ring acts as a reflection plane for the roller electric and magnetic fields and time is retarded.

Several additional possible explanations were identified where some of these explanations may fall within supportable technical evidence. These efforts include: Cogravitation, Matter waves, gravitational wave effects and a conjecture thru the 'N' Dimension axis. With this additional spectrum of feasibilities, a serious need warrants further determination about what induces the weight changes which may impact synthesizing a future space propulsion concept.

## INTRODUCTION

There are several controversial mechanisms. Some devices regard Searl<sup>[1-3]</sup>, and by Godin & Roschin<sup>[4,5]</sup> with devices producing significant claims about phenomenon having either unusual electromagnetic fields with a gain or loss of weight. If successful, such devices may implicate new forms of 'Green Energy' or some advanced propulsion capabilities to include spacecraft<sup>[6]</sup>. The problem is to investigate these claims with a sane rational approach to identify and assess a significant game-changing technology to create propulsion or energy.

The name "Energy Box" is a misnomer. The original purpose of the device was to create a magnetic motion drive. This did not occur. Instead the device<sup>[7-11]</sup> dem-

onstrated changes in its weight gain and loss during its rotation. Basically this device is a variant of a Searle device with Godin and Roschin's concept, with modifications. What the energy box consists of is a laminated ring that does not include a magnet but instead uses a ferromagnetic fluid and two copper rings electrically insulated from the main ring. The laminated rollers are consistent with Searle's suggestion but a carousel is included similar to Godin and Roschin's notion to use a cage which mechanically aligns the rollers with respect to the ring. Generally, the device generates a non-symmetric or three-dimensional magnetic field that allows the magnets in the roller to move around the stationary ring.

In our original paper<sup>[7]</sup>, the device weighed approximately 190 pounds. With additional support equip-

ment for instrumentation and batteries, this with the device and a supporting cabinet weighed about 460 pounds. The cabinet was placed above six load cells to determine the weight distribution when the device rotated. We found under one initial test condition, the system weight would either have a loss or gain of weight as a function of conditions based upon rotation direction, voltage levels, and ring status.

During the initial test series, the device did not perform specifically as either Searl or the Russians had claimed about self-rotation. Searle mentioned using a dielectric material in the rollers and rings to separate copper from aluminum. This included a capability for a capacitance and the subsequent electric field would act radially with respect to either the ring or the rollers. This would act perpendicular to the magnetic field which should produce a Poynting vector force. As a result of this hypothesis, we developed a conservation law for the Poynting field and to surprise, the Poynting field was found related to a gravitational or torsion field. This was very promising.

One claim made by Searle was to magnetically imprint the ring with a strong magnetic source. This was not performed. While investigating the results, the rollers and carousel were intentionally positioned for several months with the main ring. These are considerably strong magnets and they imprinted the ring. During the tests prior to this, the results showed resonances as a function of revolution at about 200, 450 and 750 rpms. After imprinting the ring, a different set of circumstances for results of the device behaved in a very nonlinear manner. Resonance disappeared at 400 and 800 rpm. Moreover, the 190 pound weight of the basic device was found to lose 7% weight during steady-state operations and as much as 20% during transient operations. These values are considerably higher than what one would expect with 1% weight loss as a function to allow for experimental differences.

What was important is the device was truly a nonlinear device. In other words, the possibility of reproducing conditions at a former test may not be reproducible because of the strength of imprinting or the diminish-

ing of magnetic field strength. This goes against the common sense approach required for any scientific principle or experiment regarding reproducibility. Basically this performance is enigmatic and several technical approaches were identified to explain the device's actions. These alternative approaches selected are cautious to investigate approaches regarding any explanation that only falls within the arena of supportable evidence with experimental precedence in the investigation.

## DISCUSSION OF SEVERAL EXPERIMENTS

### Searl device

The idea proposed by John Searl has created significant controversy. The basic idea of his device is that cylindrical magnets will interact with a ferromagnetic bar of material. Searl's contribution bends the bar into a contiguous ring so the individual magnets 'hunt' and 'peck' in a circular arrangement where they approach at equal azimuthal increments with respect to the ring shown in Figure 1. The rollers actually stay above but do not contact the ring surface. His notion suggests all of the magnets are either all north or all south polarity. Searl's rollers and rings are laminated with specific materials. Rollers consist of a central core with an intense magnet. These are inserted in a copper sleeve followed by a dielectric material pursued by an aluminum sleeve. The dielectric provides a gate for electrons; other roller materials also provide electrons. The ring has a similar laminated arrangement where the magnet is on the exterior portion of the ring. Searl identifies the law of squares or the *magic squares*<sup>[1]</sup>.

The rings will achieve a magnetic/mechanical resonance that produces a rotation rate as the rollers move quickly about the ring. To generate electricity, passing rollers move through a transformer capture device that generates electricity by cutting the roller lines of magnetic field. In a different variation from the theme, these sections could be charged to create an electric signal that allows induction for the roller's rotation. Very little evidence has identified the amount of current generated by this device.

