

# A Heuristic Approach to the Particle Physics Implicit in Theosophical "Occult Chemistry"

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## Introduction

In 1908 Annie Besant and C.W. Leadbeater published the first edition of their book *Occult Chemistry*,<sup>1</sup> which recorded their investigations, utilizing specialized clairvoyant faculties capable of high powers of magnification, into the fundamental structure of matter. The earliest investigations had first been published in the magazine *Lucifer* in 1895, and the first edition of the book was a summation of the work to 1908. A second edition, with new material, followed in 1919. The third enlarged, and final, edition was published in 1951. The third edition contains transcripts of sessions in which Leadbeater attempted to directly perceive the electron, discovered by English physicist J.J. Thomson in 1897, as well as to discern the true nature of electromagnetism and the origin of the positive and negative charges on atomic and subatomic particles. Leadbeater died (1934) before he was able to complete this aspect of his work.

The book mainly deals with the structures of the elements, each atom being described and diagrammed. Leadbeater and Besant began their investigations by observing the hydrogen atom. Modern physical science says that the hydrogen atom consists of a single proton surrounded by an orbiting electron. In 1911 British physicist Ernest Rutherford found that the mass of an atom is located in a small region called the nucleus, and discovered the proton in 1919 as the product of the disintegration of the nucleus. But when Leadbeater and Besant began their investigations there was no real notion of protons or neutrons (discovered in 1932), or the nature of the interior of the atom. They described the hydrogen atom as composed of 18 smaller units, called "Anu" in the third edition of the book. Their descriptions of the elements are strictly in terms of the numbers and the configurations of these Anu. It is also not clear if they were observing the total atom, including the electron shells, or just the nucleus.

There have been some attempts to reconcile these clairvoyant observations with modern particle physics.<sup>2,3</sup> Stephen Phillips ingeniously derives fractional charges for the individual Anu comprising the hydrogen atom as observed by Leadbeater and Besant, reconciling the occultist's atom with the modern quark model. However, he asserts that a 9-Anu proton is most feasible, not an 18-Anu proton, and that the clairvoyant observers made some type of a systematic error resulting in a doubling of all particles. He assigns a fractional charge of  $+5/9$  to the positive Anu, and  $-4/9$  to the negative Anu. The top triangle in Figure 1 has

five positive Anu and four negative Anu, a total of nine Anu. According to Phillip's formula, you calculate the net charge of the particle by multiplying the five positive Anu by  $+5/9$ , and the four negative Anu by  $-4/9$ , and adding the two products together:  $5 \times +5/9 = +25/9$ ;  $4 \times -4/9 = -16/9$ .  $(+25/9) + (-16/9) = +9/9 = +1$ . Thus the proton has a net charge of +1.

However, I am inclined to accept the original observations of an 18-Anu proton. I think that integer charge may not be a simple multiple of fractional charges, but rather a circuit-effect of the overall configuration of Anu in the particle. Thus the fractional charges inferred in modern accelerator experiments may be an artifact of some type. Actual particles with fractional charges have never been observed. Quantum

