

Gravity Bodies in the Planck Vacuum Theory

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Abstract—There are two types of gravity bodies, dark gravity bodies (DGB)s and charged bodies that obey the Newton equation. The Planck vacuum (PV) theory here derives equations for and illustrates both types of bodies.

It will turn out that the dark force is a pure mass force like the Einstein equations, while the Newton force is more akin to a Coulomb force.

Index Terms—Gravity Bodies, Planck Vacuum Theory.

I. INTRODUCTION

THE gravity bodies are bodies that are influenced by the gravitational force. In the PV theory there are two such forces that are examined below.

The theoretical foundation [1] [2] [3] [4] of the PV theory rests upon the unification of the Einstein, Newton, and Coulomb superforces:

$$\frac{c^4}{G_d} \left(= \frac{m_* c^2}{r_*} \right) = \frac{m_*^2 G}{r_*^2} = \frac{e_*^2}{r_*^2} \rightarrow r_* m_* c = \frac{e_*^2}{c} \quad (= \hbar) \quad (1)$$

where the ratio c^4/G_d is the curvature superforce that appears in the Einstein field equations. G is Newton's gravitational constant, c is the speed of light, m_* and r_* are the Planck mass and length respectively [5, p.1234], and e_* is the massless bare (or coupling) charge. The Planck time is $t_* = r_*/c$ [5, p.1233]. The fine structure constant is given by the ratio $\alpha \equiv e^2/e_*^2$, where e is the observed electronic charge magnitude. The ratio e_*^2/c to the right of the arrow is the spin coefficient for the Planck particle (PP), the proton, and the electron cores, where \hbar is the reduced Planck constant.

The electron, proton, and PP Dirac cores associated with the PV theory defined above are

$$(\pm e_*, m_e) \quad (\pm e_*, m_p) \quad \text{and} \quad (\pm e_*, m_*) \quad (2)$$

respectively. The \pm signs in the equations include the antiparticles. Their coupling to the highly energetic PV state is through the spin equations

$$r_e m_e c = r_p m_p c = \frac{e_*^2}{c} = r_* m_* c. \quad (3)$$

II. CONCLUSION AND COMMENTS

From (1) the gravitational force can easily be defined in two ways [6] by equating the first and second, and the second and third superforces to the left of the arrow, leading to

$$F_d = \frac{m_*^2 G_d}{r_*^2} = \frac{m_* c^2}{r_*} \quad \text{and} \quad F_n = \frac{m_*^2 G_n}{r_*^2} = \frac{e_*^2}{r_*^2} \quad (4)$$

with

$$G_d \equiv \frac{r_* c^2}{m_*} = G = \frac{e_*^2}{m_*^2} \equiv G_n \quad (5)$$

where the difference depends on how the gravitational constants are defined. The G_n is the Newton constant. The constant G_d is devoid of charge, so the force F_d is unresponsive to photon particles—so that force is referred to as a dark force and gravity bodies that respond to this force are referred to as dark gravity bodies (DGB)s. The second force in (4) contains e_*^2 ; so like the cores in (2), this force responds to photons. It is noted in (1) that the Einstein superforce contains no charge, which is consistent with the Schwarzschild solution to the Einstein equations [7].

Equating the first and third superforces in (1) leads to the PP spin on the right of the arrow and eventually to the spin of the elementary particles in (2).

Straightforward examples in the open literature of the DGBs are difficult to find. The one source found (Appendix A) that adds to the PV theory of the DGBs concerns an inner universe that is surrounded by a large collection of outer universes. In order to prevent a photon interaction between the two, the inner universe is surrounded by a dense belt of DGBs that neither reflect nor absorb photons (they are nonreactive to physical-energy light like photons).

APPENDIX A DARK GRAVITY BODIES

The following description comes directly from the Urantia Book [8]. The notation 14:1.7, for example, reads Paper 14, Section 1, Paragraph 7. The square brackets in the 14:1.7 below are added by the present author for clarity reasons.

14:1.7 These dark gravity bodies neither reflect nor absorb light; they are nonreactive to physical-energy light, and they so completely encircle and enshroud Havona [inner universe] as to hide it from the view of even near-by inhabited universes of time and space [outer universes].

REFERENCES

- [1] Davies P. *Superforce: the Search for a Grand Unified Theory of Nature*. Simon and Schuster, Inc., New York, 1984.
- [2] Daywitt W.C., The Planck Vacuum, Progress in Physics, v. 1, 20, 2009. (see also www.planckvacuumDOTcom)
- [3] Daywitt W.C., The Trouble with the Equations of Modern Fundamental Physics, American Journal of Modern Physics. Special Issue: Physics without Higgs and without Supersymmetry. v.5, no.1-1, 22, (2016).
- [4] Daywitt W.C., Comparing the Planck-Vacuum and the Urantia-Book Depictions of the Seven-Dimensional Spacetime, European Journal of Engineering Research and Science, Vol.5, No.12, December, 2020.
- [5] Carroll B.W., Ostlie D.A., *An Introduction to Modern Astrophysics*. (Addison-Wesley, San Francisco, Boston, New York, Cape Town, Hong Kong, London, Madrid, Mexico City, Montreal, Munich, Paris, Singapore, Sidney, Tokyo, Toronto, 2007).
- [6] Daywitt W.C., The Source of the Gravitational Constant for the Dirac Cores in the Planck Vacuum Theory, European Journal of Applied Physics, VOL. 4, NO. 3, MAY 2022.
- [7] Daywitt W.C., General Relativity in the Planck Vacuum Theory, European Journal of Applied Physics, VOL. 4, NO. 4, AUGUST 2022.

[8] Multiple Authors. *The Urantia Book*. Urantia Foundation, www.urantiaDOTorg, 1955.