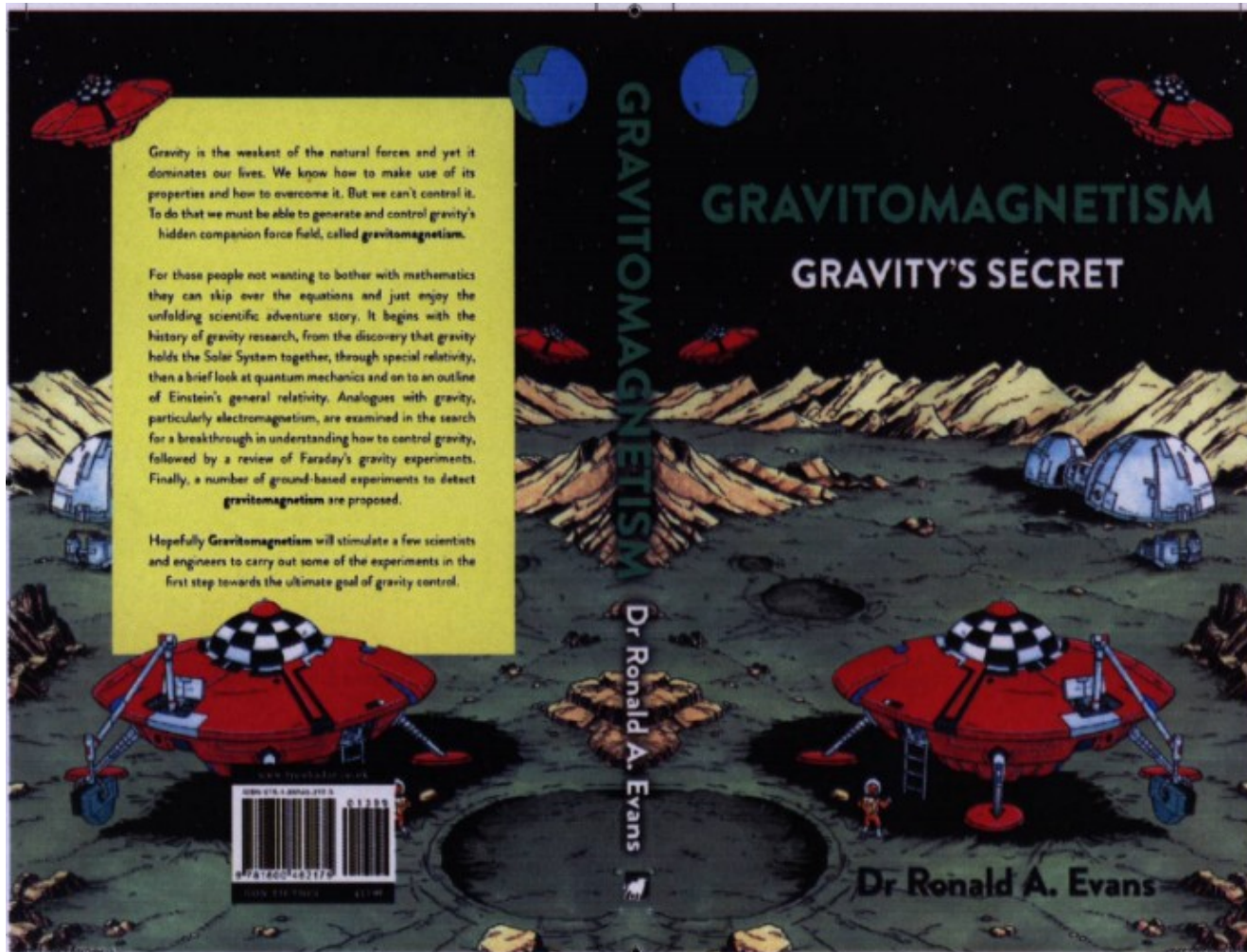


APEC Meeting 12th March 2022



Ron Evans





Analogues

In his book *Novum Organum Scientiarum*, published in 1620, Francis Bacon wrote:

Hence all the most Noble Discoveries have come to light, not by any gradual improvement and Extension of the arts, but merely by Chance; whilst nothing imitates or anticipates Chance but the Invention of Forms.

