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Newton's 3rd Law & Effects of a Rotating Body on Linear Acceleration ©

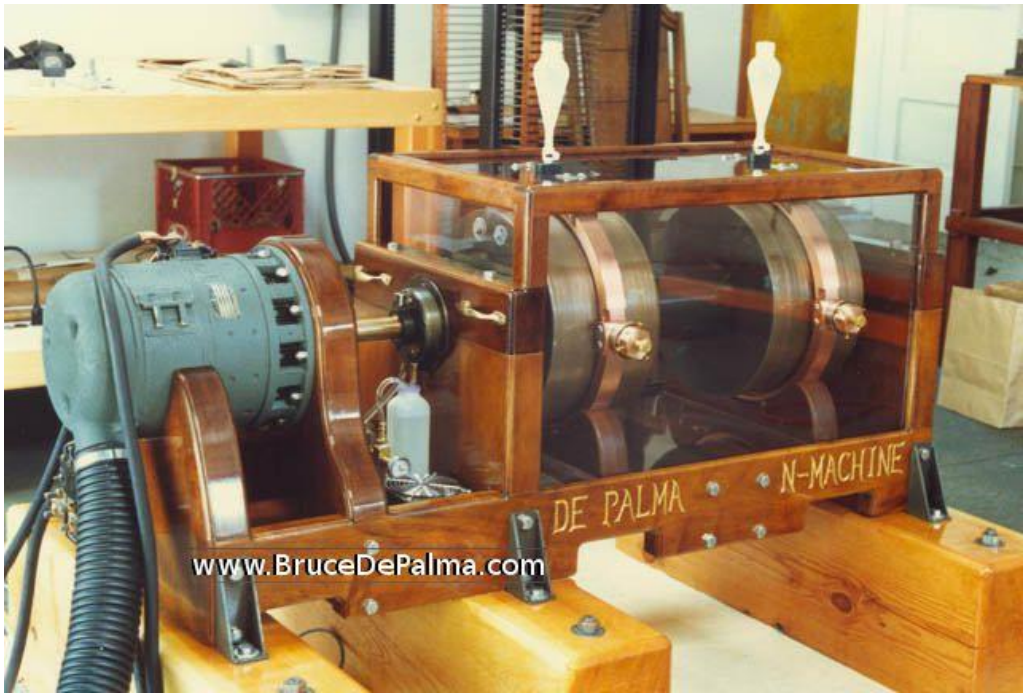
Space's Quantum Energy Interaction Observed at a Macro Scale

Abstract:

This paper proposes that there is a connection in the action–reaction response as defined by Newton's 3rd Law where the **Energy of Space is considered to be the supplier of the reaction force.** This emerges when a high rpm **Rotating Body** is moving vertically or falling in a Gravitational Force Field with a resultant unexplained change in linear velocity as seen in published experimental results and observed in the strange flight paths of NASA rockets in its early history. This micro/quantum interaction is also likely the key to understanding the amazing ability of an operating gyroscope to spontaneously respond seemingly without effort to an outside force and maintain an equilibrium that seems unnatural. It also would help unravel the behavior of the mysterious Roger Shawyer EmDrive and the Bruce DePalma N-MACHINE.

Data/Info Sources (The reference links provided give detailed info and are critical to assessing this paper)

A.) Bruce DePalma Research (MIT) and His N-MACHINE[3]



Based on experimental results of published data from Bruce DePalma (MIT) [1, 2] with an encased gyroscope of known weight rotating at a constant high rpm (> 10,000), and using his expertise in stroboscopic lighting techniques, he found:

That the encased gyroscope fell faster as a rotating object compared to when it was not rotating. He also found that when the gyroscope is subject to a given initial defined thrust it also moves vertically faster when rotating than when not. [2]

DePalma wondered if this had a relation to the Gravity field but rather in the end saw it as a way to possibly obtain energy directly from Space, in a sense free energy, and so he directed all his efforts to find a way to use rotation by focusing on electric and magnetic fields in order to tap that energy source according to an aspect of Faraday's work that he said had been ignored. [2, 4, 7] DePalma's work was mostly ignored and he received little support although he had achieved some success with his N-MACHINE.

