



An Explanation of Generation of Electric Current Using Specially Shaped Electromagnetic Pulses According New Axiom and Laws

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Abstract

This article describes brand new field through new axioms and laws. The theory of new axioms and laws includes 2 new axioms and 8 new laws. It was described in previous articles and reports. It expands the Classic Field Theory to a much more general theory that consists new type of field (accelerating and decelerating), new view of movements (transverse and longitudinal) and so on. In present report are used 1 axiom and 3 laws only.

Keywords: Electromagnetic Pulses; Axiom; Electric Current

It is known that Maxwell's laws (1864, !) are based on a single base axiom. It states that the movement in a closed loop leads to evenly movement (with constant speed) of an electricity vector E ($\text{div rot } E = 0$) [1].

The author change this axiom with a new one (Axiom1), according which the movement in an open loop ($\text{div rot } E \neq 0$) or vortex ($\text{div Vor } E \neq 0$) leads to unevenly movement (with variable speed) of a vector E [2].

The subsequent results are numerous, but one of them directly explains the reason for the presence of free transverse vortices in the surrounding space [3].

According to Law 5, every decelerating vortex emits outside, decelerating primary vortices with same shape but correspondingly much smaller sizes [4]. They are primary vortices and fill space everywhere, even the vacuum. Further in the theory it is described that their shape and behavior is exactly like that of the electron, but with many times smaller dimensions [5].

The structure of the electron has already been described as a system of two vortices - a decelerating transverse vortex

that generates in its center an accelerating longitudinal vortex perpendicular to the first [6].

Let us construct a standing wave for example in an asymmetric antenna or waveguide. Then we will be able to apply to this standing wave a series of pulses with a steep front. They are the reason these primary vortices are subjected of pressing by strong and sharp shocks from electromagnetic pulses with very steep fronts. As a result the primary vortices begin to group to 1 common axis called a longitudinal vortex or to 2 axes in a pair of longitudinal vortices with the opposite direction. In the first case, one synthetic electron is obtained, and in the second case - a pair of synthetic electrons. If these synthetic particles are placed between the plates in an electric field, they will move towards the positive pole, exactly as an ordinary electron or pair of electrons.

Retrospection according to the theory of new axioms and laws

What we know so far about the structure of the electron, its mode of pulsation in time and the generation of primary transverse vortices.

According to the new Axiom 1, every open vortex can exist as a non-uniform vortex with a monotonically varying velocity.

Result

An open vortex can exist in time-either as a monotonically decelerating or as a monotonically accelerating motion.

Moreover, an open vortex can also develop in space - in both 2D and 3D space.

Result

An open vortex can exist in space-either in 2D as transverse vortex or in 3D as longitudinal vortex.

Result

Thus, we get 4 varieties of open vortices - transverse decelerating and transverse accelerating or longitudinal decelerating and longitudinal accelerating.

Result

An open vortex can exist in time and in space – either as transverse decelerating and transverse accelerating or as longitudinal decelerating and longitudinal accelerating vortex.

According to the new Law 1, each transverse open vortex in 2D generates in its center a longitudinal open vortex in 3D, perpendicular to the plane of the transverse vortex.

According a special case of law 1

If the transverse vortex is decelerating in 2D in the direction from outside to inside, then this transverse vortex continues in its center as a longitudinal accelerating vortex in 3D in the direction from center to outside. The explanation of this phenomenon involves an explanation of a complex spatiotemporal resonance which will not be the subject of this report.

A transverse decelerating vortex moving from outside to center generates a longitudinal acceleration vortex from center to outside [4,5].

This Special case of Law1 forms the basis for modeling an ordinary electron [6].

Model of electron

In the figure 1 a, b is shown an electron which pulsates in time (t_1, t_2).

In figure 1a, the electron is at time t_1 and it is in the bloating phase. The transverse vortex is decelerated (negative first derivative) and

plus this it is weakly decelerated (small first derivative). That is the reason of bigger radius of transverse disc and the transverse vortex appears inflated. According new Law 4 the bigger radius of transverse vortex causes less length of longitudinal vortex. The new Law 4 claims that for an uneven (accelerating or decelerating) vortex the result of multiplication between current amplitude (W_i) (radius of transverse disc) of transverse vortex and current velocity (V_i) (length of axis) of longitudinal vortex, perpendicular to cross vortex is a constant [4].

