Title – ***Albert Einstein deserves Nobel Prize in Physics 2013***

Author –

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Abstract –

"François Englert and Peter W. Higgs are jointly awarded the Nobel Prize in Physics 2013 for the theory of how particles acquire mass. In 1964, they proposed the theory independently of each other (Englert together with his now deceased colleague Robert Brout). In 2012, their ideas were confirmed by the discovery of a so called Higgs particle at the CERN laboratory outside Geneva in Switzerland." – email from "Elsevier Physics received on October 11, 2013"

François Englert and Peter W. Higgs deserve recognition for their work on the Higgs field and Higgs particle. In my opinion however, CERN has only confirmed the particle's existence, not that it plays a role in the acquiring of mass. Albert Einstein deserves the Nobel Prize in Physics 2013 for the theory of how particles acquire mass. Of course, this is impossible for two reasons - 1) the Prize is only awarded to living people, and 2) just as scientists regarded him as "out of touch with science" in the last 30 years of his life, modern scientists still regard him as out of touch when they (unknowingly) fail to understand him. The following article of mine being considered by the journal "Nature" gives the reasons I believe he deserves the Nobel.

The inspiration for this article was an article called "Starting Point" by Steve Nadis – Discover Magazine, September 2013. "Starting Point" is about the life and theories of Ukrainian cosmologist Alexander Vilenkin. He's responsible for introducing the ideas of eternal inflation and quantum creation of the universe from a quantum vacuum, and is currently Professor of Physics and Director of the Institute of Cosmology at Tufts University near Boston in the U.S. My article concedes that the idea of quantum fluctuation in a vacuum is valid because those fluctuations can be defined as "the temporary change in the amount of energy at a point in space". This temporary change can be enabled by the binary digits of 1 and 0 fluctuating between states and thus serving as Virtual Particles. This causes the universe to have its creation not in a quantum vacuum as an exclusively linear concept of time would require, but in a nonlinear aspect of time with the binary digits originating in human computer technology. Ensuing solutions of cosmological puzzles from this proposal refer to the subheadings
"Digital" String Theory;
Poincare + Cosmic Strings, Wormholes And Hologram;
Steady State Universe, Big Bang Subuniverses And DNA's Double Helix;
Newtonian / Einsteinian Space-Time Warping;
Cosmic Rays, Ultra-High-Energy Cosmic Rays & Today's Speed Of Light;
Electronic Infinity;
Interstellar And Intergalactic Travel;
c^2 And The Atomic Nucleus;

Dark Energy And Fractal Geometry;
Dark Matter.

Content –

I think the Roman philosopher Lucretius was correct 2,000 years ago when he said, "nothing can be created from nothing". The idea of quantum fluctuations - which are proposed in order to create the universe from nothing - is valid (a quantum fluctuation is the temporary change in the amount of energy at a point in space). But forget quantum fluctuations that mysteriously happen for no reason. And forget spontaneous generation of life from nonliving matter. I think the universe, and life, began because brains acquire knowledge from the 4 dimensions of space-time. Then brains interact with a 5th-dimensional hyperspace to purposely switch the binary digits which computers use from 1 to 0 or vice versa [1]. Origin of life, the universe and everything comes from something (interaction of brains with hyperspace) and is important for two reasons:

a) Science's own Law of Conservation says the total mass (or matter) and energy in the universe does not change, though the quantity of each varies (I interpret this Law as saying – to get matter and energy, you have to start with matter and energy), and
b) By actual experimentation the great 19th-century French scientist Louis Pasteur disproved the false theory of spontaneous generation of life, and proved biogenesis (that living things descend only from living things) – see "The Microbial World – A Look At All Things Small"
http://www.microbiologytext.com/index.php?module=Book&func=displayarticle&art_id=27
and "Biogenesis and Abiogenesis: Critiques and Addresses"
http://aleph0.clarku.edu/huxley/CE8/B-Ab.html

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[1] **Both the energy of matter and the energy of gravitation are positive -**

Anatolij Prykarpatski from the AGH University of Science and Technology in Kraków, Poland (Faculty of Applied Mathematics)
says, at
https://www.researchgate.net/post/Did_Einstein_show_that_Galileos_Falling_Bodies_experiment_and_his_own_theories_of_Relativity_both_Special_and_General_have_deficiencies?cp=re72_x_p2&ch=reg&loginT=MCg-29WOtNdv4wZfkMN2zJYrLijQVFNaf9ITAG26kXs%2C&pli=1#view=5236ccdfd11b8b273f958363 -

"The force exerted by any small mass object on the Earth is exactly THE SAME as the force exerted by the Earth on this body (The Newton's law...)"