B.) U.S. NASA Space Program

Could this effect of rotation on increasing the linear velocity have been the cause of rockets overshooting their desired orbits and even missing an interception of the Moon by both Russia and the U.S. at the start of the U.S. NASA Space program?

The solid fuel rocket design at the time employed a high rpm rotation of the fuel stages to maintain system symmetry. [3]

Choosing not to or unable to provide an explanation on what the cause was, Wernher Von Braun, who headed the rocket program at the time, publicly dismissed the problem as minor technical issues. No explanation was given for the rockets failure to perform even though they were designed according to the detailed highly mathematical scientific principles that followed Newton's Laws and the Laws of Thermodynamics as understood at that time. In a short time frame there was no longer a problem and everyone moved on as the rocket design was modified and the engineers were able to obtain via design the desired final rocket altitude in space. [3]

It appears that the solution to the not understood increase in linear velocity of the rockets which lifted their orbits by hundreds of miles was the removal of the rapidly rotating solid fuel system and replaced with a liquid fuel system which maintained symmetry without any need for high rpm rotation of the fuel section.

This paper is examining the idea that the difference in behavior that is observed when rotating and none rotating the same Inertial Mass might still involve yet **another example of the hidden Gravity Force Field** that emerges per Newton's 3rd Law. That is an angular acceleration of the Inertial Mass triggers an emerging response from the Energy of Space interacting with matter at the micro/quantum scale as presented in a previous paper that focused only on the linear acceleration of a falling body. [8]

C.) The Mystery of the Gyroscope

Detailed Analysis of gyroscope behavior by Ryspek Usubamatov[5, 6] has provided a detailed mathematical approach to explain the behavior of the suspended gyro used in his work.

> *"The gyroscope theory in classical mechanics is one of the most complex and intricate in terms of analytical solutions.* ***The known mathematical models for the gyroscope theory are mainly based on the action of the external torque*** *applied and the change in the angular momentum of the spinning rotor.* ***This approach involves many assumptions and simplifications of the unexplainable motions of gyroscopic devices.*** *However,* ***new studies demonstrate that the torques generated by the centrifugal, common inertial and Coriolis forces of the mass elements of the spinning rotor play a critical role*** *along with the change in the angular momentum."*[5] [bold, italics, underline my emphasis]

…"*the mass elements of the spinning rotor play a critical role*…" provides an indication that there is a deep mathematical complexity here within the elements of a rotating body itself that is not understood. Would it be uncovered by current mathematical analytical methods to obtain a complete explanation on how stability is readily achieved?

> "Nature is nonlinear. That does not mean it is chaotic, although chaos sometimes occurs. It does not mean stability, although solutions can blow up. In some cases the nonlinear effects are *stabilizing* and a differential equation that is forced to choose among many solutions will choose the best one. In other cases solutions remain smooth, and a change of variables makes the problem linear. That is an everyday event for ordinary differential equations, but it was an extraordinary event for partial differential equations…the theory of solitons followed." [14] Is soliton theory applicable here?

This is a reminder of how General Relativity offers a very difficult complex mathematical language to explain the path that a physical mass would follow in Space since Space directs matter where to go because matter has told Space where to curve. But it still does not explain that mystery force known as