In figure 1b, the electron is at a later time t_2 and it is in a collapsed phase. This means that the transverse vortex is decelerated (negative first derivative) and plus this the transverse vortex is highly decelerated (high derivative of decelerating). This is the reason the radius of transverse disc is less and the transverse vortex to appear collapsed. According new Law 4 the collapsed phase of transverse vortex (less radius) causes the length of longitudinal vortex to be elongated [5].

Model of two phase of electron and model of free primary transverse vortices

We saw above that when the transverse vortex is weakly decelerated or it has less derivative of decelerating then velocity of deceleration is minimum. Therefore this electron has bigger radius. This is the reason this kind of electron looks like as inflated ball [6].

We saw above that when the transverse vortex is highly decelerated or it has high derivative of decelerating then velocity of deceleration is maximum. Therefore this electron has less radius. This is the reason this kind of electron looks like as small ball [6].

According Law 5 every open decelerating vortex emits to environment a large number free primary cross vortices. The electron in the first inflated phase sucks in primary free transverse vortices from the environment (Figure 1a). But the electron in this second collapsed phase emits free prime transverse vortices (Figure 1b). They fill the space around every electron. The act of this free vortices is known in popular books as free energy [7].

Sometimes, when the electrons are in the valence layer or are simply free electrons in space, they cooperate in pairs. They bite the tails of their longitudinal vortices and form a ring of longitudinal vortices. But the transverse vortices remain in their previous positions - coiled in transverse disc in the direction from outside to inside with a decelerating velocity (Figure 1 c, d).

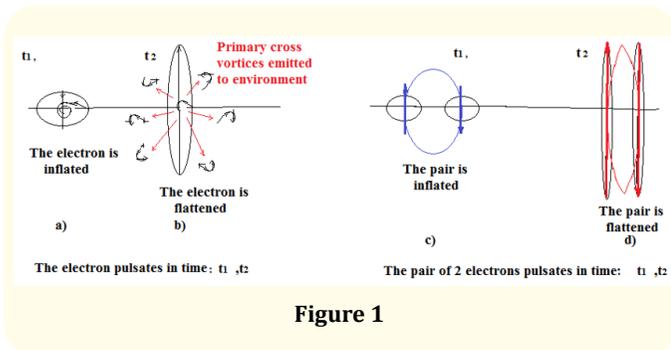


Figure 1

The pair of two inflated electrons is inflated as well (Figure 1c). The pair of two flattened electrons is flattened as well (Figure 1d).

We saw above that between the electron and the free primary transverse-decelerated vortex there is a pronounced similarity with a difference in scale between them [6,7].

Therefore the flattened pair of free transverse vortices emit free primary transverse vortices as it was done from the flattened electrons (Figure 1b).

Algorithm for using the steep front of the electromagnetic field

Primary transverse vortices

How to use the steep front of the Electromagnetic Field which causes the pressing of primary transverse vortices.

Only in this way will we be able to force them to form pairs with opposite directions of their longitudinal vortices. It became clear from the previous explanations that the free decelerating transverse vortices with a perpendicular accelerating vortex in the center represent reduced in scale of models of the standard electrons. These primary vortices which radiate from the electron at the moment of time when it shrinks, have the same shape, structure and character as the electron, but are on a much smaller scale (Figure 1b).

Result

Primary vortices that are emitted by the electron in the contracted phase have the same shape, structure and character as the electron, but are on a much smaller scale.

Let us summarize the model of electron according the Theory of new axioms and laws.

According new Axiom 1 every open vortex is monotonously uneven or its velocity is monotonously variable. This means that the vortex is monotonously decelerating or monotonously accelerating.

According new Law 1 every monotonously decelerating transverse (from out to in) vortex generates accelerating longitudinal (from center to out) vortex. It is described a model of electron in free shape. It has expanded transverse vortex (bigger radius) end short longitudinal vortex (Figure 1a). This electron lives in space only as it pulsates in time. According Law 5, when this electron shrinks along a transverse component (less radius) it emits to environment a few primary vortices in the same shape as himself shape but in smaller scale (Figure 2a) [5,6].