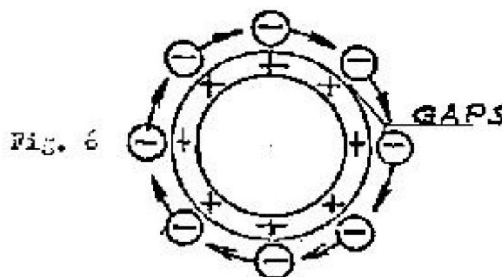
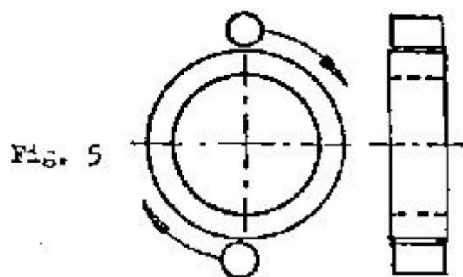


Figure 1 : The rollers operate around the ring with a parity of the pole magnets.

### The Russian Godin & Roschin device

Roschin demonstrated feasibility with an initial Searl device. Godin and Roschin are Russian scientists that created a comparable electro-magnetic technology. They made a similar ring with several hundreds of pounds of magnets using Selenium. Rollers were also constrained to a mechanical carousel or armature orienting the location of the rollers as well as the spacing from the surface of the ring. Other variations by the Russians are the rollers had used radial magnets meshed between the rollers and the ring. If this worked successfully, rollers would rotate per the linear spacing of the ring. This device, reported at an AIAA Meeting in 2001, claimed the device self-accelerated rotating by itself. A 7 KW generator was used to generate electricity. The device was charged on the exterior of the rollers to 20,000 volts. When the device rotated at 600 rpm, the approximate weight of the 375 kg armature lost 35% of its weight. They claimed at that time, the temperature decreased. When rotated in the opposite direction, the device gained 35% of weight at 560 rpm. Moreover, the system produced magnetic discrete walls which were at several distances away from the device. Finally, the system also had a smell of Ozone.

The Russians had several different theoretical views regarding how their device worked. The main idea is angular momentum converting into linear momentum. This may sound trivial, however it works with a wheel on a bicycle, a car or a locomotive. The notion<sup>[12-14]</sup> involves a von Karman vortex street. Each odd vortex would rotate in one-spin rotation while even vortex rotates in the opposite spin.

### Description of the Energy Box

The device operates with rollers similar to Searl's design and a ring; a cage is used as a carousel similar to the Russian device. Moreover, in lieu of a magnet in the

ring, HyMu-80 material in the ring has a reservoir for a ferromagnetic fluid. In addition, rollers have a passage-way to allow air motion to cool the magnets and hopefully prevent any potential magnet fire problem seen by Brown<sup>[13]</sup>. HyMu-80 material is also used with the magnetic core of the rollers and is placed in concentric angular magnets. This is followed by a copper sleeve and isolated aluminum sleeve. Thus, the Energy Box has similar components with these effects, which includes use of the most favorable impressions gathered from several serious investigations. Details are available in<sup>[10,11]</sup>.

### EXPERIMENTAL RESULTS

The first investigation examined the magnetic field from the device. Results are a function of rotation rate and radial distance. Maximum field strength is located at 9.5 inches for the rollers in the carousel. If the roller magnets were set at alternating poles, the strength of the magnetic field was significantly reduced and cancel or compete with adjacent rollers. Rollers were used in the same polarity to maximize field strength.

There was no obvious increase in the magnetic field as a function of rotation rate. However, some disturbances showed at considerable radial distance from the device. It was apparent the magnetic field would move radially outward at a greater distance to increase carousel velocity. It was possible these 'moving' magnetic walls are radial shells as magnetic walls with discrete changes in the field. This is unusual in that one would normally expect the field to be continuous in the magnetic field. This is similar to effects observed by the Russians. Because of the limited laboratory spacing, we could only measure two or three walls from the device. Also there are a number of other metal objects in the cramped test lab, which may supply the magnetic fields. Details are available in<sup>[10,11]</sup>.

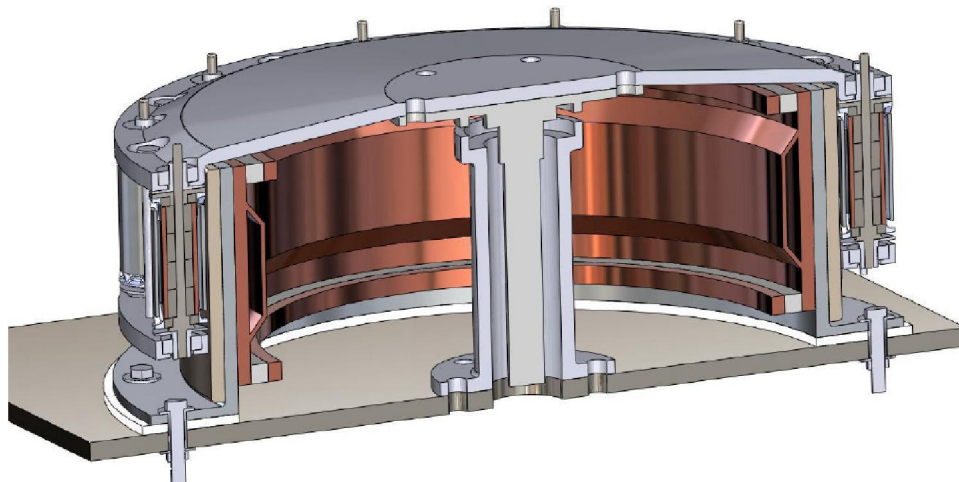


Figure 2 : The integrated assembly.

Using magnetometers, the walls are not linear barriers as the Russians imply. Here, the walls follow a parabolic curve similar to expected trajectories from the magnetic lines of force. The difference is the Russian device could have had a significantly stronger magnetic field than in this device. The reason these walls are important is the magnetic field movement could be used to harvest electrical energy away from the machine.