Isaac Newton's 3rd law of motion states that there's an equal and opposite reaction to every action, so the gravitational force exerted by the relatively huge mass of the Earth could only be equal to the force exerted by any small-mass object if gravitation does not depend on mass (making the force from Earth, and the small mass, both equal to zero). Instead, mass would depend on gravitation - this agrees with Einstein's paper "Do Gravitational Fields Play An Essential Part In The Structure Of The Elementary Particles Of Matter?"[2]

[2] Suppose Albert Einstein was correct when he said gravitation plays a role in the constitution of elementary particles (in "Do Gravitational Fields Play An Essential Part In The Structure Of The Elementary Particles Of Matter?", a 1919 submission to the Prussian Academy of Sciences). And suppose he was also correct when he said gravitation is the warping of space-time. Then it is logical that a) gravitation would play a role not only in elementary particles and their masses but also in the constitution of the forces associated with those particles i.e. the nuclear strong force and the electroweak force (combination of electromagnetism and the weak nuclear force), and b) the warping of space-time that produces gravity means space-time itself plays a role in the constitution of elementary particles, their masses, and in the forces. Therefore, time is unified with the gravitational and electromagnetic fields (overcoming the 50-year-old objection to Einstein's Unified Field Theory which was put forth by England's Professor Penrose) viz. the gravitational fields, if known everywhere but only for a limited time, do not contain enough information about their electromagnetism to allow the future to be determined, so Einstein's unified theory fails. If all time is unified with the gravitational and electromagnetic fields, the gravitational fields are not known for only a limited time but do contain enough information, and Einstein succeeded!

Einstein's paper will be regarded as erroneous and useless speculation, some kind of misunderstanding, nothing of interest, and not really useful as long as the Standard Model of interactions between particles and forces dominates scientific thinking. I'll merely say that if I was placing a bet, my money would be on the Standard Model going extinct one day and Einstein then being given credit for a deeper understanding of the relation between mass and gravity.

If space-time forms mass, there could be "currents" of space-time flowing in the "oceans" between the galaxies. Space-time (warped into gravity) would form the matter in the galaxies, and it would form the Earth/objects on this planet. How? By some of the currents of space-time or gravity which pass the solar system's outer boundary being diverted towards the massive Sun's centre and, along their course, being concentrated 10^24 times (this number's explained later) in the intense warping we call matter.

We must not violate any conservation laws in creation of the universe i.e. neither matter nor energy can ever be created or destroyed, and changes

must add up to zero. So what is the component of the universe possessing negative energy? (When this is added to the positive energy of gravitation/matter, the result is zero.)

Maybe hidden variables called binary digits (binary digits would be the hidden variables which Einstein said carry extra information about the world of quantum mechanics … and complete it, eliminating probabilities and bringing about exact predictions) could permit time travel into the future by warping positive space-time. And maybe they'd allow time travel into the past by warping a 5D hyperspace that is translated 180 degrees to space-time, and could be labelled as negative* or inverted. (The space-time we live in is described by ordinary [or "real"] numbers which, when multiplied by themselves, result in positive numbers e.g. 2x2=4, and -2x-2 also equals 4. Inverted "positive" space-time becomes negative hyperspace which is described by so-called imaginary numbers that give negative results when multiplied by themselves e.g. i multiplied by itself gives -1.) The past can never be changed from what occurred, and the future can never be altered from what it will be. Both are programmed by the 1's and 0's. The programmimg is not imposed dictatorially by some external influence, but is developed by time-travelling, terraforming humans of the future who use ultra-advanced (by 21st-century standards) bioengineering, and act in partnership with universal intelligence - see 2 and 3 paragraphs ahead (this partnership is where the laws of physics which govern the universe come from). **Time-travelling, terraforming, and bioengineering humans from the future certainly sounds like science fiction. But these concepts can be supported scientifically, and thus offer a way out of the dilemma phrased by Professor Vilenkin – "We don't even know how to approach it (the origin of the laws of physics)".**

* On p.205 of "Physics of the Impossible" by Michio Kaku – Penguin Books 2008, it is stated "Traditionally, physicists have dismissed negative energy and negative mass as science fiction. But we now see that they are indispensable for faster-than-light travel, and they might actually exist." That page also says, "(Negative matter) would be repelled, not attracted, by large bodies such as stars and planets. Hence, although negative matter might exist, we expect to find it only in deep space, certainly not on Earth." As we saw a couple of paragraphs ago, we must not violate any conservation laws in creation of the universe i.e. neither matter nor energy can ever be created or destroyed, and changes must add up to zero. What if changes add up to zero in each body? In regard to mass with positive energy - positive charge could be added to negative charge e.g. mixing protons and electrons, or matter can be added to antimatter (which is identical but has reversed electric charge – to avoid mutual annihilation, keep the particles and antiparticles separate!) But whichever method is used, the positive energy-mass must equal zero by combining with the negative energy-mass of hyperspace. This article proposes that the universe must obey the rules of fractal geometry so particles (including those on Earth) would contain both positive space-time and negative hyperspace (which exist on both astronomical and quantum scales). There would be no repulsion since this only occurs between matter and negative matter, not between the spacetime-hyperspace constituents.

