

Title –

Spacetime's warps and DNA's double helix

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Abstract –

Being a nonconformist has a good side and a bad side. It's good because it allows your mind to explore ideas that traditional scientists would call crazy (they could learn something – to appreciate craziness - from the great Danish physicist Niels Bohr, who once remarked "Your theory is crazy, but it is not crazy enough to be true"). Nonconformity is bad in the sense that modern science journals never take you seriously and the worldwide science community may never be given a chance to consider or test those crazy ideas. So you end up turning your viXra page into a kind of blog where you can express your ideas (for a limited duration). The latest blog entry is -

Can physics explain why space-time is warped - and can physics and biology be united in a way that explains why DNA is a double helix?

Keywords include – Albert Einstein, high-frequency gravitational waves, particles and their masses and forces, string theory, binary-digit currents, Mobius loops, Klein bottles, Bose-Einstein condensates, big-bang subuniverses in a steady-state universe, DNA's double helix, light's deflection and reflection, 1.75 arcseconds has 2 faces, interacting gravitons and photons, cosmic rays and ultra-high-energy cosmic rays, space-time's coherence/stretching paradox, e infinity quantum-entangles them and deletes paradox, embracing the stars and galaxies of then and now and later

Content –

Being a nonconformist has a good side and a bad side. It's good because it allows your mind to explore ideas that traditional scientists would call crazy (they could learn something from the great Danish physicist Niels Bohr, who once remarked "Your theory is crazy, but it is not crazy enough to be true"). Nonconformity is bad in the sense that modern science journals never take you seriously and the worldwide science community will therefore never be given a chance to consider or test those crazy ideas. So you end up turning your viXra page into a kind of blog where you can express your ideas (for a limited duration). The latest blog entry is -

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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?" – 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 1) gravitation would play a role in constitution of

elementary particles, and their mass, and also in the constitution of the nuclear forces associated with those particles, and 2) the warping of space-time that produces gravity means space-time itself plays a role in the constitution of elementary particles, their mass, and the nuclear forces. Matter can be thought of as “coherent space or coherent gravity” that is bound by forces and gravity. How could gravity be involved in the structure of particles? To understand how this could happen, we need to remember that higher-frequency light (in the visible part of the electromagnetic spectrum) can be converted into lower-frequency infrared light (by being absorbed as visible light and re-emitted at infrared wavelengths by interstellar gas and dust). Similarly, the gravitational waves of space could have a frequency even greater than gamma rays. When converted into lower frequencies, they'd produce matter which would then produce all the electromagnetic wavelengths – including gamma rays and microwaves.

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. 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 π , e , $\sqrt{2}$ etc.; and fermions being given mass by bosons interacting in matter particles' “wave packets” – into an infinite number of (possibly Figure-8) Klein bottles.[1] 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, and adherence to Pauli's exclusion principle. 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).

[1] Each one is a “subuniverse” 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[2] (and spiralling DNA which is made of warped space-time or gravity and shaped like a double helix) because it's modelled on two Mobius loops which can be fashioned by giving a strip of paper a 180-degree twist before joining the ends .

[2] 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 represents the

warping of space that is created by one Mobius – the other Mobius accounts for an extra 1.75” of space warping[2.1]. 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).[3] 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.

[2.1] How is passing starlight deflected towards the Sun? The refracted gravitational wave heading for the sun “captures”^[2.2] 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).

[2.2] 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 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”.

[3] 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 (one example

being 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 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.)

[3.1] According to "Nerlich, Steve (12 June 2011). 'Astronomy Without A Telescope – Oh-My-God Particles'. Universe Today", the highest energy UHECRs that are known approach 3×10^{20} eV (electronvolts). And "Nave, Carl R. 'Cosmic rays'. HyperPhysics Concepts. Georgia State University" says most cosmic rays peak at an energy of 300×10^6 eV. Any two "rays", whether ultra-high-energy or not, vary in energy. But to arrive at an approximation, we can say the warping involved in coherence or stretching of space-time that turns a UHECR into a normal cosmic ray is 10^{12} (a trillion) times greater than the relatively flat warping of space-time. It's one thing to imagine matter as concentrated or coherent space-time ... but stretching space-time diffuses and disperses that concentration. Doesn't this article collapse because coherence and stretching are claimed to do the same thing? This worried me at first - but then I recalled another statement by Niels Bohr: "How wonderful that we have met the paradox. Now we have some hope of making progress." The coherence-stretching paradox can be resolved in the following manner (which means there is no "distance" between coherence and stretching) -

[3.2] 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[3.3]). 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".

[3.3] 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[3.4]. 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#.UZsHDalwebs> and <http://arxiv.org/abs/0704.0646>). So, infinity = something, 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.

[3.4] 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 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.)