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THE NEW THEORY OF ELECTRICITY AND THE ERRORS OF THE EXISTING ONE

ALEKOS CHARALAMPOPOULOS

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Abstract: **Ohm's law is an experimental fact, but it is proved by solid mathematical arguments, that the electrical voltage is proportional to the square of the current, i.e. $I_{OHM} = I^2$.**

Faraday arbitrarily chose his constant in electrolysis, and the result was to define the correct size of the unit of current, Amp, as we prove in our atomic physics to be correct. And the question is, how?

With the absolute electrometer, and with the current theory, the wrong formula is derived, and therefore the voltmeter was not rated correctly. But, as we proved in our atomic physics, the unit of electrical voltage Volt is correct, which means that it is not a coincidence.

With the electricity we advocate, the frequency in a Thomson circuit is different from that of established physics. If we accept Coulomb's law with the constant and arbitrary constant of magnetic vacuum permeability, defined by Ampere, then it is 2.5 times greater than current physics.

It turns out that there must be no constant in Coulomb's law, and we create the measurement system MKS-stat.Cb, with Coulomb's law without the constant, as in the CGS-stat.Cb system. In this system, we must apply the formula we found for the frequency of a Thompson circuit, because there the constant of magnetic permeability is very small. And a frequency greater than calculated by established physics is calculated

Keywords: **electrical voltage, absolute electrometer, magnetic permeability, CGS-stat.Cb system.**

1. INTRODUCTION

The theory of electricity has errors and arbitrariness. With solid mathematics, it turns out that the electrical voltage is proportional to the square of the current.

The fog that existed above the CGDS-stat.Cb, MKS-Amp (SI) measurement systems is revealed. It turns out that the constant of Coulomb's law in MKS-Amp, must be a unit.

We give the formula for finding the frequency of a Thompson circuit, with the new physics we develop. We develop the measurement system MKS-stat.Cb-stat.Amp, in which the frequency calculation must be made.

The unit of current was calculated arbitrarily, and the unit of electrical voltage wrong. But, as we prove in atomic physics, they are correct.

2. METHODOLOGY

Mathematical induction and induction in general were systematically used in the work. Mathematical abduction was also used.

In atomic physics, conditions were made, principles were made. Like, the power of Balmer's formula. Also, there is tacit acceptance of my worldview THE IDION, with the principles it accepts.

The descriptive method was also used in current, magnetism, etc.

WHAT DOES THE MINIMUM LOAD BRING?

The established physics and we, accept a minimum electric charge (which we will see below is magnetic), which moving produces the electric current, is,

$$I=Ne/t,$$

I=electric current, N=the number of minimum minimum charges, e= the minimum charge, and t= the time over which the charge moves. If E is the electric field formed by the electric charges in the conductor, there is a force F=NeE. We know that the potential difference ΔV is ΔV/L=E, i.e. the potential difference at the ends of the conductor of length l, divided by its distance l, is equal to the electric field E. Then

$$F = NeE = Ne\frac{V}{l} = Nma = Nm\frac{\Delta x}{\Delta t^2}$$

m= elementary mass, mass of elementary charge e.

Then, (1) $$V = \frac{m}{e} l \frac{\Delta x}{\Delta t^2} = k\frac{m}{e}v^2$$

\k=l/Δx, coefficient dependent on the resistance of the conductor and we will see below.

But $$I = \frac{Ne}{t} = \frac{Nel}{lt} = \frac{Nev}{l} = \frac{NevA}{lA} = \frac{NevA}{Vol} = nevA$$

Where A is the cross-section of the electrical conductor of length l, at the ends of which there is the potential difference ΔV, and lA=Vol, the volume of the conductor, and n=N/Vol, the density of the charges, and we have,

(2) $$v = \frac{I}{neA}$$

(1), (2) imply,

$$. V = k\frac{m}{e}\frac{1}{(neA)^2}I^2 = k\frac{m}{e}\frac{1}{n^2e^2A^2}I^2 = k\frac{m}{e}\frac{l^2}{N^2e^2}I^2$$

WHAT DOES OHM'S LAW MEAN AND WHAT ARE THE RELATIONSHIPS?