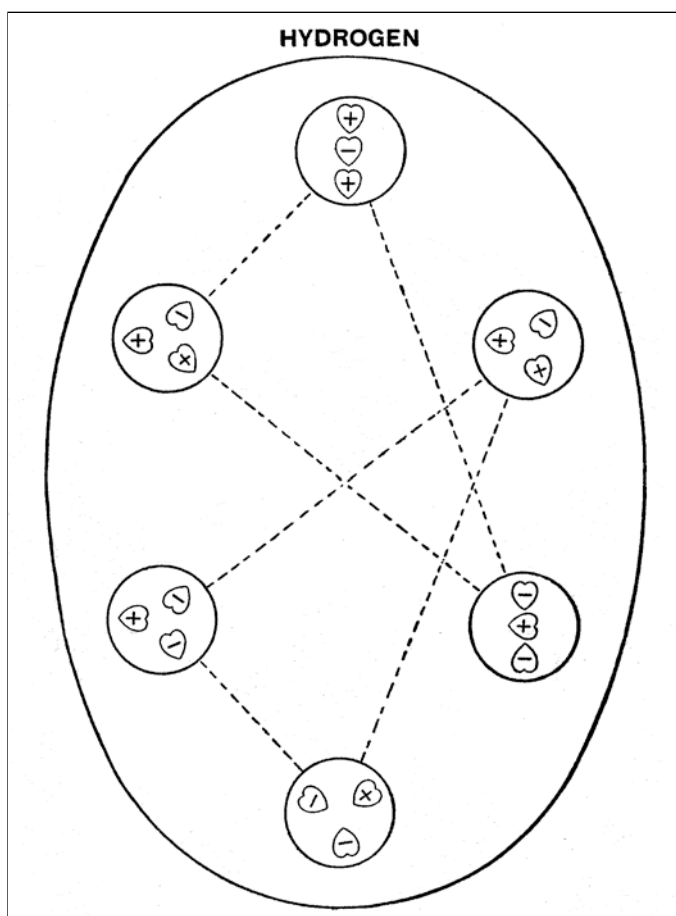


Figure 1. The hydrogen atom.<sup>1</sup>

chromodynamics (QCD), which is the theory that describes how quarks interact via gluons (force-carrying particles) inside of protons and other hadrons, is not a perfect descrip-

tion of the mysterious region within subatomic particles. QCD has been more thoroughly tested and is easier to use and understand at the high energies of particle collisions than at the much lower energies of nuclear physics and proton interactions. Physicists are realizing that they don't really understand how quarks combine to create a proton or neutron.<sup>4</sup> A laboratory at Newport News, Virginia, the Continuous Electron Beam Accelerator Facility (CEBAF), is specifically designed to elucidate the quark and gluon structure of the proton and neutron.<sup>5</sup>

### A New Approach

To the occultist, the physical world in which the natural experiences of sight and sound occur does not constitute the sole arena for the operation of human consciousness. Traditionally all cultures and all religions have described regions of awareness that lie outside the scope of the ordinary faculties. Theosophy posits seven separate planes of existence, with the lowest being called "Sthula," our familiar physical world. The next is the "Astral" plane, the seat of emotion. The mental plane, "Manas," sits above the "Astral" and is the region within which concrete and abstract mental processes occur. The highest sublevels of the mental plane contain the imperishable "causal body" of each individual which survives from incarnation to incarnation, creating a new set of lower bodies, and thus a new personality, each time the entity extends down for rebirth into the physical world. Above the mental plane there are four more levels: "Buddhi," "Atma," "Anupadaka," and "Adi," wherein exist higher states of consciousness and entities of very great evolution. Theosophy teaches that there is a bridge, the "Antahkarana," which joins these different levels of consciousness and integrates them into a single being, animating the physical body with true divine awareness. Theosophy also teaches that as one moves up through the planes one is moving into higher dimensions. The occult perspective has been that these higher planes are beyond the reach of the physical sciences to measure, or even detect, using any known instrumentality. In this paper, I offer an alternative to this traditional perspective.

One fact that emerges clearly from *Occult Chemistry* is that each of the seven planes of nature has its own fundamental building-block particle, and that all of these particles are composed of infinitesimal "bubbles" carved out of some all-pervading material, or essence, called the "Koilon." The number of bubbles comprising the fundamental particle of each plane is given by the powers of the number 49: "Adi"  $49^0$ , "Anupadaka"  $49^1$ , "Atma"  $49^2$ , "Buddhi"  $49^3$ , "Manas"  $49^4$ , "Kama"  $49^5$ , and "Sthula"  $49^6$ . This insight<sup>6</sup> was achieved by actually counting the bubbles in segments of the Anu and multiplying by the number of wires or spirals in the structure of the particle, painstaking work which Leadbeater approached diligently. The investigators also said they observed that when one

