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**An Alternate RELATIVISTICALLY Consistent
Formation of the Universe**

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Current thought is that in an atomic sense, a nuclear sense, a quantum sense, the Universe was in its greatest degree of order at the moment of the Big Bang. Some are certain it was a dimensionless Singularity of matter||energy. Others, like me, think that while Quantum Mechanics has some failings, it does say that a Singularity could never have had diameter smaller than a Planck Length. But that isn't the greatest failing in the current Big Bang theory. Our fundamental reality is an increasing degree of disorder on a quantum, nuclear, atomic and molecular scale at time goes on. The question of where that Singularity came from is never asked or answered. Indeed, it is usually dismissed as an "unanswerable question". I prefer to call the Singularity a "Cosmic Egg", but that's more out of wanting to sack the Singularity business than a suggestion that our Universe came to be from an even bigger Cosmic Chicken.

This article starts at a slightly lower level than the Cosmic Egg [CE] and proposes an infinite reality that is nothing but free Quantum particles. It is a proposal that could start at an even lower level of nothing but energy||zero-mass-at rest||Bosons, though the transformation of a "pure" collection of Bosons into matter is a very uncertain postulate. The mechanisms for the advent (from whatever the base) of matter comes through Relativistic effects. One of those mechanisms is currently thought to be a feature of a Universe that has reached maximum order – Schwarzschild objects.

A Schwarzschild Object (SO) is a Relativistic phenomenon. Their most important feature is one that parallels Special Relativity. They can never have an escape velocity greater than the speed of light. Admittedly, that does conflict some with current theory: an SO with an escape velocity greater than light speed is imaginary. By the current version of Einstein's Time distortion equations, when the escape velocity becomes greater than lightspeed, the Time distortion becomes the multiple of the square root of a negative number. The official mathematic label for it is "Imaginary" a term coined in René Descartes in the 17th century. It was a label that stuck even after Leonarard Euler and Carl Frederick Gauss identified it as a logical mathematic system with valid usages, but with different rules as Real numbers. Although it is accepted as an absolute in current Relativity theory there is no real definition for what an imaginary state of reality is. Imaginary number logic has some uses – in electronics it is used because Electrons have been labelled as having a negative charge. But that negative aspect is actually "Real". Combining an Electron and a Proton does lead it to having the different properties that neutrons do. But nothing has been cancelled out, the mass of a Neutron is more than the added masses of an Electron and a Proton.

The place the imaginary label comes from in Relativity is in all the distortion equations in General Relativity (GR) and Special Relativity (SR). In Special Relativity, an imaginary reality would come about if the velocity exceeded c . That is the current interpretation of the SR Time distortion equation, from Einstein's Classic "On the Electrodynamics of Moving Bodies":

$$\text{Time}' = \text{Time}/(1 - v^2/c^2)^{.5}$$

So because of Relativistic distortion, |Time| would wind up being divided by zero if v^2 were equal to c^2 . And any number divided by zero is infinite. It would take an infinite amount of Real time for any real event to happen when under maximum Relativistic distortion. But no value in a Real world can ever become infinite. Infinity is a quality, not a quantity. No Real matter object can ever attain that quality so light speed is impossible. There is also the Mass equation infinite value it would come to because of the zero-denominator business. There isn't one of those in General Relativity, so we don't need to worry about it. At least, if you accept my old fashioned, stick-in-the-mud faith to Quantum Mechanics.

The General Relativity Time distortion is a little more complicated because it involves the Gravitational Constant[G], the Mass of the object under distortion[M], and its radius[r]. As physics equations go, its complexity is in the little league. But that means it is easier to understand. And it is parallel to the Special Relativity equation in one way: the speed of light squared - c^2 :

$$\text{Time}' = \text{Time}/(1 - 2GM/rc^2)^{.5}$$

c^2 is a constant in the equation. Quantum mechanics says that |r| can never be less than a Planck length – a Real, positive number. So, the denominator in $|2GM/rc^2|$ will never be zero. In the $|2GM|$ numerator part of the expression $|2G|$ is a constant expression. $|M|$ is a variable, and could theoretically be zero, but that would just mean that the whole $|2GM/rc^2|$ expression would be zero, so there would not be any distortion. So the "distorted" |Time| would be the same as |Time'|