Regarding weight, six load cells were used to determine weight responses. Results show rotation rate as a function of time. In this graph rpm is shown as a staircase step. In addition, a smell of Ozone was detected when the carousel was removed from the drive mechanism.

A fourth test series of the Energy Box was performed. Results from the first three series validated some of the ideas about their Russian device; we saw unusual results which showed increases or decreases in weight. This fourth series was approximately two months later after these tests. The new test objective was to modify the rollers to use capacitors capable of holding 1500

volts compared to the original capacitors that only held 100 volts. This would validate the Poynting vector approach to increase the force of the rollers by a factor of ten.

In many postulated theories, the retarded potential was considered as a low probability. The Hymu-80 material was not supposed to maintain a sustained magnetic field. This, when imprinted, created unexpected events compared with other test series. When spun by hand, the carousel coasted in a relatively smooth fashion. However, after it moved in a particular direction, the carousel would stop and move a small amount in the opposite direction before stopping again. This was unexpected. The rotation was about 10 degrees in azimuth. The behavior occurred regardless of clockwise or counter-clockwise direction. This effect supports the idea about a retarded potential. These new trials established experimental uncertainty that reached about .1 or .2 pounds of weight. In a majority of runs, the device would lose or increase weight by about 2 pounds. These weight changes were within 1% considering the 190 pounds of the device without the weight

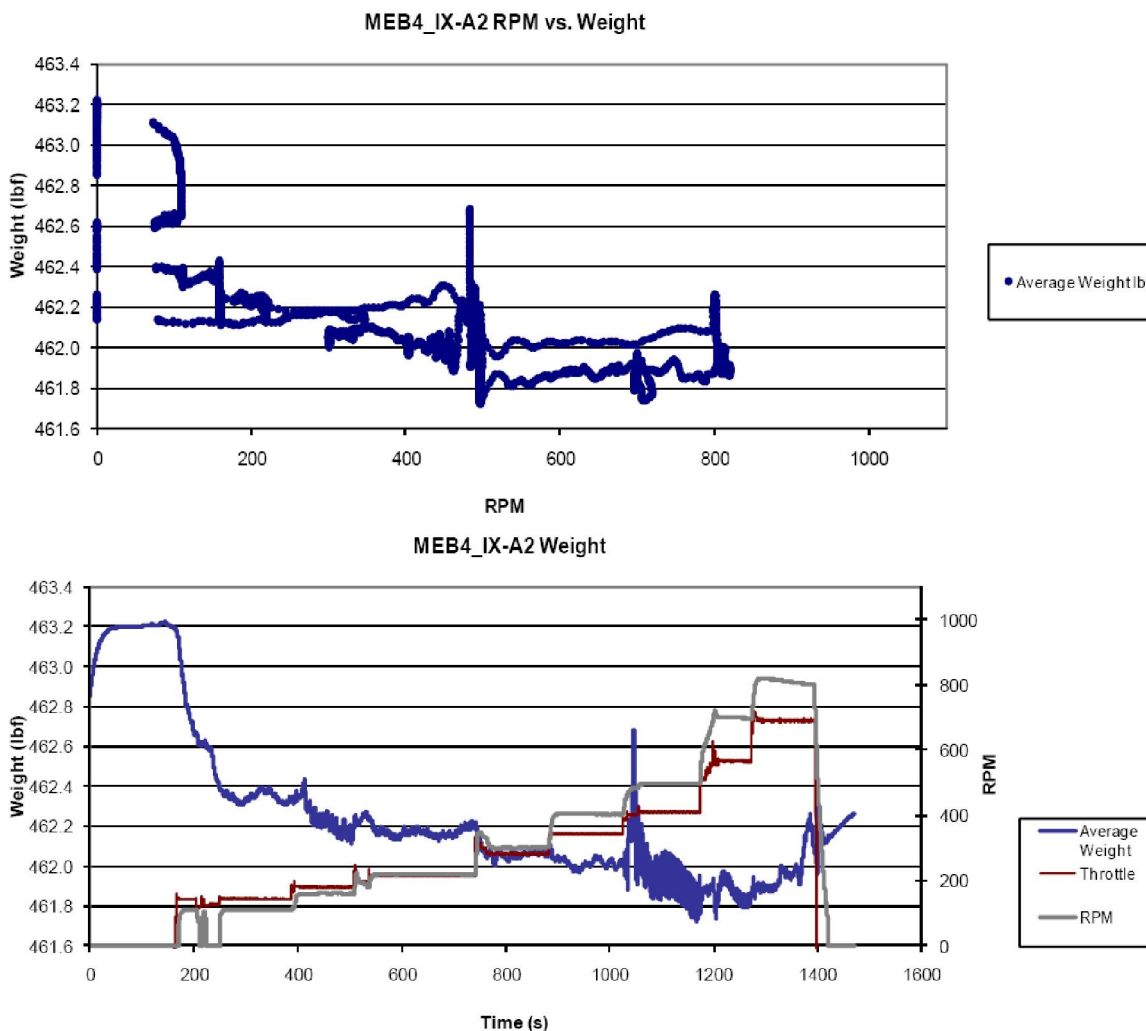


Figure 3 : A typical weight reduction case with resonance at 480 and 810 rpm.

