Evidence for the Existence of Superluminal Waves in the Creation of Matter & Energy
A Physical, as well as Mathematical Explanation

Part 1: The Basis for a New Theory of Matter

If matter is three-dimensional (3D) shouldn’t it be created by one and two-dimensional (1D & 2D) entities?

It seems like a rather obvious statement, and that it must be true, but it has rarely if ever been stated so simply. Euclidean geometry works and can be extrapolated into 3-D geometries, so why not create physical matter in the same way?

Many physicists think in physical 3D terms when pondering the mysteries of matter and energy. Shouldn't they also consider the possibility that simpler constructs are possible? As will be shown in this presentation, the answer is a definitive yes. It will become clear that we live in a universe that is created by 1D and 2D entities that work together to form 3D matter particles that can then be measured and manipulated.

Assuming they exist, how can we determine the nature of 1D and 2D entities when we can’t measure them?

This question has never been truly addressed, since it is unclear whether 1D or 2D entities can in any way be detected. Nowhere in any physics literature will you find direct evidence for any physical 1D or 2D entities. They are mere mathematical constructs, but as with the case of Euclidean geometry, they can have real-world applications.

Through the measured constants of matter particles, it is possible to prove mathematically the existence of 2D entities, and to a lesser extent a strong indication of 1D entities. This opens up an entirely new realm of possibilities that were hitherto little unexplored. Only string theorists have ventured into this arena, but have limited themselves to light speed.

Where should we start when modeling matter particles?

Let’s create a simplified String theory; after all, many physicists seem to believe that string theory is the future of physics.

If we were to imagine the simplest form of string theory, it would consist of a single string and a single membrane (brane). The model for classically behaving particles (fermions) created by a simple strings and branes depends on what physical form they take.

Let’s use a well known ‘classical’ model, the Parson magneton, along with the simplified string theory to provide a simple and consistent way of describing all matter particles (spin-1/2 fermions).

The Parson magneton can be viewed as a torus, or what many children recognize as a Hoola Hoop ®, albeit a very skinny one in the case of fermions. This shape proves to be the perfect one for relating particle constants and providing a physical size to particles.

Equations for a Torus

The shape of a torus is determined by two radii, the small radius of the tube itself, which we shall designate as r, and the larger overall radius of the hoop, which we shall designate as R. (Due to the large disparity is sizes between r and R the location at which R is attached to r is insignificant except in certain circumstances.)

The surface area of a torus is related to these two radii by the equation: $A_T = 2pi \cdot r$ times $2pi \cdot R = 4pi^2 \cdot r \cdot R$.

Although there are no exact measurements for r and R for particles, there are some rough values to check against.

It is necessary to assign velocities for the string and brane in order to create the torus shape for particles and to provide them with the features that have been determined empirically.

