



New Gravity

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ABSTRACT

This paper derives a hypothetical model for gravity based on the models of New Electromagnetism. With this electromagnetic model for gravity the following are derived:

- 1) Einstein's time dilation factor $\sqrt{1 - v^2 / c^2}$ (page 12).
- 2) The New Electromagnetic representation of matter (BMP) collapses when it travels faster than the speed of light (page 16).
- 3) The Schwarzschild radius $r = \frac{2K_G M}{C^2}$ is derived from New Electromagnetism (page 16).
- 4) The effect of gravity on time dilation (page 13).
- 5) That the total energy of mass ($E = MC^2$) is constant to all observers in all reference frames (page 14).

The derivations in this paper are based on a new mathematical abstraction for free space. This abstraction satisfies both the results of the Michelson-Morley experiment and is consistent with predictions of Relativity. This abstraction is essentially a new model for the old concept of the ether. This hypothetical abstraction provides a simple link between gravity and New Electromagnetism.

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NEW Gravity

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1 Please Read.

Although these derivations are described as hypothetical, they are quite compelling. I believe that these techniques, or something similar, will be a solution to the unified field theory.

All papers referenced in this document can be found at <http://www.distinti.com/docs>

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2 INTRODUCTION

This paper shows that there may exist a model for the “Luminiferous Ether” that satisfies both the results of the Michelson-Morley experiment and the predictions of Relativity. The ether becomes the simplest method for unifying the models of electromagnetism with gravity.

The new model for ether shows that the force known as gravity may in fact be electromagnetic induction.

The derivations in this paper make use of the Binary Mass Particles (BMP) described in the paper titled “New Electromagnetism” (ne.pdf). Whether or not the BMP represents an actual physical system is unknown at this writing; however, the binary models are mathematically sound and yield interesting results when applied to different situations. Some of these interesting results are contained in the paper titled “New Electromagnetism” (ne.pdf) and are listed as follows:

- 1) Inertia is represented as an electromagnetic phenomenon of massless charge particles.
- 2) Einstein’s energy equation $E = MC^2$ is derived from New Electromagnetism.
- 3) The mass (or inertia) of an electron is derived from New Electromagnetism.

In this paper (“New Gravity”) the binary models are used to derive the following:

- 1) That gravity is electromagnetic induction.
- 2) Einstein’s time dilation equation $\sqrt{1 - \frac{v^2}{c^2}}$.
- 3) The Schwarzschild radius $r = \frac{2K_G M}{C^2}$ that describes the radius at which a star collapses into a black hole.
- 4) That matter collapses when its speed surpasses the speed of light, and the reason why.
- 5) That the total energy of mass ($E = MC^2$) is constant to all observers in all reference frames.

3 A logical derivation of gravity

The model of gravity is deduced in this section using a simple logical argument. Later sections of this paper derive the mathematical model along with applications.

This deduction begins by revisiting the Michelson-Morley experiment. By re-examining the logic of the assumptions, along with the intent of the experiment, we find that the results of the experiment do not conclusively disprove the existence of ether. If the ether exists, then what is its nature? Can a model for ether be developed that satisfies the results Michelson-Morley experiment and the predictions of Relativity? In fact Einstein supplies the answer to this question. By extending the logic of Einstein's Principle of Equivalence to the next threshold, a model for ether that satisfies the results of the Michelson-Morley experiment is realized.

The final step before explaining gravity is to develop an ether-based reference frame for electromagnetism. This reference frame allows us to explain that gravity is electromagnetic induction. The ethereal reference frame in conjunction with NE provides simple explanations for many other phenomena.

3.1 Michelson-Morley experiment

It was postulated in the 1800s that light, like other forms of wave phenomena, must also propagate over some sort of medium. This medium was given the fanciful name "luminiferous ether". It was assumed (assumption #1) that this "stuff" exists in the space between electrons and protons like water between islands. It was also assumed (assumption #2) that this stuff was stationary with respect to the universe; therefore, as the Earth moves through the universe it passes through the ether. If this were so, then it is reasonable to conclude that an interferometer would enable us to measure the velocity of the Earth relative to the ether/universe.