Ohm experimentally proved the law in 1826, $V=RI_{OHM}$. And R is the resistance of the conductor l. We proved that when the current is I=Ne/t, then

Consequently $$V = k\frac{m}{e}\frac{1}{n^2e^2A^2}I^2 = k\frac{m}{e}\frac{l^2}{N^2e^2}I^2 = RI_{OHM}$$

$$R = k\frac{m}{e}\frac{1}{n^2e^2A^2} = k\frac{m}{e}\frac{l^2}{N^2e^2}$$

$I_{OHM}= I^2$.

The unit of current one Amp was defined in electrolysis $AgNO_3$ by Faraday, and the electrolysis apparatus subjected to potential difference. He graded the subdivisions of electric current[1], only he did so for the current $I^2= I_{OHM}$. The actual subdivisions of the unit of current are given by the formula $I=I_{OHM}^{1/2}$. That is, where he defined 2 Amp, in fact it is $2^{1/2}$ = 1.44 Amp.

Established physics gives electrical power as $P=VI_{OHM}=RI_{OHM}^2$. It is not power, but the product $PI=VI_{OHM}=VI.I$, again $VI^2=RI_{OHM}^2=RI^2$. $I^2=PI^2$.The validity in our theory is,

$$P = VI = k\frac{m}{e}\frac{1}{(neA)^2}I^3 = k\frac{m}{e}\frac{1}{n^2e^2A^2}I^3 = k\frac{m}{e}\frac{1}{L^2e^2}I^3$$

FARADAY'S ARBITRARINESS

To determine the size of the unit of electric current, Faraday used a constant, F=96500 Cb. If he used a different constant, then the size of the unit Cb, Amp, would be different. And it would take a different time in electrolysis, to make the same silver deposit on the cathode. So, because it does not arise from anywhere, the necessity to be this constant, if the size of the unit Cb is correct, then from somewhere it got it and it is given.

[1] He lined up the electrolysis device and an Amp-meter, which he graded according to the current passed to the device.

CAPACITORS

Capacitors are under a potential difference and are also leaked by alternating current. So, the capacity is,

$$C = \frac{q^2}{V}$$

q= the electrical charge of the capacitor. While established physics gives, .$C_p = \frac{q_{OHM}}{V}$

If we accept that Coulomb's law applies to almost stationary charges, then the charged metal sphere potential is V, and then the capacitance is, if we use Coulomb's law,$F = k\frac{q^2}{r^2},\ V = k\frac{q}{r}$

$$C = \frac{q^2}{V} = \frac{qr}{k} = 4\pi\varepsilon_0 qr$$

We see that the capacitance in the new electricity depends on the charge q of the capacitor. In the case of incumbent physics, this capacitance is independent of the charge, and is, $C_p = \frac{q_{OHM}}{V} = \frac{r}{k} = 4\pi\varepsilon_0 r$

THOMPSON CIRCUITS

When alternating current, passes the capacitor, it is,

$$\Delta V = \frac{(\Delta q)^2}{C}$$

and because, $,q = q_{max}\sin(\omega t + \varphi),\ q^2 = q_{max}^2 sin^2(\omega t + \varphi)$

$$\Delta q^2 = (Ne)^2 sin^2(\omega\Delta t + \varphi)$$

$$\Delta V = \frac{(\Delta q)^2}{C} = \frac{N^2e^2}{C} sin^2(\omega\Delta t + \varphi)$$

When the same alternating current passes and coil, it is,

$$\Delta V = L(\frac{\Delta I^2}{\Delta t^2})$$

The L-coefficient was called the inductance coefficient.

