

Empirical Equation Relating Electromagnetism and Gravity in terms of Electromagnetic Waves, Fields and Particles

Phil Russell,^{§*} Jerry Montgomery^{†‡}

[§]North Carolina Central University, Durham, NC 27707

[†]Willowstick Technologies LLC, Draper, UT 84020

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In our initial paper [1], we proposed that the anomalous acceleration affecting the pioneer probes [2] was gravitational in origin, described by the equation

$$a = [h]vc. \quad (1)$$

Considering the Sun as a black body, our empirical equation describes the acceleration as proportional to the frequency of the Sun's light. Taking Planck's constant as a dimensionless constant that characterizes the strength of the interaction (analogous to the fine structure constant for electromagnetism [4]) we have:

$$[h] = \beta = \frac{a\lambda}{c^2} = 6.62606896(33) \times 10^{-34} = \frac{1}{1.50919045 \times 10^{33}}. \quad (2)$$

The process of pair production suggested the possibility of combining equation (1) with Einstein's equation, $E=mc^2$. Compton's scattering equation is substituted for mass in Einstein's equation, and one c is added to preserve dimensional consistency with equation (1). The following equation

$$a = [h]vc = \left(\frac{[h]}{c\lambda} \right) c^3 \quad (3)$$

represents acceleration in terms of electromagnetic waves and particles.

The final logical step would be to complete equation (3) so that we have an equation that expresses acceleration in terms of electric and magnetic fields as well. Gravitational effects have been observed that were associated with rotating magnetic fields of superconductors [6 (a,b)]. As it appears that the gravitational effects are affiliated with the rotation of the superconductors, we may write a general solution in terms of electric and magnetic fields as

$$a = [h]\omega c. \quad (4)$$

*Electronic address: cyborlog@yahoo.com

‡Electronic address: jrm@willowstick.com

Combining equation (3), we have the final general solution:

$$a = [h]v = [\hbar]a\omega = \left(\frac{[h]}{c\lambda}\right)c^3. \quad (5)$$

The first term, a , represents gravity. The second term shows acceleration as proportional to the frequency of electromagnetic waves in free space; the third term associates acceleration with the angular velocity of an electric or magnetic field in free space. The fourth relates acceleration to a particles intrinsic electromagnetic frequency.

References

- [1] Link for the original empirical equation, “*Electromagnetic Gravitation*”:
<http://adsabs.harvard.edu/abs/2005APS..MAR.R1197M>
- [2] Link for “*Study of the anomalous acceleration of Pioneer 10 and 11*”:
http://arxiv.org/PS_cache/gr-qc/0104/0104064v5.pdf
- [3] Link for the “*Pioneer Effect*”:
<http://groupkos.com/eso/tiki-index.php?page=Electromagnetic+Gravitation>
- [4] Link for the “*Fine structure constant*”:
http://en.wikipedia.org/wiki/Fine-structure_constant
- [5] Link to “*Dimensional/Gravitational Symmetrical Model for Particles and Gravity in terms of Electrodynamics*”:
http://www.groupkos.com/docs/russell_montgomery/Optimistically_we_have_derived_a_quantized_expression_between_electromagnetism_1b.pdf
- [6] Link to “*About strange effects related to rotating magnetic systems*”:
(a)<http://www.rexresearch.com/roschin/pitkanen.pdf>
“*Towards a new test of general relativity?*”:
(b)http://www.esa.int/SPECIALS/GSP/SEM0L6OVGJE_0.html