

Reconciliation Regarding Dark Matter and Dark Energy

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To some readers, there may appear to be contradictions in what my two articles say about dark matter and dark energy.

TOPOLOGY AND THE MAGNETIC MONOPOLE REPLACE UNIVERSAL EXPANSION WITH MAGNETIC DATA SWAPPING states -

"The bits may be thought of as the ultimate composition of fermions and bosons ... and as modified dark matter. The electric currents can be regarded as modified dark energy ..."

Dark Matter, Dark Energy, Entropy, Enthalpy, and Data Swapping in the Digital Universe states -

"While leaked into the y-axis, gravity may be referred to as Dark Energy. And the mysterious process of it recombining with electromagnetism to form mass is presently unknown and therefore labelled dark, giving rise to the term Dark Matter."

Regarding dark energy, the descriptions of it as "gravity" and "electric currents" need to be reconciled. As for dark matter, the ideas of "bits" (binary digits) and "recombination" (with pre-existing electromagnetism) have to be brought together.

The first can be resolved by exploring the relationships between electricity, magnetism, and gravitation - through the mechanism of rotation, this reveals an intimate relationship of those three.

There is an important correlation between Albert Einstein's relativistic equations and the Prandtl-Glauert equations for fluid flow, which can be seen through their pressure coefficients. James Clerk Maxwell had already established a powerful correlation between electromagnetic waves and fluid dynamics. In 1919, Einstein published a paper titled "Do gravitational fields play an essential role in the structure of elementary particles?" [1] It's well known that solutions refract electromagnetic waves of light passing through them. Similarly, the gravitational and electromagnetic (GEM) waves resulting in particles suspended in solution (the photons and gravitons of fluid space-time) would be bent around massive objects in space (gravitationally lensed) and this refraction alters orientation of Fig. 1's magnetic and electric fields. When the gravitational and electromagnetic waves enter the solution and are lensed - changing orientation by, say, 45 degrees - the electric fields no longer possess up-down motion but have a tendency to vibrate left to right. If the orientation change continues to 90 degrees, the left-right tendency becomes a certainty and **'electric' is then described as 'magnetic'**. The doubling from 45 to 90 is important. If the angle of

incidence of the GEM waves is 90 degrees, the potential exists for the electric field to be inverted 180°.