$$I = I_{max}\sin(\omega t + \varphi),$$

$$\Delta I = I_{max}\sin(\omega\Delta t + \varphi)$$

$$\Delta I^2 = I_{max}^2 sin^2(\omega\Delta t + \varphi) = \frac{q_{max}^2}{T^2} sin^2(\omega\Delta t + \varphi) = N^2e^2f^2 sin^2(\omega\Delta t + \varphi)$$

$$\Delta V = L\left(\frac{\Delta I^2}{\Delta t^2}\right) = L\frac{\Delta I^2}{T^2} = LN^2e^2f^4 sin^2(\omega\Delta t + \varphi)$$

The potential, capacitor and coil differences are equal, so,

$$\Delta V = \frac{N^2e^2}{C} sin^2(\omega\Delta t + \varphi) = LN^2e^2f^4 sin^2(\omega\Delta t + \varphi)$$

$$f^4 = \frac{1}{LC}$$

$$f = \frac{1}{(LC)^{\frac{1}{4}}}$$

Established physics gives,

$$\omega_p = 2\pi f_p = \frac{1}{(L_pC_p)^{\frac{1}{2}}}$$

but the capacities, and so-called L-coil inductance coefficients, are different in established physics and ours. In our physics, the capacitor is as much as the established physics calculates, multiplied by the electric charge charged in it. That is, because the charge of the capacitor is small and not constant, its capacitance is variable and much less than in established physics, if we accept Coulomb's law. But, in our view, we do not accept it and there is no Coulomb constant and the unit of cargo is different and therefore different capacity.

It is, $V = L\left(\frac{\Delta I}{\Delta t}\right)^2 = L_p \frac{\Delta I}{\Delta t} L = \frac{L_p}{\frac{\Delta I}{\Delta t}} = \frac{L_p(\Delta t)^2}{\Delta q} = \frac{L_p T^2}{\Delta q} = \frac{L_p}{f_p^2 \Delta q}$,

C=ΔqC$_p$, και, $f = \frac{1}{(LC)^{\frac{1}{4}}} = f = \frac{1}{(\frac{L_p}{f_p^2 \Delta q}\Delta q C_p)^{\frac{1}{4}}} = \omega_p^{1/2} f_p^{1/2} = 2{,}5 f_p$

That is, the frequency f is 2.5 of the frequency of the incumbent physics.

THE SELF-INDUCTANCE COEFFICIENT OF THE CYLINDRICAL COIL

The standard physics gives for the cylindrical coil, the coefficient L =$\mu_0 n^2 lA$, where l is the length of the cross-sectional coil A, n is the linear coil density of the coil and μ_0 is the constant magnetic permeability of the vacuum[2].

In standard physics, $\Delta V=L(\Delta I_{OHM}/\Delta t)$ holds, whereas for us, $\Delta V=L(\Delta I/\Delta t)^2$.

Αν Δt=T, $\Delta V=L(\Delta I/\Delta t)^2$, $L=\frac{N^2 e^2 f^2 sin^2(\omega \Delta t+\varphi)}{T^2} = \frac{LN^2 e^2 f^4 sin^2(\omega \Delta t+\varphi)}{1}$, f=1/T.

MAXWELL'S MISTAKE

We have seen that the solenoid coil inductance coefficient for current physics is, $L=\mu_0 n^2 lA$ and in dimensions is, $L=\mu_0$ met

The flat capacitor has a capacitance for current physics, $C = \varepsilon_0 A/l$ and in dimensions, $C = \varepsilon_0$met. Then, because according to standard physics it is, and in a Thompson circuit, $c = \frac{1}{\sqrt{\varepsilon_0 \mu_0}}$

$$\omega = 2\pi f = \frac{1}{\sqrt{LC}} = \frac{1}{\sqrt{\frac{\varepsilon_0 \mu_0 met^2}{1}}} = \frac{c}{met} = \frac{\frac{met}{sec}}{met} = \frac{1}{sec}$$

Obviously, these are frequency dimensions, the established physics, so far, is not wrong.

