

Comparing the Planck-Vacuum and Urantia-Book Depictions of the Seven-Dimensional Spacetime

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Abstract—This paper compares the 7-dimensional spacetime of the Planck vacuum (PV) theory to that of the Urantia Book with its total cosmological viewpoint. Results show that, where the two genres overlap, there is a total agreement between the two. The concept of “circular simultaneity” is introduced into the PV-theory lexicon. The comparison leads to the conclusion that the circular simultaneity of the Urantia Book is directly related to the annihilation equations of the electron-positron and the proton-antiproton cores of the PV theory. Juxtaposing the two genres opens up a deeper understanding for both.

Appendix A introduces an aspect to mathematical modeling that is new and unique: in the present case, the Dirac cores and the PV state are now connected to a transcendental aspect of nature that far exceeds the scope of the particle-related PV model.

Index Terms—Planck Vacuum Spacetime, Urantia Book Spacetime, Circular Simultaneity, Transcendental Connections.

I. INTRODUCTION

THE Planck vacuum theory contains a depiction of a 7-dimensional spacetime that consists of one observed and one unobserved 4-dimensional spacetime. In scanning the Internet for another 7-dimensional spacetime against which to compare the PV spacetime, only one source [1, Paper 130:7.4-8] with a sufficient breadth and scope was found—the relevant paragraphs from that source are reproduced in Appendix A.

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

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

where the ratio c^4/G 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 fine structure constant is given by the ratio $\alpha \equiv e^2/e_*^2$, where e is the observed electronic charge magnitude.

The two particle/PV coupling forces

$$F_e(r) = \frac{e_*^2}{r^2} - \frac{m_e c^2}{r} \quad \text{and} \quad F_p(r) = \frac{e_*^2}{r^2} - \frac{m_p c^2}{r} \quad (2)$$

the electron core ($-e_*$, m_e) and the proton core (e_* , m_p) exert on the invisible PV state; along with their coupling constants

$$F_e(r_e) = 0 \quad \text{and} \quad F_p(r_p) = 0 \quad (3)$$

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and the resulting Compton radii

$$r_e = \frac{e_*^2/c}{m_e c} \quad \text{and} \quad r_p = \frac{e_*^2/c}{m_p c} \quad (4)$$

lead to the important string of Compton relations

$$r_e m_e c = r_p m_p c = e_*^2/c = r_* m_* c \quad (= \hbar) \quad (5)$$

for the electron and proton cores, where \hbar is the reduced Planck constant. The Compton relation to the right of e_*^2/c comes from equating the Einstein and Coulomb superforces from (1). To reiterate, the equations in (2) represent the forces the free electron and proton cores exert on the invisible PV space, a space that is pervaded by a degenerate collection of Planck-particle cores ($\pm e_*$, m_*) [6], leading to a bifurcated vacuum state with one positive branch (e_* , m_*) and one negative branch ($-e_*$, m_*). The positron and antiproton cores are (e_* , m_e) and ($-e_*$, m_p) respectively.

The Lorentz invariance of the coupling constants in (3) leads to the energy and momentum operators of the quantum theory [6] [7].

Section II starts with the 2x1 spinor equations derived from the covariant Dirac equation, and derives the superposition of the core and anticore equations that reflect the experimental fact that the core and anticore form a particle-antiparticle pair. Section III compares the 7-dimensional spacetime of the PV theory and the Urantia Book (UB) reference [1], and connects the well known phenomenon of particle-antiparticle annihilation to the circular-simultaneity phenomenon of the UB.

II. DIRAC CORES

The following four 2x1 spinor equations-of-state are derived by coupling the covariant Dirac equation [8] [9, p.90] to the PV state: ($x^0 = ct$ and the sum is over $j=1, 2, 3$)

$$i \frac{e_*^2}{c} \left(\frac{\partial u'}{\partial x^0} + \sigma_j \frac{\partial v'}{\partial x^j} \right) = m_e c u' \quad (6)$$

$$-i \frac{e_*^2}{c} \left(\frac{\partial v'}{\partial x^0} + \sigma_j \frac{\partial u'}{\partial x^j} \right) = m_e c v' \quad (7)$$