After many measurements, at different times of day/year, the interferometer showed no indication that the velocity of light was different in either of the two interferometer arms (both of which were tangent to the surface of the Earth). Because the interferometer did not show any difference in the velocity of light, then the assumptions about the nature of the ether were incorrect. This incorrectly translated to the final conclusion that there is no ether.

The final conclusion to this experiment can only be true if assumption #2 is correct (that the ether is stationary). Suppose the ether in the universe flows and behaves like a fluid such as an ocean. Further suppose that the Earth travels with the ether like a piece of driftwood at sea. Suppose we were to imagine ants on a piece of driftwood at sea. The ants endeavor to measure their velocity relative to the sea by dipping their antennas into the water and measuring the velocity of the surface waves. Since the driftwood moves with the surface currents, there is no relative motion between the driftwood and the sea for the ants to measure. Therefore the ants will always obtain the same wave velocity no matter what they do. Will the ants then assume that there is no water?

Further suppose there were another relationship between the Earth and the ether that would also give a negative result to the Michelson-Morley Experiment. By extending the logic of Einstein's Principle of Equivalence such a relationship is revealed.

3.2 Einstein's Principle of Equivalence

Einstein postulated that the effects felt by a person standing on the Earth were identical to the effects felt by a person accelerating through space at one times the acceleration of gravity. He called this the Principle of Equivalence.

Logically, the next step suggests that standing on the Earth is equivalent to accelerating through space. Could we not then reason that space is accelerating toward the Earth symmetrically in all direction? Might this accelerating space, relative to physical objects (not physical impact), cause the force of gravity that holds us to the Earth? Suppose that space were filled with some kind of "stuff". Further suppose that this "stuff" is made of particles so small that it occupies the space between all of the known sub-atomic particles. This "stuff", when accelerating through matter, imparts force.

What might this "stuff" be? Perhaps it is the "luminiferous ether" which was discussed in the previous section. If the ether is accelerating symmetrically in all direction toward the Earth, then the velocity of the ether should be substantially perpendicular to the surface of the Earth. This would mean then that the acceleration of the ether tangential to the surface of the Earth is zero because we feel gravity only in the vertical direction. If the acceleration of the ether tangent to the surface is zero, then logically the velocity of the ether tangent to the surface of the Earth should also be zero. Since the Michelson-Morley experiment was conducted tangent to the surface of the Earth, then the interferometer should read no ethereal movement. This suggests that the ether is spiraling toward the Earth ([since the Earth is rotating](#)).

If ether does exist and it is accelerating toward the Earth symmetrically in all directions, then where does it go? One possible answer is that it annihilates with the matter of the Earth, releasing energy. This release of energy may be part of the cause of radioactive decay and/or part of the explanation of why the core of the Earth is still molten. A following paper will discuss the behavior of the ether in more detail. This paper will treat the ether as a mathematical abstraction for the purpose of exploring the force known as gravity.

It is not necessary to run the Michelson-Morley experiment again in order to validate the vertical component. The vertical component can be deduced by the manner in which ether affects light near massive bodies such as black holes. Near black holes, light is bent in the direction toward the black hole. If ether does exist, then this would suggest that it accelerates toward massive objects.

The force of gravity is transmitted by ether particles accelerating relative to matter, not by ethereal particles actually colliding with and making contact with matter. [According to the New Electromagnetic models, the relative motion \(specifically acceleration\) between ether and matter is the mechanism of both inertia and gravity. Einstein's Principle of Equivalence teaches that gravity and inertia are equivalent; New Electromagnetism shows that they are one and the same.](#)

Because the tangential component of the reference frame is substantially zero, does not mean that the vertical component is substantially zero. Since we know that light bends toward the Earth, then the component of the reference frame normal to the surface of the Earth must be moving Earthward.

This reference frame is consistent with the ethereal model proposed in the previous sections and is shown by the following diagram.