With a single extra dimension of astronomical size, gravity is expected to cause the solar system to collapse ("The hierarchy problem and new dimensions at a millimetre" by N. Arkani-Hamed, S. Dimopoulos, G. Dvali - Physics Letters B - Volume 429, Issues 3–4, 18 June 1998, Pages 263–272, and "Gravity in large extra dimensions" by U.S. Department of Energy - http://www.eurekalert.org/features/doe/2001-10/dbnl-gil053102.php However, collapse never occurs if gravity accounts for repulsion as well as attraction on both subatomic and astronomical scales (accounts for dark energy * and familiar concepts of gravity, as well as repelling aspects of the electroweak force [such as placing two like magnetic poles together] and attracting electroweak/strong force aspects). "Electroweak" and "strong" force can be united in that sentence because gravitation and space-time are united with both the (electro)weak and strong nuclear forces (see "Explanations ensuing…")

* See comments referring to a webpage by Dr. Adam Riess, under the heading "Poincare + Cosmic Strings, Wormholes And Hologram"

In relation to biogenesis, consider the Miller-Urey Experiment of 1952. Here, amino acids (which are relatively simple, and are the building blocks of protein) were made from inorganic material and by natural causes in a lab. Subtract Stanley Miller and Harold Urey from the experiment, and the experiment would obviously fail (because it would never have been started). Similarly, subtracting humans of the distant future from the origins of life makes it impossible for amino acids and inorganic materials to be bioengineered to form complex plants and animals, whose adaptations are often called evolution. The future humans could use terraforming (creation of Earthlike planets) and bioengineering that can hardly be imagined at present.

This seems to validate atheism, but I say God must exist. God's existence cannot possibly be scientifically comprehended in the current non-unified understanding of the cosmos. Thus, many scientists need to invoke the existence of an unlimited number of parallel universes having limitless combinations of the laws of physics (so one of those universes would produce all the correct laws that enable beings such as ourselves to exist). A non-supernatural God is proposed via the inverse-square law's infinite aspect coupled with eternal quantum entanglement, but Einstein taught us that time is warped. Warped time is nonlinear, making it at least possible that the binary digits composing space-time and all particles originate from the computer science of humans. BInary digiTS (BITS) only suggest existence of the divine if time is linear. The inverse-square law states that the force between two particles becomes infinite if the distance of separation between them goes to zero. Remembering that gravitation partly depends on the distance between the centres of objects, the distance of separation between objects only goes to zero when those centres occupy the same space-time coordinates (not merely when the objects' sides are touching).

That is, infinity equals the total elimination of distance – the infinite cosmos could possess this absence of distance in space and time via the electronic mechanism of binary digits, which would make the universe as malleable and flexible as any image on a computer screen. Zero separation is the case in quantum-entangled space-time and physicist Michio Kaku says in his book "Physics of the Impossible" that modern science thinks the whole universe has been quantum-entangled forever. This means there's still room for the infinity known as God. God would be a suprapantheistic union of the universe's spatial, temporal, hyperspatial, material and conscious parts; forming a union with humans in a cosmic unification, and forming a universal intelligence.

SOME COSMOLOGICAL EXPLANATIONS ENSUING FROM THE ABOVE PROPOSITIONS

“Digital” String Theory

Let’s borrow a few ideas from string theory’s ideas of everything being ultimately composed of tiny, one-dimensional strings that vibrate as clockwise, standing, and counterclockwise currents in a four-dimensional looped superstring (“Workings of the Universe” by Time-Life Books – 1991, p.84). We can visualize tiny, one dimensional binary digits of 1 and 0 (base 2 mathematics) forming currents in a two-dimensional program called a Mobius loop – or in 2 Mobius loops, clockwise currents in one loop combining with counterclockwise currents in the other to form a standing current. Combination of the 2 loops’ currents requires connection of the two as a four-dimensional Klein bottle. This connection can be made with the infinitely-long irrational and transcendental numbers. Such an infinite connection translates - via bosons being ultimately composed of the binary digits of 1 and 0 depicting pi, e, √2 etc.; and fermions being given mass by bosons interacting in matter particles’ “wave packets” – into an infinite number of (possibly Figure-8) Klein bottles [3]. Slight imperfections in the way the Mobius loops fit together determine the precise nature of the binary-digit currents (the producers of space-time-hyperspace, gravitational waves, electromagnetic waves, the nuclear strong force and the nuclear weak force) and thus of exact mass, charge, quantum spin. They would also produce black holes - whose binary digits could, in the case of the sun, come from our star being compressed to 2.95 kms, in which case the pressure increase "shreds" the sun into its binary digits (its mass is relativistically converted into the energy of binary digits). Referring to a Bose-Einstein condensate, the slightest change in the binary-digit flow (Mobius loop orientation) would alter the way gravitation and electromagnetism interact, and the BEC could become a gas (experiments confirm that it does).