There is one possible failing in the equation. All the limits I have cited do keep the denominator from being zero (in an imaginary kind of way), but it doesn't keep $|2GM/rc^2|$ expression from being greater than one. If it did $|(1 - 2GM/rc^2)|$ becomes negative and $|(1 - 2GM/rc^2)^{.5}|$ becomes imaginary. But there is another parallel to Special Relativity that is not currently recognized. We'll start with the escape-velocity equation:

$$v_{\text{esc}} = (2GM/r)^{.5}$$

It can be squared on both sides

$$v_{\text{esc}}^2 = 2GM/r$$

So, the GR time distortion can be written:

$$\text{Time}' = \text{Time}/(1 - (2GM/r) * 1/c^2)^{.5}$$

$$\text{Time}' = \text{Time}/(1 - v_{\text{esc}}^2 * 1/c^2)^{.5}$$

$$\text{Time}' = \text{Time}/(1 - v_{\text{esc}}^2/c^2)^{.5}$$

There have been many, many confirmations of Relativistic Gravitational time slowdown. One of the most recent was made by the Laser Interferometer Gravitational-Wave Observatory [LIGO] that has station both at M.I.T and Caltech. That confirmation actually won the Nobel Prize. It is not something in doubt. Though the full consequences of those distortions are not nearly as absolute. If Bosons are slowed both in velocity (obviously) and Mass the energy of those Bosons is reduced much more dramatically than is in current establishment thinking. The above is not a new equation reasoned from GR time distortion but rather a rephrasing of the original. According to SR logic, $|1 - 2GM/rc^2|$ will never reach a value of zero. Time never stops (or become “imaginary”) it only approaches that stoppage. It could would be fundamentally unable to avoid running the Cosmic Time Red light.

That actually resolves a logical failure in the current interpretation of the equation. Gravitational FORCE would not only reduce as Relativistic distortion approached infinity, it would become imaginary as well when it passed the Schwarzschild border. There is no evidence or reasoned theory as to what an imaginary gravitational force is. But if both Einstein’s Relativity and Newton’s Gravitation Force equations [$F = GMm/r^2$] are accepted as valid descriptions of our reality, Bosons could approach zero velocity, but they would never actually meet it. They would concentrate more with a Relativistic reduction in gravitational force but not one with any theoretical limit. So, the spontaneous coagulation of energy to the density that is required for the formation of a “White” hole (a pure energy SO) can therefore occur. The likelihood of such an occurrence depends on the concentration of energy in the location of interest. The time span for such an event would depend the density of energy. In an Infinite Cosmos, there would be an infinite number of those Locales – that would be true for all of Time.

So an infinite reality makes a White Hole in a pure energy environment mathematically and theoretically reasonable. Though it’s still fairly unlikely. If all time constraints are removed, a White Hole could spontaneously form anywhere. The improbability of such an event is unknowable. The necessary density of pure free energy could only be found in such cosmic locales. The pure free energy of Cosmic Microwave Background Radiation (CMB) has only been confirmed to be homogeneous in space-time observations since the release of A Measurement of Excess Antenna Temperature at 4080 Mc/s by Robert Woodrow Wilson and Arno Allan Penzias in 1965. The progression of time before the Big Bang or the creation of space is beyond what can be observed. What preceded the Big Bang is unknown: no one knows how the first space, time, and matter arose. The presumption that all three arose from absolute nothingness is an unreasonable postulate. Though the existence of an unknown expanse of a Cosmos with an undeterminable direction of event progression that contains an unknowable density of matter/energy is a surely worthwhile conjecture. Reality had to come from somewhere. If you accept the postulate of matter arising because of a Schwarzschild White Hole, even an infinite Cosmos was in a period of pure energy circumstances could arise where matter came to be. Entirely through chance, not needing the existence of either a Supreme Being or the Supreme Singularity that modern theory insists on.

Current theory begins with the hatching of a CE into a Big Bang. One suggestion for how such a CE could have formed is the expansion reversal of a previous Universe, although this offers no

explanation of for how the first CE that formed from an infinite energy-filled reality. For this purpose, then, let us presume the spontaneous formation and compression of an SO or White Hole, well below those of current CE theory. However unlikely, it would be more probable than the classic CE Singularity. The action required would be very unlikely (possibly a Googolplex scale improbability) but inevitable in an infinite reality. Simply a spontaneous congregation of sufficient Photon/Boson particles at the density needed to form an **SO**. Following the formation of the SO, gravitational and relativistic effects would lead to a continual acquisition of more energy Bosons and their continual slowdown, resulting in the growth of that spontaneous White Hole. The object would expand, capturing more Relativistically/Gravitationally slowed Bosons. Gravitational effects would force centralization of this compressing ball of energy. The equations above argue for a “*c*” limit to escape velocity but significant Boson retention. Though some Bosons would escape by passing energy to captured matter particles. Those particles could eventually acquire sufficient amounts of kinetic quantum energy to escape.