of the cabinet, battery, and charging power supplies. Results were therefore ignored as not being notable. The initial brake drive was removed for decelerating the electric motor. When 1,000 rpm was reached and power was withdrawn, the carousel coasted for 37 to 39 seconds before stopping though it only took 20 seconds during the prior three test series with the brake. As previously mentioned, the carousel always stopped and reversed direction before finally coming to a rest. When the weight versus rpm data was examined, departures that were once seen at resonance locations in previous tests were found diminished because of the ring magnetic field imprinting. The data showed some resonance locations but the amplitude was not as prevalent. If power was removed at 1,000 rpm, the weight history as a function of the decreasing rpm showed a sinusoidal response peaked at different locations for different voltages or rotation directions. This did not seem to show any disparity when the rpm reached resonance thresholds. Such behavior was not observed for the other three test series. At this point, the imprinting had made the device operate in a more nonlinear fashion than in the past. A

reference trial was performed where there was no voltage at the rollers and the carousel moved first in one direction and decelerated to a stationary state. The device was restarted in the opposite direction and was eventually decreased to cease operations. Results were totally unexpected as follows. The initial weight includes the device, cabinet, and supporting equipment. The weight first dropped from 447 pounds to 433 pounds, held constant with spikes at 220 and 400 rpms. A weight spike at about 2180 seconds dropped to 425 pounds. The weight returned to the initial weight and then, at a different direction, dropped a minimum of 431 pounds. A maximum weight loss occurred at 22 pounds at about 12%, and an average loss in direction was 14 pounds at 7.3%. The initial objective of this run was designed to establish resonances but the results changed weight right away. Moreover, one may argue less weight may occur at one direction over the other but this would have been reasonable only if the rotation rate history was identical. Unfortunately for this run, the different direction went to a higher rotation rate, and results at different directions were apples versus oranges.

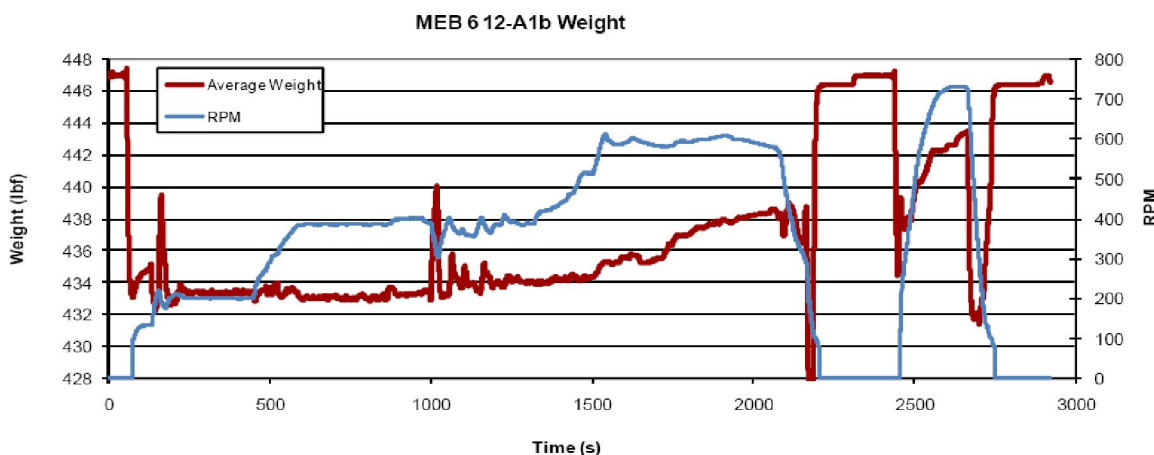


Figure 4 : This unusual weight history resulted with no electrical charge at both directions.

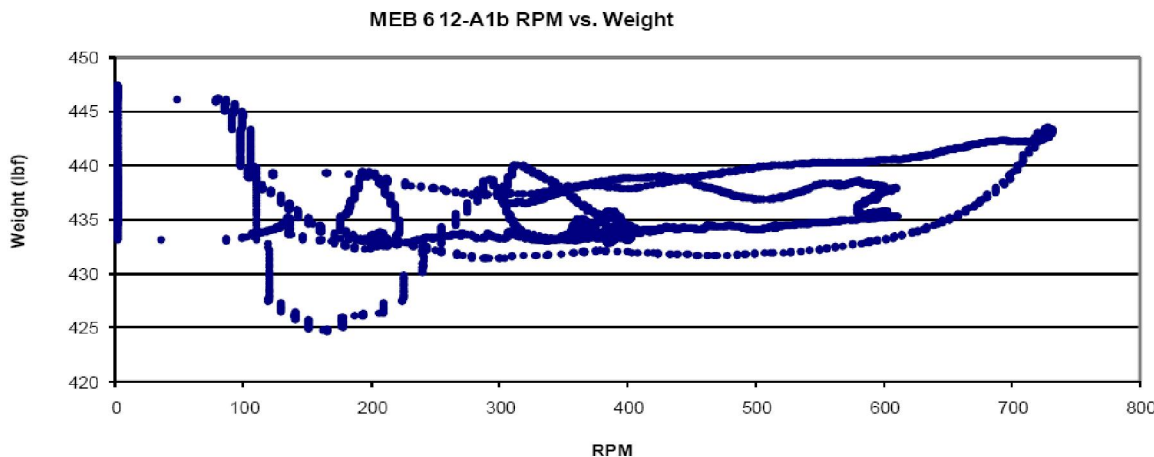


Figure 5 : The unusual behavior demonstrated events as a function of acceleration versus deceleration. Resonance was not as seen at 200 and 400 RPMs.