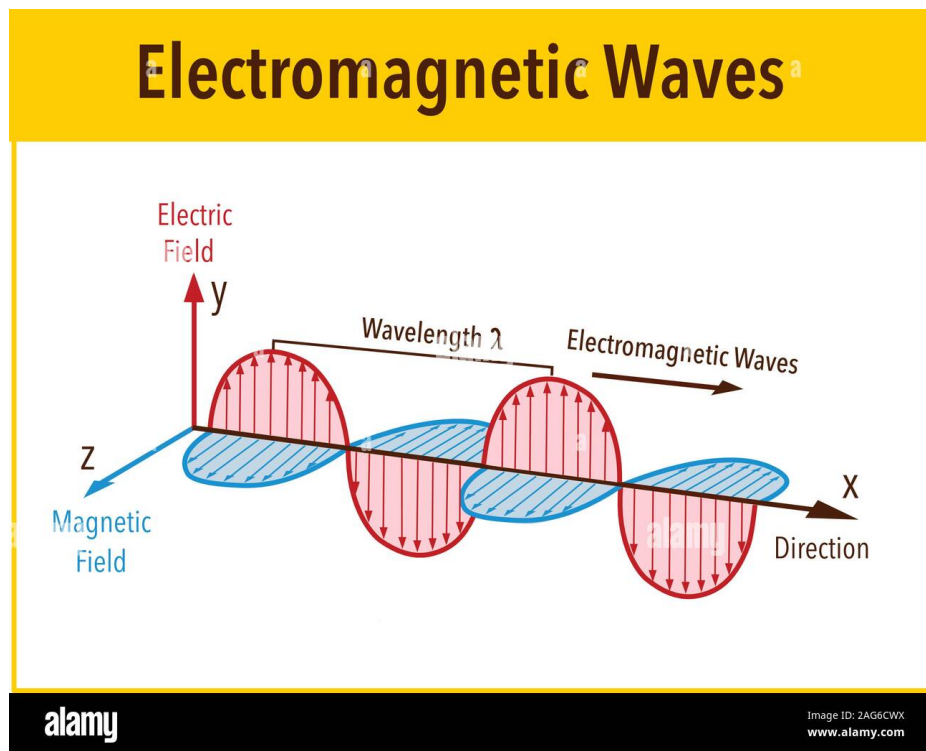


Figure 1. Classical Electromagnetic Wave — Showing the Perpendicular Magnetic and Electric Fields, Plus the Wavelength Denoted by Greek Letter Lambda λ (the Black Arrow Indicates the Direction of Propagation). A future theory of quantum gravity might combine all classical waveforms with a quantum perspective resulting in a pointlike or stringlike form which, building on a particle's ability to be in more than one place at once, may occupy all space and time.

(figure from <https://www.istockphoto.com/vector/electromagnetic-wave-structure-and-parameters-vector-illustration-diagram-with-gm1194626452-340233881>)

Using quantum mechanics' wave-particle duality plus Einstein's idea of gravitational and electromagnetic waves producing particles, let's apply the first paragraph to the electric charges of subatomic particles. Imagine a mobile particle on the line of propagation which, upon encountering the force of an advancing positive-period wave (above Fig. 1's direction of propagation), remains on the propagation line. It isn't pushed aside but must ascend to the crest of the wave. After reaching this highest point, it moves in the opposite direction and descends to the trough of the wave's following negative-period (below the line). Inversion from "down-up" motion to "up-down" (movement in the opposite direction) can be

viewed as electrical attraction of particles becoming repulsion i.e. as the positive charge of, say, a proton switching to the negative charge of an antiproton and no longer attracting – but now repelling – an electron. ^ The previous typing can be summed up with the equation $180^\circ \Delta O = + \Rightarrow -$ (180 Degree Change in Orientation Equals Positive Becomes Negative). Of course, it also means negative can become positive: $180^\circ \Delta O = - \Rightarrow +$. Applied to the magnetic fields of particles, North and South poles can be interchanged – as occurs with Earth's magnetic-field reversals.

^ An experiment at Oxford University in England found similarly charged particles suspended in a solution can actually attract each other over long distances. [2] The level of attraction is closely linked to the solution's pH. The pH scale used to specify the acidity of solutions indicates the activity of hydrogen ions. This activity of electrical charges could, when acting over a relatively long distance and time, affect the motion of particles and the orientation of their electric fields. The experiment had no effect on positive particles in water.

Electrons have magnetic fields which affect the atoms they're in, and these fields can be called magnetic dipole moments or magnetic moments. If enough atoms possess magnetic moments pointing in the same direction (represented by arrows), they create ferromagnetism (the technical name for the everyday attracting and repelling of iron, nickel, cobalt, and fridge magnets). A second type of magnetism has arrows pointing in alternating directions, results in magnetic stalemate, and is called antiferromagnetism. There's magnetic order on the atomic level but no unified, detectable magnetism at the ordinary scale of everyday objects. A third form, altermagnetism, was confirmed last year (2024). It still has neighbouring atoms with magnetic moments that point in opposite directions but numerous atoms are rotated 90 degrees.

