Explaining the Universality of Dirac's Idea and Theory

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Abstract- The article explains the recently found wide application of the Dirac's theory to a long list of materials. The Dirac theory was initially created only for electrons. The wide applicability is based on the fact that Dirac postulated that dark matter with negative energy and negative mass, called anti-matter, co-exists with the matter, which allowed him to predict the positron. The author of this article is convinced that dark anti-matter with negative energy gives birth of the whole light material world and the whole Universe is a constant dynamic transformation of dark matter (anti-matter) into light matter and recycling of disordered light matter into dark anti-mater. During the birth of the material world, the nonlinear electromagnetic field (NEMF), which separates the dark anti-matter from the light matter, gets imprinted on all material creations. The NEMF, which is present in all materials, is what makes the applicability of the Dirac theory so wide.

Keywords: Dirac theory, universal Dirac theory, universal quantum electrodynamics (QED), material bodies and NEMF.

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Explaining the Universality of Dirac's Idea and Theory

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I. Introduction

According to Dirac, there should be symmetry and positive and negative energies should be equally allowed. The material particles, which we know, are with positive energy and positive mass, but there should be anti-particles with negative energy and negative mass. Dirac considered the electrons in particular and wrote the following equation for electrons in 1928 [1]:

$$i\partial_t\ \psi = E\ \psi = (c\alpha.p + \beta mc)\ \psi,$$

where ψ is the wave function of the electron and α and β are matrices with four components: two for the particles electron (with negative electric charge) and the anti-particle positron (with positive electric charge), and two for their spin ½ and - ½ correspondingly. For particles the mass $m>0$, for anti-particles $m<0$, for massless particles $E = cp$.

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While the electron has negative electric charge, spin +1/2, positive energy, and positive mass, the anti-electron, called positron, has positive electric charge, spin -1/2, negative energy, and negative mass. The Physicists had difficulties accepting this mirrored world. This continued until the US physicist Carl Anderson [2] discovered in 1933 the anti-particle of the electron e⁻, called 'positron' e⁺, because it had positive electric charge.

The second confirmation of the Dirac's theory was the experiment of Patrick Blackett and Giuseppe Occhialini [3] published in the Physical Review in the early 1933. In the same year, Robert Oppenheimer and Milton Plesset [4] postulated, and based on the Dirac theory calculated, the probability of production of pair of e⁻ and e⁺ as a result of strong γ-radiation. The calculations were in fairly good agreement with the experimental results. The two experimental confirmations of the Dirac's theory brought him the Nobel Prize of 1933 [5].

However, the Dirac's idea about the dynamic constant transformation of dark anti-matter into light matter and vise-versa is still not accepted 90 years after he got the Nobel prize. We still claim that we don't know what dark matter is and we wonder why Dirac's equation is so widely applicable. We also never included Dirac's idea and equation in our curriculums to teach them in our Universities; neither we teach nonlinear physics, without which we cannot describe the dynamic transformation of dark anti-matter into light matter and vice-versa.

II. Dirac's Theory Turned out to Be More Universal than Expected

It was recently found [5] that Dirac equation, which he initially wrote for electrons, which are fermions, i.e. with spin ½, has a wider application than Dirac himself initially realized. It is equally applicable to bosons (particles with no spin) including magnon and phonon and also to a long list of materials and systems of condense matter physics: graphene (one layer of graphite), entire classes of two- and three-dimensional materials, semi-metals (now called Weyl and Dirac semi-metals), topological insulators, unconventional superconductors, etc. It seems that the Dirac's theory has more universal application then initially postulated. Why?

III. Why is the Dirac's Theory Universal?

Another article of the author [6] explaines that the whole material world is a material body and nonlinear electromagnetic field (NEMF) and this NEMF comes from the way the material world is created. Black Holes, which are dark anti-matter with negative energy and negative mass, create the whole light material world. During the process of creation, the NEMF, which separates the matter from the anti-matter, becomes imprinted on all material creations. This makes the whole material world – a material body and NEMF.