By forms, Bacon meant analogues, and in another passage in his book he wrote:

He who knows forms grasps the unity of nature beneath the surface of bodies which are very unlike. Thus, he is able to identify things which have never been seen before and bring them about by experiment. Things which nature has kept secret and humans have never dreamt of. From the discovery of forms flows true speculations and unrestricted advances.

Electromagnetism

$$\nabla \cdot \mathbf{E} = \frac{\rho}{\epsilon}$$

$$\nabla \cdot \mathbf{H} = 0$$

$$\nabla \times \mathbf{H} = \rho \mathbf{v} + \epsilon \frac{\partial \mathbf{E}}{\partial t}$$

$$\nabla \times \mathbf{E} = -\mu \frac{\partial \mathbf{h}}{\partial t}$$

Gravitomagnetism

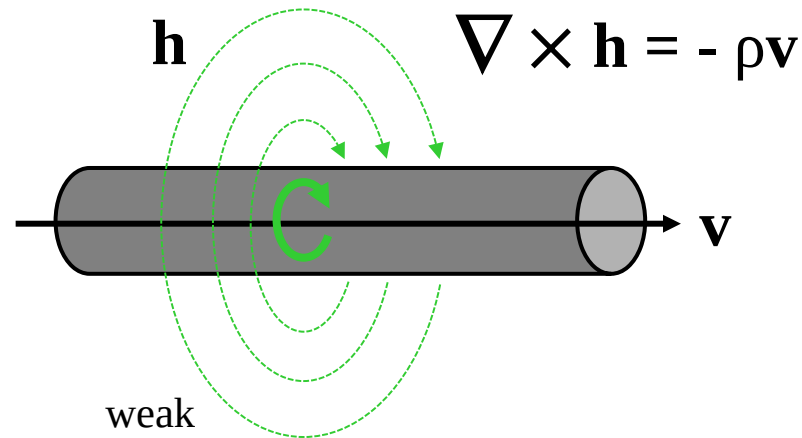
$$\nabla \cdot \mathbf{g} = -\frac{\rho}{\gamma}$$

$$\nabla \cdot \mathbf{h} = 0$$

$$\nabla \times \mathbf{h} = -\rho \mathbf{v} - \gamma \frac{\partial \mathbf{g}}{\partial t}$$

$$\nabla \times \mathbf{g} = \eta \frac{\partial \mathbf{h}}{\partial t}$$

Gravitomagnetic field

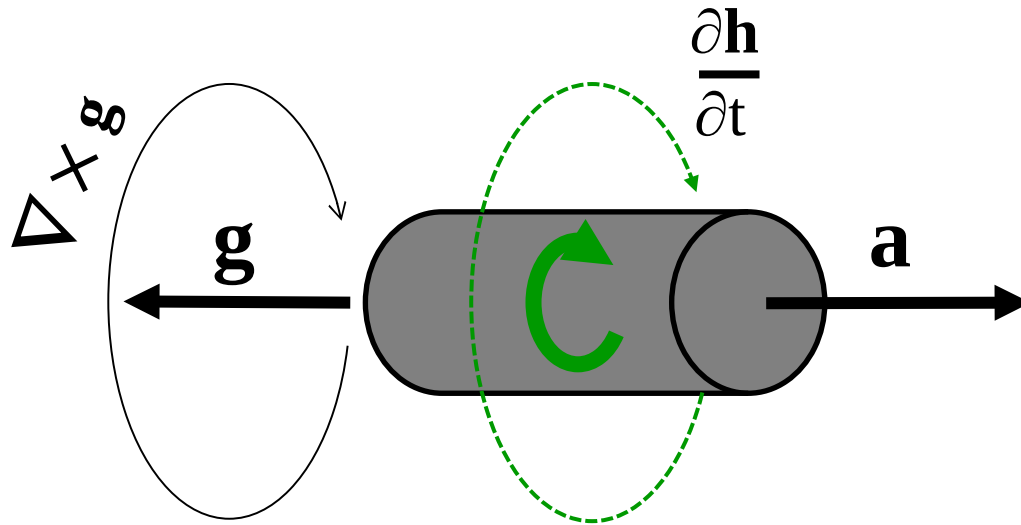


Oliver Heaviside commented in his book *Electromagnetic Theory*, 1893 :

Now what is there analogous to magnetic force in the gravitational case? And if it has an analogue, what is there to correspond with electric current? At first glance it might seem that the whole of the magnetic side of electromagnetism was absent in the gravitational analogy. But this is not true.