A third kind of magnet

Magnetism hinges on a property of atoms called magnetic moments, represented below by arrows. In ferromagnets, the magnetic moments are all aligned, and in antiferromagnets, they alternate. In a third, recently discovered kind of magnetism called altermagnetism, every other atom is rotated

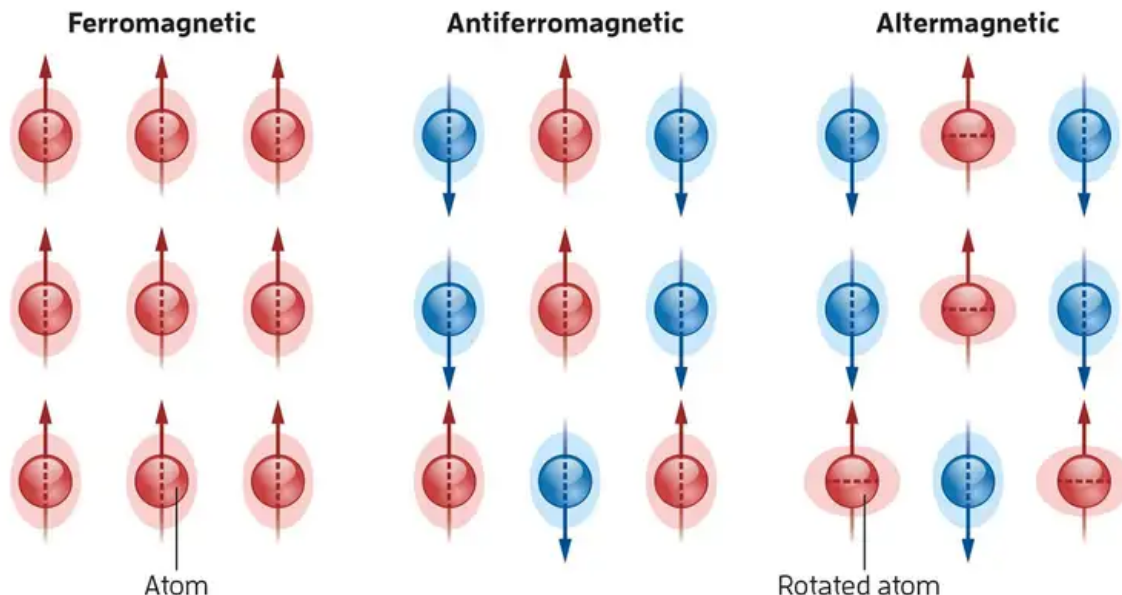


Fig. 2 - On the Road to GEM (Gravitational ElectroMagnetism) and Extra Dimensions with Ferro-, Antiferro-, and Alter- Magnetism (reproduced from <https://www.newscientist.com/article/2487013-weve-discovered-a-new-kind-of-magnetism-what-can-we-do-with-it/>)

Let's build on the earlier use of waves and particles that describe electric and magnetic properties changing into each other. This rotation may show electromagnetism's relationship to gravity by going into the 3rd dimension and representing electric, magnetic, and gravitational fields with - respectively - vertical curves, horizontal curves, and rotation. The rotated atoms in altermagnetism give rise to a subtle effect that enables some magnetism to leak through. Viewing it as not confined to mathematical convenience, Wick rotation might describe gravity's incredible weakness compared to the other forces (Einstein's mass-producing gravity-electromagnetism interactions exist on the x-axis. Rotation enables some gravity to leak * through to its y-axis). If gravity is assigned the value 1, electromagnetism is approximately 10^{36} (a trillion trillion trillion) times stronger. Beginning at 1, gravity's power never increases as Wick rotation - whose transformations reveal the Complex mathematics of the universe - progresses. It ends a cycle at 1, possibly revealing that the universe is recycled (or to use terms applied to computer screens, refreshed / re-loaded) during its perpetual rotation.