Because of the increasing mass, gravity would be increased at more central points, compressing the captured Bosons. The gravitational force would be distorted downwards, though not with the same limit as that on the escape velocity. Relativistic slowdown and gravitational force would compress and slow the Bosons until they formed matter, with matter and antimatter formation initially being equally probable. Difficulty is that the odds for a SO with even the radius of a Proton are fairly slim.

What is the probability of a Local Universe the size of ours coming to be? There is no absolute agreement on that scale. I could probably cite 50 figures, none of them in absolute agreement. Probably the most popular is $1.100000E54 - 1.000000E53$ kg of matter and $1.000000E54$ kg in pure energy. The number of hydrogen atoms (mass: $1.673724E-27$ kg) in the matter proportion of a CE massing $1.000000E53$ kg is approximately $5.974703E79$. Make a quick little declaration here: I’m only showing 6 decimal places for the above numbers, and number ranging from the above to the Planck Constant (that has Quantum dimension) means that the approximations are fairly extreme. I’m afraid that happens a good deal in Relativity, Cosmology and Quantum Mechanics. It doesn’t mean they are worthwhile estimates.

Current thinking is that the favouring of matter over antimatter in the CE was an entirely a random matter - 50/50. I have a “no-limit” software application – it’s called “Smart Math Calculator”. The author of that software (and the founder of the company that sold it to me) had put that “no-limit” brag on the first page of his internet site. So, I thought I could use to calculate the probability of a Universe of our scale. I tried to get the probability for that number of matter atoms to come about (presuming matter and antimatter are equally probable) and always got the “Underflow” message. That “Underflow” business was something that the designer of Smart Math (Dr. Saeid Nourian) had avoided telling his users about. I called him about it and he apologized and sent me several different versions. I didn’t expect any of them to work – I don’t think he did either. If you put an “Underflow” message on your software, you do it because you know there are limits to both your software and the hardware and operating systems in any computer. He was just sure that no one would ever try to get the absurd numbers I was trying for. He eventually admitted that, and again apologized. He also took the “no-limit” line off his web page.

So a real difficulty in the formation of a matter Universe of our dimensions is the improbability of the issue. The second is a number from Einstein's $E=mc^2$ equation and the matter||energy equivalence it purports. The rationale for the greater energy component in our reality is that it is not reasonable for all of the energy to turn into matter (as opposed to antimatter). We can be certain of that because it is not that difficult to produce antimatter particles in nuclear accelerators. There has never been an accurate establishment of how many nuclear particles are accelerated except that it is more than 1. The energy they impel on any piece of matter means that a gigantic number of particles want to leave home. There is also the fact that the effects one proton would have – however much it is accelerated - would be undetectable.

I tried reducing the mass of my “theoretic” Universe. It wasn't until I got down to a Universe mass of $1.00E-17$ kg that I was able to any number at all. That would mean approximately $5.97E9$ atoms – a fairly big number, but not compared to the total number of atoms in the Universe. The probability of that number of matter hydrogen atoms coming about of approximately $1.41E-1798564564$. Or alternately, more than one in ten to the trillionth power. That made me a little more inclined to forgive Dr. Nourian – I am quite sure I was the first customer he'd ever had that needed to work with numbers greater than 10 to the trillionth power – much greater than a Googol.

That number also presumes the “matter” aspect of our reality would start at highly organized hydrogen atoms and not Quantum particles would mean my hydrogen was not completely reasonable. But, because quantum particles are smaller than hydrogen, there would be more matter Quantum particles need and so the improbability would be even higher.

So, let's toss out any limits we put to our Universe – either its age or its beginning dimensions. But in my CE model, the matter forms while in close adjacency. You could argue that once any significant number either matter or antimatter atoms had formed, there could be a nuclear catalytic effect that would drive the production of more particles of the same type. The Schwarzschild Radius of something with a mass of $1.00E-17$ is $1.48523E-44$ m. Seeing as how a proton is thought to have a radius of about 1 femtometre (a femtometre is about $1.0E-15$ m) that proton would be about $1.0E29$ – 100 Octillion – times bigger. But let's stay with the Planck level dimensions (though that is still a little off – a Planck Length is approximately $1.616229E-35$ m).

