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Exploration**Electron Model Based on Helmholtz's Electron Vortex Theory & Kolmogorov's Theory of Turbulence**Victor Christianto^{1*}, Florentin Smarandache² & Robert N. Boyd³¹Malang Institute of Agriculture (IPM), Malang, Indonesia²Dept. of Math. Sci., Univ. of New Mexico, Gallup, USA³Consultant, Princeton Biotechnology Corporation, USA**Abstract**

In this paper, we explore a new electron model based on Helmholtz's electron vortex and Kolmogorov theory of turbulence. We also discuss a new model of origination of charge and matter.

Keywords: Electron model, Helmholtz, electron vortex, Kolmogorov, turbulence.

Introduction

In a previous paper [1], we explored Hilbert's axiomatic program to unify electromagnetic and gravitation theory, and we remarked that Godel's finding effectively put Hilbert program into ruins. Summarizing, it is very significant to consider *matter creation* process in nature. For instance, one can begin by considering the correct presentation of Newton's second law is not $F=ma$, but $F=d(mv)/dt=v(dm/dt) + m(dv/dt)$. In other words, it is possible of matter creation (dm/dt), and this seems quite consistent with *Narlikar's work*.

There are various models of electron which have been suggested, for instance see Chekh *et. al.* [10]. We seek a more realistic electron model which is able to describe to experiments conducted by Winston Bostick *et. al.* [9]. In our attempt to explain such experiments of electron creation in plasma, allow us to come up with a new model of electron, based on *Helmholtz's electron vortex* theory. In turn, we will discuss a plausible model of electron capture event inside Earth (matter creation), which may serve a basis to explain Le Sage/Laplace's push gravity.

The Helmholtz vortex model of the electron is a toroid made of nested concentric toroidal flows of smaller particles, perhaps the inertons of Krasnoholovets, or aggregate particles made from Bhutatmas.

The most salient part of the Kelvin-Helmholtz electron vortex form ("KH vortex"), at its outermost margins, is almost **spherical**, as well as toroidal, as can be seen from the diagrams and the photograph of KH vortices. Thus, due to laminar flows intersecting with existing spheres, vortex streets are caused to form into KH vortex rings, which are rotating in alternating opposite

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directions. Electrons and positrons also have equal and opposite "charge" and are considered to be "*anti-matter*" in relation to one another.

But at this point, readers may ask: what is "anti-matter" really, other than opposite directions of rotation of similar particles? And what is "charge" really, in terms of aether behaviors?

So, essentially, electron-positron pair formation is properly described and justified for the first time in the history of particle physics, as both electrons and positrons are KH vortices, rotating in opposite directions. Electron-positron pairs are, at least temporarily, linked by bridges of the same material particles which the $e-p$ particle pairs are being formed in.

Pairs of electrons and positrons are required to make the larger particles, such as the proton, which is an agglomeration of an exact number of electrons and positrons, with one positron excess, to account for the positive charge produced by the proton.

What needs to be discovered here is: What property of the aether determines the exact numbers of electron-positron pairs, required to form protons and neutrons? Does this have to do with "packing" limitations, imposed by the media? Is this to do with the phi ratio inherent in the media?

Each electron which already exists, acts as a large rock in a moving stream, causing deflections of the normal aether flow, slowing down the flow-rate, and producing eddy currents and turbulence in the ambient aether near the given electron. When the turbulence becomes large enough, additional electrons form in the media, which act to choke off the interstellar aether flow even more and impede its normally unencumbered motion. This is similar to adding more and more rocks into the channel of a stream of water, so that the flow rate of the water slows down, as more and more rocks are added.

This process was discovered by Nikola Tesla during his experiments at his Colorado Springs laboratory. It is a good thing this happens, or aether avalanches produced by Tesla's 100,000,000 volt explosive electrical discharge events could have burned away the very air we live in.

Tesla was relieved to find out the discharges were choked off, accompanied by vast numbers of newly created electrons. Tesla found the excess electricity resulting from the excess electrons to be a nuisance to his other experiments, so he dumped the excess electrical power into the earth's crust.