But, Maxwell's third equation, is[3],

$$\oint \boldsymbol{B}.\mathrm{d}\boldsymbol{l} = \mu_0(\varepsilon_0 \frac{d\Phi_E}{dt}) + I$$

But, for current physics, $\oint \boldsymbol{B}.\mathrm{d}\boldsymbol{l} = \mu_0 I \Phi_E = \oint \boldsymbol{E}.\mathrm{d}\boldsymbol{S}$

$$\varepsilon_0 \frac{d\Phi_E}{dt} = \oint \frac{\varepsilon_0 \boldsymbol{dE}}{\boldsymbol{dt}} \mathrm{d}\boldsymbol{S} = \oint \frac{\varepsilon_0 \boldsymbol{dIdE}}{\boldsymbol{dq}} \boldsymbol{dS} = \oint \frac{\varepsilon_0 \boldsymbol{dI}}{\boldsymbol{dS}} \boldsymbol{dS} = dI\varepsilon_0$$

Consequently $\oint \boldsymbol{B}.\mathrm{d}\boldsymbol{l} = \mu_0(\varepsilon_0 dI + I)$

which is impossible, there should not have been the dielectric constant ε_0 in Maxwell's third equation. So, the third Maxwell equation is wrong.

CAPACITY AND INDUCTION NOW

For a capacitor plane, the established physics calculates,

$C_p = \varepsilon_0 A_p / l_p$, while we, $C=\Delta q^2/V= \varepsilon_0 \Delta q A_p / l_p$, if the current is variable and Coulomb's law holds with constant.

For the L-coefficient of a solenoid coil, the incumbent calculates,

$L_p =\mu_0 n^2 lA$, ενώ εμείς, $L=\mu_0 n^2 lA/(\Delta I/T)= \mu_0 n^2 lA/f(\Delta I)$, $\Delta I=\Delta q/T=\Delta qf$

It will be, $f^4 = \frac{1}{LC} = \frac{1}{\frac{\varepsilon_0 \Delta q A_p}{l_p} \mu_0 n^2 lA/f(\Delta I)} = \frac{f^2 c^2}{n^2 A A_p (l/l_p)}$

$$f^2 = \frac{c^2}{n^2 A A_p \left(\frac{l}{l_p}\right)} = \omega_p^2$$

[2] As stated in Halliday–Resnick physics, Ampere arbitrarily defined the constant $\mu_0=4\pi x10^{-7}$
[3] PHYSICS II, Halliday-Resnick, p. 318

EXAMPLE

We consider a tubular coil, n=20, l=0.03 met, A=0.000002 met^2 and L=3.0159x10^{-11} Henry. We consider capacitor level, l_p = 0.0001 met, A_p = 0.00003 met^2 .

Then, C_p=2.65x10^{-12} F, L_p=3.01x10^{-11}

It will be, ω_p = 1.12x10^{11}rad/sec, f_p =17.8 GHz. Then, according to us,

$$f^2 = \frac{c^2}{(n)^2 A A_p\left(\frac{l}{l_p}\right)} = \omega_p^2$$

f=1.12x10^{11}Hz. And f=2πf_p .

THE CONSISTENT DATA IN THE EXAMPLE

In the example, the frequency is, f=111.8 GHz according to established physics. We, the potential of the parallel armature capacitor with charge Δq, and according to Coulmb's law with constant, calculate that it is, $\Delta V = \frac{\Delta q}{4\pi\varepsilon_0 l_p}$

$$C=\frac{\Delta q^2}{V} = \frac{4\pi\varepsilon_0 \Delta q^2}{\frac{\Delta q}{l_p}} = 4\pi\varepsilon_0 \Delta q l_p$$

In the solenoid coil, with spirals N and length l, the total current is ΔI.