The Seven Subplanes of Each Plane					
	Anu Type	Particle Name	Particle Charge	# of Koilon Bubbles per Particle	Particle Mass
<b>Seven Planes</b>	(1) Anu A	Photon	0	$49^0 = 1$ Bubble	$m = 0$ eV
	(2)				$m_{av} = 0.023$ eV
	(3)				$m_{av} = 0.045$ eV
	(4)				$m_{av} = 0.083$ eV
	(5)				$m_{av} = 0.09$ eV
	(6)				$m_{av} = 0.113$ eV
	(7) 36 Anu A	Adion	-	36 Bubbles	$m = 0.1356$ eV
<b>Anupadaka (Level B)</b>	(1) Anu B			$49^1 = 49$ Bubbles	$m = 0.185$ eV
	(2)				$m_{av} = 1$ eV
	(3)				$m_{av} = 2$ eV
	(4)				$m_{av} = 3.1$ eV
	(5)				$m_{av} = 4.1$ eV
	(6)				$m_{av} = 5.1$ eV
	(7) 33 Anu B	Neutrino	0	1,617 Bubbles	$m = 6.1$ eV
<b>Atma (Level C)</b>	(1) Anu C			$49^2 = 2,401$ Bubbles	$m = 9$ eV
	(2)				$m = 45$ eV
	(3)				$m_{av} = 90$ eV
	(4)				$m_{av} = 135$ eV
	(5)				$m_{av} = 180$ eV
	(6)				$m_{av} = 225$ eV
	(7) 30 Anu C	Nirvanino	+	72,030 Bubbles	$m = 271.3$ eV
<b>Buddhi (Level D)</b>	(1) Anu D			$49^3 = 117,649$ Bubbles	$m = 443$ eV
	(2)				$m_{av} = 2$ keV
	(3)				$m_{av} = 4$ keV
	(4)				$m_{av} = 6$ keV
	(5)				$m_{av} = 8$ keV
	(6)				$m_{av} = 10$ keV
	(7) 27 Anu D	Muon Neutrino	0	3,176,523 Bubbles	$m = 12$ keV
<b>Manas Mental (Level E)</b>	(1) Anu E			$49^4 = 5,764,801$ Bubbles	$m = 21.7$ keV
	(2)				$m_{av} = 87$ keV
	(3)				$m_{av} = 174$ keV
	(4)				$m_{av} = 260$ keV
	(5)				$m_{av} = 347$ keV
	(6)				$m_{av} = 434$ keV
	(7) 24 Anu E	Electron	-	$1.38 \times 10^6$ Bubbles	$m = 0.521$ MeV*
<b>Kama Astral (Level F)</b>	(1) Anu F			$49^5 = 282,475,249$ Bubbles	$m = 1.1$ MeV
	(2)				$m_{av} = 3.9$ MeV
	(3)				$m_{av} = 7.7$ MeV
	(4)				$m_{av} = 11.6$ MeV
	(5)				$m_{av} = 15.4$ MeV
	(6)				$m_{av} = 19.3$ MeV
	(7) 21 Anu F	Tau Neutrino	0	$5.93 \times 10^6$ Bubbles	$m = 22.3$ MeV
<b>Sthula Physical (Level G)</b>	(1) Anu G			$49^6 = 1.38 \times 10^{10}$ Bubbles	$m = 52$ MeV
	(2)				$m_{av} = 156$ MeV
	(3)				$m_{av} = 312$ MeV
	(4)				$m_{av} = 468$ MeV
	(5) (Gaseous)				
	(6) (Liquid)				
	(7) 18 Anu G	Proton	+	$2.49 \times 10^{11}$ Bubbles	$m = 938.26$ MeV

\* actual measured mass of electron = 0.511 MeV  
(Solid, liquid and gaseous sublevels of G populated by Protons and Neutrons)

Figure 2. The seven subplanes of each plane. Only the masses of the proton and electron are known accurately. The three neutrinos have been long studied, but their masses are still unknown. The nirvanino and adion are unknown at this time. Only the Sublevel 1 and 7 particles are stable. I refer to all Sublevel 7 particles as "nucleons," a generalization of this familiar scientific term. Particles with a range of masses are possible on Sublevels 2-6, and I have indicated the average particle masses of those sublevels only.

physical Anu broke up it transformed into 49 "Astral" Anu. It is interesting that 49 is also a multiple of the number 7.