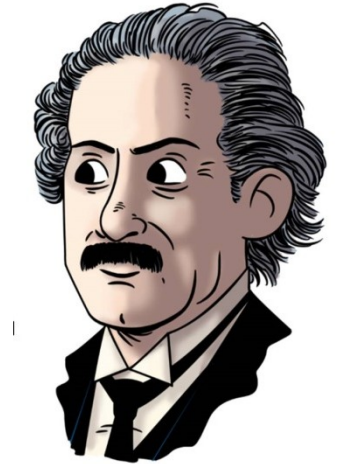
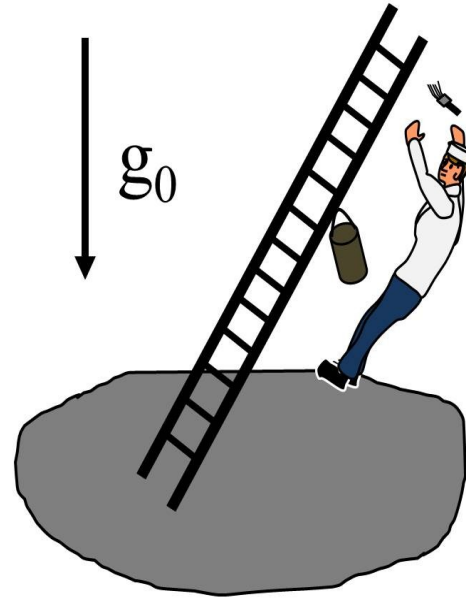
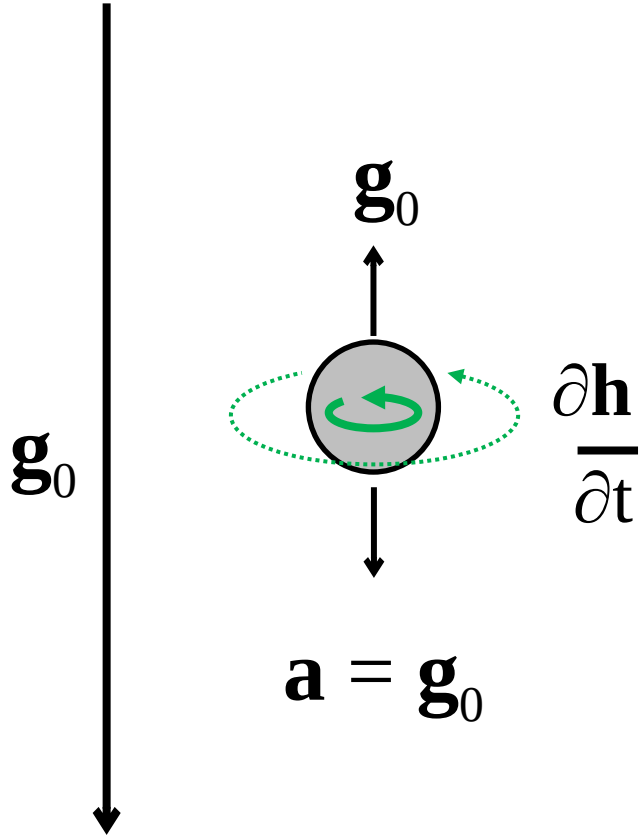
Inertia

$$\nabla \times \mathbf{g} = \eta \frac{\partial \mathbf{h}}{\partial t}$$



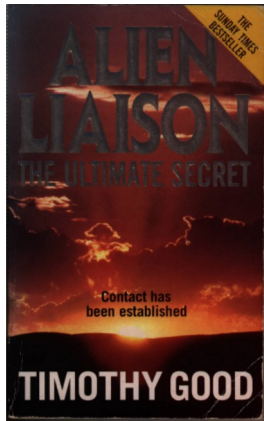
Mass responds to gravity. When you accelerate forwards in a car, you are pushed back into the seat.