Let's assume that we have a space of vacuum full of this kind primary vortices. This means that we have at least two primary free vortices which are models of electrons. They have the same shape but in much less scale [7].

Saw-shaped electromagnetic pulses with a very steep rear working front

It became clear that the environment (including the vacuum) is filled with free primary transverse vortices. They have the same structure as electrons but have a much smaller size.

Let's compress these primary vortices using the rear steep front of Electromagnetic saw -shaped pulses. The form is such that the leading edge of the pulse is more lying and therefore it is not working, but the rear edge is much more steep and therefore it is a working front.

The leading edge of the pulse has a specific slope which is calculated according to the system parameters. The goal is that the volume contraction at the rear edge of the pulse with the primary vortices becomes much faster and more powerful than the slower volume expansion at the more lying leading edge (Figure 2c).

This special mode of Electromagnetic pulse is necessary to pack so called Synthetic electrons in compression and not unpack them in expansion(Figure 2i).

Generating the synthetic electron

After two consequences of Law 5, it becomes clear that the ordinary electron pulsates in time, passing through two phases. This

is an expanded phase with a large diameter along the transverse component(Figure 1a, Figure 2a) and a short longitudinal component, and shrunken phase with a small diameter along the transverse component and a long longitudinal component (Figure 1b, Figure 2b).

During the first phase the expanded electron sucks in the free primary cross vortices from environment (Figure 2a). During the second contraction phase, all excess primary transverse vortices that filled the body of the inflated electron are radiated outward. They are the same primary vortices which were sucked in previous phase when electron was expanded (Figure 2a). So the inflated electron emits outside free primary cross vortices.

These emitted toward environment transverse free primary vortices fill the surrounding space.

Let us subject these free primary vortices to multiple compressions by electromagnetic pulses with a steep front in time : T1, T2, T3, T4,...(Figure 2 c, d, e, f, g).

Then, at each impact of saw-shaped Electromagnetic pulses with a very steep rear working front, two (at T1) and three (at T2) and four (at T3) free transverse primary vortices will be grouped. They will be packed around one and the same longitudinal vortex which is perpendicular to them (Figure 2g). This artificially produced particle has the same properties as an ordinary electron and we will call it a Synthetic electron.

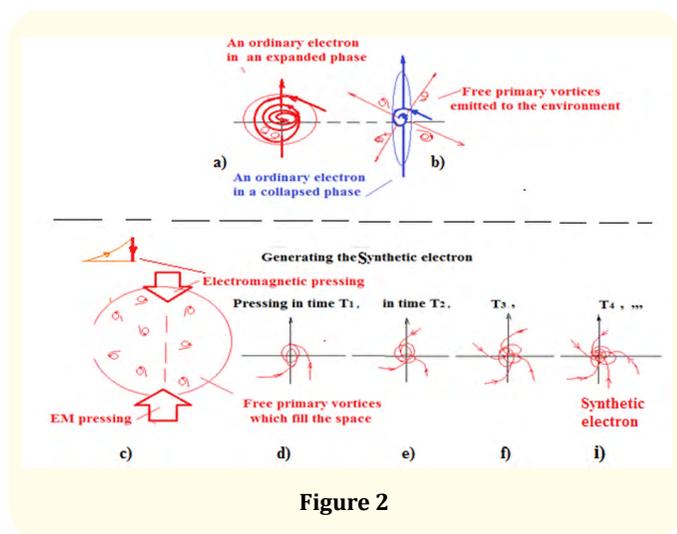


Figure 2

Generation of pair of primary vortices

We apply Electromagnetic Field with very steep front from out to in. The described above two primary vortices will form a pair, connecting of longitudinal vortices in opposite directions in closed loop (Figure 3b).

Simultaneously with pair generation inside the space, this steep front of the Electromagnetic Field sucks of pre-existing pairs from free primary transverse vortices. Thus this steep front from the outside inwards sucks and previous pairs of transverse vortices, which are connected by the longitudinal vortices in the opposite direction and in this way it sumes internal and external pairs of free primary vortices (Figure 3c).