Poincare + Cosmic Strings, Wormholes and Hologram

[3] Discovery.com (March 18, 2010) says: "The universe is not only expanding -- it's being swept along in the direction of constellations Centaurus and Hydra at a steady clip of one million miles per hour, pulled, perhaps, by the gravity of another universe." (this is called “the dark flow”) Could this be describing

evidence of an idea suggested by mathematics' "Poincare conjecture", which has implications for the universe's shape and says you cannot transform a doughnut shape into a sphere without ripping it. This can be viewed as subuniverses [4] shaped like Figure-8 Klein Bottles (similar to doughnuts) gaining rips called wormholes when extended into the spherical spacetime that goes on forever (forming one infinite superuniverse). Picture spacetime existing on the surface of this doughnut [5] which has rips in it. These rips loop from, and back to, space-time; providing shortcuts between points in space and time – and belong in a 5^{th}-dimensional hyperspace. A journey along these loops might, at first, appear to take longer – but remember, that trip doesn't take place in space or time.

Is the boundary where subuniverses meet could be called a Cosmic String? Analogous to cracks that form when water freezes into ice, cosmic strings were first contemplated by the theoretical physicist Tom Kibble in the 1970s. They are "cracks" in spacetime formed as subuniverses cool from their respective Big Bangs, are extremely thin (the diameter of a proton, or smaller), and have immense density (10^19 kg/cm, according to Penguin Encyclopedia, Edited by David Crystal – Penguin Reference Library 2006). This density would vary between any two subuniverses since it depends on the mass and energy content of the boundary regions of the two subuniverses added together, as well as movement of their boundary (the cosmic string) caused by expansion of the subuniverses – because the relativistic motion of a boundary converts a lot of energy and mass.

[5] British quantum physicist David Bohm (1917-1992) said "Our brains mathematically construct objective reality by interpreting frequencies that are ultimately projections from another dimension, a deeper order of existence that is beyond both space and time." (http://www.spaceandmotion.com/Physics-David-Bohm-Holographic-Universe.htm) In "The Hidden Reality" - Knopf (January 25, 2011), Brian Greene writes "… reality … may take place on a distant boundary surface, while everything we witness in the three common spatial dimensions is a projection of that faraway unfolding. Reality, that is, may be akin to a hologram. Or, really, a holographic movie." Brian Greene's "…projection of that faraway … reality that is … akin to a holographic movie" and David Bohm's "…projections from another dimension … that is beyond both space and time" could be interpreted as projections of binary digits from a 5^{th}-dimensional hyperspace which become matter, energy, force and space-time in the known 4 dimensions. How could "space-time itself play a role in the constitution of elementary particles, their mass, and the nuclear forces"? Because gravitation and electromagnetism interact to form particles (see "c^2 and the Atomic Nucleus") and gravitation is the warping of space-time while electromagnetism is not separate from space-time but is waves in it.[6]

[6] **The universe is often compared to an expanding rubber balloon. In my opinion, a better metaphor would be to compare the universe to a rubber balloon that is 100% embedded with built-in rubber springs i.e. our**

universe would be a springy rubber balloon. If we just think of an expanding rubber balloon, that could be compared to space-time's expansion within a subuniverse and the balloon's curvature could represent gravitation, the warping of space-time. If we think of a springy rubber balloon, the springs could represent the waves that are part of space-time and are identified as electromagnetic. The size of a spring represents the speed of light (approximately 299,792 kilometres [186,282 miles] per second) (frames are created in the 5th dimension by binary digits and their very rapid display is what we call motion). When space expands (when the balloon stretches), the springs aligned in the direction of expansion - all springs/waves, since expansion is in every direction – expand or stretch by the same amount i.e. the electromagnetic waves increase their wavelength. They also appear to increase their speed because they cover, in the same period of time, more distance on the balloon's surface after it has been stretched than they would have prior to the stretching. However, the increase is relativistic – the increased speed is entirely due to the stretching of space (electromagnetic waves cover more distance because their own speed is added to the stretching of space-time). The speed of waves can vary because space-time itself plays a role in the constitution of elementary particles, which means the motions of particles may be viewed as expansion and contraction of space. Light's speed in vacuum is 3 x 10^8 metres\second, 2.26 x 10^8 m\s in water and 1.97 x 10^8 m\s in glass.