So we have an SO with a radius of $1.48523E-44$ m. That would mean a volume of $1.372363E-131$ m³. There would be no way that could contain even a single neutron. But it also can absorb endless numbers of pure energy Bosons. Eventually those Bosons form a neutron with a fantastic amount of Kinetic energy. That Neutron more or less moves instantly beyond the boundaries of the SO, decaying very quickly into hydrogen – that what neutrons do when they're alone and decide they need company. That leaves room for another neutron. The escape velocity limit means it could be below but close to light speed [[[note to editor: I've written a paper that has developed equations that would allow calculation of what the reduced escape velocity would be, but it is not yet published. I do have a parallel paper for Special Relativity that has been professionally published that would allow calculation of what the Real escape velocity would be. They're called [The Relativistic Space-Time Perspective](#) & [The General Relativistic Perspective](#), respectively.]]] The gravity at the border of the SO would actually decrease – because the radius of the little matter factory would increase, now with a matter (or antimatter) to stimulate the

production of more. It might be very uncertain to begin with, but eventually enough of either flavour would accumulate to stimulate the production of more. We'll just presume matter won this first race for now. Though there may also be another place in our Infinite Cosmos where it went in the other direction. Though if intelligent life in that other Universe ever came about, they'd probably label us as being the antimatter half of the relationship.

Some Bosons would promote escape of the newly by-passing energy to matter particles that had been captured or manufactured by the White Hole. These matter particles would eventually acquire sufficient kinetic energy to reach the escape velocity. The alternate to that is the current theory. There was no stimulus for matter formation because the original CE expanded at a hyper-relativistic speed because of Universal expansion. The reality of a formation with a fantastic favouring of matter happened entirely by chance.

Non-black SOs like the core object in the Abell 2261 galaxy cluster support that argument. If the brightness of such objects is primarily caused by the descent of captured matter, then the signal should be red-shifted by gravity if the light were generated at the core of the object. But because it is an SO, it would absorb huge amounts of both matter and energy. The energy would be absorbed by the inner matter particles to the point that they would escape. A number of those escaping particles would collide with newly captured particles, but they would be so deep within the SO, the light generated would be slowed and recaptured. There would also be collisions much higher, where the Relativistic distortions and the gravity were greatly lessened and so would shine very brightly on the rest of the Universe. This is confirmed by the excellent image of the extremely bright Abell 2261 object is available at the NASA website:

http://www.nasa.gov/mission_pages/hubble/science/a2261-bcg.html.

So Bosons could be argued to be the fundamental state of reality. Though that fundamental state could also be argued to be Quantum particles, with all energy associated with those particles exchanging in Quantum amounts. Both SR and GR offer potential mechanisms for the generation of matter from those fundamental states. The CBR serves as simple and compelling evidence of the universality of Bosons as the source of matter. The proposition that the normal state of our cosmos is as a dispersed collection of pure energy is more consistent with the principle of entropy than is the order that the existence of a single matter particle would introduce. The most orderly, least entropic object in our understanding of the history of our local, visible Universe would be the Singularity (regardless of its dimensions) that exploded in the first Big Bang. This theory does not require any minimum size to that event, because once matter was dispersed into the Cosmos, it could be theorized to act as a nuclear catalyst for the production of more.

How the formation of that Singularity came about is still a topic of much debate, so no attempt will be made to credit (or discredit) any of the current propositions. Though this writer has a definite favouring for that Singularity to have had much smaller dimensions than the 1.100000E54kg flavour. The following question is simply posed to the reader: which is the more reasonable supposition regarding the beginning of the formation of the finite space around us into our Local Universe?

a) An infinite expanse of energy with a relativistic mechanism for the conversion of that energy into matter. In an extremely unlikely circumstance, a block of that energy becomes

sufficiently concentrated to form an SO of unknowable dimensions, though the smaller, the more likely. The probability of this occurrence is unimportant because the expanse in question is infinite in time and space. Either flavour, matter or antimatter, acts as a catalyst for the formation of more of the same. The only available evidence of the finite nature of our Local Universe consists of observations made over an extremely tiny portion of the time span proposed by current theory. Those observations were also drawn from an infinitesimal portion of the space that exists in our reality. The newly formed matter or antimatter would eventually acquire sufficient kinetic energy to completely escape because the escape velocity would always be below the speed of light. That matter (or antimatter) would eventually spread and accumulate enough for a new body – and so on . . .

