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The Methods Of The Graduation Of The Electomagnetism Sizes With The Theory As Fluid The Electric Current And The Consequences In The Modern Physics

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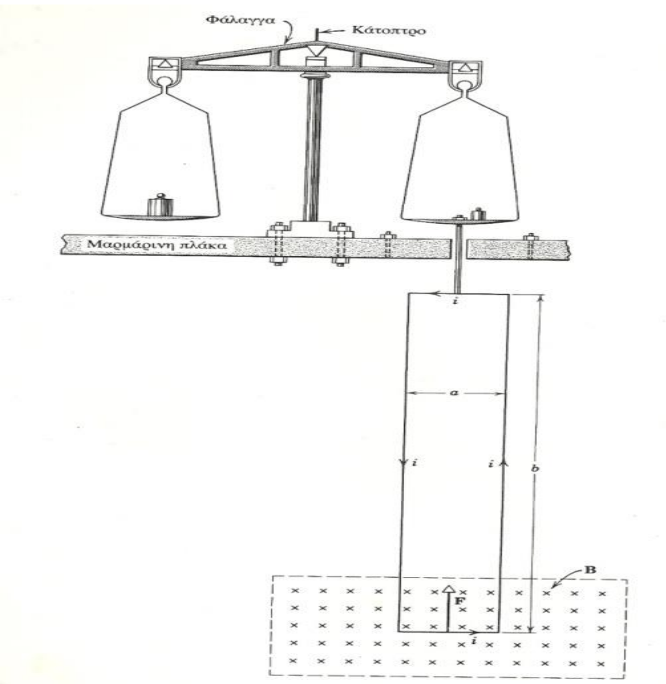
Abstract: **The law of Ohm, didn't describe right the flowed electricity, us I am accepting and describing. So, it didn't graduate right the escalation of the electric current (the Ampere's law must be changed), and they didn't count right the unit and the graduation of the magnetic field. I proposed an in forced method, for correct counting of it. The dielectric constant must be equal to one (1) and in System Internasional, so the Coulomb's law is consequent, and it will be changed the unit of the electric charge, and the capacities of the capacitors. New unit of the voltage 'l be found and a new diamagnetic constant 'l be in force. New self-inductions 'l be in force. New frequencies of the circuits Thompson 'l be accepted. New constants of the element charges, and new masses of the electrons and protons, neutrons etc will be in force.**

Keywords: **The Electric Current, System Internasional, diamagnetic constant.**

1. INTRODUCTION

With the patent 1008351/2013 that I took for my introduction in new relations and formulas in the electromagnetism and the production for new ornaments of counting, I didn't avoid the data of the existent physics. I.e. I accepted the method of the magnetic field calculation and its graduation with the balance. I give it, in the plan (1).



plan (1)

With this balance, a choke of 9 torus came in the magnetic field, which was counted. The choke was hung on the one leg of the balance and on the other the standards with their weighs neutralized the force that was in force to the choke. In the choke, as it is reported in the physics of D. Halliday- R. Resnick, is passed an electric current of 0.1 Amp. Here, with the my method, I am going to overturn that the electric current was counted right and the magnetic field was graduated right, so a redefinition must take place when it comes to the magnetic field counting and graduation. And for the voltage, I accepted , as it has been up to day, the formula V=P/I where P is the electric power that was defined at the beginning of the experiment of the mechanical equivalent of heat, of Joule and the electric equivalent of heat. I bought an apparatus to the definition of the mechanical equivalent of heat and I ascertained how much difficult the experiments are. They are impossible yet. And I propose my own method for the calculation of voltage. But also at the calculation of current intensity, I'll follow the theory of the fluids, as I am repairing it, on some points.

2. METHODOLOGY

In some parts, i.e. on the magnetic field, the author accepts the in force formulas, that were not applied for the counting of it.

The author accepts that the electric current is flow of element charges of the electrons. Then he proves the formula of the charges velocity, with the method of induction. And again, he accepts that the force which is in force to an electric charge, is analog to the voltage and with the same method, he proves the formula of the voltage and the electric power.