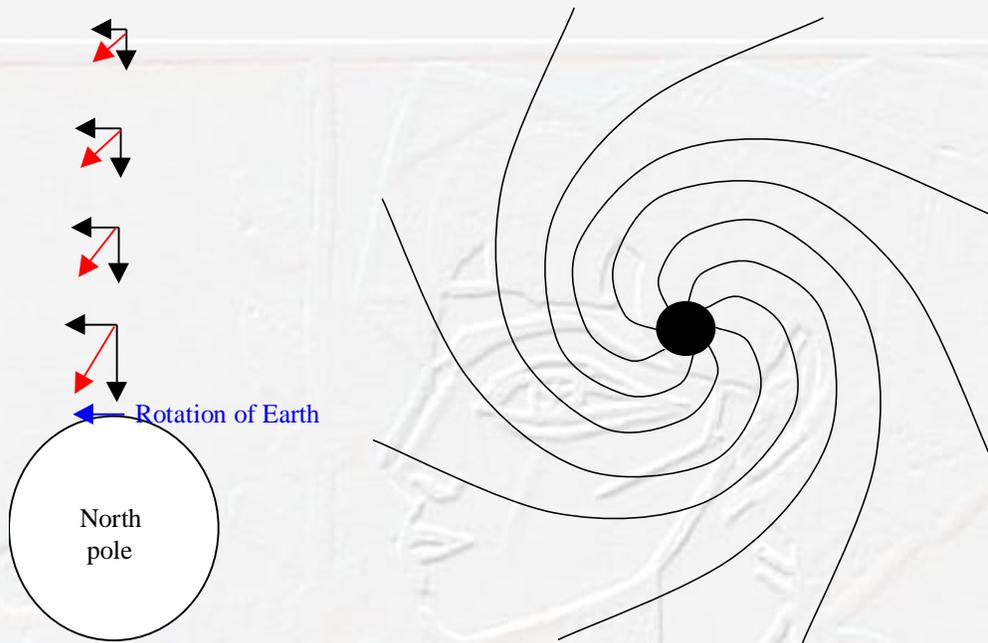


Figure 3-1: Path of ether particles

In the above diagram the red arrows show the path of an ether particle at different distances from the Earth. The black arrows show the component vectors of the path. As shown, the particle accelerates in both the tangential and downward directions as it gets closer to the Earth.

As the particle reaches the surface of the Earth, its tangential velocity is substantially equal to that of the Earth. This means that the ether falls toward the Earth in a spiral path.

4 The Simple Unification Theory

If you have read the preceding sections then you already may know what the simple unification theory is. The simple unification theory is outlined by the following bullets:

- 1) Space is filled with some sort of fluid-like material called ether.
- 2) The ether flows and eddies about the universe.
- 3) Massive objects consume (annihilate) ether causing a depletion of ether.
- 4) This depletion causes ether to accelerate toward the center of depletion.
- 5) This accelerating ether causes gravity (it isn't gravity-- sounds cryptic but is explained later).
- 6) The actual mechanism of gravity is electromagnetic induction; specifically the IEL(see next section).

To clarify, the mechanism of gravity is NOT the collision of ether particles against matter. Matter and ether that come into physical contact will annihilate (in some manner to be discussed in a later paper). The probability of contact between matter and ether is very small and releases a certain amount of energy. The actual mechanism of gravity is explained in the next section.

5 The mechanism of gravity

If gravity is caused by the earthward acceleration of ether, then how does accelerating ether interact with mass to generate the force? The answer is electromagnetic induction. Electromagnetic induction is responsible for Inertia (as shown in the paper titled “New Electromagnetism”) and is shown here that it is also the mechanism of gravity.

Referring to the New Electromagnetic representations of matter called the “Binary Mass Particle” (BMP -- section 4.4.1 of “New Electromagnetism” ne.pdf); the model shows that the inductive force is generated by the acceleration of the model through space. The direction of the inductive force is opposite to the direction of acceleration.

To show how gravity works, we place the model on the surface of the Earth. From a previous section we have reasoned that the ether is accelerating toward the center of the Earth. Using Einstein’s Principle of Equivalence we conclude that the acceleration of ether at the surface of the Earth is 9.8 meters/sec/sec downward. Since charge acceleration for New Electromagnetism is measured relative to the ether and this model is effectively accelerating upward at 9.8 meters/sec/sec. Since the acceleration of the model (see Figure 5-1 below) is upward with respect to the ether; then the resultant inductive force is Earthward.