- Or -

b)The explosion at a hyper-relativistic speed of an unobserved object within a finite expanse, with no currently confirmed mechanisms for its formation or causes for its explosion. Our observations of those finite limits have broadened throughout the entire history of human thinking and science.

The reader is invited to guess where this writer's preferences lie.

Eventually we come to the point that Stars begin to form. More and more Fusion takes place in those stars. The matter in the Universe move closer and closer to an overwhelming majority of Iron – the element that cannot produce any energy, either through Fusion or Fission. Eventually more and more Stars become exclusive iron and new energy generation in the newly formed Universe stops. Or would stop, but for one factor that has never been suggested.

The SR time distortion expression, $|\text{Time}' = \text{Time}/(1 - v^2/c^2)^{-5/2}|$, is currently thought to bring about a slowing of time. The relativistic velocity shifts it imposes on Photons has been experimentally confirmed. The relativistic increase in mass of a matter object approaches infinity as the velocity of that object approaches c . Both Strong Nuclear Force Gluons and Weak Nuclear Force Bosons would lessen in both mass and velocity. So, the fundamental properties of matter - both nuclear and chemical - would change as the atomic mass of the individual atoms changes in proportion to their atomic number. The forces/energy that dictate the reactions among nucleons, atoms, and/or molecules should slow and weaken.

The principle hydrogen isotope, ^1H , has an atomic mass of 1.007825. An isotope with a fundamentally different nuclear structure is the principle iron isotope, ^{56}Fe , with an atomic mass of 55.934939. A velocity of approximately 2.59627884E8 m/s implies a distortion factor of 2.0. At that velocity, therefore, the mass of each individual nucleon would double, whereas the velocity of each Boson would be halved. The Bosons would also decrease in mass. Do the interactions of ^1H , with an atomic mass of 2.015650 (or ^{56}Fe , with an atomic mass of 111.8699), remain the same except slower? Deuterium has a mass equal to approximately double that of ^1H , but a distorted ^1H would not be exactly identical to an undistorted ^2H . Distorted hydrogen atoms would also have slowed electrons. No isotope of iron exists that is approximately double the mass of the principle isotope. The combination of the increased mass of the particles and the slowing/weakening of the Bosons that maintain their structure (the repulsive force of the

positive charges in the nucleus and the binding strong nuclear force of the Gluons) could lead to the breakdown of such heavier nuclides into elements of lower atomic numbers.

The following argument can be made regarding GR effects, though the increase in mass of matter particles would not be of the same proportionality as the distortion in SR. The increase would occur because of the slowing of the Bosons. The structures of nucleons, atoms, and molecules come from the interactions between their matter masses and the forces carried by the Gravitons, Photons, Gluons, and X and Y Bosons around them. The increase in the masses of matter particles and the slowdown of all Bosons would result in a fundamental change. The law of conservation of energy can be used to argue that the number of Gravitons should increase to maintain the gravitational force. However, these Gravitons would possess only half the velocity of their undistorted counterparts. Energy is a function of force over a given distance. Because of the slowed pace of the Bosons, fewer of these Bosons would interact over a given time period than would undistorted ones. At any given moment, there would be less energy. When the escape velocity reaches $2.59627884E8$ m/s, the distortion factor would be 2.0. The velocity reduction of Bosons would be by that value. The mass reduction would be the inverse of that and so would not be significant until the Boson velocity approached zero. Though that is unlike most of the other reasoning in this article, and not directly reasoned from Einstein's originals, so it is very much debateable. Though, since the Kinetic energy of any object is related to the square of the velocity, the energy of Bosons would reduce by a factor of 4.0.

So, to review: any object's matter mass would increase by a factor of 2.0. The non-Relativistic mass of the Bosons would increase by the same factor. But their Kinetic energy would reduce by a factor of 4.0 and the Relativistic distortion on their mass would also decrease. None of those distortions would be significant until they became great enough to fundamentally change the properties of the moving matter. But as the Relativistic Nuclear||Chemical supposition is a brand new one, there is very limited research or theory to refer to.