As a result, a set of 2 complex primary vortices is obtained. Each of them has 2 transverse vortices and they are connected by their longitudinal vortices, which are in opposite directions (Figure 3d). After that this process repeats again (Figure 3 e, f) and once again (Figure 3 i, j).

Generation of pair of synthetic electrons

Finally, after N number of transverse Electromagnetic pulses with a steep front in a direction from outside to inside, a complex pair is obtained. This complex pair very much resembles a pair of electrons connected in opposite directions (Figure 1 c, d). The condition for this is the application of a sufficient number N of Electromagnetic pulses. Their number N depends on many parameters, which we will not analyze now. A sufficient number of pulses N causes the attraction of a sufficient number N/2 of primary transverse vortices, which are attracted and wound around of each longitudinal vortices in opposite directions (Figure 3j). How much this sufficient number N/2 is now will not be analyzed.

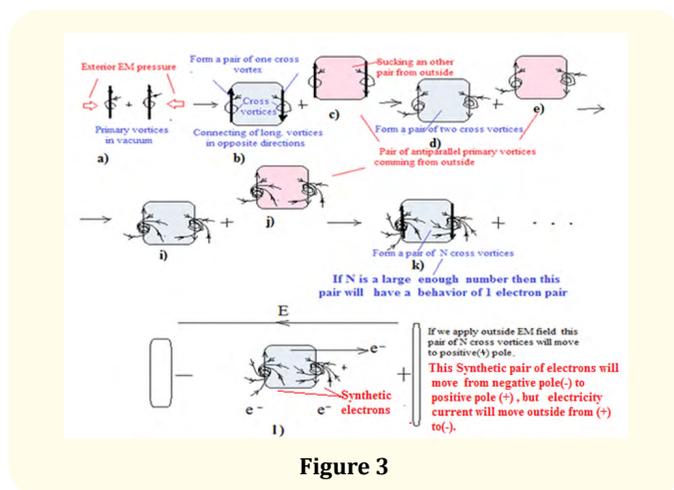


Figure 3

Movement of Synthetic electron to positive pole of electromagnetic field

If such a pair (Figure 3k) falls into a static Electromagnetic field between a positive and negative plate (Figure 3l), the pair will direct because of transverse vortices towards the positive pole.

The reason is that the decelerating transverse vortices are directed from the outside to inside as the internal end is in center, but the external end it comes from the outside in (Figure 1a). Since the vortex is decelerated from out to in, the velocity decreases from outside to center. Therefore, because this primary transverse vortex is decelerated from out to in, it needs of an external positive power supply to the free outer end. Therefore the free outer end of decelerating transverse vortex want to suck energy from the positive pole from the outside in (Figure 3l).

Result

The outer end of decelerating transverse vortex of the electron wants to suck Electromagnetic energy from the positive pole in direction from the outside in.

Therefore the outer end of the decelerating transverse vortex of electron needs the energy of the positive pole. That's why the electron tends to move exactly towards the positive pole [6].

On the Nth shock of the steep front from the Electromagnetic Field, some synthetic electron or pair of electrons is obtained as a result (Figure 3k).

The synthetic electron has behavior just as the standard electron

This Synthetic electron has N number of small primary transverse vortices. They will collectively strive to be charged with energy from the positive pole, just as one but very powerful standard transverse vortex is charged on a standard electron.

Therefore, the Synthetic electron moves towards the positive pole of the supply Electromagnetic field, just as the standard electron moves towards the positive pole (Figure 3l). Obviously the newly acquired synthetic electron has behavior just as the standard electron.

Result

The Synthetic electron moves towards the positive pole of the supply Electromagnetic field, just as the standard electron moves towards the positive pole.

Therefore, we can generate a Synthetic electron or pair of electrons by mimicking the nature of a classical electron using an external Electromagnetic field.

Technical implementation of electromagnetic field which acts through pulses

Requirements

The necessary requirement for the pulses is that they must have a sufficiently high and steep working front.