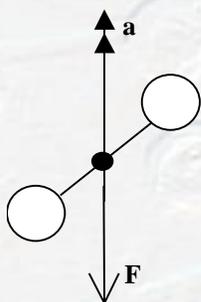


Figure 5-1

It makes no difference whether the binary model is accelerating through the ether OR the ether is accelerating through the model, inertia and gravity are electromagnetic induction as defined by New Induction.

6 Ethereal Mechanics: A beginning.

New Gravity gives us the starting point for the ultimate goal of New Electromagnetism, which is to develop useful models of free space. This leads to the free space wave equations and so on. Because the models of electromagnetism and gravity seem to converge on the “luminiferous ether”, then the new science of modeling field phenomenon has been called “Ethereal Mechanics.”

The following sections will mathematically derive the properties of the ether concerned with a static gravitational field.

This paper uses the same standards of notation used throughout New Electromagnetism with the following additions:

| | |
|---|---|
| p | A particle of ether. |
| P | Used as a subscript to denote properties of ether. |
| K_G | Gravitational Constant. |
| $\mathbf{F} = -\frac{K_G M_s M_T \mathbf{r}}{ \mathbf{r} ^3}$ | Vector form of Newton’s model of gravity. Modified from the standard version: $F = \frac{K_G M_1 M_2}{r^2}$. |

An assumption used as a beginning is that ether is composed of particles. This enables us to develop an initial set of properties to perform experiments against. The actual composition of ether is discussed in more detail in the paper titled “Ethereal Mechanics”.

6.1 Ethereal Acceleration toward mass

Since it is proposed that ether accelerates toward massive bodies, the first and most simple equation we can develop is the acceleration of ether relative to massive bodies.

We start with Newton’s model of gravity (written using the notations of New Electromagnetism):

1) Newton’s model of gravity: $\mathbf{F} = -\frac{K_G M_s M_T \mathbf{r}}{|\mathbf{r}|^3}$

Divide both sides by the mass of the target:

2) $\mathbf{a}_T = -\frac{K_G M_s \mathbf{r}}{|\mathbf{r}|^3}$

Because of Einstein’s Principle of Equivalence, the acceleration of the ether toward the source is the same as the acceleration of the target to the source; therefore, the acceleration of ether \mathbf{a}_p is identical to the acceleration of the target \mathbf{a}_T . Thus:

Equation 1 : Ethereal Acceleration

$$\mathbf{a}_p = -\frac{K_G M_s \hat{\mathbf{r}}}{|\mathbf{r}|^2}$$

where \mathbf{r} is the vector distance from the source to a point in space where we would like to know the acceleration of a given ether particle.

The above component is the radial component. The tangential component of acceleration is disclosed in the paper titled "Ethereal Mechanics"

6.2 Ethereal Velocity toward Mass

The derivation of the particle velocity toward a massive object is identical to the escape velocity derivation of classical mechanics except for the sign. The equation is:

$$\mathbf{v}_p = -\sqrt{\frac{2K_G M_s}{r}} \hat{\mathbf{r}}$$

This is approximately 11,200 m/s at surface of Earth.

The above component is the radial component. The tangential component of velocity is disclosed in the paper titled "Ethereal Mechanics."

6.3 Ethereal density

A classical assumption about ether is that it should follow the properties of an ideal gas. If this is correct then the ether should be compressible. This means that the density of ether though out the universe is not constant.

Another way to show that the ether must be compressible is to derive the acceleration of ether about a massive body assuming it were incompressible. If you assume that a massive body consumes ether at some constant rate Z , measured in cubic meters of ether per second, what would the acceleration or velocity of ether be at a given distance R ? The velocity and acceleration would be related by the following two equations.

$$v = -\frac{Z}{4\pi R^2}$$

$$a = -\frac{Z^2}{8\pi^2 R^5}$$

The above relationship for velocity and acceleration of ether are not consistent with those derived in the previous sections; therefore, ether must be compressible.

If the ether is compressible then ether can not be of uniform density throughout the universe. This means that there may be regions where the ether is denser than here on Earth. These regions would necessarily conduct light faster than it does here on Earth.

A logical guess would propose that the density of ether increases toward the edges of the universe. Another logical guess would be that a black hole is a body so massive that it depletes ether faster than it can be replaced thereby causing a region so devoid of ether that light can not propagate at all.