My approach assumes that the hydrogen atom, which they observed to be composed of 18 physical Anu, is the proton. Figure 1 shows the interior structure of the proton.<sup>7</sup> It is composed of 18 physical Anu arranged in six groups of three, with positive and negative Anu indicated. The Anu and groups of Anu are all in ceaseless motion, according to the investigators.

In Figure 2 the physical plane is labeled Level G, and Sublevel (subplane) 1 of Level G is the most rarified matter of the plane. The physical Anu, Anu-G, occupies Sublevel 1, just as the unique Anu of each of the other six planes occupies its respective Sublevel 1. The Sublevel 1 Anu of each plane is the fundamental building block of all matter on that plane. Eighteen Anu-G comprise one proton. The number of bubbles in a proton is therefore  $49^6$  times  $18 = 2.49 \times 10^{11}$ .

We get the mass of one bubble by dividing the proton mass, 938.26 MeV, by the total number of bubbles in a proton:

$$\frac{938,259,200}{2.49 \times 10^{11}} = 0.003768 \text{ eV}/c^2 = \text{bound photon mass } (m_{bp})$$

This simple calculation is at the heart of my thesis. It may be that a single bubble in Koilon is equivalent to the photon of modern physics, the basic unit of all energy.

A single bubble in Koilon is the fundamental building block of all the other particles on all seven planes. Certainly  $E=mc^2$  tells us that matter and energy are interchangeable. It is possible for a subatomic particle to transform completely into energy under the right conditions. The "bubbles" comprising a particle could perhaps represent trapped energy, literally trapped photons, from this perspective. Only the bound photon would possess the characteristic we call mass.

Each of the seven planes of nature is a discrete entity. A plane can be defined by the Anu which comprises, in various combinations, all the matter of that plane. The Adi plane is defined as containing matter which is composed only of Anu-A particles. The top subplane (Sublevel 1) of each plane contains its fundamental Anu, and the bottom subplane (Sublevel 7) contains the stable "anchor" particle, which can build up chemical combinations and exchange energy from one plane to the next most effectively.

I call the stable Sublevel 7 anchor particles the "nucleons" of the planes, thus: A-nucleon = adion; B-nucleon = electron neutrino; C-nucleon = nirvanino; D-nucleon = muon neutrino; E-nucleon = electron; F-nucleon = tau neutrino; G-nucleon = proton. I refer to these anchor particles as nucleons because I am assuming that they are all capable of building-up chemical combinations on their respective levels, as the occult literature describes. The proton, tau neutrino, electron, muon neutrino and electron neutrino are well known to modern physics. Currently only the masses of the proton and electron are known accurately. Adion and nirvanino are names I have coined to designate the two new particles I am suggesting. Although we don't usually think of neutral particles such as the neutrino as capable of molecular bonding, we have to remember that a free neutron decays into a proton, an electron and a neutrino (actually an antineutrino), indicating that the neutral neutrino was somehow bound to the complex inner structure of the neutron.

Experimental data indicate that the mass of the tau neutrino must be less than 24 MeV.<sup>8</sup> My predicted mass for this

particle is  $\approx 22.3$  MeV. The supernova SN1987A event has been used to constrain the mass of the muon neutrino, indicating that it must be less than 14 keV.<sup>9</sup> My predicted mass for the muon neutrino is  $\approx 12$  keV. It is also worth mentioning that an apparent 17 keV neutrino was first "discovered" by John Simpson in 1985, although later experiments found no evidence for such a particle.<sup>10</sup> The consensus now is that it does not exist, though a number of experiments have given positive results. The solution to this conundrum may be that the positive experiments are actually recording the decay of a larger particle into a stable muon neutrino and other unstable Level-D particles, adding up to about 17 keV of mass involved in the reaction. Answers to these difficult questions will have to await further work.