* This leakage may be related to physicist John Wheeler's 1955 theoretical investigation of the geon (gravitational electromagnetic entity). [3] A geon is an electromagnetic or gravitational wave which is held together in a confined region by the gravitational attraction of its own field energy. A major question is whether geons are stable or must decay over time as

the energy of the wave leaks away. Perhaps an electromagnetic wave, being 10^{36} times stronger than its gravity counterpart, has enough strength to be stable and confine itself to the x-axis. Weak gravitational waves would lack sufficient strength to remain confined and “must decay” or leak into the y-axis. Another physicist, Lisa Randall, thinks gravity may be weak compared to forces such as electromagnetism, because it is concentrated in another dimension. [4]

Dark Matter’s Bits and Recombination problem can be fixed by remembering the digital waves made of bits and mentioned in the first paragraph of the article **Dark Matter, Dark Energy, Entropy, Enthalpy, and Data Swapping in the Digital Universe** - and also remembering that waves can combine into particles according to Einstein’s 1919 paper and VTS Geometry (see Fig. 3 and its text below). To briefly summarize -

“In the case of waves being digital, the waves would not merely be described by mathematics but would literally be the result of maths. A three-dimensional cube can be regarded as a reality coded on a 2D surface - in other words, the 3D cube emulates cosmology’s Holographic Principle and is produced from the information in a square.”

Interacting particles can produce waves just as masses can curve spacetime to produce gravity and gravitational waves. VTS Geometry plausibly explains the inverse - it doesn’t solely regard gravity as the result of mass but also regards gravity, partnering with electromagnetism, as producer of mass. Inverting quantum mechanics, gravitational and electromagnetic waves create particles with mass (protons, neutrons, quarks, electrons, etc - even the Higgs boson). As Stephen Hawking and Leonard Mlodinow point out in their book “The Grand Design”, ultimate reality does not have to be described with quarks though it certainly can be. In this paragraph, the idea of curved space is described by gravitational and electromagnetic waveforms travelling on curved trajectories.

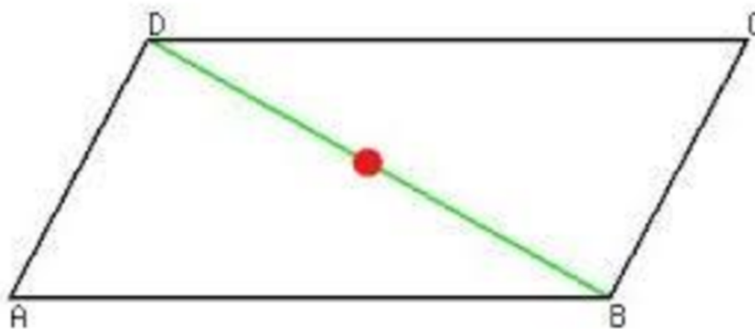


FIGURE 3 – VTS (VECTOR-TENSOR-SCALAR) GEOMETRY - Interaction of Gravitation and Electromagnetism Produces a Momentum in Gravitons and Photons and a Pressure Which is Interpreted as Mass. (Light - a form of electromagnetism - exerts a pressure that propels Solar Sails through space and gravitons exert a pressure known as gravity).

(Figure drawn by author using "Paint" program)

A vector is a quantity which possesses both magnitude and direction. Two such quantities may be represented by two adjoining sides of a parallelogram, so that their resultant is represented in magnitude and direction by the diagonal of the parallelogram (AD and CD, for example, can symbolize the electromagnetic and gravitational vectors ... while the resultant green diagonal of DB substitutes for the interaction of those two forces). A scalar variable is representable by a position on a line, having only magnitude e.g. the red dot on the diagonal, symbolic of the Higgs boson. A tensor is a set of functions which, when changing from one set of coordinates to another, is transformed in a precisely defined manner (e.g. changing from the coordinates of AD and CD to those of the green diagonal, or of the red dot, is a transformation performed in a particular way). [5]

Two sides thus illustrate the graviton's spin 2 and the photon's spin 1. The resultant diagonal represents the interaction of the sides/vectors ($1+2 = \text{the spin } \frac{1}{2}$ of every matter particle). Tensor calculus changes the coordinates of the sides and diagonal into the coordinates of a single scalar point on the diagonal. This scalar point is associated with particles of spin zero. [6] If the mass produced during the photon-graviton interaction (the energy and momentum of photons and presently hypothetical gravitons produces a pressure we call mass) happens to be $125 \text{ GeV}/c^2$, its union with spin 0 produces the Higgs boson.

References

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