Binary digits in hyperspace control the space-time that produces particles, much as binary digits in a computer control the motors that produce work. The work contains both the computer and motors (without either of these, no work is done). Similarly, all particles contain both space-time and hyperspace. (In a universe described by fractal geometry, the 5th dimension wouldn't exist only on a cosmic scale but also as a hyperspace in every fermion and boson.) Mobius loops are the foundation of particles. The 3 familiar dimensions of length, width and height along, for example, the left side of a Mobius loop – for convenience, the relative positions of the 2 Mobius loops previously referred to can be thought of as the orientation of a single loop - would have a 4^{th} dimension (time) perpendicular to them (at the top). And there would also exist a 5th dimension called hyperspace, at right angles to the 4th and 180 degrees from the length/width/height i.e. on the right. Hyperspace is extended from the side along the loop's bottom – and even "invades" the spatial and temporal dimensions which it produces - because the WMAP space probe (Wilkinson Microwave Anisotropy Probe) and Planck space probe have determined that a very large 70% of the universe is dark energy … and **transmissions of binary digits from hyperspace (the mechanism of space-time and particle production) are an interpretation of dark energy since dark energy is a property of space-time. When discussing conservation laws in relation to the universe's creation, it was pointed out that 5^{th}-dimensional hyperspace is negative (has negative energy). Dr Adam Riess, co-discoverer of the universe's accelerating expansion (according to this article, increased space-time and particle production),**

writes at http://www.stsci.edu/~ariess/darkEnergy.htm - "Indeed, all incarnations of energy with negative pressure are called dark energy" and "Vacuum energy has negative pressure (you must do work to expand the Universe's inventory of the vacuum), and it is this property which gives rise to repulsive gravity." (In the context of the present article, vacuum energy is the negative energy of hyperspace and it gives rise to repulsive gravity through its work of transmitting binary digits - frames [comparable to movie frames] are created in the 5th dimension by binary digits and their very rapid display is what we call motion, or transmission.) The elimination of distance, both in time and in space, by electronic infinity or e∞ (addressed later) supports the idea of Professor Greene's "distant" and "faraway" unfolding / David Bohm's "dimension beyond space and time" being as near as the quantum space of a subatomic particle in your or my brain.

Steady State Universe, Big Bang Subuniverses and DNA's Double Helix

[4] Each one is a "subuniverse" (bubble or pocket universe) composing the physically infinite and eternal space-time of the universe. The infinite numbers make the cosmos physically infinite, the union of space and time makes it eternal, and it's in a static or steady state because it's already infinite and has no room for expansion. Our own subuniverse has a limited size (and age of 13.8 billion years), is expanding from a big bang, and has warped space-time because it's modelled on the Mobius loop, which can be fashioned by giving a strip of paper a 180-degree twist before joining the ends. (It also has DOUBLE STRANDED, spiralling DNA because the universe is modeled on TWO twisted Mobius loops. Agreeing with a 1919 paper which Einstein submitted to the Prussian Academy of Sciences ["Do Gravitational Fields Play An Essential Part In The Structure Of The Elementary Particles Of Matter?"], DNA is made of remarkably warped space-time / extremely intense gravity). Referring to the universe's infinity -"The universe IS something" ("Astronomy" magazine – March 2013, p.66) is interesting. This letter and its reply continue on from Bob Berman's article "Infinite Universe" ("Astronomy" – Nov. 2012) which says, "The evidence keeps flooding in. It now truly appears that the universe is infinite" and "Many separate areas of investigation – like baryon acoustic oscillations (sound waves propagating through the denser early universe), the way type 1a supernovae compare with redshift, the Hubble constant, studies of cosmic large-scale structure, and the flat topology of space – all point the same way." Support for the article – a) after examining recent measurements by the Wilkinson Microwave Anisotropy Probe, NASA declared "We now know that the universe is flat with only a 0.4% margin of error." - http://map.gsfc.nasa.gov/universe/uni_shape.html;
and b) according to "The Early Universe and the Cosmic Microwave Background: Theory and Observations" by Norma G. Sànchez, Yuri N. Parijskij [published by Springer, 31/12/2003], the shape of the Universe found to best fit observational data is the infinite flat model).