The author in her article [6] predicted hyperbolic shape of the Black Holes (Fig. 1) and a photo of a Black Hole (Fig. 2) was published shortly after the publication of her article, which confirmed the hyperbolic shape. In another article [7], the author explained why the description of the Black Holes would require Non-Euclidian geometry and how the hyperbolic shape, which gave birth to our NEMF, relate to the 7 energy levels of our body, the 7 energy levels of our NEMF, and the seven energy sublevels between each two levels.
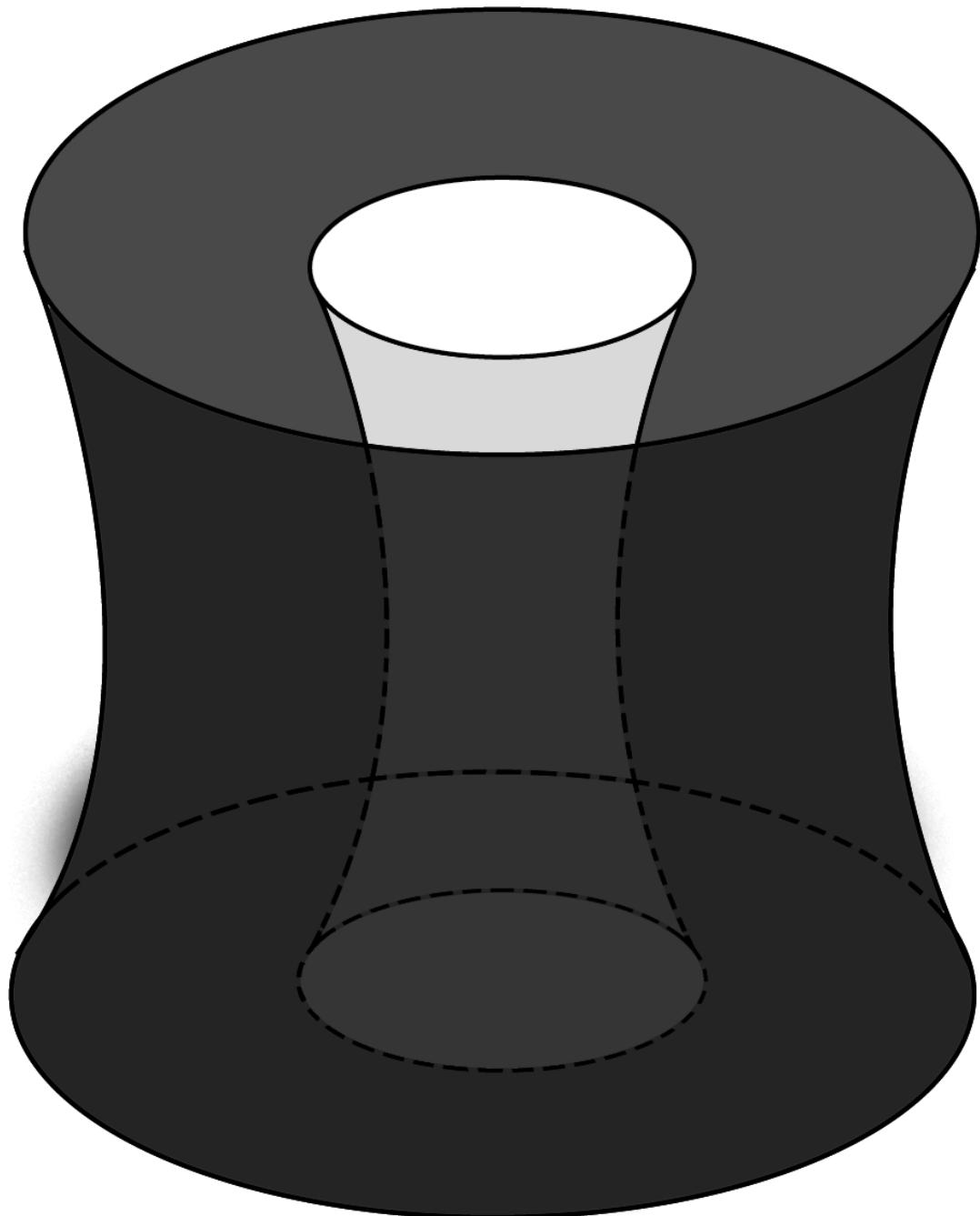
Fig. 1: Author's prediction of hyperboloid shape of the Black Holes
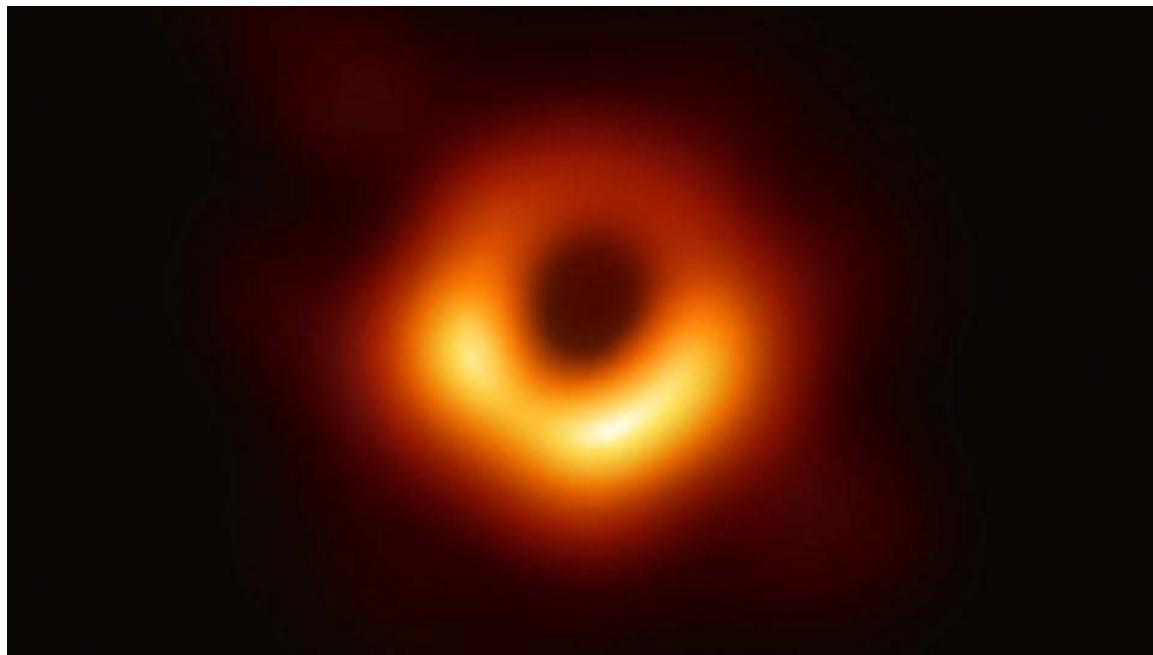
Fig. 2: Photo of the hyperboloid shape of a Black Hole