Compared to the other test series, there was no behavior where the weight changed for a considerable time of period with higher result magnitudes at transient situations. The weight loss of 7.3% would easily be assumed as greater than experimental error at .1 or .2 pounds.

## HYPOTHETICAL ANALYSIS AND CONSIDERATIONS

We gave some history before describing the device, the hardware, and results. Unfortunately at the time, we had no idea of what could be used to theoretically find ways of explaining experimental results. This became as an afterthought. It is not unusual in scientific experimentation where something is discovered without expectation and you then determine what the probable cause for what occurred. Our response was how to create theoretical notions with minimal supporting experimental evidence? What is also of concern is Morningstar obviously would desire more funds for additional investigations to provide confirmation as well as explore the options to be discussed.

The spectrum that allows us to open the door and possibly understand this scientific enigma include:

- *Angular momentum*- The idea is that Mother Nature may convert angular into linear momentum.
- *Gravito-Electro-Magnetism (GEM)* - This notion uses a Poynting vector force induction based upon the roller design.
- *Retarded Potentials*- The ring acts as a roller reflection plane on the ring. If the time is retarded, it is possible the image from one roller may attract an adjacent roller to create self-acceleration.

The first approach would allow angular motion to induce linear motion using interactions with magnetic and electric fields. The second approach initially looks at a magnetic roller/capacitor around the ring. When roller motion is started, an electric field is created by Maxwell's equations. If the magnet is longitudinal and the electric field in the roller is radially oriented, the Poynting vector, which is the cross product between the electric and magnetic fields, would create a force to induce motion. This use of the Poynting field looks very promising.

Since the initial time with more experimentation, additional theories were included in this list such as:

- Generation of gravitational waves,
- Cogravitation per Jefimenko,
- Matter wave per De Broglie, and
- N-dimensional transport

These individual points will be addressed.

## The Morningstar Energy Box

The unusual operation of this device is the rollers move a three-dimensional magnetic field in a circular kinematic response that differs from an axisymmetric electrical motor because of the trajectory of the field.

### (a) Angular momentum

The idea is to transfer angular momentum into linear momentum. This allows angular motion to induce linear motion using interactions with magnetic and electric fields. Several dynamic situations exist where there is a transfer of momentum from one coordinate direction to another. For example if one is to consider the six degrees of freedom of a body, there are specific situations that may occur. This would involve a geometric body having a body of inertia matrix with only elements in the main diagonal. Here, motion in a specific linear or rotational momentum, is kept separate in a specifically defined direction. However, if the body is not symmetric and elements appear off of the diagonal elements in the moment of inertia matrix, there is a transfer from one direction into another. Thus, pitch rotation can induce yaw or roll orientation. The subsequent performance of the aircraft results in 'Dutch Roll'.

The final example which is more direct is the situation of a bicycle or any automotive device. Here the wheels rotate but the vehicle changes this rotational momentum into linear momentum deriving forward motion. It is feasible the impact can occur of large electrical or magnetic fields inherent in the energy box. These fields might alter such a change as an off-diagonal element in such a mathematical entity as the moment of inertia matrix.

The complications exist where each roller has its own electromagnetic fields and the ring on the energy box also may generate its own magnetic and electric fields. The roller fields will induce a three-dimensional field during the rotation around the carousel and the ring. Clearly it is feasible these fields can induce linear and angular momentum effects seen by the rollers traveling around the ring and these could allow the carousel to initially rotate by its own capability. The impact of these fields may induce weight reduction in some as of yet to be determined effect.

### (b) Gravito-Electro-Magnetism (GEM)

This notion<sup>[16,17]</sup> uses a Poynting vector force induction based upon the roller design. The second approach initially looks at a magnetic roller/capacitor around the ring. When roller motion is started, an electric field is created by Maxwell's equations. The Poynting vector, which is the cross product between the electric and magnetic fields, should create a force to induce



motion. Briefly the Poynting field is:

$$\bar{S} = \frac{1}{\mu_o} (\bar{E} \times \bar{B}). \tag{1}$$

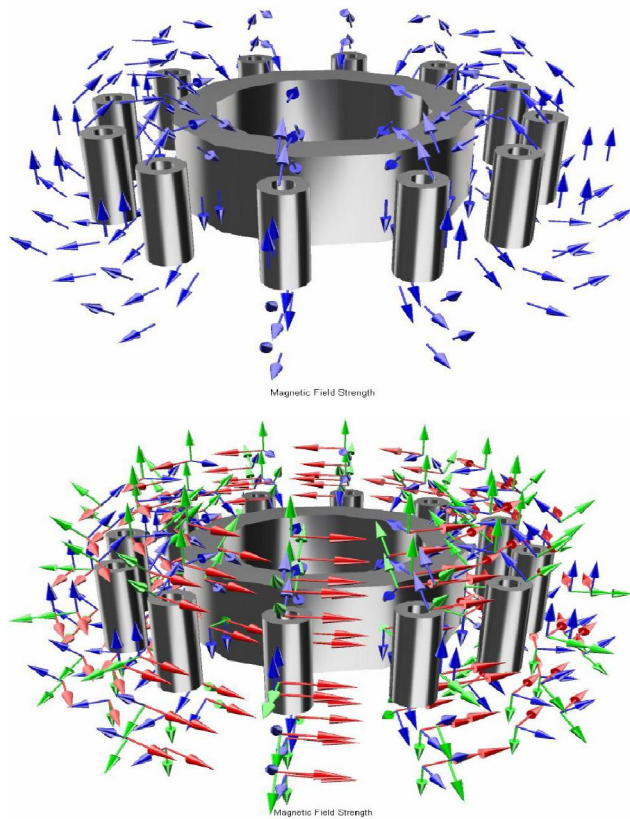


Figure 6 : The left figure is with no rotation and the right uses rotation. Blue arrows are the magnetic field, green is the electric field and the red is the Poynting field to drive the rollers with motion.