Relation between Helmholtz's electron vortex model & turbulence theory

Solving the turbulence problem means finding (unknown) laws of the mixing of momentum and scalars, at asymptotically high Reynolds numbers. About hundred years ago, Osborne Reynolds and soon also Friedman & Keller thought that we can solve the problem by series expansions of the Navier-Stokes equations, a process which provides dynamic equations of motion for higher and higher (statistical) moments.

Unfortunately, such an expansion does not visibly converge. Certain closure assumptions are needed, such that this approach is not strict. With respect to theory, all subsequent research followed the paradigms of Reynolds, Friedman, and Keller, without any exact result.

The famous text by Landau & Lifshitz on fluid dynamics states that universal constants of turbulent motion, like von Karman's constant, can only be measured (rather than predicted by theoretical considerations).

Later, Kolmogorov realized the hopelessness of Reynolds-type paradigms and then he introduced an argument: *Similarity Analyses*, which immediately led to the scaling laws of turbulent spectra, e.g. the famous 5/3rd law, which is strict.

At an infinitely high Reynolds number, the physical properties of the specific fluid under study "vanish", due to vanishing viscosity. So the viscosity of the media at the given energy-density, is relevant, in aether considerations.

This sort of turbulence is consequently described by the (regularized) Euler equation, which represents an "inert geometry". By this, the turbulence problem rests on the Euler equation and its singular solutions, such as "vortex atoms", as first introduced by Lord Kelvin almost 200 years ago, based on von Helmholtz's vortex theorems. Such solutions can be treated as non-trivial three-dimensional particles, in motion.

In most cases these motions are extremely hard to predict are the focus of a special branch of mathematics – *topological hydrodynamics*. See also Kiehn [11-14].

There are two exceptions: Completely isolated vortices, and a "gas" of comprised of many vortices. The former case is trivial. In the latter case, one can do what has already been done by Maxwell in his kinetic theory of gases: Assume a chaotic (Brownian) motion of the entities involved. This paradigm, produces simple and comfortable equations of motion, of the advection-diffusion-reaction type, for the key variables of turbulence, turbulent kinetic energy, and r.m.s. vorticity.

This approach allows a theoretical prediction of von Karman's constant as $1/\sqrt{Rt} (2\pi) = 0.399$ (The international standard value, based on measurements is 0.4).

This result is physically related to the Helmholtz vortex model of the electron. The correct aether turbulence model will produce electrons in the manner of a fluid flow producing turbulence.

The form of the Helmholtz vortex is circular at the surface, with toroidal shells made from the same smaller particles, circulating internally.

This allows the "substructure" requested by the "ring model." The ring model is constrained to behave according to Einstein's version of relativity, by extraneous artifices and excuses, all of which are wrong, from my point of view. There is nothing preventing **any** faster than light

behaviors, other than Einstein's version of relativity, which is **completely non-physical**, and only functions internal to one's imagination.

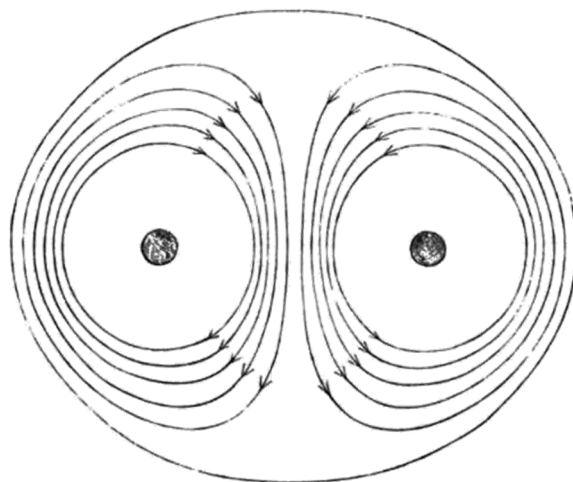


Figure 1. Helmholtz's atom model should be applied to electron vortex (after R.N. Boyd)

One of the hugest mistakes ever made in physics was Einstein's ill-advised attempts to constrain everything in existence to light speed, including time. This causes a conceptual wall to be erected in the mind, which prohibits superluminal behaviors of any kind, and makes interstellar travel and power without fuel, impossible, just because of a mathematical fantasy that cannot be proved as valid by any manner of physical experiment. There are vast numbers and types of experiments which refute every part and portion of the irrational arguments of Einstein's version of relativity.