A simple illustration with the parameters of a known SO will show the incompleteness and inconsistency of the current equations. All the values in what follows are assumed to be precise to 50 decimal places. This is an unknowable precision in any Stellar scale object but is allowable to make theoretic illustration of either Quantum or Relativistic principles more obvious. Starting with the Gravitational Constant |G| and the mass of the Sun |M_{Sun}|

$$G = 6.67384800\sim00E-11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2}$$

$$M_{\text{Sun}} = 1.988500\sim00E30 \text{ kg}$$

The SO with the largest mass in our galaxy is currently thought to be the Sagittarius A* |SA*| at the core of the Milky Way. It's mass is estimated to be 4.31 million times that of our Sun |M_{SA*}|. The SA* is used only for illustration, not a theoretical proof.

$$M_{\text{SA}^*} = 4.3100\sim00E6 * M_{\text{Sun}}$$

$$M_{\text{SA}^*} = 8.5706505\sim00E36 \text{ kg}$$

The Schwarzschild radius [Schwarz_{SA*}] of that object would be:

$$\text{Schwarz}_{SA^*} = 2GM_{SA^*}/c^2$$

$$\text{Schwarz}_{SA^*} = (2 * 6.67384800 \sim 00E-11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * 8.5706505 \sim 00E36 \text{ kg}) / (299792458 \text{ m s})^{-2}$$

$$\text{Schwarz}_{SA^*} = 1.27285275203225548390675120034832177678110953867744E10\text{m}$$

In classical Relativity theory, the distortion at the exact border of the SO would be infinite. The time distortion 1 Planck length ($l_p \parallel 1.61629900 \sim 00E-35 \text{ m}$) beyond the SO, presuming a 1 second ideal:

$$\text{TimeSchwarz}_{SA^*+l_p} = 1/(1-2GM_{SA}/(\text{Schwarz}_{SA^*} + l_p) * c^2)^{.5}$$

$$\text{TimeSchwarz}_{SA^*+l_p} = 1/(1-2 * 6.67 \sim 00E-11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * 8.15 \sim 00E36 \text{ kg} / \sim (1.27 \sim 44E10 \text{ m} + 1.61 \sim 00E-35 \text{ m}) * c^2)^{.5}$$

$$\text{TimeSchwarz}_{SA^*+l_p} = 2.80632286920760473419538643218572986251919661087977E22$$

The time distortion 1 metre out:

$$\text{TimeSchwarz}_{SA^*+1\text{m}} = (1 - 2GM_{SA^*}/(\text{Schwarz}_{SA^*} + 1.00 \sim 00E0) * c^2)^{.5}$$

$$\text{TimeSchwarz}_{SA^*+1\text{m}} = (1 - 2 * 6.67 \sim 00E-11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * 8.15 \sim 00E36 \text{ kg} / \sim (1.27 \sim 44E10 \text{ m} + 1.00 \sim 00E0) * c^2)^{.5}$$

$$\text{TimeSchwarz}_{SA^*+1\text{m}} = 1.12820776106719611765825987883803392470998556057620E5$$

The ratio between the distortions |RatioDist|:

$$\text{RatioDist} = \text{TimeSchwarz}_{SA^*+l_p} / \text{TimeSchwarz}_{SA^*+1\text{m}}$$

$$\text{RatioDist} = 7.49 \sim 61E44 / 1.12 \sim 20E5$$

$$\text{RatioDist} = 2.20475060018255306932356205067543965143504537301659E12$$

Now compare the gravitational forces at the Schwarzschild radius of SA* object

$$\text{GF}_{\text{Schwarz}_{SA}} = GM_{SA} / \text{Schwarz}_{SA}^2$$

$$\text{GF}_{\text{Schwarz}_{SA}} = (6.67 \sim 00E-11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * 8.15 \sim 00E36 \text{ kg}) / (1.21 \sim 21E10 \text{ m})^2$$

$$\text{GF}_{\text{Schwarz}_{SA}} = (3.7117722748901995864567774171441701737277653584E6 \text{ m/s}^2)$$

At one metre, the Gravitational force would be:

$$\text{GF}_{\text{Schwarz}_{SA+1\text{m}}} = GM_{SA} / (\text{Schwarz}_{SA} + 1.00 \sim 00E0)^2$$

$$\text{GF}_{\text{Schwarz}_{SA+1\text{m}}} = (6.67 \sim 00E-11 \text{ m}^3\text{kg}^{-1} \text{ s}^{-2} * 8.15 \sim 00E36 \text{ kg} / (1.21 \sim 21E10 \text{ m} + 1.00 \sim 00 \text{ m})^2$$

$$GF_{\text{Schwarz_SA+1m}} = 3.7117722742770291149029886053851463456506480279E6 \text{ m/s}^2$$

