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ELECTROSTATICS INTERACTION EVTD² IN SPACE - TIME WHERE POTENTIALS ARE IN *eV* QUANTUM LEVELS. CONDUCTOR SURFACE CHARGES AND THE RESULTING COMPRESSION AND EXPANSION PRESSURES OF EMV HAVE A MAJOR ROLE

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Abstract: *Physics admits that the electrostatic interaction is carried out by the photon. Potentials and electric fields quantified in eV are derived from electromagnetic emissions radiated by the masses themselves and the charges on the surface of conductors [1]. In the case of attraction, would be rather a simultaneous action on each of the charged masses from the zero resulting electric potential: it is regarded as a "mini black hole" that would attract the masses of opposite charges to him. In this "black hole" EMW would act ensuring eV quantum levels compaction in compression. For the repulsion, phenomena are different: they ensure expansion pressure of relating potential quantum levels by giving the spacing of the charged masses. Examples of these processes are proposed for two identical and, two opposite charged masses.*

Key words: quantic electrostatic interaction, fully quantic space-time, EVTD² entities theory, quantic Substratum.

1. INTRODUCTION

Inside the EVTD² entities theory [2-9], the space-time as well as the condensed matter are structured and formatted in joined energetic entities EVTD² entities, fully quantified, especially in diffuse energy named *Substratum*. The *Substratum* energy *can exist only with well-defined quantum levels*, as to be in agreement with the base itself of EVTD² entities [11]. This *Substratum* energy emerge of in phase vibrating actions at Planck's frequency of electromagnetic mother wave (EMW) that *longitudinally spreads* [2-9]. Therefore this *Substratum,* which, by its very nature, represents a Coherent background, *is able to receive electric, magnetic fields and some forms of energy.* If a charged mass is present in this Coherent background, it will introduce two particularities: its own singularity of energy concentration ($E=mc^2$) [8] and, another one caused by mono charges excess in its surface. Thus, this condensed matter (mass) will radiate, as the black body, electromagnetic waves adapted to its own temperature, in *the Coherent background EVTD² that is, itself, already electromagnetically structured* [2-9]. But also a specific energetic radiation subject to the state + or – depending on its charge [1]. ***For our days Physics, the electrostatic interaction is carried out by the photon***. So, the electric charged mass specificity would be added to the electromagnetic radiation adapted to the temperature value of this mass [10]. Since the potentials and fields of positive and negative electricity are singular to each other, the information transmitted in the space by the one and by the other polarity must be specific. It is, therefore, that in the Coherent background co-existed at least two kinds of energy networks: quantified respectively in *h* [10] quantum levels, on the one hand and, in *eV* quanta on the other hand [1].

The various circumstances which lead to attractions and repulsions between charged

masses will be approached in this work in order to highlight the peculiar characteristics to each case. It will be a physics study, searching for the phenomena in question who are guiding and generate the effects observed.

In the context of the assumptions of [1], the charged masses bring primarily only their characteristics in the Coherent background, but it is in the inter space charged masses that the attractions and repulsions will be generated by *the various perennial work of EMW*, according the specific cases.

2. EVTD² PHYSICS: GENERATION OF ELECTRIC FIELDS RELATED TO LOADS + AND -

Studies were conducted in EVTD² entities theory of [12-13] particularly on electron movements around the nucleus that generate, by shocks – impulsion, sinusoidal electromagnetic waves. Thus, even the electrically neutral mass, at a certain temperature, radiates photons: it is the principle of the black body. But if this mass is charged, for example of an excess of electrons, a particular radiation of electromagnetic waves that are singular compared to those issued by the neutral mass, will be added. Indeed, *electrical loads in a conductor are positioned on its surface*. Probably, these extra electrons are shaken by multiple movements on this surface, what then generates shock-impulsions on the EVTD² of their routes and so, these electromagnetic waves, specific to the circumstances are emitted. The flow of these waves is proportional to the amount of excess charges and it will be emitted throughout the space surrounding the conductor, to infinity, in principle. Now, it is about the differences that there are between charges, + and - with respect to their intrinsic emissions of electromagnetic waves corresponding to more or less free electrons and protons movements on the conductors surface. These special waves are in a certain analogy and correlation with those of the emitted light by the electron during its orbital path [12-13]. Figure 1 summarizes, in 2D, the trajectories around a cylindrical conductor for respectively the electron and proton. This is to simply understand the essential differences that exist for two cases of generated waves. It is the senses of ***E, B*** and ***p*** vectors which are jointly propagated, according to (a) and (b) for each kind of wave, that are the essential in the beginning of this explanation. As evident, the electric vector in the case of the electron (Fig. 1, a) is directed towards the interior of the cylindrical conductor (pseudo-orbital), just like the (centripetal) direction of the electric field propagated by an electric current of negative charges. While for proton, the ***E*** vector is inversely oriented (Fig. 1, b) as the orientation of the field corresponding to a positive charge which is centrifugal.