Free fall is free of inertia



The falling man is weightless
Einstein's happiest thought

1991

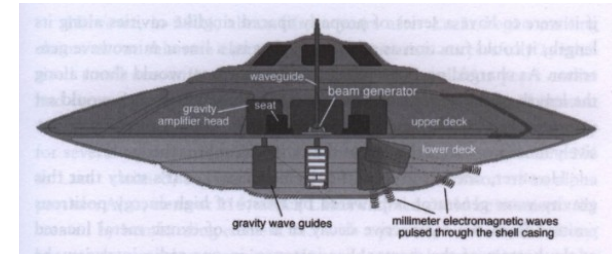


What did Bob Lazar see?

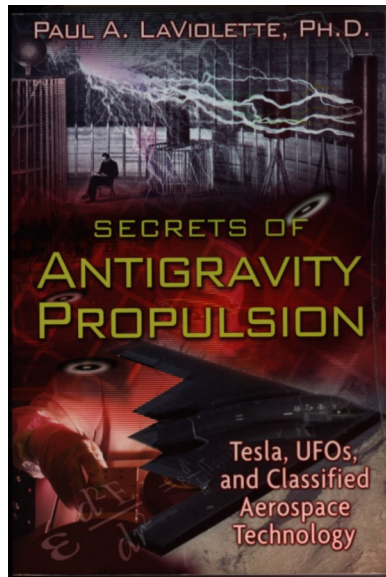
Propulsion (page 156)

Lazar learned that the power source of the craft he worked on is an ‘anti-matter reactor’.

There’s a [hollow] central column that goes right up the centre of the disc that’s a wave guide – the gravity wave is channelled through there.



2008



THE SPORT MODEL (page 284)

He says he was told that the craft was powered by an “antimatter reactor” located at its center. He claims that the reactor was designed to emit bursts of positrons 7.46 times per second, which, in turn, would generate bursts of type-A “gravitational” microwaves that he terms Gravity A waves. He says that these gravity waves would travel up the vertical conduit attached to the top of the reactor, where they would become amplified in intensity

from Lazar’s description, it is not entirely clear whether he believes these to be **pure gravity waves or electromagnetic waves that have gravitational effects**. Indeed, a waveguide would be unable to contain a pure gravity wave of the sort commonly known to physics. Such waves should freely pass through waveguide walls without reflecting from them,....If the microwave emissions from the Sport Model’s reactor are able to be contained by a waveguide, then **they cannot be exclusively gravitational**.

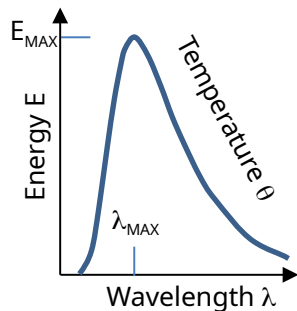
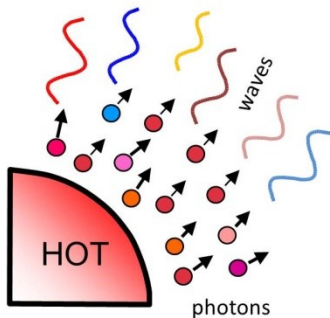
A photon



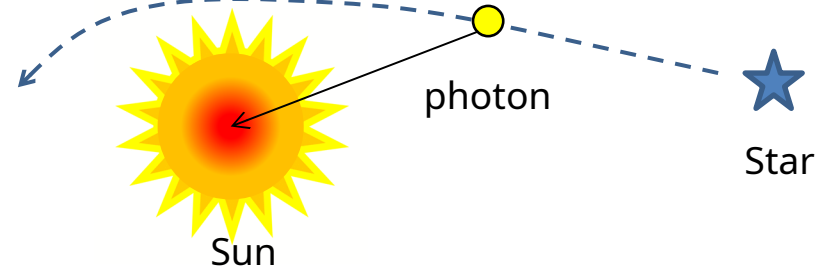
Max Planck 1900

- Has a frequency f
- Has a wavelength $\lambda = c/f$
- Has energy $E = hf = mc^2$
- Has an effective mass $m = hf/c^2$
- Is affected by a gravity field g
- Has an effective temperature θ