It seems a good idea is to combine the "ring model" of the electron with the Helmholtz vortex model of the electron. The conclusions of the ring model which finds the Dirac and Schrodinger's equations invalid, are just a few of the mistakes in the development of the ring model that need to be corrected in the Helmholtz model which allows that *superluminal* behaviors of every kind may participate.

On the plus side, they have done most of the other physics requirements work already. Once we provide the corrective measures which exclude relativistic considerations, we will have a very compelling model for the electron, which is based on nested flows of SubQuantum particles, which comprise a toroid when considered as a unit whole.

Natural extensions of Kolmogorov's studies of turbulence, towards the infinitely small, have directly derived turbulence-generated vortices as small as 10^{-58} m, which we call Kolmogorov vortices. These are the smallest creatures which are still influenced by gravitation. Smaller creatures are the primary cause of gravitation, in this model, which is related to both the LaPlace and LeSage models of gravitation. Both these models are valid, depending on how one is looking at the situation, so we are combining them into one model. We also have reproducible experimental evidence and instrumented spacecraft observations, which physically support this model.

Fabricius suggested that multiple Kolmogorov vortices might form a geometric inter-relationship which would then comprise an electron.

The "Bhutatma" infinitesimal particle of Vedic lore is the ultimate building block of everything, being the smallest unit of matter, and at the same time, the smallest unit of Consciousness.

Once the errors are removed from the ring model, and we hope that soon we will be able to illustrate electron formation from Kolmogorov turbulence in a perfect fluid, then our Helmholtz vortex model will be excellent. An outline of such a model of electron creation will be discussed at the following section.

Turbulence origination of Kelvin-Helmholtz electron vortex

For a non-viscous fluid, pressure exerts a force of $-\text{grad } p$ per unit volume. (There is also a gravitational aether force, ρg per unit volume.) The aether fluid obeys Newton's law of motion, so $\rho dv/dt = -\text{grad } p$, as the equation of motion. (This is used to determine fluid pressure when the flow is known.)

A vorticity field is $\omega(x, y, z, t)$ in magnitude and direction, at any point. Lines drawn parallel to ω are called vortex lines, and their density can express the strength of the rotation, just as streamlines define the velocity field, and magnetic field lines define a magnetic field. (Such lines are not real, but greatly aid in visualization).

The line integral of the component of velocity, tangent to a closed curve, is called "circulation", and clearly measures the amount of rotation in the vortex. Let's take a small circle surrounding an area $A = \pi r^2$ as the path of integration. If the angular velocity is ω , then the circulation will be $2\pi r \times \omega r = 2\pi \omega r^2 = 2\omega A$. Thus, the circulation of the fluid, per unit area, is directly proportional to the angular velocity of rotation.

Stokes's Theorem states that the circulation of a vector about any curve C , is the surface integral of the curl (del cross) of the vector over the area enclosed by C . If this is applied to the present case, we find that $\text{curl } v = 2\omega$, so that the rotation of the vortex is half the curl of the velocity. Since the divergence of the curl of a vector is identically zero, $\text{div } \omega = 0$.

This means that if we consider a tube whose walls are parallel to ω , called a vortex tube, then this tube has the same "strength" (the product of the area and ω), at any point. This means that the vortex tube cannot end within the fluid, and must either close into a ring, or go to a boundary.