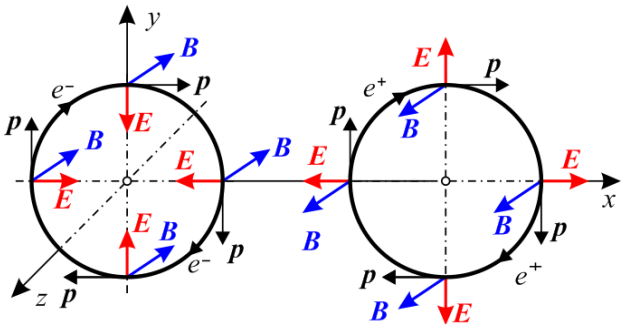


Fig. 1. Simplified 2D representation of ***E, H*** and impulsion ***p*** of sinusoidal generation of waves emitted by an electron (a) and by a proton (b) through shock – impulsions on EVTD² on the outside surface of a cylindrical conductor.

By this analyze in EVTD², we well understand that the fields are in agreement with current physics' indications. In addition we dispose of phenomenological explanations on the transmission via photons of different electrostatic interactions between + and – and, between identical charges. Indeed, electromagnetism is inescapable: in space-time EVTD2 and still in relation to the generation and propagation of this interaction like gravity in space [10]. By the electrical charges polarities we must admit that the ***E*** vector is not isolated but it is always accompanied by two other vectors ***B*** and ***p***, content that it is, in its electromagnetic wave generated by its charge itself in its intrinsic motion and shock-impulse on EVTD². More, in analogy with what has been mentioned for the gravity reconsideration in [10], the flow of these waves with characteristics ***E*** positive or negative have densities that

decrease with distance from the considered charge. This structure correctly the decay of quantum levels, ***depending on the adopted quantum*** *eV* [1] of electric potentials in the same direction because there is a difference of the same amount of flow along the distance from the source charge.

The originality of this new EVTD^2 physics consists in ***taking into account and use of the energy levels in*** *eV* ***quanta, pf the electromagnetic radiation of the two charge states as to represent energetic potentials which adequately materialize the electric potentials***. After representing in progressive lengths levels and in quantum levels what has been calculated and used in [1], *it is the representation of quantification in eV, perfectly coherent prioritization of electrical potentials, which turns out be consistent*.

3. CASE OF TWO EQUAL CHARGES AND OPPOSITE SIGNS ATTRACTION

Following the study and previous representation, we can map the electromagnetic waves generated by each of them in the inter charges space. Two vis-à-vis conductors are cylindrical, the + and – charges are moving around the axis of their cylinders (figure 2). Thus we note the opposite directions of the vectors ***E*** and ***B*** and it follows that they will be in value, of opposite signs in the inter charges space.

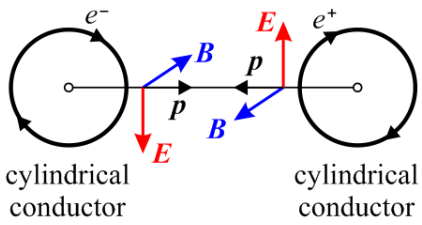


Fig. 2. In the inter-space of opposite charges, the vectors ***E*** and ***B*** have opposite directions and symmetric values as to give sum equal to in zero resulting potential point during quantic levels compaction.

In [1], the calculi showed that the electric potential quantic levels length of each of different opposite charges are equal in the vicinity of zero resulting potential, ***by using the specific quantum*** *eV* ***in the modulation of levels.*** A fortiori, it will be the same for two equal and opposite signs charges. Figure 3 is the representation of this last situation for a first simple case study.

It is necessary to specify some parameters characterizing the two masses equal charged + and – that are separated by a distance *d* and whose representative potential levels on each mass are simply, for example, +500 and -500. While the potential of one, respectively at the distance *d* on the other are no more than +50 and -50. Thus, by adding the simplified values of opposite vectors ***E*** in the point *O* and, respectively, on each of the charged mass, will obtain: zero in *O,* +450 on the positive charge and, -450 on the negative one. This is represented in Fig. 3, a while in Fig. 3, b, the point O and its periphery are represented in equal lengths levels (as calculated in [1]), with symmetric quantum levels, in *eV,* respectively positive and negative. The hierarchy of potentials quantum levels in *O* is therefore in harmonious and balanced structuring.