The fact that everything material is a material body and NEMF [6] explains automatically: 1/ why the particles are material particles and waves at the same time; 2/ why the particles obey the Heidelberg uncertainty principle – because the NEMF of the equipment and the NEMF of the measuring person are influencing the NEMF of the measured particle in the microworld; 3/ why in quantum mechanics we deal only with probability outcome of each event; and 4/ why the Dirac's theory is universally applicable.

IV. Universal Quantum Electrodynamics (QED)

In the author's article [8], when e^- and e^+, which spin with opposite direction meet, first they spin around each other, like dancing, and then they merge, i.e. annihilate. LEGO measurements showed that when two Black Holes or neutron stars meat, they spin around each other first (and chirp) before to merge. Since the merging e^- and e^+, which spin in opposite directions, do the same dance, the merging two Black Holes or neutron stars must spin in opposite direction.

The recently observed dynamics of cell fertilization (Fig. 3) shows [5] that when the male sperm enters the female cell and the NEMF of the male DNA approaches the NEMF of the female DNA; they spin around each other (just like e^- and e^+ would do) and they finish merging in the middle of the female cell (Fig. 3). This makes the fertilized cell ready to start dividing and with time to turn into embryo.
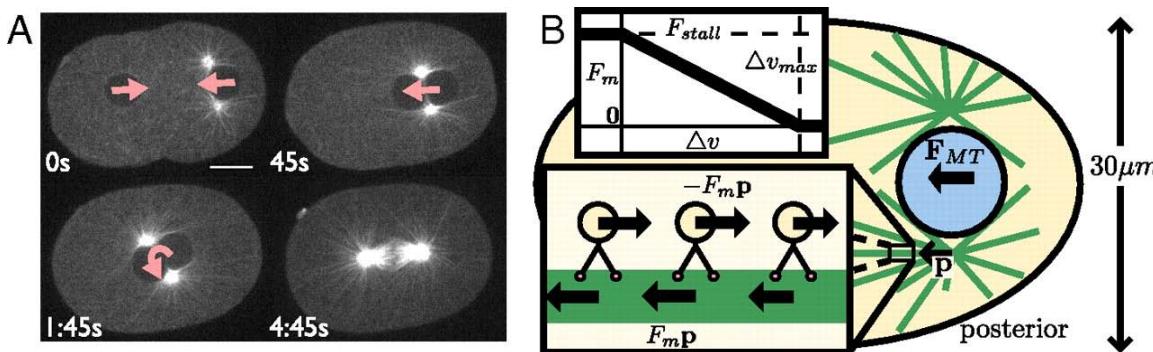
Fig. 3: Dynamics of cell fertilization