$$\mu_o \left[ \frac{1}{c^2} \frac{\partial^2 \bar{S}}{\partial t^2} - \nabla^2 \bar{S} \right] = -4\pi \left[ \rho_m \nabla \times \bar{E} - \rho_e \nabla \times \bar{B} \right] + \frac{1}{c^2} \frac{\partial}{\partial t} (\bar{J}_e \times \bar{B} + \bar{E} \times \bar{J}_m) + \mu_o \nabla \times \nabla \times \bar{S}. \tag{2}$$

Where  $S$  is the Poynting field<sup>[4]</sup>,  $E$  is the electric field,  $B$  is the magnetic field,  $J$  represents currents,  $\rho$  is a source term with subscripts are for  $e$  with electric and  $m$  for magnetic fields. This also provides insights into gravitational forces<sup>[19]</sup>. The curl of the Poynting vector could have induced an effect creating weight losses and gains. Additionally, we have found a derivation for the Poynting field conservation that offers an additional. This use of the Poynting field looks very promising. During these efforts, the ancillary field looks like:

$$\frac{1}{c^2} \frac{\partial^2 \bar{V}}{\partial t^2} - \nabla^2 \bar{V} = \frac{\partial}{\partial t} \int_0^r \left[ 4\pi \left[ \rho_m \nabla \times \bar{E} - \rho_e \nabla \times \bar{B} \right] - \mu_o \nabla \times \nabla \times \bar{S} \right] \cdot dr + 4\pi \nabla \cdot \left[ \bar{J}_e \times \bar{B} + \bar{E} \times \bar{J}_m \right] \tag{3}$$

This expression includes magnetic sources and currents

for completion with symmetry between the electric and magnetic fields derived as a byproduct from the Poynting conservation equation. It represents another field which may be either a torsion field or possibly a localized gravitational field that would cause these effects. This is far more detailed than what is available from either Gertenshtein or Forward's efforts imply about an electromagnetic field used to induce gravitation. The crucial component is the curl of the Poynting vector. The rotation of the separate rollers within the Morningstar Energy box could have created some of these components; however, the rotation of all of the rollers would generate a larger term for the curl expression to produce a significant effect.

**(c) Retarded potentials**

As the rollers interact while moving around the ring, they create an image directly opposite to the field on the ring created by the roller. As these virtual images exist, there are some interactions between the ring and individual rollers. Thus, the ring acts as a roller reflection plane on the ring. If the time is retarded in the ring image due to electromagnetic properties such as hysteresis, it is possible the image from one roller may be delayed to attract an adjacent roller to create self-acceleration. The retarded potential looks at the electric and magnetic field images in the ring created by the roller. If these images in the surface plane could be delayed, say due to high rotation about the carousel, the images may drag the next roller to cause linear momentum and self-acceleration.

When power was reduced, the carousel rotated longer than in the past as a function of time. However, the carousel would rotate in the opposite direction for about 10 degrees in azimuth before finally stopping. This may represent a rationale for validating the idea about retarded potentials. It is conceivable the performance of the Energy Box may use combinations of each or all of these theories.

There are several additional possibilities to be considered. These are:

**(d) Generation of gravitational waves**

In the case of 1913 + 16, a binary pulsar, the precession rate is significantly high. This implies the neutron star is losing weight significantly and this is predominantly due to the creation of gravity waves<sup>[18]</sup>. The issue about binary pulsars is not trivial by any stretch of the imagination. The neutron star rotates at a significantly high rotation rate. It is conceivable this rotation rate affects the gravitational field of the neutron star. Moreover, there is a careful balance between the weights of the neutron star, the companion star as well as the type of trajectories with these stars and the neutron star

rotation rate. These device interactions may exist somewhat like a binary pulsar.

The problem is the technology to either create gravity waves or detect gravity waves may be currently outside of the realm of knowledge. Moreover, several interesting ideas exist if gravity waves would exist. Although speculative, the idea here is if weight is reduced, gravity waves are emitted away from the device. When the rotation stops and the weight returns, the device would attract gravitational waves. The processes to create or absorb gravity waves are fashioned by the unusual electromagnetic field induced by the rollers acting with the ring. Creating or destroying gravity waves might be far easier than initially considered and this warrants additional investigation.

### (e) Cogravitational waves

Jefimenko<sup>[21-23]</sup> claimed gravity could be modified to deal with two separate fields to create a gravity and cogravity field. The force was based upon a Lorentzian type of relationship that derives Maxwell's equations:

$$\vec{F} = m[\vec{g} + \vec{u} \times \vec{K}] \quad (4)$$

The relationships for the gravitational field and the cogravity field have to obey the following relationship:

$$\nabla \times \vec{g} = -\frac{\partial \vec{K}}{\partial t}; \quad \nabla \cdot \vec{g} = -4\pi G \rho; \quad \nabla \cdot \vec{K} = 0. \quad (5)$$

and:  $\nabla \times \vec{K} = -\frac{4\pi G}{c^2} \vec{J}_g + \frac{1}{c^2} \frac{\partial \vec{g}}{\partial t}.$

These equations are adjusted to create wave equations. Moreover, the reason for the additional field was gravity would not only bring forth an attractive force but would also create angular motion. This notion is somewhat similar to the ideas previously mentioned about angular and linear momentum transfer.