The Kelvin-Helmholtz theorem, states that the substantial derivative of the circulation about any curve C , in a fluid of zero viscosity, vanishes. This applies to any curve C on the walls of a vortex tube, or on any surface parallel to the vorticity, and implies that vortex lines are carried with the fluid, and that the "strength" at any point remains constant.

If the initial state of a fluid to which the KH theorem applies, has no rotation, that is, $\text{curl } \mathbf{v} = 0$ everywhere, the fluid will remain irrotational as it moves. This also means that if rotation exists in the vortex, it will persist for all time.

The stream function in a fluid or gas is analogous to the use of the vector potential of the magnetic fields of electric currents. From this, the foundational basis of electromagnetism is actually a description of fluidic flows in the aether.

Consider a vector field $\mathbf{A} = kA(x, y)$. ($A(x, y)$ may also vary with the time, but we will consider that later.) Suppose that \mathbf{v} is derived from \mathbf{A} by the rule $\mathbf{v} = \text{curl } \mathbf{A}$. Writing this out: $\mathbf{v} = i(\partial A/\partial y) - j(\partial A/\partial x)$, so that $v_x = \partial A/\partial y$ and $v_y = -\partial A/\partial x$.

Now, writing out the continuity equation of $\text{div } \mathbf{v} = 0$, it is automatically satisfied for any function A . To find the relationship between A and the vorticity, we write out the z -component of $\text{curl } \mathbf{v}$, to find that $2\omega = \partial v_y/\partial x - \partial v_x/\partial y = \text{div grad } A$.

In considering two-dimensional motions, the vorticity of the aether fluid can only be parallel to the z -axis, since the velocity must lie in the x y -plane and is independent of z . (The vector potential of a magnetic field satisfies the same equation, where the current takes the place of fluidic vorticity.) The above, is Helmholtz's equation. The one scalar function A , thus allows us to find two interrelated components of the fluid velocity.

If the aether flow is irrotational, then A will satisfy Laplace's equation, and solve the problem as well as the velocity potential ϕ . In fact, A and ϕ are conjugate functions. In two dimensions, they are the real and imaginary parts of a complex analytic function. The streamlines $A = \text{constant}$, are orthogonal to the equipotentials $\phi = \text{constant}$, again pointing to the direct relation between fluidic aether flows and the Maxwell equations.

Vortex lines have been postulated to study fluid dynamics. A vortex line has a finite strength (vorticity times area), but zero area, similar to the understanding that a dipole has zero length. The resulting vortex lines tend to propagate at infinite velocity, unless the lines remain absolutely straight. This would be the 5th aether phase state in *Mishin's 5-phase aetherdynamics*. Now we are beginning to discover the origin of the various types of turbulences in the ambient aether flows which eventually manifest as KH electron vortices. The aether flows around an already existing, but non-motional, electron vortex in a streaming aether fluid flow, sheds vortex pairs which are rotating in opposite directions, alternately from the two sides of the KH vortex, resulting in lines made of vortices, called a vortex "street" (also called a "von Kármán street"), behind it. These "streets" are seen on all scales, from flows in brooks, to the atmosphere, to the fluidic aether in which KH electron vortices eventually come into existence.

