

Is it possible to control gravitation using an electromagnetic field?

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Abstract

American interest in 'gravity control propulsion research' intensified during the early 1950s. Literature from that period used the terms anti-gravity, anti-gravitation, barycentric, counterbary, electrogravitics (eGrav), G-projects, gravitics, gravity control, and gravity propulsion. Their publicized goals were to develop and discover technologies and theories for the manipulation of gravity or gravity-like fields for propulsion. Although general relativity theory appeared to prohibit anti-gravity propulsion, several programs were funded to develop it through gravitation research from 1955 to 1974. The names of many contributors to general relativity and those of the golden age of general relativity have appeared among documents about the institutions that had served as the theoretical research components of those programs. This question is intended to explore possibilities to control gravitation using an electromagnetic field.

Introduction

The present paper consists of some answers to a question raised above concerning possibility to control gravitation using electromagnetic field. Hopefully you will find some interesting hints on this question. Of course, these answers are not the final words on this very interesting issue.

Answers:

1. **[Theophanes Raptis](#)**

We are currently trying something to this direction...

[Http://iopscience.iop.org/0264-9381/30/23/235004/](http://iopscience.iop.org/0264-9381/30/23/235004/)

<http://arxiv.org/abs/1310.5029>

2. **[Arno Gorgels](#)**

I humbly believe yes. I believe (subject to proof) that the earth magnetic field is a result of the dependance of gravitational and electro-mechanical fields. See my last publication of today if you wish.

3. **[Rudy Marty](#)**

As you may know the chiral symmetry breaking effect in nuclear matter (for example in a proton) give a strong increase of the mass, which is a gravitational mass (i.e. it is affected by gravitational field). Then the trick would be to find a solution for the opposite effect, that is to say we have to apply a field (what kind ?) on atoms which affects the nucleus up to reach a

"negative mass".

From purely theoretical point of view, the gravity is a scalar/tensor field (which affects velocity and acceleration), whereas the chiral symmetry gives scalar/pseudoscalar fields, and electromagnetism gives scalar/vector fields. From this consideration I doubt seriously that someone can master the gravity with *only* an electromagnetic field.

4. **James Dwyer**

Gravitational effects can be offset by opposingly directed magnetic field effects - like mag-lev trains, etc. Unless there was a EM component of gravitational effects, it's not likely that any direct control mechanism could be implemented.

Even cold bodies in the absence of magnetic fields exhibit gravitational effects in proportion to the gravitational constant, as do bodies with global magnetic fields. This seems to indicate that there is no relation between EM and gravitational effects.

5. **Musaab Alshargabi**

Lenz's law may help! we can control the gravity of an object . Just the concept may deliver some ideas I guess.

6. **Mark Kennedy**

I guess we will need to wait for the next Einstein to give us a Grand Unified Theory or a Theory of Everything.

That is unless a great engineer comes along and simply builds a working device before the theory is developed to explain it (as has often happened in the past). In this case I would expect this to be unlikely, assuming the required device to be rather complex in nature.

Of course we can consider electromagnetic fields which of course can transmit energy (photons), which by definition also have mass and hence gravity.

If we could somehow 'invert' an electromagnetic field to harvest energy, perhaps it would give rise to anti-particles of negative mass. Sounds a lot like Sci-Fi.

Of course we have things like the Casimir effect, the Lamb shift and vacuum energy, which show that the universe is a truly strange place.

7. **Antonio Alfonso-Faus**

One can have a propulsion system for rockets based upon the directed emission of photons, electromagnetic waves. One example would be a flashlight inside an orbiting artificial satellite: the astronaut, in free fall with no gravity acting, may hold the flashlight and "drop" it. Then the flashlight would be accelerated through the room propelled by photons. It could easily acquire a velocity of the order of one centimeter per second, and accelerating. The principle of equivalence establishes that an accelerated system is equivalent to a system at rest but acted by a gravitational field. In general electromagnetic fields carry momentum, and a change in their properties imply a momentum change which is a force. And we can use this force to counterbalance gravity.

8. **Ning Wu**

Dr. Podkletnov had already done an experiment of gravity impulse. In that experiment, a gravitational impulse is generated in a high voltage discharge equipment. It is a way to control gravity using electromagnetic method. This phenomenon can be explained in gauge theory of gravity.

9. **Alexander Burinskii**

In my paper: (A.~Burinskii, The Dirac-Kerr-Newman electron, Grav. Cosmol. 14 (2008) 109, [arXiv:hep-th/0507109 v.4]) was considered wonderful thing that the Dirac equation may be implemented as a master equation in the Kerr-Schild formalism for the rotating black hole solutions. Since Dirac equation is controlled by the EM field, there appears the possibility of control also the gravitational objects. The details of the corresponding modification of the Kerr-Schild formalism are now under consideration and I expect to publish it.

10. **Afaq Ahmad**

Dear Victor Christianto, I am not knowing whether it is possible or not to control gravitation using an electromagnetic field. But I have come across a paper entitled "Gravity Control by means of Electromagnetic Field through Gas or Plasma at Ultra-Low Pressure". The paper is accessible via link provided below.