Black Body radiation

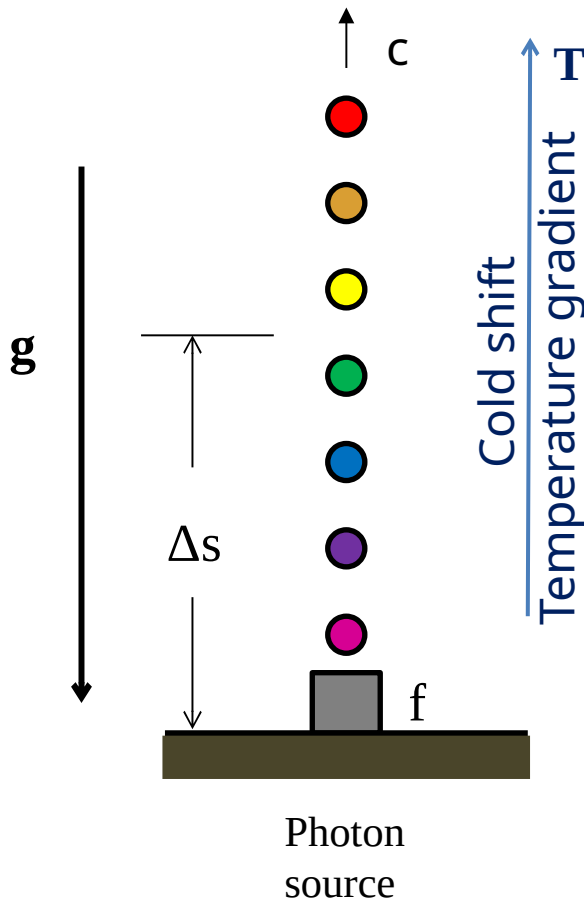


$$\lambda_{\text{MAX}}\theta = \text{constant}$$



Einstein's gravitational red-shift

(Pound & Rebka 1960 – using gamma rays)



Use potential energy to derive Einstein's formula

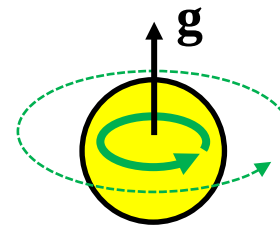
$$\Delta f = - \frac{g}{c^2} \Delta s f$$

By changing frequency a gravity field \mathbf{g} is created.
 Within photon beam gravity fields cancel.

$$\text{Force on photon} = - mg - \frac{d}{dt}(mc) = 0$$

Photon continues to move at speed c .

The gravitomagnetic view



$$\nabla \times \mathbf{g} = \eta \frac{\partial \mathbf{h}}{\partial t}$$

The UFO Experience A Scientific Enquiry
J. Allen Hynek (1972, page 110)

Close Encounters of the Second Kind.

The physical effects reportedly include tangible marks on the ground that can remain in evidence for days or even months and come ostensibly from physical contact of the craft with the ground, the scorching or blighting of growing things (particularly plants and trees), discomfort to animals as evidenced by their behaviour, and such physical effects on the human observer as temporary paralysis, numbness, a feeling of heat, and other discomfort. “Interference” with the local gravitational field sometimes is also reported, as evidenced by the reports of some observers of temporary feeling of weightlessness or other inertial effects, as though the well-known laws of inertia had been temporarily abrogated. One remarkable reported physical effect involves interference in electrical circuits, causing car engines to cease functioning temporarily, radios to cut out or to exhibit uncommon static, car headlights to dim or be extinguished for a short while, and, on occasions, car batteries to over heat and deteriorate rapidly.