3. ANALYSIS

THE DEFINITION OF THE UNIT AND THE GRADUATION OF THE MAGNETIC FIELD:

We have a revolved linear magnet where the center of its weigh is supported to a support and we put it in a magnetic intensity H. $B=\mu_0 H$ in agree with the modern theory.

If the magnet is put in initial conditions, and its axis is not lined with the direction of H and with the small angle θ to this, then it will begin to be oscillated with the angle θ round the position of equilibrium. If the moment of inertia is I_i, then the period T of its oscillation round the position of equilibrium, will be,

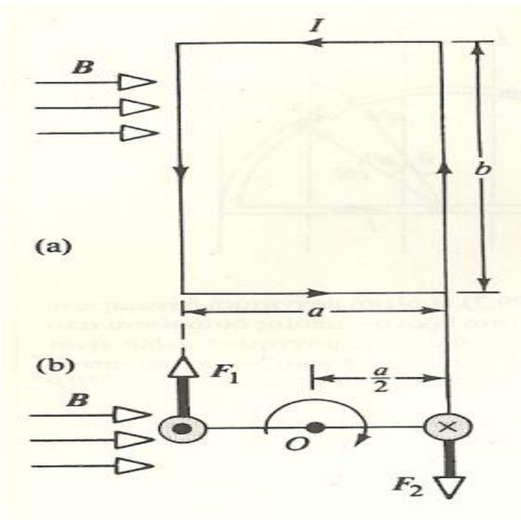
$$T = 2\pi\sqrt{\frac{I_i}{MH}} \quad \text{, M= the moment of magnet}$$

Below, there is the next formula of the magnetic fields and the periods,

$$\frac{B_1}{B_0} = \frac{T_0^2}{T_1^2}$$

So, we must find the unit of B, the B_0, which we call Hellas, in order to have the whole picture of the graduation of B.

In the plan (2), a parallelogram framework of electric current, is put into a magnetic field.

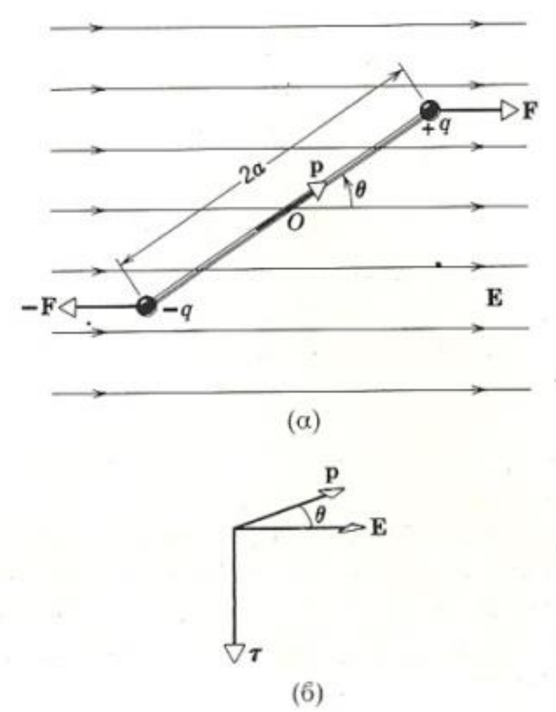


plan (2)

The sides of the framework are b and a and S=ab. The force which is in force to the framework is F=BIbsinθ, and when sinθ=1, then the moment M_m is, M_m=BIS and the consequence is B=M_m/IS . In this formula we put I= 1 unit of electric current and we calculate the B_0= 1 unit. The I= 1 unit, we'll calculate on the next.

THE DEFINITION OF THE UNIT AND THE GRADUATION OF THE VOLTAGE:

The voltage V is V=Ed and E is the external electric field where an electric dipole is subjected and d=2a, is the distance between the two equal and opposite electric charges q of the dipole (pan (3)).