Logically then, the ether about the Earth is less dense near sea level than it is at the top of a mountain. This suggests that light travels faster at the top of a mountain than at sea level. This is consistent with Einstein's theories.

In the paper titled "Ethereal Mechanics", it is shown that the electromagnetic constants, slightly modified, describe the properties of the ether as a compressible gas. The actual density of the ether is also derived along with longitudinal and transverse wave equations.

6.4 The binary particle in motion

The "Binary Mass Particle" (BMP) model is used here to derive Einstein's time dilation equation $\sqrt{1 - v^2 / c^2}$. In a later section it is used again to show that the speed of light (relative to the ether) is the fastest velocity that this system can achieve before it becomes unstable and collapses.

Consider the BMP shown in the following diagram. Assume that this system is traveling up out of the page along the axis of rotation with axial velocity V . How does this affect the model?

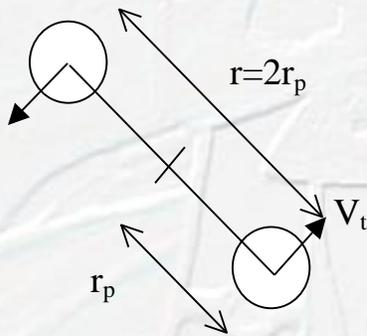


Figure 6-1

Again, we sum together all of the electromagnetic point charge equations and find the tangential velocity V_t required to keep the sum of the forces equal to zero.

$$1) \quad 0 = \frac{K_E Q_S Q_T \hat{r}}{|\mathbf{r}|^2} + \frac{K_M Q_S Q \left[(\mathbf{v}_T \cdot \hat{r}) \mathbf{v}_S - (\mathbf{v}_S \cdot \hat{r}) \mathbf{v}_T - (\mathbf{v}_S \cdot \mathbf{v}_T) \hat{r} \right]}{|\mathbf{r}|^2} - \frac{K_M Q_S Q_T \mathbf{a}_S}{|\mathbf{r}|}$$

In the derivation of the stationary system (see “ne.pdf”) the Coulomb model and New Magnetism contribute repulsive forces while New Induction provides an attractive force. In this derivation there is an additional attractive force contributed by New Magnetism due to the axial velocity.

From observation, we substitute the variables of step 1) with the following:

- The distance between the two particles (r) is twice the radius of the system (r_p). Therefore $2r_p$ replaces the distance between the particles (r).

- The source acceleration in the New Induction component is replaced by the centripetal acceleration

$$\text{equation: } a = \frac{V_t^2}{r_p} .$$

- Working through the New Magnetism terms to account for the tangential velocity (V_t) and the axial velocity (V), the result is $(V^2 - V_t^2)\hat{r}$.

Substituting and reducing yields:

$$2) \quad 0 = \frac{K_E}{2r_p} + \frac{K_M V_t^2}{2r_p} - \frac{K_M V_t^2}{r_p} - \frac{K_M V^2}{2r_p} . \text{ Further reduction yields:}$$

$$3) \quad 0 = \frac{K_E}{2} - \frac{K_M V_t^2}{2} - \frac{K_M V^2}{2} . \text{ Realizing that } C^2 = \frac{K_E}{K_M} :$$

$$4) \quad V_t^2 = C^2 - V^2 \text{ and finally:}$$

$$5) \quad V_t = \sqrt{C^2 - V^2}$$

From the equation we see that the tangential velocity of the system is slower when it is in motion. If we were to take the ratio of the tangential velocity of the system in motion $V_t' = \sqrt{C^2 - V^2}$ to the tangential velocity of the system that is stationary $V_t = C$ we get:

$$\frac{V_t'}{V_t} = \sqrt{1 - \frac{V^2}{C^2}}$$

The above equation is Einstein's relationship for time dilation.

In the next section the above equation is used to derive some other interesting things.

6.5 Time dilation in a gravity field

In the previous section we derived Einstein's time dilation relationship. In this section we explore how this same equation predicts the effects of time dilation within a gravity field.