The electron neutrino is increasingly studied, but its mass has still not been accurately measured. It is a very light and weakly interacting neutral particle, difficult to detect at all. Scientists at Los Alamos National Laboratory in New Mexico believe they have narrowed the bounds of the mass of the neutrino, concluding that it probably falls somewhere between 0.5 eV and 5 eV.<sup>11</sup> This is still controversial, though. At least one theoretical physicist, using data from the 1987 Supernova explosion, has suggested that the mass of the neutrino is equal to 5.7 eV, plus or minus 0.9 eV. That is, it could be as little as 4.8 eV, or as much as 6.6 eV.<sup>12</sup> My own prediction for the mass of the electron neutrino is  $\approx 6.1$  eV.

Nucleon mass is calculated from the individual Anu mass at each level times the number of Anu in the nucleons. I am suggesting that the Sublevel 7 nucleons are unique, and are the only particles on each plane capable of effectively exchanging forces from one level to the other. This may be due to their interior structures and the precise configuration of their respective Anu. The interior configuration of the Anu may act as a kind of circuit-board which functions as an exchanger, converting energy from one plane to the next. Thus the electron and proton can interact electromagnetically. The tau neutrino and muon neutrino are neutral particles, and even though they may have mass they are difficult to detect with contemporary technology. The hypothesized nirvanino would be a positively charged particle in orbit around the electron, just as electrons are in orbit around the proton, or groups of protons. And the adion would be in orbit around the nirvanino. Why hasn't the nirvanino been detected yet, or the adion? The positively charged nirvanino and the negatively charged adion would appear to be, at long range observation, a single very light, very small neutral particle extremely difficult to detect with contemporary technology. Two electromagnetically bound oppositely charged particles, in close proximity, would appear to be a single neutral particle.

I am suggesting that the nirvanino has a positive charge equivalent to the positive charge of the proton,  $1.6 \times 10^{-19}$  coulomb, and that the adion has a negative charge equivalent to the negative charge of the electron,  $1.6 \times 10^{-19}$  coulomb. But the nirvanino and adion are probably almost always bound together and would appear to be a single weakly interacting neutral particle, of mass about 271.4 eV, to our detection technology. Though as yet undiscovered, they may in fact be fundamental components of physical matter as significant as protons and electrons.

Cosmic ray events provide some tantalizing evidence that unknown neutral particles do indeed exist. Cosmic rays are

predominantly high-energy protons, with some heavier nuclei, electrons and other particles mixed in, that bombard the Earth from all directions of space at nearly the speed of light. When they strike the Earth's atmosphere these primary particles generate cascades of secondary particles as they collide with nitrogen and oxygen nuclei. The secondary particles shower down through the atmosphere and are found all the way to the ground and below. The binary star Cygnus X-3, the most luminous X-ray source in the galaxy, appears to generate occasional bursts of some type of neutral particle.<sup>13</sup> These unknown neutral particles are inferred from the rate at which they produce anomalous muon events in the underground proton decay detector at Soudan, Minnesota. Neutrons, neutrinos and photons have been ruled out. Many who have studied this problem feel that a new neutral particle (such as perhaps the bound nirvanino and adion I am suggesting) should already have been detected in accelerator experiments, if it exists. But occasionally collider experiments reveal unexpected and unexplained events, which are disregarded as "statistical fluctuations" if they don't seem to fit in with the Standard Model of particle physics. For example, in 1987 the German DESY laboratory reported five examples of an anomalous isolated muon with a broad production of hadrons in electron-positron annihilations, and similar events were seen a little later at the Japanese KEK laboratory.<sup>14</sup> Such events may be a window into new particle physics, not yet appreciated.