and

$$i \frac{e_*^2}{c} \left(\frac{\partial u''}{\partial x^0} + \sigma_j \frac{\partial v''}{\partial x^j} \right) = m_p c u'' \quad (8)$$

$$-i \frac{e_*^2}{c} \left(\frac{\partial v''}{\partial x^0} + \sigma_j \frac{\partial u''}{\partial x^j} \right) = m_p c v'' \quad (9)$$

which, from top to bottom, describe the electron, positron, proton, and antiproton cores respectively. The u s and v s

are the 2x1 spinor wavefunction solutions to the equations. Furthermore, equations (6)and(8) and (7)and(9) belong in the observed and unobserved 4-dimensional spacetimes respectively [8].

The ratio e_*^2/c is the spin coefficient, where

$$\vec{S} = \frac{e_*^2}{c} \vec{\sigma} \quad \longrightarrow \quad \frac{e_*^2}{c} \sigma_j \frac{\partial}{\partial x^j} \quad (10)$$

is the relativistic spin of the electron or proton cores. The Pauli spin vector is $\vec{\sigma}$. The second expression is the scalar-product sum of \vec{S} with the gradient operator $\partial/\partial x^j$; that is, the PV gradient $\partial/\partial x^j$ in the j th direction weighted by the relativistic spin in that direction.

Superposition [8], i.e. adding the separate components from (6)–(9), leads to:

$$(6)\oplus(7) =$$

$$\begin{aligned} & i \overbrace{\left(\frac{e_*^2}{c} - \frac{e_*^2}{c} \right)}^0 \left[\frac{\partial(u' + v')}{\partial x^0} + \sigma_j \frac{\partial(v' + u')}{\partial x^j} \right] \\ & = m_e c (u' + v') = m_e c \hat{0} \end{aligned} \quad (11)$$

for the electron-positron, and

$$(8)\oplus(9) =$$

$$\begin{aligned} & i \overbrace{\left(\frac{e_*^2}{c} - \frac{e_*^2}{c} \right)}^0 \left[\frac{\partial(u'' + v'')}{\partial x^0} + \sigma_j \frac{\partial(v'' + u'')}{\partial x^j} \right] \\ & = m_p c (u'' + v'') = m_p c \hat{0} \end{aligned} \quad (12)$$

for the proton-antiproton, where $(u + v) = \hat{0}$ is the 2x1 null spinor solution to (11) and (12). *Equations (11) and (12) constitute the electron and proton annihilation equations in the PV theory—reflecting the experimental fact that the core and anticore form a particle-antiparticle pair.*

III. COMPARISONS

What follows are phrases from Appendix A explained by the Dirac core equations (6)–(9) and their annihilation equations (11) and (12). The specific phrases from Appendix A used in the comparison are boldfaced here and in the appendix. The justification for comparing a spacetime based on the mathematics of particle physics to a spacetime of universal scope is that the latter spacetime is fundamentally, and transcendently, related to the elementary particles. However, the appendix contains a number of ideas that the reader is not asked to necessarily agree or disagree with.

1. Space is not empty, & Space is not merely an intellectual concept of the variation in relatedness of universe objects.

The idea that “empty space” is empty is not an accepted concept in the PV theory, as the PV space is a continuum that is itself pervaded by a degenerate collection of Planck-particle cores ($\pm e_*, m_*$); i.e., spacetime is a quasi-continuum.

The UB equivalent to the ‘degenerate collection’ of Planck-particle cores is called the *force-charge of space* [1,15:4.1]. The UB *ultimatons* associated with this force-charge are related to the Planck-particle cores from the PV theory.

2. The universe of space is a time-related phenomenon & Space is measured by time, not time by space.

The partial derivatives of the 2x1 spinor wavefunctions in the core equations (6)–(9) clearly demonstrate these statements. Using (6) as an example, $\partial u'/\partial x^0$ is the time measure associated with the weighted spatial-derivative sum $\sigma_j \partial v'/\partial x_j$ of the electron with mass m_e . The appearance of the *scalar operator* $\partial/\partial x^0$ in each equation parallels the Appendix A statements.