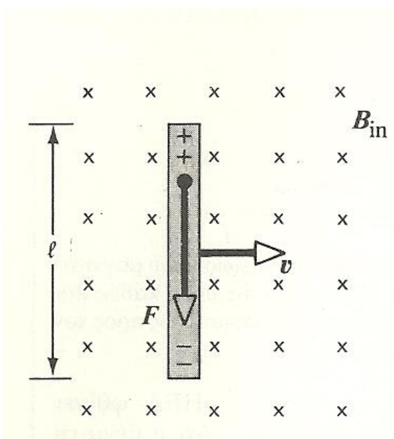
Plan (3)

We have then, F=qE. Then, the moment is M_m=d.Fsinθ and if θ=π/2 then M_m=d.F=d.qE=d.qV/b and b=the distance of the keepers of the capacitor, which have the voltage V of the external field E. Then,

$$V=bM_m /d.q \qquad (A).$$

If we have q=1 unit, then we can find the unit of the voltage V, the V_0, which we call Hol. The unit of the electric charge remains undefined, as it is I=q/t. We will define the unit of the electric current on the next.

The V_0 can be defined of the formula V=BLv, as well v is the velocity of the conductor, which is vertical to the magnetic field B and L is the length of the conductor (plan (4)).



Plan (4)

Already, can also we graduate the B in a conductor 0.1 met and B=10 units and velocity 1met/sec of the conductor. Then we find the unit V_0. In order to graduate the low voltage, we use such experiments of this formula. So, we find the unit q_0 of a capacitor with voltage V_0 as well.

For the graduation of V, we know that the capacity of a capacitor is $C = q/V_c$ and

$$V_c = q/C \qquad (B)$$

The ratio $\frac{V_c}{V_0} = \frac{d.q^2}{bCM_m}$ if the two charges of the two formulas (A),(B), are equal and $V_c = V_0 q/CV$, they give the graduation of the V_c, when the V_0 is known.

So, we must define the capacity C.

In the system CGS, the law of Coulomb, because $(1/4\pi)\varepsilon_0=1$, is,

$$F = \frac{q_1 q_2}{r^2} \text{ and } CGSq_0 = \sqrt{gr\frac{cm^3}{sec^2}}$$ if $q_1=q_2=q_0=1$ unit of charge in the CGS .

This is the unit stat-Coulomb of the electric charge in the system CGS. If we also conserve the constant $\varepsilon_0=1$ and in the consequence MKS (SI) system, we will have the following,

$$MKSq_0 = \sqrt{kgr\frac{m^3}{sec^2}} \quad \text{and} \quad MKSq_0 = CGSq_0\sqrt{10^9} = 3.333\text{x}10^4\ CGSq_0$$

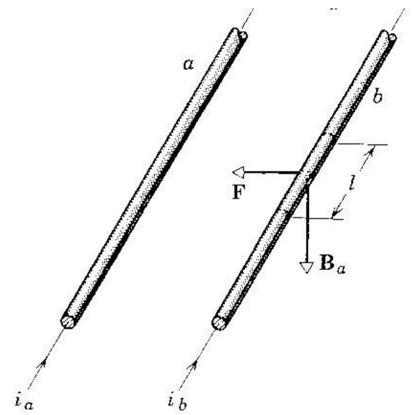
But in the forced systems, the unit of Coulomb (SI) is equal to $3\text{x}10^9$ stat-Coulomb .

Then, if $\varepsilon_0=1$, the capacity of the capacitor is C=S/L, S is the surface of the poles of the capacitor and L is their distance. This capacity must be used in the graduation of the voltage.

We put $\varepsilon_0=1$, because it wrong calculated up to day. The constant is $k=1/4\pi\varepsilon_0=9\text{x}10^9$ and in the Coulomb's low, $F = k\frac{q^2}{r^2}$, when $q=q_1=q_2=1$ Cb and r=1 met, the distance of two equal charges, then the force wich is in force of the one charge to the other, is $F=9\text{x}10^9$ Nt, that is 9 billion Nt!!!. So, the definition of constant ε_0 is wrong and we put it equal to the unit 1, then the force which is in force of the one charge to the other, if the 1 Cb is the correct size of the unit for the SI (MKS), we propose the 1 Il, as we calculated it, is $1/4\pi$ Nt (the force is in force between $q_1=q_2=1$ Il (the 1 Il, the correct unit of charge, on the next) and r=1 met.