Creating a Particle with a Torus

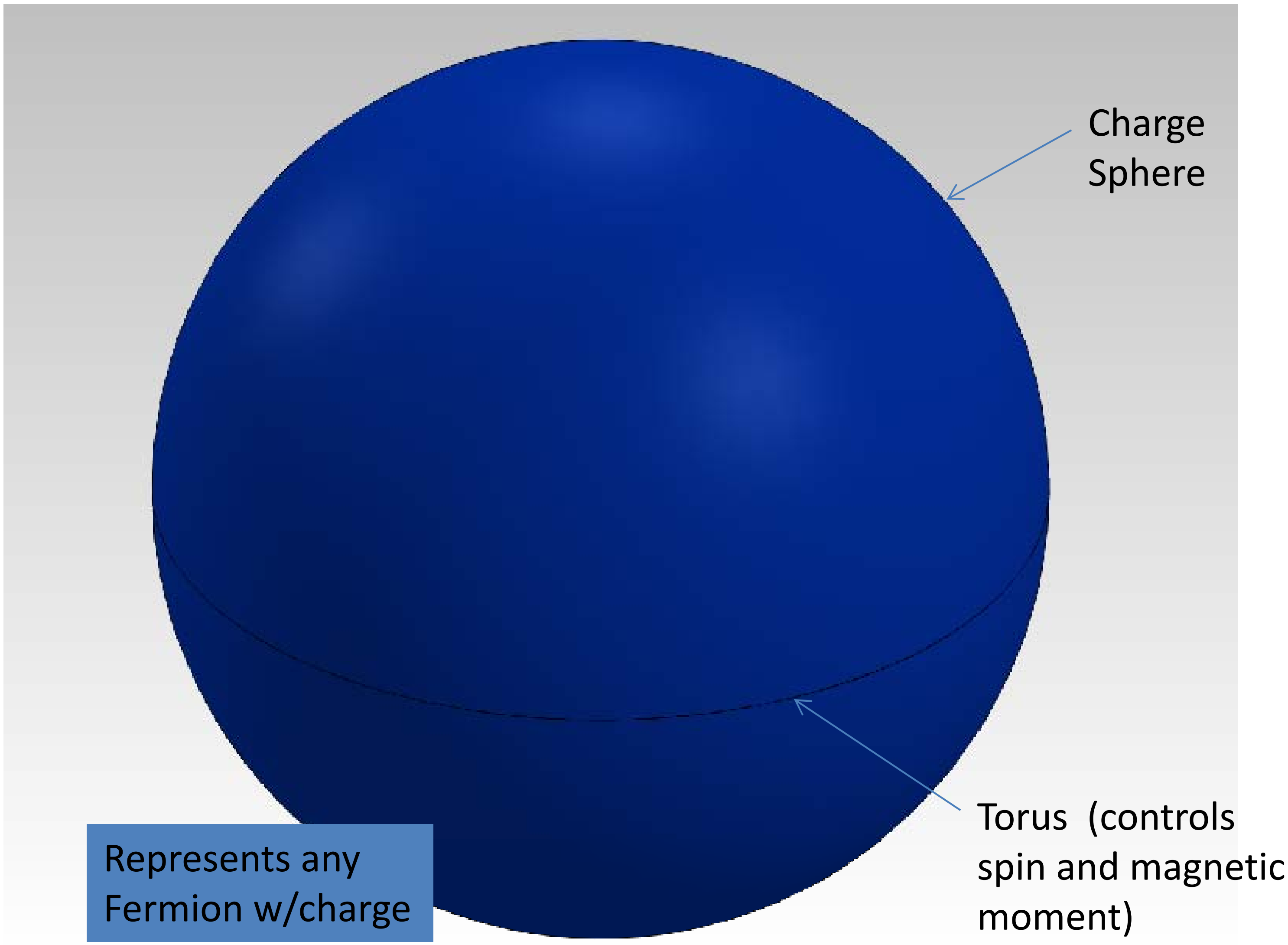
Using classical physics to create particle features requires applying velocities and spins to the particles. To produce both a charge and a magnetic moment requires more than one spin. How will we create these two spins?

Since photons produce magnetic and electric fields that are 90° apart, that method when applied to particles works perfectly. To create spins that are 90° apart in a torus requires the r radius to spin one direction and the R radius to spin in another. The combinations are limited, and as you will soon see, a simple approach can produce the desired results.

Defining the Correct Spin Combination

The following slide shows the orientation that gives accurate answers for spin-1/2 fermions. The small radius r produces the half-spin momentum and magnetic moment, and the large radius R produces the electrostatic charge. Unfortunately, the velocities needed to produce the required particle values seem absurd. The velocity of the brane which controls the rotation about R is *c*, but the string speed used to define r and R is much, much greater. Something will have to change about the way we view matter and energy that will allow us to accept a seemingly absurd velocity as real.

Spin-1/2 Particle (Shaded portions are the actual 3D boundaries, the 2D creating entities cannot be shown.)



For this model to work the spins must be two-fold for both the magnetic and electrostatic portions of each particle. In order to produce all the features of matter particles the small radius r rotates at a velocity *C**, while moving forward around the R radius at *c*. [*C** will be defined shortly.] The combination of these two motions produces the surface area of the particle torus, while at the same time determining the magnetic moment and spin momentum.