The difference between these two values:

$$GF_{\text{DIFF}} = GF_{\text{Schwarz_SA}} - GF_{\text{Schwarz_SA+1m}}$$

$$GF_{\text{DIFF}} = 3.71\sim64E6 \text{ m/s}^2 - 3.71\sim66E6 \text{ m/s}^2$$

$$GF_{\text{DIFF}} = 6.13170471553788811759023828077117340428362310702818E-4 \text{ m/s}$$

So, current theory contends that moving in 1 metre will add $6.131\sim818E-4 \text{ m/s}$ to the gravitational force. The distortion will multiply $6.187\sim379E34$ moving 1 metre less 1 Planck length. One Planck length further in to the S.O. border means an infinite distortion. An imaginary distortion comes about 1 Planck length farther in, though what that means in Relativistic or Quantum Gravity issues has not been determined or even theorized in REAL terms. This writer is of the opinion imaginary distortions can never exist but does admit a bias on the issue.

An alternate theory would be that these numbers show that, whatever it's mass or radius the maximum escape velocity any gravitational body can only approach is the speed of light. The GR escape velocity distortion would closely parallel the SR vector velocity limit. That would mean this Universe could have factors of Big Bangs, Cyclic Cosmologies and Steady-States in its beginning. This writer contests almost all of the current estimates regarding the dimensions of the first Big Bang, not because it would be impossible for any value, but Relativity theory makes absolute determination impossible. It would also mean there could have been many more than one Bang, of currently indeterminate dimensions.

The consequences of the above argument regarding the SA* object would be that the combination of its gravitational pull and its relativistic distortion of Photons and Bosons would imply that it would capture more energy than it would expel. The captured Photons/Bosons would be drawn increasingly close to the centre. The increased relativistic effects would cause the Photons/ Bosons to slow down, and conservation of matter||energy would mean an increased proportion of the mass of SA* would be matter.

Though there is the question as to why our Universe is expanding after a Big Bang. That's accepted as unchallengeable. What evidence do we have of that Bang? The Hubble Constant Redshift does exist. But there is an alternate explanation for Constant that does not require a Universe expanding at a Hyper- Relativistic velocity. EM radiation redshifts when it travels through any medium. Admittedly, the space between the Galaxies would be close to vacuum. But we know very disperse clouds of hydrogen are throughout our Galaxy. Star formation must be an ongoing process: the extreme Blue Giants Stars we observe are thought to have lifetimes only in the millions of years. It's unreasonable to postulate that they only started forming a few million years ago and that formation will never repeat because almost all of the hydrogen in that sector of the Galaxy will be gone. We just happened to be around just after the Blue Giants were born and there short lifetime was still within the Cosmically infinitesimal lifetime of our civilization.

We are also fairly sure there is not an absolutely transparent global seal around our Galaxy, so there must be some leakage of Galactic clouds of Hydrogen into inter-Galactic space. Let's label that extremely disperse cloud of Hydrogen throughout our reality the "Cosmosphere". Some of the energy from the photons that are throughout our reality would be absorbed by whatever chemical||atomic||nuclear particle it encounters. A new photon is then emitted, at a lower energy and frequency. Of course, this would not occur if the energy on the absorbing particle is higher than that of the colliding Photon. But the overall "temperature" of the Universe (going by signal of the Cosmic Microwave Background Radiation||CMB) is currently thought to be about 2.72548 ± 0.00057 K. So most of the colliding EM Bosons would be red shifted downward. The farther through the Cosmosphere those Photons travelled, the greater would be the redshift of the signal. The Hubble constant says that the farther away an object is, the faster it will be moving away from us. It's current value is about 70 km/sec per Megaparsec – a Mpc is about 3.3 million light years. Surely that interfering Cosmospheric Hydrogen gas is a valid alternate explanation for the Hubble Constant [[[note to editors: this is examined in much greater detail into my paper published in the professional [Journal of High Energy Physics, Gravitation and Cosmology](http://www.scirp.org/journal/jhepgc/) [<http://www.scirp.org/journal/jhepgc/>]: [Frequency Decay through Electromagnetic Radiation Absorption and Re-Emission by Inter-Galactic Dark Matter as an Alternate Explanation for the Hubble Constant](http://www.scirp.org/journal/PaperInformation.aspx?PaperID=67680) [<http://www.scirp.org/journal/PaperInformation.aspx?PaperID=67680>]]]