As you recall, the velocity in the above equation is that of the system relative to the ether. In this paper we have derived the velocity of the ether about a massive body to be $\mathbf{v}_p = -\sqrt{\frac{2K_G M_S}{r}} \hat{\mathbf{r}}$. Substituting the scalar version of this equation into the time dilation equation allows us to derive the time dilation that we experience at a given distance from a massive body.

$$\text{Dilation} = \sqrt{1 - \frac{2K_G M}{rC^2}}$$

According to the above equation, there are two factors that affect the amount of time dilation experienced at a given distance r from the massive body. The first occurs from the fact that the velocity of ether increases as the distance r decreases. Because ethereal velocity is in the numerator, then the flow of time decreases as r decreases. Secondly, since the density of ether decreases as r decreases, then the velocity of light (C) also decreases. Since C is in the denominator, then an additional decrease in the flow of time is realized. This shows that there are two components to time. These are discussed in a later section after other definitions are introduced.

6.6 The energy of the system

If we take a look at the tangential velocity of the system as a function of axial velocity we have:

$$1) \quad V_t = \sqrt{C^2 - V^2}$$

If we then substitute this into the equation used to derive the energy of the system (see "New Electromagnetism") we obtain the following for the energy of the system:

$$2) \quad E = KE + PE = \frac{K_M Q^2}{2r_p} (\sqrt{C^2 - V^2})^2 + \frac{K_E Q^2}{2r_p}$$

$$3) \quad E = MC^2 - \frac{1}{2} MV^2$$

The equation in step 3 above is only the energy of the system due to the coulomb forces and the rotational kinetic energy. Since the system is in motion we have an additional component of kinetic energy due to the linear velocity of the system $= E = \frac{1}{2} MV^2$. Adding this component to the system yields:

$$E = MC^2$$

This means that the energy of the system is constant regardless of its motion. It also means that the velocity of the charges (relative to the ether) will always be the speed of light regardless of the motion of the system (other sections of this paper will show that this system would cease to exist if this rule is violated). This is demonstrated by first observing the velocity of the charges in a stationary system. In a stationary system, the tangential velocities of the charges are C , the speed of light. When the system is in motion, the tangential velocities of the charges decrease. The resultant velocity of the charges is found with vector summation of the tangential velocity of the charges and the axial velocity of the system, which again yields C as shown in the following:

$$V_{charge} = \sqrt{V_t^2 + V^2} = \sqrt{\sqrt{C^2 - V^2}^2 + V^2} = C$$

For the positive mass model, if the velocity of the charges in the system exceeds C with respect to the ether, then the system will collapse to a “singularity”. This occurs because either the New Magnetic (due to axial motion) or New Induction (due to tangential motion) forces overpower the Coulomb forces. If the velocity is less than C then the system will fly apart because the Coulomb forces prevail.

If the system collapses, the radius between the charges decreases to near zero and the inertia of the system increases (see “New Electromagnetism”) monumentally. Consequently, if the system flies apart, then the energy of the system is released.

For the negative mass model the opposite is true.

The actual mechanism that regulates the radius of the particles will be described in the paper titled “Ethereal Mechanics” to be available shortly after the paper titled “New Magnetism” is released. See www.EtherealMechanics.com for details.

This section shows that the energy of the system is $E = MC^2$ as observed by a stationary observer regardless of the motion of the system. The next section will show that the energy of the system is

$E = MC^2$ as observed from a non-stationary observer as well.

6.7 What happens at relativistic speeds

An interesting thing occurs when the binary model attains the speed of light (relative to the ether); it stops spinning. Does this mean that time is standing still? No, the Coulomb forces and the New Magnetic forces are quite active and are in balance; consequently, there remains no need for a tangential velocity to maintain stability.

Because this system is no longer spinning, it no longer produces a magnetic moment and other such processes that matter performs (material processes) as a result of its spinning. Although time hasn't stopped, the rate at which this system used to perform its cyclical functions has ceased; thereby giving the appearance of being frozen in time.

At relativistic speeds, the material processes in this system slow according to the time dilation function ($\sqrt{1 - v^2 / c^2}$).

If an observer were traveling with the above system with equipment designed to measure the tangential velocity of the system, the observer would always measure that the tangential velocity is C, the speed of light. This occurs because the observer and his equipment are composed of these same systems; as such, they too will experience the same slowdown in material processes.

Logically then, the total energy of the system is $E = MC^2$ regardless of the reference frame that the system is observed from.