As the entity above spins around r, it also rotates around the large radius R and pulls a second entity along with it. The second entity is also spinning at *C**, but around the R radius at 90° from the direction the torus is rotating, which means that it forms a sphere that is attached to the torus. This sphere is what produces the charge of the particle. The charge is so much greater than the magnetic moment due to the much larger spin radius.

The Current Wisdom is that the Speed of Light is the Ultimate Velocity

What if Einstein Was Wrong When He Created the Equation $E=mc^2$?

Where Einstein Went Wrong

Einstein was wrong when he made the assertion that $E=mc^2$ because he assumed that a physical explanation was not possible for the behavior of energy. When a physical explanation is applied then the only equation that can be substituted for $E=mc^2$ is one for momentum. Although different units from Einstein's are needed and must be accounted for later, a velocity close to c^2 must be used. The velocity is a staggering 8.9359E+16m/s. This is the velocity earlier identified by the symbol C^*.

Because Einstein came up with a rationale for his equation, it has been accepted as fact for a century. Little did he know that there could be lower dimensional entities that could avoid the necessity of having to fit into a speed limit of *c.*

What do the equations look like that determine the size of particles based on the torus surrounded by sphere model?

The equations using the torus & sphere shapes are:

1. $R_x = T_x C^*/2pi$ (where T is time per revolution at light speed and sub-x differs for each spin-1/2 particle. In ideal form T is numerically equal to particle mass.)
2. $r_x = h\text{-}bar/2/(m_x \cdot C^*)$ (h/2pi is normally thought of as the reduced Planck constant, but it should be the actual Planck constant, as the surface area of the torus A_T is numerically equal to h, and has no relation to spin.)
3. $\rho = 1/2m_x \cdot C^* \cdot r$ (Where half the string mass creates spin.) (The other half creates charge.)
4. $\mu_x = pi \cdot r_x^2 \cdot I$ (Magnetic moment, where I is the current.)
5. $I = \omega \cdot e/2pi$ (Where ω is the spin rate and e the charge.)
6. $\omega = C^*/r_x$

The Logic Behind the String and Its Relation to the Equations for Particles

Since the two velocities *c* and *C** control the size of the torus, a time/distance relationship can be used. Because R is the overall size, the length of the string determines the size of the torus circumference for one rotation at *c*. This makes it possible to use time (T_m) instead of the particle mass in determining physical parameters, which makes the units correct. [The equation determining size, $T_m \cdot C^*/2\text{pi} = R$, assumes that one rotation of the torus constitutes the mass equivalence supplied by either the magnetic or electrostatic portions in creating the torus or the sphere, since their motions are connected.]

Logic & Equations (continued)

Are there any other equations that verify either of the radii? The radius R can be used in the equation determining the fine structure constant alpha α. Normally the equation is written as $\alpha = \mu_0 \cdot c \cdot e^2/2h$, but it can also be written in the form $\alpha = c \cdot e^2/(m \cdot C^* \cdot R)$. Units for alpha are $kg/(m \cdot s^2)$ instead of null units as the Standard Model suggests. It is actually the magnetic constant μ_0 that is a ratio and has null units. It is the ratio of r/R for the electron. Each particle has a different ratio and μ_0 only applies to the electron, which means that the Rydberg constant is also different for each particle. The value 4pi; however, is a constant for all particles and it is only the 1E-7 portion that is equal to r/R for the electron.

Logic&Equations (continued)

Is there any proof that the units from the previous slide are correct? First, μ_0 is often used in a no-unit manner. It is only because units were assigned arbitrarily to define the Ampere that it was necessary to assign it units of N/A^2. Second the SM claims that alpha is unitless, but it can be written in many ways, such as:

$\alpha = \mu_0 \cdot c \cdot e^2/(4pi \cdot m_x \cdot C^* \cdot r_x)$ $\alpha = c \cdot e^2/(m_x \cdot C^* \cdot R_x)$

$\alpha = c \cdot \mu_x{}^2/(C^{*2} \cdot r_x{}^2 \cdot L)$ $\alpha = \mu_0 \cdot c \cdot \mu_x{}^2/(pi \cdot r_x{}^3 \cdot C^{*3} \cdot m_x)$ and

$\alpha = e^2/(2A_T \cdot c \cdot \varepsilon_0)$.