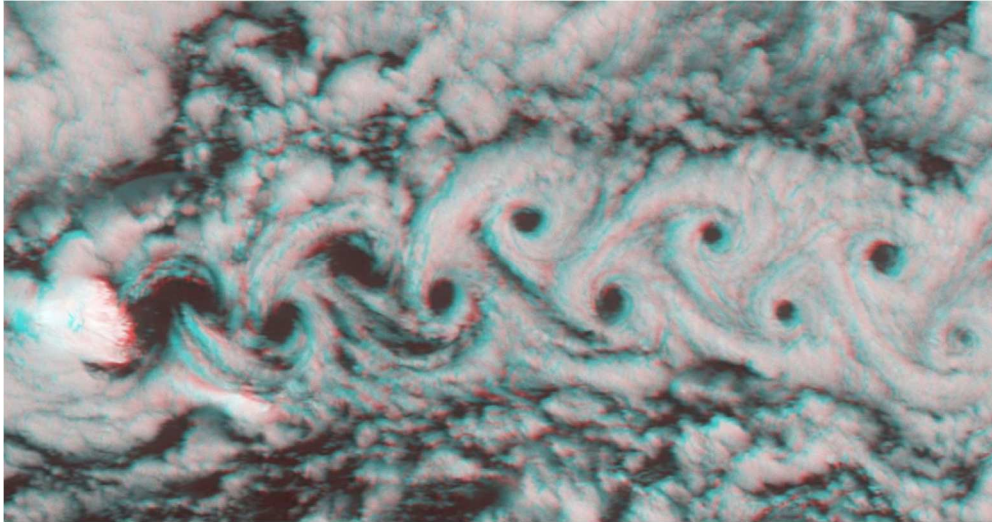


Figure 2. Illustration of von Karman street (source: [7], see also [8])

Alternating transverse forces can act on a cylinder, for example a telephone wire, which can make it vibrate. This is the reason why wires "sing" in the wind. The wire cylinder is stationary in a stream of moving media. Behind the cylinder is a turbulent wake of slowed air. Two vortex sheets are formed on each side of the wake, and their instability results in the vortex streets (streams of vortices). Vortices are formed in a Kelvin-Helmholtz instability in the same way. Analogous effects occur in aether flows which pass around an existing electron sphere, but in this situation the resulting "street" of vortices form into rings, which are exactly many newly formed KH vortices.

Vortex "shedding" produces resonances with the object that impeded the flow. In this case, the vortices are resonant with the existing electron. This means the positron could be viewed as an "anti-resonant" particle. Resonance at this level will constrain the vortices in the "street" to form duplicates that are the same as the original forms, in terms of "aether mass" (constrained aether forms). This also implies that positrons can be the basis for the formation of new electrons, in the parallel aether stream. See figure 3.

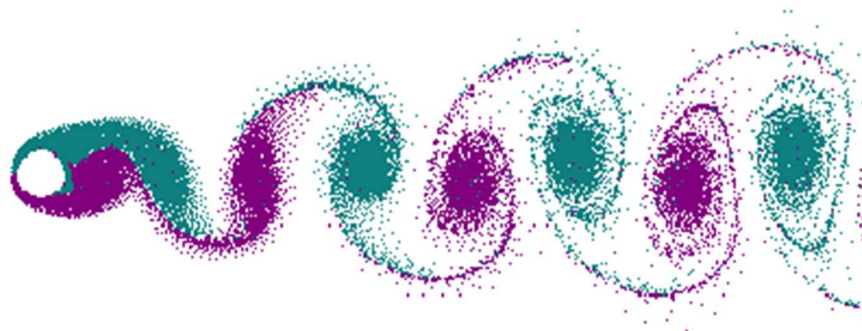


Figure 3. alternating electron-positron, alternating rotation directions (After RN Boyd)

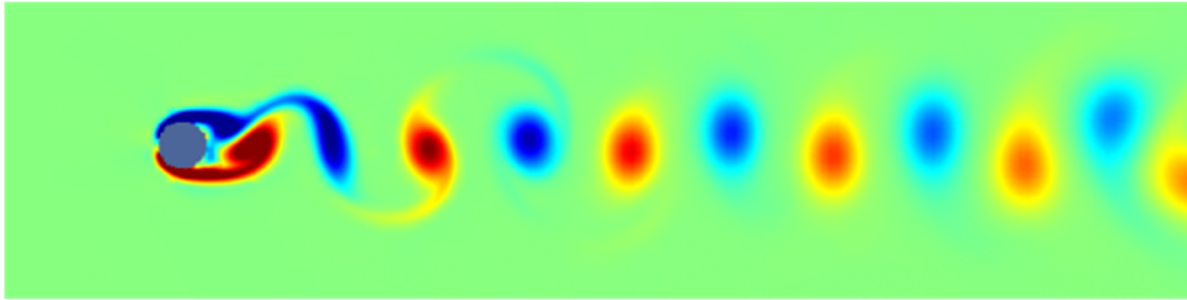


Figure 4. alternating electron-positron (After RN Boyd)

The above figure 4 is an alternative version of Figure 3. This raises a number of questions: Does this imply that both positive and negative charges already both exist, internal to the aether which comprises the aether winds? This implies that behaviors of obstructed aether flows are the origination of the **cause** of the distinct charges of electrons and positrons, and of electrons and protons.