Just like the spinning in opposite direction electron and positron create magnetic fields with opposite polarity, which makes them to attract each other as two magnets with opposite polarity would do, the NEMF of the male and female DNA must spin in opposite direction and create magnetic fields with opposite polarity to attract each other as two magnets with opposite polarity would do.

Thus, the Quantum Electrodynamics (QED) is the same in all three cases: 1/ merging of e⁻ and e⁺; 2/ merging of two Black Holes or two Neutron Stars; and 3/ merging of the NEMFs of the male and female DNA in a fertilized cell. This is because in all these cases we have NEMFs spinning in opposite directions. If the dynamic is the same, they will be mathematically described with the same type of equation.

Every perturbation force F, applied to a spinning entity, changes its angular velocity ω

$$\partial\omega/\partial t + \varepsilon F = \partial(\omega + \varepsilon\omega)/\partial t \tag{1}$$

This explains the dancing before merging of the spinning in opposite directions NEMFs of electron and positron, mother's and father's DNAs, or two Black Holes or Neutron Stars.
The velocity transformation equation is:

$$\partial\omega/\partial t + \nabla \times (\omega \times u) = \nu\nabla^2\omega + (1/\rho)(\nabla \times (J \times H)), \tag{2}$$

where μ is the permeability of the media, ρ is the density of the media, and ν is the kinematic viscosity ($\nu = \mu/\rho$). The linearized version of equation (2) is

$$\partial\omega/\partial t = (1/\rho)(H \times \nabla j) + \nu\nabla^2\omega \tag{3}$$

The same rules and equations apply to merging of the NEMFs of e⁻ and e⁺ in the micro world, merging of the spinning in opposite direction NEMFs of mother's and father's DNAs in a fertilized cell, and merging in astronomy of the spinning in opposite directions NEMFs of two Black Holes or two Neutron Stars.

The dynamic is the same because the spinning in opposite direction NEMFs induce magnetic fields with opposite polarity, which attract each other, as two magnets with opposite polarity would do. This determines their common QED – they approach each other, spin around each other, and then merge. Their common behavior requires common mathematical description.

According to nonlinear physics, following the rule of the folded fingers of the right hand, when the folded fingers are in the direction of spinning, the vertical thumb shows the direction of the magnetic field induced by the spinning. Let us apply this rule to vortices spinning clockwise. The direction of the magnetic field induced by clockwise spinning is inward, which means that the spinning clockwise vortices suck energy.

Therefore, when the NEMF spins clockwise, as a vortex, at the presence of another entity with NEMF spinning in opposite direction, will suck energy through the hole of its donut shape NEMF and get excited (start spinning faster clockwise). The increased spinning will increase the attraction between the two NEMFs spinning in opposite directions; they will approach each other, spin around each other, and merge.

V. Conclusion

The article offered explanation of the recently found wide range of application of the Dirac's theory, which was initially created only for electrons. Dirac postulated that the positive energies and positive masses of the material world coexist side-by-side with the negative energies and negative masses of the dark matter, which is anti-matter – and they are in a state of constant mutual transformation. Dark matter creates the entire material world and the NEMF that separates the matter from the anti-matter gets imprinted on all material creations, which are a material body and NEMF. This is what makes the Dirac theory widely applicable.

The article also explained the common quantum electrodynamics (QED) observed at: 1/ merging of e⁻ and e⁺; 2/ merging of two Black Holes or two Neutron Stars; and 3/ merging of spinning in opposite direction NEMFs of male and female DNA in a fertilized cell. They all spin in opposite directions and create magnetic fields with opposite polarity, which make them attract each other, and dance around each other before to merge. The same is the QED of electron and positron, two Black Holes or Neutron Stars spinning in opposite directions, and the spinning in opposite directions NEMFs of male and female DNA in a fertilized cell. They all will be mathematically described with the same type of equation.

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