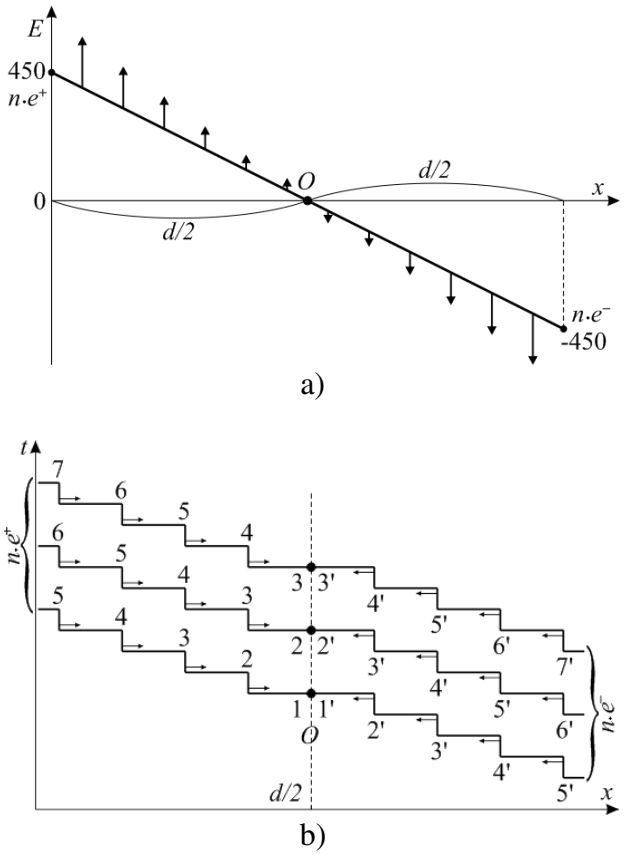


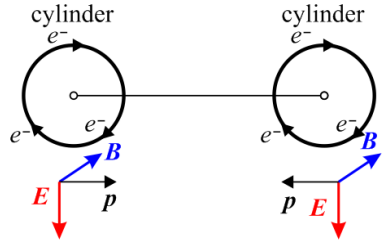
Fig. 3. Schematizations for two equal and opposite charges of resulting fields (a) and electrical potentials quantum levels in e*V,* around point *O* (b).

As in all previous reasoning, relatively to the compaction of EMW in the zone of zero potential [1, 10], it turns out that these processes are here clearly favored. In fact, it is one after the other two to two symmetric opposite values levels, which will be compressed into a single electrical value, again zero in *O* (Fig. 3 b). So, *the attraction of these special charges will be symmetric from O and towards him*. As a result, that this zero electric potential will thus always remain *in the same location on the axis between the charges during their approaching movement*.

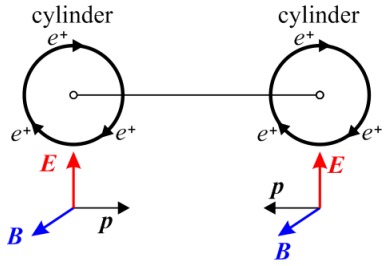
If the two charges were only opposed, the zero resulting electric potential would move of an adapted manner on the inter charges axis about as is the case for gravitation [10].

4. TWO EQUAL CHARGES AND SIGNS REPULSION

In the case of electrostatic repulsions, things and phenomena are not as simple as for the attraction. It needs to rely more on this repulsion findings as to emit coherent assumptions for logically explain this action in the context of the EVTD^2 entities theory and of electrostatic potentials measured in *eV*. In figure 4, a, and b are depicted the different components of electromagnetic waves which must be emitted by cylindrical conductors crossed by charges respectively negative (electrons) and, positive (protons for example). More, by positioning the two opposite identically loaded conductors by e_- (Fig. 4, a) and e_+ (Fig.4, b) it is possible to analyze what must be the resulting fields for each case in the areas between the two pairs of charges. The first remarks that appears, in comparison with the previous case, it that here the potential of one of the charges will induce a certain value additional of same polarity potential either negative (Fig. 4, a), either positive (Fig. 4, b)



a)



b)

Fig. 4. For two identical charges, ***E*** and ***B*** vectors have the same orientation creating for compaction supplementary anachronisms in the inter-charges space both in (a) and (b). Hence, repulsion for charges by negative pressures.