The KH vortex model of the electron is simultaneously a sphere, surrounding a nest of concentric smaller vortices, which have a vortex ring at the middle of the concentric aether flows which comprise the particle. So the ring model is only partially valid.

Kelvin-Helmholtz electron vortex & origination of charge and matter

Vortex lines have been postulated to study fluid dynamics. A vortex line has a finite "strength" (vorticity times area), but a zero area, similar to the understanding that a dipole has zero length. Vortex lines tend to propagate at infinite velocity, unless the lines remain absolutely straight. (This would be the 5th aether phase state in Mishin's 5-phase aether dynamics. See diagram no. 5)

Importantly, the instant a vortex line departs from an absolutely straight line of propagation, **charge develops** in all the vortex lines that are bent. According to the direction of the bend, away from a perfectly straight line, a positive or a negative charge develops.

Parity (handedness) is directly involved in the development of charge. Parity determines the sign of the charge. The internal quantum numbers of electrons are opposite to those of positrons, which is just a restatement of the handedness (parity) of the internal aether circulation directions. The involvement of superluminal SQ infinitesimals in the formation of electrons and positrons, and superluminal internal circulations of the aether constituents of electrons and positrons, eliminates Lorentz "invariance" from consideration.

Lorentz "invariance" is only valid for a **single absolute value of c**, which value was experimentally proven to vary by as much as plus and minus 3000 meters per second, as recorded in the handwritten log-books associated with the hundreds of repetitions of the Michelson-Morely experiments during the last century. In addition, Lorentz "invariance" has nothing to do with electrons, positrons, and so on, due to the fact that "invariance" is only valid

for exact specific-velocity photons, which are **not identical** to electrons, contrary to the expressions of Heisenberg in his first book on quantum theory.

Vortex lines circulating internal to electrons or positrons are **always** bent away from a straight line, so the vortex lines circulating internal to electrons and positrons are **always creating charge**. This is **the origination of charge** and the reason charge never ceases, as long as the charged particle exists.

In addition, the electron-positron pairs are forming in aether-connected chains, which chains are responsible for the creations of atoms, as well as protons and neutrons, in a manner which depends on how long is the “street” of connected electron-positron pairs, which in turn, become parts of the nucleus of the new atom, in terms of the atomic number of the nucleus of the atom, in an *e-p* pair model of the composition of, and the construction of, the protons and neutrons which comprise the nuclear particles of atoms.

If the parallel aether flows which are forming chains of *e-p* pairs are short-lived, we will only see hydrogen, or perhaps the occasional helium atom being generated. Longer *e-p* chains result in larger atoms. The local density of types of atoms and alignments of atoms, may give an indication of the frequency of aether wind streamlines, in that region. Proper instrumentation of vortex-line (SQ infinitesimals) resultant behaviors can be used to map astronomical space, comprising an infinite range observation capability, due to the fact that vortex lines propagate with infinite velocity.

Conclusion

There are various models of electron which have been suggested, for instance see Chekh et al. [10]. But we seek a model which is close to experiments conducted by Bostick et al. [9]. Our attempt to explain such experiments of electron creation in plasma allows us to come up with a new model of electron, based on Helmholtz's electron vortex theory. In turn, we discussed a plausible model of electron capture event inside Earth (matter creation), which in turn could serve as a basis to explain Le Sage/Laplace's push gravity.

We also discussed among other things how relevant is Kolmogorov theory of turbulence, von Karman vortex street etc. to KH electron vortex. We further discuss a new model of origination of charge and matter.

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