There is another very direct argument against expansion being the only possible cause: the Andromeda Galaxy (M31). Its distance from the Milky Way (MW) is 7.8500×10^2 kiloparsecs - or 1/1000 that in megaparsecs (M31_Distance_{MP}): 7.8500×10^{-1} Mpc. One of the values for the Hubble constant is 69.3200×10^0 (km/s)/Mpc[HubbleConstant]. It is not an absolutely agreed upon ratio between the distance of an object and its recession velocity (the value of the Hubble Constant has been debated since its discovery) but it is a respected one. So the recession velocity of M31 should be

$$M31_Recession_{velocity} = M31_Distance_{MP} * Hubble_{Constant_km/s}$$

$$M31_Recession_{velocity} = 6.93200 \times 10^1 \text{ (km/s)/Mpc} * 7.85 \times 10^{-1} \text{ Mpc}$$

$$M31_Recession_{velocity} = 5.4416200 \times 10^1 \text{ (km/s)}$$

The velocity of M31 is in the opposite direction: 3.0100×10^2 || 301 ± 1 km/s (M31_{velocity}) towards the MW. The argument could be made that some separating velocity between the two bodies was introduced in the early moments of the Universe, but for the simple fact that the mass of M31 is thought to be approximately equivalent to that of the MW, which is 1.0×10^{12} solar masses (MW_{Solar_Masses}).

As the estimated mass of the Sun [Mass_{Sun}] is 1.9885×10^{30} kg (from the NASA "Sun Fact Sheet") both Galaxies have the following mass:

$$Mass_{MW} = Mass_{Sun} * MW_{Solar_Masses}$$

$$Mass_{MW} = 1.988500 \times 10^{30} * 1.0 \times 10^{12}$$

$$Mass_{MW} = 1.9885 \times 10^{42} \text{ kg}$$

Because a parsec (pc) is equal to 3.08568E16 m, a megaparsec (Mpc) is 3.08568E22 m. So, the distance between M31 and the MW in metres is

$$\text{Distance_M31}_{\text{Metres}} = \text{M31_Distance}_{\text{MP}} * \text{Mpc}$$

$$\text{Distance_M31}_{\text{Metres}} = 7.8500\sim00\text{E-1 Mpc} * 3.0856800\sim00\text{E16 m/Mpc}$$

$$\text{Distance_M31}_{\text{Metres}} = 2.422258800\sim00\text{E22 m}$$

The escape velocity between the two bodies is

$$\text{Esc}_{\text{MW}} = (2 * G * \text{Mass}_{\text{MW}} / \text{Distance_M31}_{\text{Metres}})^{0.5}$$

$$\text{Esc}_{\text{MW}} = (2 * 6.67384\text{E-11} * 1.98850\text{E42 kg} / 2.422258800\sim00\text{E22 m})^{0.5}$$

$$\text{Esc}_{\text{MW}} = 1.04691160385258652287668852191755574063384243119569\text{E5 m/s.}$$

The ratio between the two velocities is

$$\text{Ratio}_{\text{Esc_v}} = \text{Esc}_{\text{MW}} / \text{M31}_{\text{Velocity}}$$

$$\text{Ratio}_{\text{Esc_v}} = 3.01000\sim00\text{E5 m/s} / 1.0469\sim569\text{E5 m/s.}$$

$$\text{Ratio}_{\text{Esc_v}} = 2.87512335227094486433516648533090714315790464528012\text{E0}$$

So M31 is approaching MW at more than 2.5 times their mutual escape velocity, in an “expanding” universe. In fact, the escape velocity may be even less than the above value. The relevant distance for the equation is the distance between the centres of gravity of the two objects. But both objects are so dispersed that the true location of the centre of gravity is very debatable. The above velocity is the absolute maximum escape velocity. The objects may be approaching one another a much greater proportion of the real one. Is this not another argument for frequency decay due to the Local Universe Cosmosphere explanation, as opposed to a Hubble reality? M31 is simply moving towards us at a velocity too high to be overcome by a Cosmo-spheric frequency shift.

I hope this article put some thoughts into the head of ONE of the people reading it. It was written to start an argument against the current interpretation of Einstein’s “Classic” Relativity equations. It begins a slightly more convoluted argument for expansions of those equations, published in professional research magazines. But those expansions will make you more certain of the originals, not less.

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