Jefimenko makes an analogy between gravity and cogravity with electricity and magnetism derived with a Maxwell's equation type of relation. Several variations of these gravity laws were modified to treat with gravity and cogravity currents. These currents are not well defined except with analytical representations. If these currents were dependent upon electrical and magnetic currents within the energy box, there would be a logical conclusion where a relationship exists for explaining the weight losses and gains. The cogravity field may be active under the influence of the Energy Box and this is creating the gains or losses. From the wave equation relationships, there is no pretext to define a positive or negative value although the relationship is clearer for this with the definition of the gravity term. Further gravitational laws based upon

Jefimenko, have also formed a similar relationship but with an expansion to include additional magnetic current and source terms. Additional effort is warranted to examine if cogravity exists and if so, what would be the consequences which may impact the Energy Box.

### (f) deBroglie matter waves

The turn of the 20th century brought about some amazing thought provoking ideas. Einstein presented the idea of a photon. A small packet of light acts as a wave under certain conditions and then like a particle under other conditions. A middle ground was determined in the particle vs. wave debate of light propagation. Louis deBroglie became intrigued with a very interesting idea. What if other particle mass had wave-like properties? Could all matter act as a wave at some point and then act as a particle at another?

If deBroglie said Einstein suggests  $E = mc^2$ , then it is possible matter waves can be defined as  $m = E/c^2$ . What is suggested is the energy is changing due to the electromagnetic interactions between the rollers and the ring, hence matter waves are produced while weight is lost during rotation. The weight is regained by matter waves when the device stops. This idea<sup>[24]</sup> is rather simple: the generation of an electromagnetic vortex is based upon the Poynting Conservation equation. This also implies a vortex contains some level of energy. This vortex may contain a conduit that allows converting mass into energy during the rotation of the energy box converting this energy back into mass when the device is slowing down or stopping.

### (g) N-Dimensional axis transport

This hypothetical approach conjectures if the perturbation associated with the device was able to impact a spacetime manifold where charged particles, they could access an N-dimensional axis for transport in space-time that was less perturbed. If this N-dimension existed, it would overlay the primary dimensions of spacetime and due to the perturbation of the device, allow for a window into how particles fundamentally interacted. Initially, this idea came from the observation mass that was being lost or gained by the device. The thought mass was leaving reality and returning at the end of the experiment is hard to consider, much less accept since it implies violating the laws of conservation of energy and mass if not altered with currently unknown conditions. Further explanation assumed information of the particle experiencing the perturbation of the device would be transported along this axis through quantum mechanical interactions thus violating Heisenberg's uncertainty principle. This explanation uses the GEM theory relationship associated with the Poynting field,