Newtonian / Einsteinian Space-Time Warping

Since the warping of space-time is modelled on two Mobius loops, the first impression is that it should be twice what Einstein calculated. His figure of 1.75 seconds of arc for the deflection of starlight by the Sun has been experimentally proven because starlight which grazes the sun is indeed deflected at 1.75 arcseconds. However, this is only the electromagnetic aspect and represents the warping of space that is created by one Mobius – the other Mobius accounts for the gravitational aspect of space warping, agreeing with Einstein's claim that gravitation and electromagnetism are related [7].

[7] How is passing starlight deflected towards the Sun? The refracted gravitational wave heading for the sun "captures" [8] the light from distant stars that appear close to the rim of the sun before the gravity wave's diverted to the centre of our star (string theory predicts that gravity's gravitons interact with light's photons). Acting as a gravitational attractor, the refracted wave carries the light with it as it bends towards the sun's centre. The light is not carried all the way but breaks free since photons have their own energy and momentum. However, the light is carried far enough to be deflected a tiny amount from its original path. According to Newton's 3rd Law of Motion (to every action there is an equal and opposite reaction), the light will be deflected toward the sun by an equal and opposite amount to the gravity wave's deflection to the solar interior. "Opposite" means the light wave travels away from the sun at approx. 186,282 miles per second and the gravity wave travels into the sun at the same velocity. "Equal" means, since experiments have shown the bending of starlight to be 1.75 seconds of arc (in geometry 60 seconds = 1 minute, 60 minutes = 1 degree, and there are 360 degrees in a circle), the refraction of gravitation from the solar rim is also 1.75 arcseconds (as density increases the deeper the gravity wave goes, the greater its refraction becomes).

[8] Gravitons and photons interact via Einstein's mass-energy relation. A gravitational wave acts as an attractor and captures light by feeling friction with the mass-energy of the photons. This causes gravitational refraction or bending in which part of the gravity pushes a photon by travelling in the direction of the centre of each photon in the light (as it progresses to the centre, the 3rd Law of Motion accounts for the photons' reaction of being attracted to the gravitons). Compared to the other forces we know; gravity is incredibly weak (after mass formation) and the weak "equal but opposite" reaction cannot overcome the heaviness of macroscopic objects which consequently don't float off towards the gravity doing the pushing. Photons, when pushed towards the surface of Earth, are so tiny and light that they do recoil from the push – they "reflect".

Cosmic Rays, Ultra-High-Energy Cosmic Rays & Today's Speed of Light

The binary digits in space-time (assumed by modern science to be "virtual particles") confer energy (and mass) on cosmic rays that travel far through

space, turning them into UHECRs (ultra-high-energy cosmic rays). Naturally, this process does not apply to cosmic rays that have already been emitted as UHECRs from pulsars, gamma-ray bursts, active galactic nuclei, colliding galaxies, etc. (“Ultra High Energy Cosmic Rays: origin and propagation” by Todor Stanev - 30th International Cosmic Ray Conference, 2007 - http://arxiv.org/pdf/0711.2282v1.pdf). Similarly, the digits give energy to a star’s photons – which has the potential to cause scientific instruments to overestimate the energy released from distant stars. However, this increase in energy of the light photons may be balanced by the stretching of space, which causes decrease of energy (as of 21 March 2013, the Hubble constant, as measured by the Planck Mission, is 67.80 ± 0.77 km/s/Mpc –“Planck Mission Brings Universe Into Sharp Focus” - http://www.jpl.nasa.gov/news/news.php?release=2013-109&rn=news.xml&rst=3739). Thus, the speed of light in today's vacuum would be a constant.

Why doesn't the stretching of space cause all UHECRs to lose energy and change back to regular cosmic rays? If a UHECR travels through space that is extremely warped (for example, the "coherent space" we call matter, which re-radiates a UHECR as a lower-wavelength cosmic ray upon interaction), it does change. But if its journey is through relatively unwarped and flat space, it remains a UHECR. (Regarding particles as the basis of the universe leads to the interpretation of a UHECR interacting with matter and being re-radiated as a regular-energy cosmic ray. Regarding space-time itself as playing a role in the constitution of elementary particles leads to the interpretation that the stretching of space turns a UHECR into a cosmic ray.)

Electronic Infinity

The inverse-square law states that the force between two particles becomes infinite if the distance of separation between them goes to zero. Remembering that gravitation (associated with particles) partly depends on the distance between their centres, the distance of separation only goes to zero when those centres occupy the same space-time coordinates (not merely when the particles’ or objects’ sides are touching i.e. infinity equals the total elimination of distance [9]). The infinite cosmos could possess this absence of distance in space and time, via the electronic mechanism of binary digits (this would enable it to be as malleable and flexible as anything on a computer screen). To distinguish this definition from “the universe going on and on forever”, we can call it “electronic infinity or e infinity”.