The sufficient requirement is that these pulses are applied from the outside inward exerting a compression on the space in which the primary decelerating transverse vortices are located.

About a standing electromagnetic wave

The both requirements above can be met almost perfectly in an asymmetric antenna (or waveguide). The goal is to generate a standing Electromagnetic wave with a wavelength equal to the half of length of the antenna (waveguide). For this purpose, the length of the antenna (or waveguide) must be matched with the wavelength, which is proportional and to the height of the electromagnetic pulse.

Let us supply a high pulse potential to one end of the antenna. If the antenna has corresponding dimensions to the height of the pulse, a standing Electromagnetic wave is generated inside it along its length. The electromagnetic wave is located along the length of the antenna. And the more accurate arrangement is that the electrical component has a maximum amplitude (peak) in center of antenna and minimum amplitudes (nodes) towards the ends of the antenna. The magnetic component has a minimum amplitude (node) around the center of the antenna and maximum amplitudes (peaks) at both ends of the antenna.

The rear working tact of saw-shaped electromagnetic pulse

The real operating tact is when the active end of the antenna is sharply and quickly grounded. Therefore the pulse jumps from a maximum value to a zero value. This means that the electrical component of the standing electromagnetic wave in the center of the antenna sharply shrinks from maximum amplitude to zero amplitude in the direction from out to in as transverse to the antenna. This is the working active action in which the electric wave exerts a sharp and strong pressure on the free and primary transverse vortices. This pressure causes two different primary

transverse vortices with approximately the same direction of the longitudinal components to form a Synthetic vortex [6].

It is obtained two different primary transverse vortices coiled around one common longitudinal vortex. At the same time, this operating pressure can cause two different primary vortices with opposite directions of their longitudinal vortices to form a pair. This pair consists of two different transverse vortices with opposite one to other longitudinal vortices that form a closed circle.

The efficiency factor is more than one

After N number of hits of the Electric field, $N/2$ per number of Synthetic electrons or electron pairs is generated and an additional generated current flows inside the antenna. Consequently, more power is obtained at the antenna output than is supplied to the input, and this is the benefit of this algorithm to generate current.

Something similar was done by Nikola Tesla in his electric car (1931). Unfortunately, the construction of this generator has not survived. It is only known that the engine works with so-called free energy and needs classical fuel only for initial propulsion. Therefore the difference between the electric cars of Mr. Tesla and Mr. Musk is obvious.

Specification of the term free energy

The term free energy used in the article differs from the same term used in the media.

In this paper, the term free energy means the origin of the energy of the free primary transverse vortices that fill the entire surrounding space, including the vacuum [7].

In the media, the term free energy does not mean the origin and essence of this energy, but only the technical capabilities of a certain electromagnetic system.

Conclusion

This proposed algorithm applies a trick. The trick is that with the help of Electromagnetic pulses with a steep front, a Synthetic electron is generated. The Synthetic electron imitates the Classical electron based on the same behavior in the middle of an Electromagnetic field. Both the Classical and the Synthetic electron move towards the positive pole of an external Electromagnetic field.

This trick can easily imitate electrons, which we call Synthetic electrons. They move towards the positive pole of an applied external Electromagnetic field, just like Classical electrons. The difference between Classical and Synthetic electrons is in the number of decelerating from outward to inward transverse vortices that are wound around the perpendicular longitudinal vortex. The Classical electron has one transverse vortex, and the Synthetic electron has many but much weaker transverse vortices. The reason for this is that the Synthetic electron is synthesized from primary transverse vortices, which have the same structure but have much smaller dimensions and they have much less power.

Moving towards the positive pole, Synthetic electrons pulsate in time, just as Classical electrons pulsate.

Therefore, Synthetic electrons, just like Classical electrons, emit pulses that are perceived by the positive pole of the Electromagnetic field as a flowing electric current.

Pulsating in time (contracting and expanding) the Synthetic electron creates Electromagnetic wave with direction to positive pole. This pulsating field is perceived and measured by an electrical device as additional passing Electricity current. This additional current is added to the input supply current and creates the output current.

This is the reason that the output current to be bigger than input current. This fact demonstrates the generation of electricity current inside the antenna.

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