In an electric ring, the magnetic field that passes through its center is,

$$B = \frac{\mu_0 I_{OHM}}{r} = \frac{\mu_0 I^2}{r}$$

and on a tubular coil N speed, $B = \frac{N\mu_0}{r} I^2$ μ_0=Weber/met. Amp^2

And, Φ=BE, so, $N\Phi = \frac{N^2 A \mu_0 I^2}{\frac{r\Delta I}{\Delta t}} = LI^2$ and,

$$L = \frac{N^2 A \mu_0}{\frac{r\Delta I}{\Delta t}} = \frac{N^2 A \mu_0}{\frac{r\Delta q}{(T)^2}} = \frac{N^2 A \mu_0}{r\Delta q f^2}$$

$$f = \frac{1}{(LC)^{\frac{1}{4}}} = \frac{1}{\left(\frac{N^2 A \mu_0}{r\Delta q f^2} 4\pi\varepsilon_0 \Delta q l_p\right)^{\frac{1}{4}}}$$

$$f = \frac{c^{1/2} f^{1/2}}{\left(\frac{N^2 A}{r} 4\pi\, l_p\right)^{\frac{1}{4}}} = \frac{9200 \frac{met^{1/2}}{sec^{1/2}} f^{1/2} (r)^{\frac{1}{4}}}{(nl)^{1/2} (A l_p)^{\frac{1}{4}}},\ f^2 = 141.066{,}666 f \left(\frac{met}{sec}\right) \frac{r^{\frac{1}{2}}}{(A l_p)^{\frac{1}{2}}}$$

In the example, A=πr^2=0.000002 and r=7.97x10^{-4} ,n=20, l=0.03, l_p =0.0001, so,

f=2.81x10^{11} Hz, f=2.5f_p =2.5x1.12x10^{11}.

That is, we now agree with what we initially found about f.

FREQUENCY AND CURRENT

As mentioned[4], the hypothesis about the nature of electric current (charge motion) was made by experiment Rowland (1876), where it was proved that a charged disk by friction, put in very rapid rotation, acts on the magnetic needle, that is, the moving circular charges of the disk form a current and affect the magnetic needle.

[4] EPITOME OF PHYSICS, G. Athanasiadis, p. 712

The charges of the disk Ne orbit at frequency f and the current is, I=Nef.

In the atomic structure of matter, we accept atoms. In Bohr's model of the hydrogen atom, the electron has a current I=ef. And in my atomic theory too, something like this happens, two charged and equally massive ether bubbles orbit in a circle. In atoms, we accept that there are also ions of atoms. In established physics, excess electrons make the atom electro-negative, in our theory, bubbles negatively charged, in excess, make the atom the same again.

Electrons, or bubbles, have radial oscillation f, about the nucleus the electrons, and between them the bubbles about their center of mass and have charge e. This radial oscillation is elementary current. That is, direct current, apart from being a metaphorical motion of elementary charges, is also a radial oscillation of them, in ionized stable atoms. Positive charges have an oscillation phase difference of π from negative charges.

Elementary currents have a random direction and are mutually exclusive. When these currents belong to conductors and are put into a potential difference, they are oriented, and constitute the total current of the conductor.

As in a grain plantation, the wind blows and the cobs wave with a frequency, but the energy propagates in one direction, it is like the electric current oriented by the flow of electricity. The theory that the radial oscillation of charges is an elementary current supports the theory that had been developed, that the charge is fluid, separated into negative and positive. In the current, the oscillation or radial of the charges is random, and when the conductor is put into potential difference they are oriented. The phase difference of the oscillation makes the positive and negative charge, and when the current flows, it flows like the immaterial fluid of the ripple energy, even though it is constant.

That is, it takes not only convective motion of charges to form current, and reciprocating, radial motion of charges in atoms, with the same phase, it is direct electric current.

In electrolysis, current is a flux of ions, and particles or bubbles, i.e. ions that have the charge in the voltmeter, have the radial oscillation within the ions.