Knowing, by observation, that two identical polarities (electric and magnetic) cannot integrate but repel it will therefore be proved that the superposition of the two fields of same polarity, given by two same charges, would not be compatible. There will be, in the space, antagonism between their reciprocal presences. It will follow that if the charges are sufficiently mobile, one or both will depart from the other. On two cases of figure 4 we observe that ***E*** and ***B*** vectors have the same orientation for every situation, which argues the previous note of non-overlay. Indeed if it was, there would be increasing in already present disparities in the context of the Coherent background EVTD^2. So, in these conditions, the compaction in compression is not possible but it will be no amalgam of same signs potentials that will establish negative pressures or expansion in inter charges space. So, here, unlike in the case of two opposite charges isn't in one particular area (point *O*) that phenomena will be to generate the repulsion between suitable loads. Summing up the finding, we can say than the «mini black hole» of electrostatic attraction in its point *O* is replaced, here, by *the whole inter charges area and inversely this space is, from the beginning, subjected to negative pressures*. Indeed, in the Coherent background, it is logical to think that the masses as well as the loads are singularities that, by their presences, generate disturbances in this animated and homogeneous structure of EVTD^2 entities. So, even in the case of repulsion, there is not direct electrostatic interaction between charges. *But everything takes place in the inter charges space either by compaction or by expansion of Substratum [11]*

quantified by suitable work, case by case, of EMW.

As in the electrostatic repulsion, there's no zero resulting potential between two charges of the same sign, this introduces no zone with a certain homogeneity [1] (same lengths of quantum levels, for example) *even that this causes to EVTD² entities disparities that are not reconcilable with the strict temporality, in theory, which must exist in a same EVTD²*. All this resulted therefore in the generation of a negative pressure giving the spacing of these same charges, which was named repulsive.

5. CONCLUSION

The first conclusions suggested by this study is that in the Coherent background of EVTD² entities network will overlap, at least two kinds of energy-typed and quantified respectively in quantum levels *h* [10], on the one hand and in quanta *eV*, on the other hand [1]. These two fields in energy differently quantified come respectively from the mass of the conductor itself and, more of the electrical state of its charges. It is the charges state that initiates the highest quantum values, at least by $eV > h$. Charges in motion on the conductor surface, hit the EVTD² network and thus generate electromagnetic waves which will generate the electrostatic field and, we shall be able to say that it is carried by photons.

With regard to electrostatic attraction, the phenomena of compaction of EMW, on and around the zero resulting electrical potential are comparable to those of gravity. This is done by giving positive pressures in these specific areas and, thus organizing the attraction of loads.

In the case of electrostatic repulsion the understanding of the involved phenomena is a little less simple. Indeed, that would be about the same directions of electric and magnetic vectors in the inter-charges area (and no longer in a point) that ultimately would generate negative pressures by the vibratory work of EMW. The consequent result would therefore produce the spacing or the repulsion of these same type of charges face-to-face. The disparity of the physical phenomena involved in the other cases, essentially, still resides around the criterion of respect for homogeneity and temporality in very small volumes that are EVTD² entities. Thus, compaction in positive pressure of these volumes or their expansions (by multiplying the number of the EVTD²) that are generated, by equivalence, in accordance to negative pressures both allow opposing actions.

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Interacţiune electrostatică într-un spaţiu-timp EVTD^2, unde potenţialele sunt exprimate în niveluri cuantificate de *eV*. Sarcinile de suprafaţă din conductori şi presiunile rezultante din compresiunea-tracţiunea exercitate de OME joacă un rol major

În fizică se admite că interacţiunea electrostatică este realizată de către foton. Potenţialele şi câmpurile electrice cuantificate în *eV* derivă din emisii electromagnetice radiate de masele însăţi şi de către sarcinile aflate la suprafaţa conductorilor [1]. În cazul atracţiei, ar fi o acţiune simultană a punctului de potenţial electric rezultant zero spre fiecare dintre masele încărcate, punct ce poate fi considerat ca "o mini gaură neagră" care ar atrage masele încărcate, de semn opus, spre ea. În această "gaură neagră" ar acţiona OME asigurând compactarea în compresiune a nivelurilor cuantice în *eV*. Pentru respingere fenomenele sunt diferite – asigură presiuni de tracţiune ale nivelurilor relative cuantice de potenţial, producând depărtarea maselor încărcate. Sunt propuse cazuri ilustrative pentru două mase încărcate identic şi două sarcini opuse.

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