The standard Big Bang cosmology imposes constraints on the numbers of particles that should exist, and their masses. For example, nucleosynthesis, especially the synthesis of helium, provides an important cosmological constraint. According to the theoretical model, the amount of helium produced in the Big Bang depends sensitively on the expansion rate and the interactions of light particles. But recently the Big Bang model has been seriously challenged.<sup>15</sup> In relation to each other, the cosmic helium abundance, the deuterium-to-hydrogen ratio and the lithium-7 to hydrogen ratio fall far outside the predictions of the Big Bang model.<sup>16</sup> Hubble Telescope efforts to determine the exact value of the Hubble constant, which gives the current rate of expansion of the Universe in the Big Bang cosmology, indicate that the age of the Universe is between 8,000,000,000 and 13,000,000,000 years, too young to account for the 200 or so globular star clusters which orbit the center of our own galaxy and have been measured to be about 16,000,000,000 years old.<sup>17</sup> If the Big Bang cosmology falls, its theoretical constraints will no longer apply and this could open the door to new possible types and numbers of particles.

In my model the number of Anu in the nucleon of each plane increases from 18 (the proton) to 36 (the adion). I believe this doubling is significant, and is important to creating the proper circuit-configuration in each nucleon so that the forces can be effectively exchanged from one plane to another. I arrived at these ratios empirically. This heuristic approach allows the mass of the electron, which is very well known, to come out close to its actual value. The difference I explain by a small change in the bound photon mass. The doubling from 18 to 36 occurs if the number of Anu in the nucleon of each plane increases by three each time, which would follow the pattern that best explains the mass of the electron. With regard to the charges of the anchor particles, five of the seven are already known to sci-

ence: proton (+), tau neutrino (0), electron (-), muon neutrino (0), and electron neutrino (0). Like Mendeleev, I just filled in the rest of the blanks using a symmetry argument. Because no actual particles with fractional charges have been observed (quarks have never been detected as free particles), I feel compelled by symmetry to assert that the positive charge on the nirvanino is equal to that of the proton, and the negative charge on the adion is equal to that of the electron.

Even though each of the seven basic Anu can be positive or negative in polarity, I don't believe that the polarity of the individual Anu is responsible for the overall charge of the nucleons. A certain particle, on one of the subplanes, may have more positive Anu than negative, but this does not mean that it will be experienced at our physical level as a positive charge equivalent to the proton's. The exact balance and configuration of the Anu are responsible, I think, for allowing charge to manifest from plane to plane. For example, Figure 1 is the diagram of the hydrogen atom (the proton) from *Occult Chemistry*, and it clearly indicates that there is an equal number of positive and negative Anu. The individual Anu cannot be responsible for the charge of the proton, it is not that simple. You will notice, however, that the 18 Anu-G of the proton are aligned into two opposing positive and negative regions within the particle. This is why I believe it is a circuit effect, creating a transdimensional exchanger. Upon its own plane, Anu polarity is significant, but essentially confined to that plane only.<sup>18</sup>

Free Anu-G may be difficult to detect because they have a strong tendency, as building-block particles on the physical plane, to always form into larger structures or to shatter under very high energy collisions to reappear on the Astral plane as 49 Anu-F, or on planes higher still. The latter could certainly be the case in high-energy particle physics experiments.

Besant and Leadbeater were convinced that as one moved up through the planes one was also moving into higher dimensions. I am suggesting that energy-interaction between the dimensions is attenuated as the dimensional "distance" becomes greater, except in the case of the seven Sublevel 7 nucleons, and perhaps also in the case of the individual bubble manifest as the photon.

The interaction of the proton and electron is strange. They are separated by at least one dimension,<sup>19</sup> but the electron behaves like a ghost entity compared to the sober and discrete proton. We can measure the proton's diameter with great accuracy, but modern physics still has no idea exactly how large the electron is, considering it to be a theoretical "point particle" at the center of a negative electric charge. The ghostly electron seems difficult to pin down, and physicists speak of "electron clouds" surrounding the discrete nuclei of atoms. The electron's appearance on the physical plane is "spread out" because its normal oscillation state is some number of dimensions beyond the three dimensions within which the proton oscillates. Only when the electron specifically interacts with physical (Level G) matter does it appear as a discrete point particle for that moment in time.