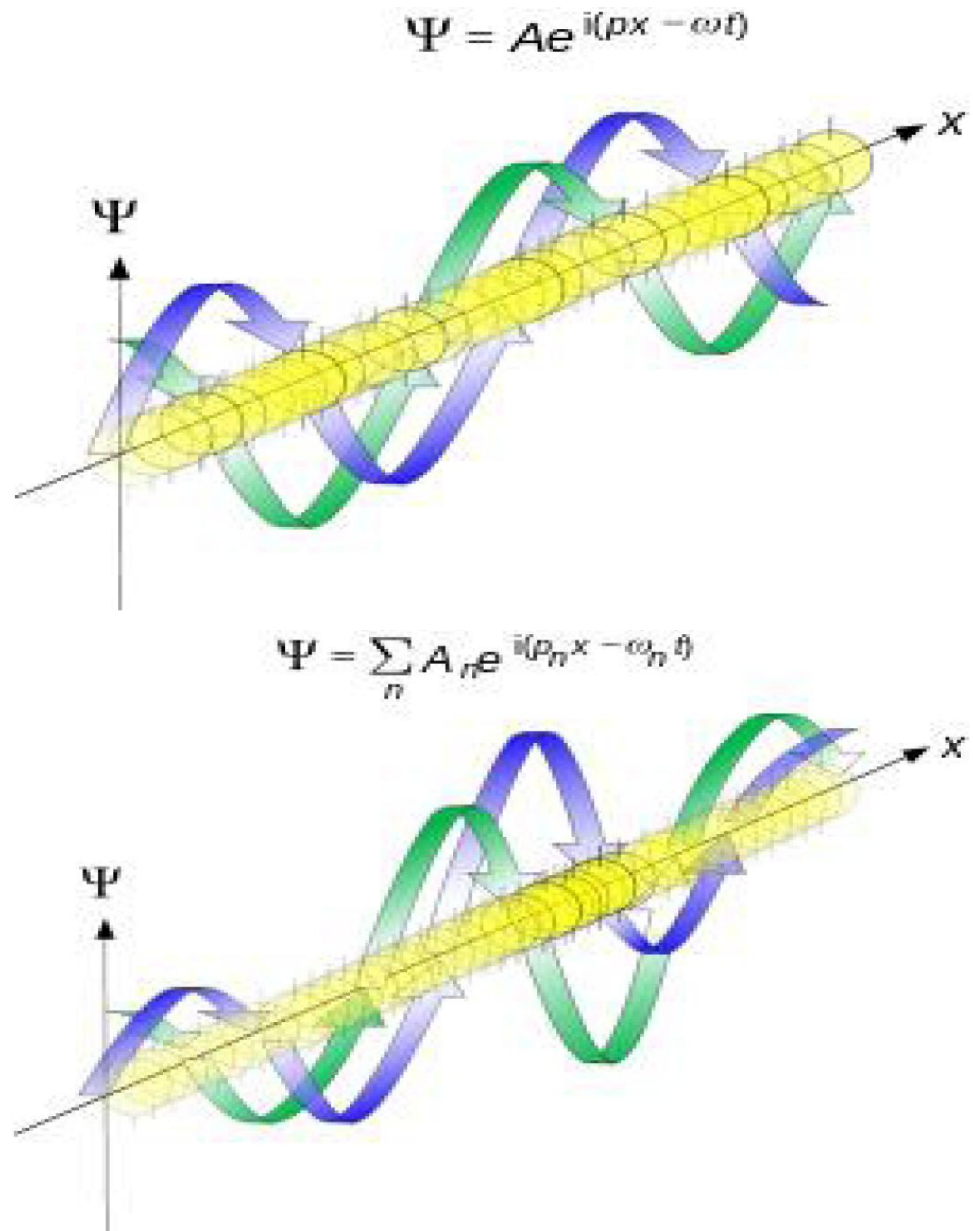


Figure 7 : Propagation of de Broglie waves in -dimension – the real part of the complex amplitude is blue, imaginary part is green. The probability for finding the particle at a given point  $x$  is spread out like a waveform, there is no definite position of the particle. As the amplitude increases above zero the curvature reverses sign, so the amplitude begins decrease again, and vice versa - the result is an alternating amplitude or a wave.

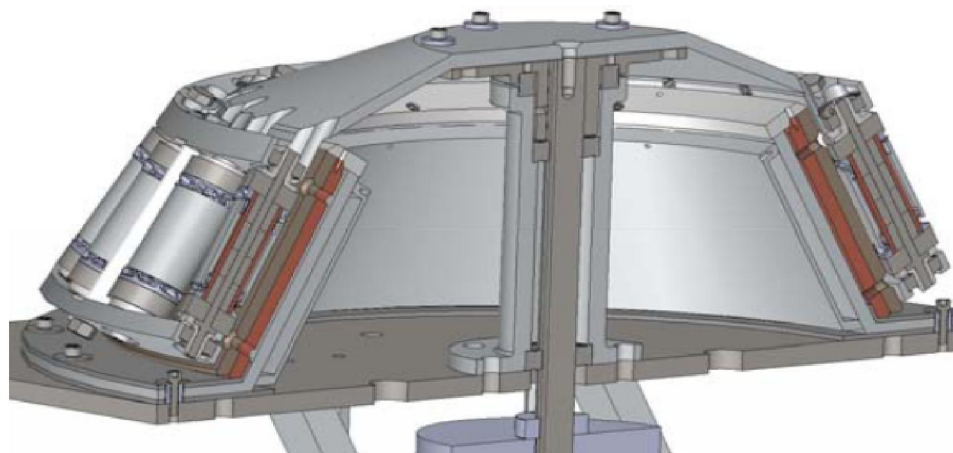


Figure 8 : The tapered ring device- A future reality.

the retarded potential created during rotation of the device and the wave-particle duality exhibited by deBroglie matter waves.

The basic issue is most of these ideas are worth investigating; however, without adequate funding, further investigation ceases. It is unfortunate there was no clear-cut decision one way or another when an additional test series was performed. Moreover, the effort to fully identify and provide an adequate understanding would require serious experimental considerations for defining each of these separate possibilities in the form of creating unique experiments. Furthermore, there is a tacit view the eventual phenomenon may not be a consequence of a single approach but rather can include several of these ideas simultaneously.

To perform this, experiments would have to be carefully designed for each of these approaches as well as coupling these simultaneous alternatives. This is currently outside of the realm of technology for some of these notions. As mentioned, no technology currently exists to identify a transmitter or receiver for gravitational waves. The notion about isolating cogravity is something that would require detailed investigations as well as discovering and quantifying the torsion or gravitational field based upon the conservation law for the Poynting field. Possibly, the solution may exist in a quiescent environment such as in outer space or in orbit around the Earth.

The success of these runs encourages us to pursue and complete designing a tapered ring system, which should potentially show a greater weight decrease. After these different tests and results, a variant device was manufactured to explore these ideas for further changes in weight reduction situations. The increase in the angle is designed to extend the electric and magnetic fields of the rollers that should alter weight for future tests.

## CONCLUDING THOUGHTS

The Energy Box validated some of the interesting phenomena discussed by the Russians. There are several interesting alternative theories and plausible explanations that have emerged for this machine. This device in motion causes a system due to symmetry and dynamic force production where the fundamental interconnection between mass and force can be explored. Clearly this device is a nonlinear mechanism by virtue of the unusual magnetic and electrical fields. All of these notions require further clarification with additional tests. Rollers could represent electromagnetic dipoles to repulse gravitational fields, which are also other possibilities. Additional variants of the Energy Box are currently being fabricated. The Energy Box and how it implements dynamic forces creates a window into how

our reality is affected due to spacetime perturbation. The fundamentals of how mass is seen and how its energy is converted in these dynamic fields could lead to a greater understanding of our terrestrial environment, which allows for a greater understanding of our space propulsion extraterrestrial environment.

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