<http://arxiv.org/ftp/physics/papers/0701/0701091.pdf>

11. **SMJ Mortazavi**

Dear All

Technologies such as magnetic levitation trains do not indicate that we can fully control the gravitation. The forgotten point is the strength of a magnetic field decreases dramatically with increasing distance from the source. By the way, the key question will be how to prevent the rapid fall of magnetic fields at long distances.

12. **Sundaresan Muthuswamy**

I have an instinctive feeling that electromagnetic field or waves is one of the variants of gravity itself. In the universe electromagnetic waves and gravity co-exist. No gravity means no universe and no electromagnetic waves means no life or the physical existence of the world based on evolution. There is nothing like reverse gravity. But there is attraction and repulsion in magnetic fields in a gravitational field. Perhaps examining the reason for magnetic fields, its source and creation may throw some light. Levitation is one offshoot as such. As the world principle arises from gravity concept I think it will be impossible to beat it as long as we live on this Earth.

13. **Roger Ellman**

Yes. See my ResearchGate Article: Gravitational and Anti-gravitational Applications. It is also available at <http://www.the-origin.org/SciencePapers.htm> "Applications".

14. **Xiang Liu**

Thanks, for the interesting topic, I imagine there might be some relation between the electromagnetic energy (force) and gravitational energy (force), to study this field in astronomy may be possible.

15. **Theophanes Raptis**

btw, the Chinese claimed to have made their first breakthrough

<http://www.wired.co.uk/news/archive/2013-02/06/emdrive-and-cold-fusion>

Incidentally, Minotti have managed to provide an explanation in the context of scalar-tensor theory

<http://arxiv.org/abs/1302.5690>

16. **Laurent Damois**

Electromagnetic Field = Electromagnetic Energy

If you create around a device, an asymmetrical Energy distribution you create an Energy gradient, so you create a force (very easy to do, low cost and homemade possibility)

So the answer is YES.

I am working on with success (great thrust for low input power).

The device is similar to asymmetric capacitor (apparent reactionless thruster, tested with success by NASA in vacuum)

The device works in AC or DC (thrust is proportional to the square of the voltage or the square of the intensity)

Force = gradient(Energy)

Energy = Energy of an asymmetric Coil or Capacitor

Asymmetry = Asymmetry of the shape, Asymmetry of the material (core, dielectric)

17. **Theophanes Raptis**

@ Laurent

This reminds of the old Biefeld-Brown effect which was recently shown to be due to air ionization. Even a recent NASA patent that made similar claims for sat navigation shown not to be able to produce the same effects in a vacuum chamber

<http://techtran.msfc.nasa.gov/technology/MFS31887-Cylindrical-Asymmetrical-Capacitor.php>

18. **James Dwyer**

Theophanes,

Very interesting, but I'm also skeptical (any theoretical associations aside) - if the microwave thruster was interacting with a gravitational field then its thrust should vary with altitude/mass separation distance...

19. **Theophanes Raptis**

@James

Perhaps but the situation is a bit complicated when you try to make actual calculations with the modified Maxwell equations due to some hard nonlinearities. At first sight, it seems that the type of coupling implies the ability of a strong EM field to excite its own gravito-electromagnetic components in the surrounding space. Unfortunately, we do not yet have performed the simplest experiments to get a hold on real data.

20. **Laurent Damois**

@Theophanes

In vacuum the asymmetric capacitor create a thrust (gradient of energy) without ions (no air), in air we have an additive thrust with ions

<http://www.youtube.com/watch?v=G359-G4SZIE>

@James

the thrust created by the asymmetric capacitor is not necessary a "anti-gravitationnal" force we are in "similar equilibrium" when we write that Charge * E Field = Masse * Acceleration, we have equilibrium but E Field is not an anti-gravitationnal Field.

@Theophanes and James

see the third report

<http://www.gravitecinc.com/document.html>

21. **Sundaresan Muthuswamy**

I have a basic question as to how a magnet and magnetic field gets formed, what makes a source and a sink? Can we simulate artificial gravity?. What is the difference between an armature coil spinning inside a magnetic field and the earth spinning in an universal field: and is there any link however small it maybe?

Concluding Remarks

While this discussion is not conclusive yet, apparently we can draw a preliminary summary that there is perhaps similar features between gravitation and electromagnetic field, and that it is possible to control gravitational field using electromagnetic field. We hope that future research will confirm this with experiments, such as what have been done by Podkletnov etc.

References:

[1] De Aquino, F. (2007) Gravity Control by means of Electromagnetic Field through Gas or Plasma at Ultra-Low Pressure, arXiv:physics/0701091, URL:

<http://arxiv.org/ftp/physics/papers/0701/0701091.pdf>

[2] De Aquino, F. (1999) Gravitational Spacecraft, [arXiv:physics/9904018](http://arxiv.org/abs/physics/9904018)

[3] [M. Tajmar](#), [C.J. de Matos](#) (2003) Gravitomagnetic Field of a Rotating Superconductor and of a Rotating Superfluid, Physica C385 (2003) 551-554. Also [arXiv:gr-qc/0203033](http://arxiv.org/abs/gr-qc/0203033)

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