## The Bound Photon Mass

I am suggesting that the number of Anu-E comprising the electron equals 24 because this approach allows the calculated mass of the electron to reach a number very close to its actual measured value. But using this method to calculate

the electron's mass results in a slightly heavier electron, by about 2%, a value of 0.521 MeV instead of the very accurately measured 0.511 MeV. Besant and Leadbeater were not able to provide any insight into this problem, as they never seemed to be able to perceive the particle we now call the tau neutrino, or the electron.<sup>20</sup> They concentrated mainly on the description of the elements. They did examine the Sublevel 1 Anu of several planes, and ascertained that all Sublevel 1 particles observed fell within the rule of the powers of 49. They didn't have the time to broaden the investigation much beyond this.

My reasoning is that just because the proton is composed of 18 Anu-G does not mean that the other stable nucleons are also composed of 18 Anu from Sublevel 1 of their respective planes. In fact, one can make the argument that as you move up into higher dimensions, more particles are needed in order to have sufficient binding force to hold the nucleons together in a precise way. There is much greater freedom of oscillation in the higher dimensions, and it may take more particles in the nucleons to overcome this and create an effective transdimensional exchanger.

The key to the masses of the particles is the mass of the bound photon. On its own level, the highest in the universe, the photon is massless. It is necessary that the photon be completely massless, otherwise the laws of physics would be appreciably different.<sup>21</sup> In a universe with a photon that possessed even a tiny mass, all long-range electric and magnetic fields would vanish, as would all low-frequency electromagnetic waves.

All of my calculations of particle masses are based on the mass of the bound photon,  $m_{bp}$ , derived from the very accurately measured mass of the proton. In this theoretical approach, as photons are bound into larger configurations they acquire mass. But the mass of the bound photon may be more in the lower dimensions, and less in the higher dimensions. It's a fair guess to say that  $m_{bp}$  changes, but by how much and in what way can only be determined through experiment.

Using this approach, the measured mass of the electron tells us that  $m_{bp}$  is about 1.5% less at Level E. Using this slightly lower value for the mass of the bound photon, we derive the accurate mass of the electron, 0.511 MeV.

My predicted mass for the electron neutrino, based on Level G  $m_{bp}$ , is  $\approx 6.1$  eV. But if the mass of the neutrino turns out to be, say, 5.7 eV,<sup>12</sup> then Level B  $m_{bp}$  would be about 6.5% less than Level G  $m_{bp}$ .

When the masses of the tau neutrino, muon neutrino and electron neutrino are finally accurately measured, these values can be plotted yielding an equation describing the change in  $m_{bp}$ . If  $m_{bp}$  were found to decrease with the lighter particles, then this approach would appear to have significance.

This admittedly speculative, heuristic approach will succeed or fail on the basis of its testable predictions, which are enumerated in the last section of this paper. The calculated masses of the particles are most straightforward. The suggested charges on the adion and nirvanino are little more than guesses.

Needless to say, this collection of planes and particles, with the physical realm representing just a fraction of what actually exists, could be the explanation for the mysterious dark matter observed throughout the Universe.

## The Photon's Ubiquity

If the photon resides on the highest, most rarified plane in the Universe, how can it be so common in our three-dimensional world, interacting with everything? Except for the seven Sublevel 7 nucleons, which are specifically constructed by nature so as to function as effective transdimensional exchangers, all of the other particles on the planes interact only with each other, and have little or no interaction between the dimensions. The photon is the great exception. The answer may be that the photon exists normally in an infinite-dimensional space, the only particle in the multi-plane Universe to do so. In an infinite-dimensional space, all points are congruent. All particles occupy one point in space, and all points in space contain all particles. Photons would be touching and interacting with lower-dimensional spaces in more ways than any other particle. The photon is a completely unique "particle."

Also, the Universe is more like a closed loop, a sacred hoop, than like a stack of planes one atop the other. Level A is touching Level G across a tunneling juncture. According to some law of nature, the photon must tunnel across this gap and appear on Level G. But when it appears on Level G, it is only a shadow of its true form. We are in essence digitally "sampling" the photon as it interacts with our three-dimensional space.