THE UNIT OF THE ELECTRIC CURRENT INTENSITY:

Between of two parallel conductors with the same charges (plan (5)), is grown up the force, $= \frac{\mu_0 I_a I_b L}{2\pi d}$, and d=the distance of the conductors, L= the length of the conductors and $\mu_0 = 4\pi\text{x}10^{-7}$ (we don't give the dimensions of the constant μ_0 because it will be dispensable).



plan (5)

If $I_a=I_b=I_0$, then the unit of the current 1 Amp is defined. As it is reported in the physics of D. Halliday- R.Resnick, the constant μ_0 is arbitrary, and so with the above price, it is counted a force $F= 2\text{x}10^{-7}$ Nt, when the size of 1 Amp is suitable. So, then

$$F = 2x10^{-7}Nt = \frac{4\pi x10^{-7} I_0^2 L}{2\pi d} \ ,$$

if d=L , I_0= 1 unit of the current=1 Amp, then the constant is not μ_0 but k and

$kI_0{}^2$ = 1Nt, so, if we replace $q_0 = \sqrt{kgr\frac{m^3}{sec^2}}$, then k=1 $m^{-2}sec^2$.

But as we'l see, the escalation of the current units is very much different of this, in agreed to my theory, so the 1 Amp will be named 1 Hel and the 1 Cb will be named 1 Il. And we had found the right relation between Cb and stat-Cb .

Because the constant μ_0 is arbitrary and the 1 Amp definition has a such size, so a force $2x10^{-7}$ Nt was counted and the 1 Amp is arbitrary. And as we proposed the consequence of Il calculation, that is, of the charge unit, we propose the method of the current unit El calculation.

We consider a linear conductor of length L is flowed of the current I and is vertical sited to a magnetic field B. Then, it is in force F=BIL, if we pull it , vertically to the field B, with a force -F. If F=0.1 Nt, B=1 Hellas, L=0.1 met, then I_0=F/BL. When the unit of the electric current definition will be with this way, then we calculate the constant μ_0 of the law of Ampere.

THE ELECTRIC CURRENT AS FLOW OF FLUID:

The current is I=Ne/t, where N is the number of the electric charges which flow in the conductor, e is the charge of the electric curriers (electrons) and t the time. But, when the current in a conductor of section S travels distance L in the time t, then,

I=NeL/tL=Nev/L and v=IL/Ne =ILS/NeS ,

v=the velocity of the curriers and

v=I.Vol/NeS= I/neS,

n=N/Vol, Vol=the volume of the conductor when flowed by the current I, in time t.

The electric charge will be found in a voltage V, it is between two neighbouring atoms in the conductor, the V has length L, and the force will be accepted $F=m\Delta x/\Delta t^2=e(V/L)=e(V/d.\Delta x)$ and $eV=d.mv^2$, L=d.Δx.

By replacing the v and we find,

$$V = \frac{d.m}{n^2e^3S^2}I^2 \quad (1) \quad \text{and}$$

$$V = \frac{d.m}{e}v^2 \quad (2) \text{ as it is } v=I/neS$$

And because the electric power is P=VI, then,

$$P = \frac{d.m}{n^2e^3S^2}I^3 = kI^3 \quad (3)$$

And because I=neSv, $P = nmSv^3$ (4)

The resistance R will be, $R= \frac{d.m}{n^2e^3S^2}I$ (5) The unit of the resistance is the 1 Al.

As in the electric current, we have voltage V and in the flow of the fluid in a pipe, we will have difference of pressure p, $p_2-p_1=\Delta p= (F_2/S_2)-F_1/S_1$ and

$$\Delta p = \frac{m\frac{\Delta x_2}{\Delta t^2}b\Delta x_2}{b\Delta x_2 S_2} - \frac{m\frac{\Delta x_1}{\Delta t^2}b'\Delta x_1}{b'\Delta x_1 S_1} = \frac{bmv_2^2}{Vol_2} - \frac{b'mv_1^2}{Vol_1} = b\rho v_2^2 - b'\rho v_1^2$$

When bΔx=L =the length of the fluid flow in Δt and ρ=m/Vol the density of mass, and Vol=the volume of the flow in Δt.