[9] If infinity (not physical infinity, but e infinity) is the total elimination of distance in space-time, there would be nothing to prevent instant intergalactic travel or time travel to the past and future [10]. Infinity does not equal nothing - total elimination of distance, or space-time, produces nothing in a physical sense and reverts to theoretical physicist Lee Smolin’s imagining of strings as “not made of anything at all” (p.35 of Dr. Sten Odenwald’s article “What String Theory Tells Us

About the Universe": Astronomy – April 2013). It also reverts the universe to the mathematical blueprint from which physical being is constructed (see http://vixra.org/abs/1307.0072 – this agrees with cosmologist Max Tegmark's hypothesis that **mathematical formulas create reality**, http://discovermagazine.com/2008/jul/16-is-the-universe-actually-made-of-math#.UZsHDaIwebs and http://arxiv.org/abs/0704.0646). So, infinity = something (mathematics), agreeing with Dr. Sten Odenwald's statement on p.32 of his article, that "The basic idea is that every particle of matter … and every particle that transmits a force … is actually a small one-dimensional loop of something.

Interstellar and Intergalactic Travel

[10] In July 2009, electrical engineer Hong Tang and his team at Yale University in the USA demonstrated that, on silicon chip-and transistor-scales, light can attract and repel itself like electric charges/magnets. This is the "optical force", a phenomenon that theorists first predicted in 2005 (this time delay is rather confusing since James Clerk Maxwell showed that light is an electromagnetic disturbance approx. 150 years ago). In the event of the universe having an underlying electronic foundation, it would be composed of "silicon chip-and transistor-scales" and the Optical Force would not be restricted to microscopic scales but could operate universally. Tang proposes that the optical force could be exploited in telecommunications. For example, switches based on the optical force could be used to speed up the routing of light signals in fibre-optic cables, and optical oscillators could improve cell phone signal processing. From 1929 until his death in 1955, Einstein worked on his Unified Field Theory with the aim of uniting electromagnetism (light is one form of this) and gravitation. Achievement of this (see [2]) means warps of space (gravity, according to General Relativity) between spaceships/stars could mimic the Optical Effect and could be attracted together, thereby eliminating distance (similar to traversing a wormhole between two folds in space). And "warp drive" would not only come to life in future science/technology ... it would be improved tremendously; even allowing literally instant travel to points many, many billions of light years away. This reminds me of the 1994 proposal by Mexican physicist Miguel Alcubierre of a method of stretching space in a wave which would in theory cause the fabric of space ahead of a spacecraft to contract and the space behind it to expand - Alcubierre, Miguel (1994). "The warp drive: hyper-fast travel within general relativity". Classical and Quantum Gravity 11 (5): L73–L77. Therefore, the ship would be carried along in a warp bubble like a person being transported on an escalator, reaching its destination faster than a light beam restricted to travelling outside the warp bubble. There are no practical known methods to warp space – however, this extension of the Yale demonstration in electrical engineering may provide one. (And if infinity is the total elimination of distance in space-time, there would be nothing to prevent time travel to the past and future.)

c^2 and the Atomic Nucleus

When Einstein penned E=mc^2, he used c (c^2) to convert between energy units and mass units. When I wrote E=m=E (gravitational energy equals formation of stellar mass equals formation of electromagnetic energy), I split the conversion into two parts (Energy to Mass, and Mass to Energy), in an attempt to be more precise. The conversion number is 90,000,000,000 (300,000 km/s x 300,000 km/s). Since we'll be dealing with numbers in the trillions of trillions, and since the many particles and atoms require varying amounts of gravity for their formation, a good approximation will be to round up the conversion factor to 10^11. When gravity forms mass (we can say space-time forms mass since gravity is merely space-time's warping), it loses 10^24 of its energy or strength (this number isn't randomly chosen but was selected because it fits in with later statements). Though it starts with a strength of 10^25, it finishes with far less energy, a much longer wavelength, and a strength labeled "1" **(is this energy decrease related to experiments stating that dark energy and gravity – hypothesized by this article to be repelling and attracting facets of the same thing – are unequal in strength viz. that dark energy is weaker than gravity?)** After the matter is formed, following gravity waves retain their strength of 10^25. Looking at the example of astronomy's gravitational lensing, we can deduce that the amplitudes of the succeeding gravity waves are magnified by the matter's density so they achieve EM's strength (10^36 times gravity's strength) i.e. 10^25 is multiplied by Einstein's conversion factor [10^11] and gives us 10^36. Just as visible light can be absorbed by interstellar dust and re-radiated at infrared wavelengths, the following gravity waves are absorbed by the matter and radiated as longer-wavelength EM waves (possibly gamma rays).