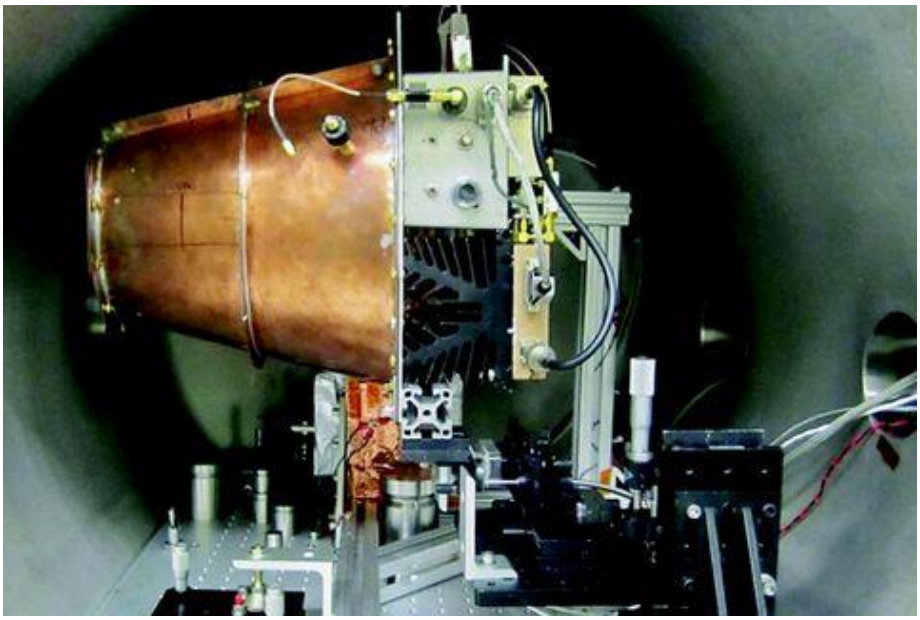
Gravity or how and why Space is a part of the process. In fact, GR has declared Space to be an illusion.

So, why would the DePalma experiments show and increase in acceleration for the high rpm gyroscope in both the falling body *and* the lifting body? It does not seem to be the response one would expect if only the Earth's Gravitational Mass vector were involved.

What is happening at the scale of the internal elements of the rotating body mass is not known but it would appear that the response there has become a dominating factor resulting in an increase of linear velocity for both cases of a lifting and falling body. It is expected that at that level **the EMF is a critical key to the puzzle**. The EMF brings in another source.

D.) The EmDrive[9]

The Drive Continues[9]



NASA Eagleworks team testing the EmDrive in 2016.
NASA

The EmDrive is a new type of rocket engine first proposed by British scientist/electrical engineer Roger Shawyer in 1999. Unlike conventional space rocket engines, the EmDrive doesn't require any kind of propellant (also known as a reaction mass) to make propulsion possible."[9]

*The idea is that electricity is converted into microwaves, and the microwave photons are fired into a truncated cone-shaped closed metal cavity. When fired into the cavity, the microwave photons push against the large end of the cone, causing the small end to accelerate in the opposite direction…Many academics in the international scientific community don't believe it is remotely possible for the EmDrive to work…**multiple groups of scientists have attempted to build their own versions of the EmDrive** to see what happens.* [bold, italics, my emphasis]

Even though it shouldn't be possible, ***they have all recorded very small levels of thrust being produced,*** *which would seem to indicate that it works. But the issue is that no one really knows* how.*"* [9]
"The current design is calculated to provide a thrust of about 0.012 Newtons (equal to the weight of a paperclip, or a raisin) for one kilowatt of power" [9] [bold, italics, my emphasis]

There is still a great deal of disagreement about whether the EmDrive is actually generating any thrust. Many have offered their detail analysis and have challenged the inventor's claim.[9, 10] Shawyer gives his detail scientific explanation of the science here. [11]

E.) The Transfer of Energy From Space Triggered by an External Force

What does it mean to suggest that there is an encounter of force, an action-reaction between a rotating body and Space? Physics tells us that physical objects are energy fields and the basic unit of Space contains energy.[12] Physics tells us that objects are not really touching each other in the common understanding but rather at best some energy exchange at the interface of the EMFs of the objects assuming there is no chemical reaction. This author has previously proposed that it is a requirement that Space be involved for a transfer of energy to take place even if it seems to be just a classical mechanical exchange of a force/energy event. [13] At the smallest scale there is Space and Space constitutes the bulk of the volume of any object except perhaps in a neutron star or black hole. So, it is reasonable that a transfer of energy can take place if all is simply following Nature's Laws.