6.8 The two frames of time

I personally do not like the concept of “time” as put forward by science fiction. I prefer the concept of “the rate at which things happen”. The definition of which is covered in the paper titled “The Rules of Nature”. For now I will use the word “time” with caution. There are two frames of time that need to be

identified. The first frame of time is electromagnetic time, or the rate at which electromagnetic interactions occur. The second frame of time is material time. Material time is the rate at which material processes occur. An example of material time is the rate at which the Binary Mass Particle (BMP) spins.

Electromagnetic time is rate at which electromagnetic fields convey changes to the rest of a given system. As in the case of the BMP, the electromagnetic time is constant regardless of the motion of the system. If however, the density of ether changes as the location where the system exists, then the electromagnetic time would be affected.

Material time is the rate at which the material processes occur. This time is derived from electromagnetic time. As shown in previous sections, the motion of a system, such as the BMP, through the ether affects the rate at which material processes occur. Although the tangential velocity of the BMP slows, the rates at which electromagnetic interactions occur have not. This is evidenced by the fact that although the tangential velocity of the charges slows, the absolute velocity of the charges is still the speed of light.

6.9 Beyond the speed of light

Beyond the speed of light, the magnetic forces of a positive mass binary model (a system of two like charges) overpower the repulsive Coulomb forces and the system collapses.

For the negative mass binary model the opposite is true. Beyond the speed of light the repulsive Magnetic forces overpower the attractive Coulomb forces causing the system to explode.

6.10 Black holes

New Electromagnetism (NE) proposes that massive objects are composed of BMPs. NE also proposes that BMP's collapse if their velocity relative to the ether exceeds the speed of light. Furthermore, NE proposes that massive objects consume ether causing it to flow toward the massive object. With these propositions in mind, suppose there were an object so massive that it was able to consume ether at such a rate that the velocity of the ether exceeds the speed of light at its surface. In theory, the BMPs that comprise this object will collapse since they have exceeded the speed of light relative to the ether.

To derive such an object we can set the ethereal velocity equation equal to the speed of light and solve for the radius.

$$1) \quad C = \sqrt{\frac{2K_G M}{r}}$$
$$2) \quad r = \frac{2K_G M}{C^2}$$

The above relationship is of course the Shwarzschild radius. If the radius of a star of mass M falls below this radius, it collapses to a black hole. The actual mechanism of collapse is described by New Electromagnetism.

Because we have reasoned that the density of ether diminishes as we approach a massive body, then in theory, the density of ether at the core of a black hole should approach zero. And since it is also assumed that ether is the conveyor of all field phenomena then perhaps the core of a black hole is a place where gravitational and electromagnetic forces may no longer exist. This discussion is continued in the paper *Ethereal Mechanics*.

7 Conclusion

This paper explains the force known as gravity to be electromagnetic induction. It also shows that the concepts of Relativity can be derived from New Electromagnetism.

In section 6.6 it is shown that the speed limit of matter is the speed of light. Because the mechanism that governs this speed limit is proposed to be electromagnetic in nature, it may be possible to construct a starship that “drags” the ether along with it, thereby eliminating the speed limit and the problem of inertia. The passengers of such a ship will be able to travel to the stars at any velocity and will not feel the effects of acceleration or time dilation. A ship that could manipulate ether in such a way could also produce a region of accelerating ether within the ship to provide an artificial gravity for the comfort of the passengers.

There is much more work in the New Electromagnetism series to be published. The next paper to be published will be “The Rules of Nature” (ron.pdf) a treatise on mathematical models of nature. This paper derives set of rules that nature always seems to follow and other rules that nature will never follow. Because any given physical system may have many mathematical models that yield correct answers, it would be nice to know which models explain the phenomenon closest to the way nature does it. For example Einstein’s Theory of Relativity gives the correct values for time dilation but does not explain how it works (at least that I’m aware of). New Electromagnetism explains a mechanism for time dilation such that a work around to the speed limit might be possible. The “Rules of Nature” also explain a continuity problem between mathematics and nature that must be resolved to prevent erroneous conclusions. These principles are used throughout the paper “Ethereal Mechanics”.

This work is continued in the paper titled “Ethereal Mechanics” which is slated for release some time in 2008.