3. There are seven different conceptions [dimensions] of space as it is conditioned by time.

Setting aside $x^0 = ct$ as one dimension: there are three spatial dimensions each in the observed and unobserved 4-dimensional spacetimes, leading to a 7-dimensional spacetime.

4. When man attains the mind intervening between the material and the spiritual [non-material] planes of existence, his ideas of time-space will be enormously expanded & Ultimately, surviving mortals achieve identity in a seven-dimensional universe.

Currently, man only perceives the 4-dimensional observed spacetime. When his perception also begins to sense the unobserved 4-dimensional spacetime, he has begun to be conscious of the 7-dimensional spacetime. When that consciousness is complete, his material body will have evolved into the so-called spiritual (non-material) body and he will then exist in the full 7-dimensional spacetime.

5. That which formally appeared as a succession of events then will be viewed as a whole and perfectly related cycle; in this way will circular simultaneity increasingly displace the onetime consciousness of the linear sequence of events.

Viewing (ct) as the time component to a succession of events leads to the partial differential equations (6)–(9); while freeing these equations from charge and mass leads to their annihilation equations (11) and (12) with their corresponding wavefunction solutions $(u' + v') = \hat{0}$ and $(u'' + v'') = \hat{0}$. Circular simultaneity (CS) in the PV theory refers to the relationship between these equations, where (6)–(9) represent four particle equations and (11) and (12) represent two non-particle (chargeless and massless) equations.

APPENDIX A

URANTIA BOOK SEVEN-DIMENSIONAL SPACETIME

The following five quotes concerning time and space are from paragraphs 4–8 of the Urantia Book [1]. The notation 130:7 refers to the 7th Section in Paper 130 of that reference. The present author has added the three [bracketed] terms below in paragraphs six and eight to aid in their understanding.

130:7.4 Time is the stream of flowing temporal events perceived by creature consciousness. Time is a name given to the succession-arrangement whereby events are recognized and segregated. **The universe of space is a time-related phenomenon** as it is viewed from any interior position outside of the fixed abode of Paradise. The motion of time is only revealed in relation to something which does not move in space as a time phenomenon. In the universe of universes Paradise and its Deities transcend both time and space. On

the inhabited worlds, human personality (indwelt and oriented by the Paradise Fathers spirit) is the only physically related reality which can transcend the material sequence of temporal events.

130:7.5 Animals do not sense time as does man, and even to man, because of his sectional and circumscribed view, time appears as a succession of events; but as man ascends, as he progresses inward, the enlarging view of this event procession is such that it is discerned more and more in its wholeness. **That which formally appeared as a succession of events then will be viewed as a whole and perfectly related cycle; in this way will circular simultaneity increasingly displace the onetime consciousness of the linear sequence of events.**

130:7.6 **There are seven different conceptions [dimensions] of space as it is conditioned by time. Space is measured by time, not time by space.** The confusion of the scientist grows out of failure to recognize the reality of space. **Space is not merely an intellectual concept of the variation in relatedness of universe objects. Space is not empty,** and the only thing man knows which can even partially transcend space is mind. Mind can function independently of the concept of the space-relatedness of material objects. Space is relatively and comparatively finite to all beings of creature status. The nearer consciousness approaches the awareness of seven cosmic dimensions, the more does the concept of potential space approach ultimacy. But the space potential is truly ultimate [fully understood] only on the absolute level.

130:7.7 It must be apparent that universal reality has an expanding and always relative meaning on the ascending and perfecting levels of the cosmos. **Ultimately, surviving mortals achieve identity in a seven-dimensional universe.**

130:7.8 The time-space concept of a mind of material origin is destined to undergo successive enlargements as the conscious and conceiving personality ascends the levels of the universes. **When man attains the mind intervening between the material and the spiritual [non-material] planes of existence, his ideas of time-space will be enormously expanded** both as to quality of perception and quality of experience. The enlarging cosmic conceptions of an advancing spirit personality are due to augmentations of both depth of insight and scope of consciousness. And as personality passes on, upward and inward, to the transcendental levels of Diety-likeness, the time-space concepts will increasingly approximate the timeless and spaceless concepts of the Absolute. Relatively, and in accordance with transcendental attainment, these concepts of the absolute level are to be envisioned by the children of ultimate destiny.

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