Now, if the reservoir is big and flows in a narrow pipe, like the electric current in the wires and it has plenty fluid, then the velocity will be practically zero in the reservoir. Then,

$\Delta p=b\rho v_2{}^2$ (6) it is quality the same with the (2).

The big reservoir is like a battery with many Amphs and constant voltage V.

If D=Vol/t is the supply of the fluid in the pipe, for the laminar flow, the formula of Poiseuille is in force, $D = \frac{\pi}{8n}\frac{\Delta p}{L}r^4$ (7)

and r=is the radius of the pipe and n=the coefficient of internal friction (viscosity). This is equal to,

$$n = \frac{T}{S}\frac{h}{\Delta v}$$

and T=the force of internal friction in the flow fluid (viscosity), S=the surface where the friction takes place, Δv=The change of the velocity of the friction also causes, h=the distance of the flow surface of the fluid, from the motionless surface of the same fluid.

And (7) gives, $\Delta p = \frac{8n\pi L}{S^2}D = \frac{8\pi n\Delta t}{S}v^2$ (8) $= b\rho v_2^2$ and $v=v_2$ for the laminar flow which is supplied from the big reservoir to a narrow pipe (as the flow of the electric current of the batteries of many Amph supply narrow wires). Then,

$$n = \frac{b\rho}{8\pi L}D \qquad (9)$$

(5) and (9) are practically the same. It goes on the resistance of the electric current, which is like the supplying of a fluid.

If we replace (9) in (8), then,

$$\Delta p = \frac{b\rho}{S^2}D^2 \qquad (10)$$

(1) and (10) are quality same, the voltage V and the Δp are in relation in the second power of the electric current and in the second power of supply.

The power of the flowing fluid is, P=ΔpD and $P = \frac{b\rho}{S^2}D^3$ (11)

(3) is quality the same to (11). The power of the electric current and the power of the supply fluid, are quality the same.

THE GRADUATION OF THE ELECTRIC CURRENT:

In agree with the above, the electric current is the flow of fluid into the wires. We have already defined the unit I_0 and, consequently, in the same battery of large capacity of Amphs and with constant voltage, we will put different wires of different sections. Then (1) gives,

$$\frac{I_0}{I_1} = \frac{S_0^2}{S_1^2} \qquad (12)$$

Then, from here it goes on the graduation of the electric current.

With an ammeter which is in force, I counted the electric current, in two wires with different sections. The battery was of 3 Amph and 6 Volts and I inserted a resistance of 4.7 Ohm. I took at first, in the narrow wire 1.11 Amp and after 1.30 Amp in the fat wire. That is, and also with the ammeters that are in force, different currents pass into different sections of the wires. With the formula (12), the current is escalated and grow up, with faster rhythm than the already existents.

4. CONCLUTIONS

Now, in the experiment of Millikan of electric charge definition of the electron, we'll use the voltage, which I propose with my method. So, the size of the element charges will change. In the experiment of the cathode rays tube of Thomson (because we graduate them and they are different the voltage V and the magnetic field B, which are used there), the different ratio e/m and consequently the different mass of the electron will be defined. But, different mass of the proton, for the same reasons, will be defined of the spectrograph of mass.

For the definition of electric currier density of the conductor n, we'll use the effect of Hall. In agreed with this, it is, $n = \frac{IB}{V_H h}$ where I is the current which travels the parallelepiped conductor, which is found in the magnetic field B, h is the width of the conductor, and V_H is the voltage Hall at the edges of this width. It will be found, that n is very much smaller than it is believed up to day. When, these constants are defined, the constant d will be defined and consequently the K, found in above formulas of V, P and R.

Again, the capacity of the capacitors and the self inductions of the chokes will change and the frequencies of the circuits Thompson, again, will change.

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