## Neutrino Oscillation

Data from the Super-Kamiokande neutrino experiment in Japan have been interpreted as supporting the notion of neutrino oscillation, that is neutrinos changing into different types or "flavors." I would suggest an alternative explanation for these experimental results. In my approach, neutrino oscillation is unlikely because the mass differential between the three types of neutrinos is too great. The Super-Kamiokande detected equal numbers of electron neutrinos passing up through the Earth as were raining down from the sky above the detector. Less muon neutrinos were detected passing up through the Earth, however, than were raining down from the sky above. This was interpreted to indicate that muon neutrinos were oscillating, or changing, into tau neutrinos. But tau neutrinos could not be detected by this particular experiment, so this interpretation is just conjectural. My approach would suggest that electron neutrinos, being the least massive of the three, pass through the Earth with virtually no interactions, whereas muon neutrinos, being far more massive, interact with the matter of the Earth at a greater rate, so less reach the detector. Tau neutrinos are the most massive, and thus the differential should be even greater. With regard to the solar neutrino deficit, rather than due to oscillation, it may just be indicating that we don't understand the physics of the Sun quite as well as we think we do.

## Tesla's "Impulse Discharges"

Researcher Gerry Vassilatos<sup>22</sup> has written that after Nikola Tesla perfected his induction motor and polyphase system for the generation, transmission and distribution of electric power, he lost all interest in this work and began exploration into what is apparently a totally new realm of energy. It was not electrical. As a matter of fact, Tesla considered electrons a contaminant to his experiments and would dump them to ground as they were produced in copious quantities. He

became fascinated with what he called "impulse discharges." These were not alternating waves, they were longitudinal waves composed of successive shockwaves. Tesla came to believe that the violence of magnetically disrupted arc discharges was capable of breaking the attraction between electronic and "aetheric" carriers in metal conductors. The aetheric carriers were neutral in charge, and had some unusual properties. Aetheric streams behaved in a "stiff" way, much like high pressure water jets fired through pin-holes. They were not always visible in transit, producing a white streaming light only near the point of their departure from his special high vacuum tubes, or they could be carried through an appropriate metal conductor. Aetheric carriers contained momentum. They were extremely mobile, virtually massless when compared to electrons, and could therefore pass through matter with little effort. In the present work, I am suggesting the existence of two new particles, the adion and the nirvanino. The positively-charged nirvanino, of mass about 271 eV, is in orbit around the electron. The negatively-charged adion, of mass about 0.14 eV, is in orbit around the nirvanino. Thus the adion and nirvanino would almost always be bound together, masquerading as a single very light, very small neutral particle extremely difficult to detect with contemporary technology, hiding in the shadow of the electron. In a process akin to ionization, these two particles might be stripped away from their orbit about the electron by the application of very high energy. Tesla's impulse discharges may in fact have been capable of breaking the nirvanino loose from its orbit around the electron, without affecting the stronger bond between the nirvanino and the adion. The two tiny particles set loose, but still orbiting each other, would appear to be, at long-range observation, a single neutral particle. Thus Tesla's "aetheric" stream might have been a high flux of such a configuration. Tesla's work, though the interpretation is controversial, may represent empirical evidence for such new particles.

### Some Specific Predictions of This Model

- 1) Mass of tau neutrino will be found  $\approx 22.3$  MeV.
- 2) Mass of muon neutrino will be found  $\approx 12$  keV.
- 3) Mass of electron neutrino will be found  $\approx 6.1$  eV.
- 4) Mass of new particle (nirvanino) will be found  $\approx 271.3$  eV, with positive charge equal to  $1.6 \times 10^{-19}$  coulomb.
- 5) Mass of new particle (adion) will be found  $\approx 0.14$  eV, with negative charge equal to  $1.6 \times 10^{-19}$  coulomb.
- 6) A weakly interacting neutral particle will be found with mass  $\approx 271.4$  eV (bound nirvanino and adion).
- 7)  $m_{pp}$  will decrease with decreasing particle mass.

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#### About the Author

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