Analysis of Given Data

The common feature that manifests in the information sources **A and B** is that an Inertial Mass in rotation at high rpm is accompanied by a spontaneous move to stability when responding to an external force resulting in an increased linear acceleration. The gyroscope **C**, presents the force result as a precession giving the illusion of an anti-gravity effect. [6]
Could this spontaneous response even happen without Space being a part of the process?

> **That Nature can respond instantaneously to the applied force is indicative of an example of observed classical mechanics at a macro scale but driven by what no doubt is a display of quantum mechanics in action at that micro scale when the Energy of Space is permitted to be considered a part of the phenomenon.**

Although the behavior of the EmDrive is not utilizing a high rpm rotating body, evidence suggests that it may, by its design, have tapped into or limitedly accessed a connection to the

Energy of Space by utilizing electromagnetic energy at a very low but still measurable level if all possible false contributions to thrust have been eliminated.

DePalma's design was also eliciting a response from Space as he tried to incorporate Faraday's work with EMF energies in his N-Machine.

Summary and Observations

This is considerable evidence that the current standard classical physics position on Newton's 3rd law is incomplete simply because there are manifestations of this connection to the energy of Space happening at a scale outside the realm of a clear observation.

Physics is in need of a quantum perspective of Newton's 3rd Law acknowledging that there is an action-reaction process with Space in response to acceleration from a force applied to a rotating body. Newton's 3rd Law needs to be updated with an addition to include what was not observable in his time. It deserves much more attention. Perhaps:

> **An object A that exerts an accelerating rotational force on B would elicit a force perpendicular to the rotating object due to the response from the Energy of Space being inherently a part of B and having a real interaction with the forces of the internal elements of the rotating body.**

It is proposed here that a critical key component is the role of that seemingly empty void called Space and its Energy that is present at the smallest scale and can thus easily have an interaction with elements within the rotating body. It has an integral involvement in the process that goes unnoticed except when we get to observe a performance such as seen in an operating gyroscope.

> **The EmDrive 'thrust generation' could be greatly improved if it would employ a uniformed directional rotating accelerating high rpm vector of an energy source that has mass or is massless or even employs both.**

DePalma's work on his N-Machine might also benefit if it would be approached from the perspective of a Nano-size scale since his design approach had likely only accessed this energy barrier to a limited degree because of scale.

Science has apparently been in denial about this subject for decades and it is time to acknowledge that there is a huge whole in the understanding of the basic science of "classical" mechanics that explains our world.

This collective information gives more support to the idea that the force of Gravity is real and one way it emerges is the response of Space to the acceleration of a rotating Inertial Mass with the end result being a push rather than the expected pull.

Certainly a great deal more research should be done without haste. The potential benefits seem limitless perhaps going beyond the illusion of anti-gravity and uncovering the road to the real thing and even tapping the energy of Space.

1. http://www.padrak.com/ine/NEN_5_7_4.html

2. https://www.brucedepalma.com/

"Von Braun 50 Year Old Secret"

3. https://www.bibliotecapleyades.net/exopolitica/exopolitics_vonbraun02.htm

GYRO DROP EXPERIMENT

4. https://depalma.pairsite.com/gyrodrop.html

Gyroscope Analysis

5. Gyro_Model_16.pdf

6. https://www.hindawi.com/journals/amp/2019/4197863/

7. http://www.rexresearch.com/depalma2/depalm.htm

8. https://www.gsjournal.net/Science-Journals/Research%20Papers/View/9230

EmDrive

9. https://www.ibtimes.co.uk/what-emdrive-why-should-i-care-1579181

EmDrive

10. https://www.youtube.com/watch?v=wtAxdLCMTnQ

11. EmDrive
https://www.youtube.com/watch?v=SGOzayJqJeQ

12. https://www.wtamu.edu/~cbaird/sq/2013/04/16/do-atoms-ever-actually-touch-each-other/

13. https://www.gsjournal.net/Science-Journals/Research%20Papers/View/7037

14. INTRODUCTION TO APPLIED MATHEMATICS by GILBERT STRANG (1986; P. 587)