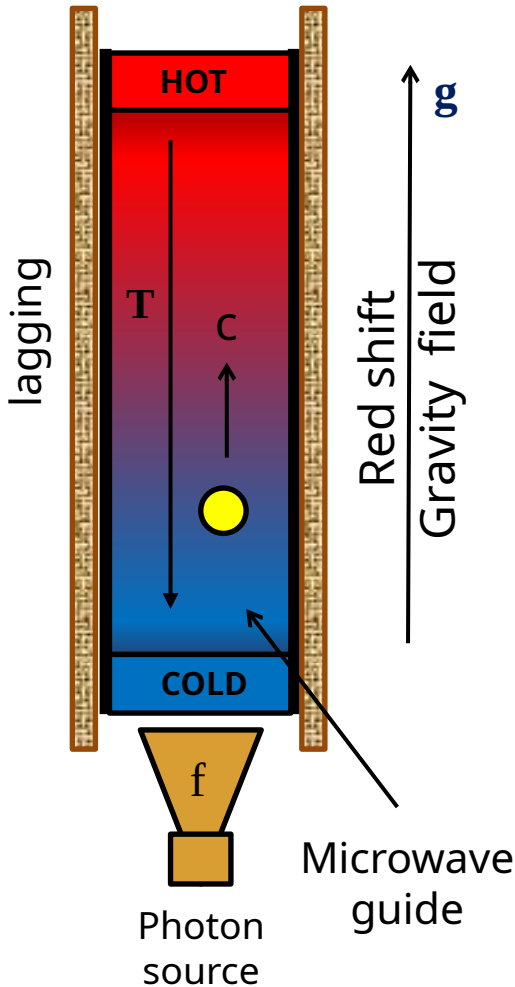
UFO propulsion system causes

Electrical interference

Feeling of heat

Gravitational Interference

Speculation



Photon beam in temperature gradient T

Assume photon is an effective heat source H

Apply the thermodynamic analogue to photon beam

$$\Delta f = - \left(\frac{H}{m} \right) \frac{T}{c^2} \Delta s f$$

By changing frequency a thermal field T created.

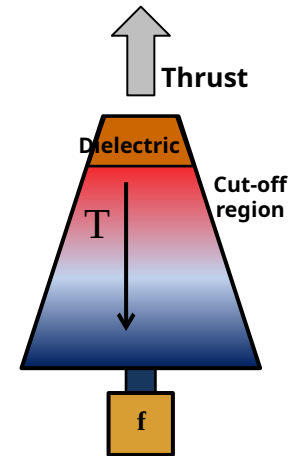
Overall, thermal fields cancel, so no force on photon.

Photon continues to move at speed c .

We are left with a gravity field g within photon beam

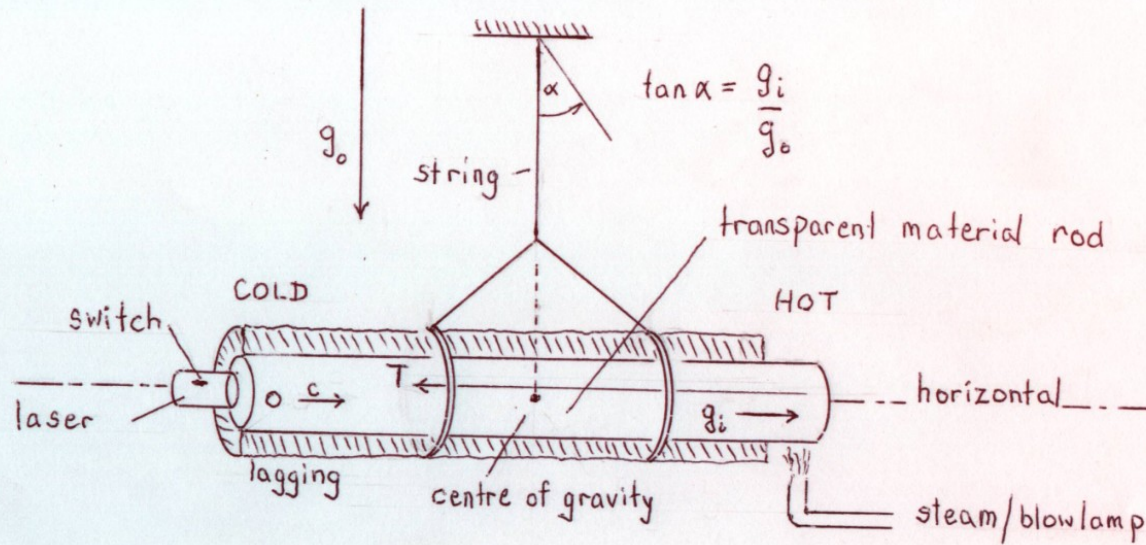
Paul LaViolette
An electromagnetic wave
with a
gravitational effect.

How to amplify g -field?



Shawyer EM-Drive

Experiment to detect existence of a "thermodynamic induced gravity" effect



Preparation

- Select rod material & photon source
- Attach photon source to rod
- Measure weight of total unit
- Suspend unit horizontally

Initial checks

- Unit balanced, string vertical.
- Source on does not affect balance (possible photon rocket effect)
- Source off, exposed end heated, check no movement of rod

Experiment

- Source on ; heat exposed end
- Increasing thermal field T
- Observe if/when string moves out of vertical alignment