What happens when gravity and electromagnetism interact within an atomic nucleus? If 10^2 gravitons interact with each photon (or 100 photons with each graviton), the strong force is produced (it's 10^38 times gravity's strength). There are two ways to produce the weak force (10^25 times as strong as gravity). It could be 1) the normal function of gravity in 10^25 mode when acting over a distance of 10^-18 metres (the weak force's range) i.e. the weak force IS gravity in 10^25 mode, or 2) the result of EM's photons interacting with 10^11 **anti-**gravitons i.e. 10^36 would be divided by Einstein's speed-of-light conversion and give 10^25. **Not only does 2) relate gravity and electromagnetism, but it suggests electromagnetism is converted retrocausally i.e. "backwards" (from 10^36 to 10^25), and also plays a part in mass formation along with gravitation (as Einstein's 1919 paper stated).** Let's consider number 1). The weak force is responsible for the emission of particles in radioactivity. Such emission could be regarded as repulsion from the radioactive material. How can we reconcile this with the teaching that gravity always attracts, never repels. There is no dogma in science, and everything should always be questioned. Let's be rebels for a moment and assume gravity accounts for repulsion as well as attraction on the subatomic scale.

Dark Energy and Fractal Geometry

For example, the strong force would represent gravity's subatomic attraction while gravity's subatomic repulsion could be viewed as the emission of particles in radioactivity. If the universe obeys the laws of fractal geometry [11], gravity would also account for repulsion and attraction on astronomical and macroscopic scales (it would account for the dark energy pushing galaxy clusters apart as well as familiar concepts of gravity such as attraction of a falling apple to the ground). **Remember – dark energy should not be considered purely as a gravitational phenomenon, but in terms of both gravitation and hyperspace's binary digits.**

[11] French mathematician Benoit Mandelbrot developed this fractal geometry and coined the word fractal. The diminishing size of spheres may be seen as representing cosmic, galaxy cluster, stellar, quantum-particle scales. We may have varying speed of flow of time during our life because of the accelerating expansion of space-time in the universe. Space is expanding but time is also expanding (and at an accelerating pace). In our youth, it proceeded at a very slightly reduced pace whereas it's going a tiny bit faster now that we've gained experience. So the increased pace is not subjective. If things in space and time were separate, we certainly could never be aware of this accelerating time - the change in our lifetimes is infinitesimal. But things are different if we humans, and the entirety of space-time, are different aspects of the fractal geometry i.e. of the unified field. We are unified with every step of the universe's past and future expansion. Therefore, we can perceive its accelerating expansion ... which we interpret as our having more time in our youth. Our perception of time moving faster will be interpreted by most people as purely subjective and psychological. But in fact, it appears to support the idea of fractals - of gravity accounting for repulsion and attraction not merely on quantum scales but, fractally, also on astronomical and macroscopic scales.

Dark Matter

The average density of the Milky Way is much less than the solar system. Picture the galaxy, except for the central dense bulge that may be roughly 10,000 light years in diameter, made up of solar systems like ours and separated by 4 or 5 light years (the closest star to the Sun is Proxima Centauri, 4.2 light years away). Within those systems, there is a lot of mass and density in the form of stars, planets, moons, asteroids, comets, gas, and dust (more than 99% of our own solar system's mass is in the Sun). But the vast reaches of near vacuum between systems lowers average density enormously – the MacMillan Encyclopedia of Physics says the average density of matter between the stars of the Milky Way is 0.1 neutral hydrogen atoms per cubic centimetre. Since density corresponds to concentration of wave packets – a term from quantum mechanics describing, here, matter's gravitational building blocks - and magnification of gravitational waves, there would be extremely little magnifying of gravity waves in interstellar space (a process related to gravitational lensing). And there would be insufficient gravitational magnification to push or accelerate the stars near the

central core or bulge beyond the orbiting speeds of the galaxy's outermost stars (the outermost stars were expected to orbit the galaxy's centre more slowly than stars further in, but have been found to possess very similar orbiting speeds)**.**

In the 1970s, astronomer Vera Rubin concluded outer stars were being sped up by the gravitational attraction of unseen Dark Matter in a halo well beyond the galaxy. This explanation of dark matter in terms of gravity states there would be no such thing as dark matter of this nature. However, the term "dark matter" could be used to describe particles in a 5th-dimensional hyperspace, or travelling through time, that would be invisible but still exert gravitational influence).

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