In ultrawave theory, all of the above equations give units of $kg/(m \cdot s^2)$. In the SM you get various units, or you can't even perform the calculation because the components make no sense.

Other Constants

Constants that have been taken for granted in the Standard Model have different equations and units in ultrawave theory. The equation for the magnetic constant being μ_0 = 4pi·r/R and having no units for example.

This brings up an interesting question; what is the electric constant? The electric constant is normally defined with the equation $\varepsilon_0 = 1/(\mu_0 \cdot c^2)$, and has units $A^2 \cdot s^4/(kg \cdot m^3)$. We have seen earlier that c^2 is not actually used in creating particles, so if we cannot substitute C^* what should the new equation be?

We know that the equation is related to the charge. The best substitute is $e^2/(2A_T \cdot \alpha_e \cdot c)$ with units $A^2 \cdot s^4/(kg \cdot m^3)/s$. In this case α_e is the one that applies to the electron and has the value 7.297E-3 with units of $kg/(m \cdot s^2)$.

Another constant that uses the fine structure constant α is the Rydberg constant. Its accepted equation is $\alpha^2 \cdot m_e \cdot c/2h$ with units of per meter. Instead of the accepted units, which seem lacking to say the least. The units are actually those of alpha squared per meter, or units of $kg^2/(m^2 \cdot s^4)/m$. This eliminates the need to add a per meter unit to some variables that should not require additional units.

When the results of these changes are tallied, ultrawave theory provides a consistent and logical set of units that are better than those of the Standard Model. It is a set of units consistent with a physical explanation for matter and energy that is perfectly logical and reveals some previously unknown relationships.

Remember!

h is actually A_T and has no relation to spin

Unfortunately, 2h is sometimes equal to 4pi·h-bar

h-bar is actually L or ρ = 1/2mvr x 2

(the charge mass momentum is added, as it is traveling sideways at *c* around R)

μ_0 and ε_0 as they exist in the SM only apply to the electron; however, the 4pi portion is consistent with all spin-1/2 particles

α and R_∞ also apply only to the electron as they now exist in the SM

Addendum: UT Electron (Idealized)

Mass m_e or time T_{ei} = 9.109382905E-31kg or s

Overall radius $R_{ei} = T_{ei} \cdot C^*/2pi$ = 1.295532E-14m

X-section radius r_{ei} = *h-bar*/($m_e \cdot C^*$) = 1.295532E-21m

Torus surface area $A_T = 4pi^2 \cdot r_{ei} \cdot R_{ei}$ = 6.62607E-34m^2

Spin angular mom. L = ½$\cdot m_e \cdot C^* \cdot r_{ei}$ = 5.27286E-35kg$\cdot m^2$/s

New Planck const. *h-bar* = $m_e \cdot C^* \cdot r_{ei}$ = 1.054572E-34kg$\cdot m^2$/s

Magnetic moment $\mu_B = pi \cdot r_{ei}^2 \cdot I_{ei}$ = 9.2740E-24J/T

Magnetic constant μ_{0e} = 4pi·r/R = 1.256637E-7 (unitless)

Electric cons. $\varepsilon_0 = e^2/(2A_T \cdot \alpha \cdot c)$ = 8.85419E-19$A^2 \cdot s^4/(kg \cdot m^3)$/s

Fine Structure con. $\alpha_e = \mu_0 \cdot c \cdot e^2/2A_T$ = 7.29735E-3kg/(m*s^2)

Rydberg cons. $R_{\infty e} = \alpha_e^2 \cdot c \cdot m_e/(4pi \cdot$ *h-bar*) = 1.09737E+7 $kg^2/(m^2 {*} s^4)/m$