THE CLASSIFICATION OF CHARGE UNITS AND ELECTRICAL POTENTIAL

It is an experimental fact, Coulomb's electrical and magnetic law, which for the CGS-stat.Cb system is without constant,

$$F = \frac{q^2}{r^2}$$

As you know, in this system, the law has no constant, and the distance of the charges is r in cm, the force F in dynes and 1 Nt=10^5 dynes, and the charge q in 1stat. Cb=1/3x10^9Cb.

From this law it is deduced that the charge has dimensions 1stat. Cb=cm.dyne$^{1/2=m1/2L3/2}$/t

When F=1 dyne, r=1 cm, then, q=1 stat.Cb. and thus the charge gradation took place, in the CGS-stat.Cb system with the experimental application of the law. These are compatible units of electrical force, charge, mass, distance and time and are all cooperating in this measurement system (CGS-stat.Cb).

SYSTEM MKS-stat.Cb-stat.Amp

In the Meter-Kilogram-Second measurement system, the unit of charge, in cooperating units with Coulomb's law, without the constant, but as applied in CGS-stat.Cb, the unit of charge should be,

1 MKS-stat.CB= met. Nt$^{1/2}$=100x(10^5)$^{1/2}$=31,622.7766=3.16x10^4 stat. Cb_{CGS}

Instead, in the MKS system, Cb=3x10^9 stat.Cb was arbitrarily defined as unit of electric charge. So, stat. Cb_{MKS}=1.053x10^{-5} Cb. and 1stat. Cb=3.16x10^{-5} MKS-stat.Cb.

This definition of the unit in MKS-Cb, SI, led to Coulomb's law having constant k= 1/4πε_0 to rationalize things, and see how it should be now,

$$F = Nt = k\frac{q^2}{r^2} = k\frac{Cb^2}{met^2} = k\frac{(3x10^9)\text{^}2(stat.Cb)^2}{100^2 cm^2} = 10^5 dynes$$

Και k=(1.11x10^{-10})dyn.cm^2/(stat. Cb)^2 =1Nt.met^2/Cb^2 και k=1 χωρίς διαστάσεις και,

$$F = 1Nt = \frac{q^2}{r^2} = \frac{Cb^2}{met^2}$$

That is, we find the law without the constant, as in CGS-stat.Cb and as we found, with MKS-stat.Cb.

But we have,

$$\frac{\frac{(3x10^9)^2}{k1Cb^2}}{\frac{100^2cm^2}{1met^2}} = \frac{10^5 dyn}{Nt} \Rightarrow Nt = \frac{10^5 dyn}{1}\frac{\frac{k1Cb^2}{(3x10^9)^2}}{\frac{1met^2}{100^2cm^2}}$$

$$k = 9x10^9 \frac{Nt}{dyn}\frac{stat.Cb^2}{Cb^2}\frac{met^2}{cm^2} = 1$$

So, we see that the Coulomb constant is a unit, if we calculate the magnitudes of , however we look at it. They did not notice that k=9x10$^9\frac{Nt}{dyn}\frac{stat.Cb^2}{Cb^2}\frac{met^2}{cm^2}$ is dimensionless, but not so much, if we calculate that Nt/dynes=10^5, etc., and then k is a unit. And in established physics, they present him with stretching, not a unit.

That is, Coulomb's law had to have a constant k=1 without dimensions and in the MKS-Cb, Amp system.

The consequence of the above is that the force of attraction of two charges of one Cb each, and they are heterosexual, at a distance of one meter from each other (long distance), to be attracted with a force F=9x10^9 Nt (7 million tons!) according to current physics, while according to us it is attracted with a force F= Nt, and the charges have one charge each, 1MKS-stat.Cb=3.16x10^4 CGS-stat.Cb=1.53x10-5 Cb and Cb=94936.7 MKS-stat.Cb.

THE SHOCK OF ESTABLISHED PHYSICS

According to CGS-stat.Cb, the potential of an electrified sphere is V=q/r. And in dimensions, 1 Volt$_{CGS}$ = stat. Cb/cm. We will have,

$$Volt_{CGS} = \frac{stat.Cb}{cm} = \frac{\frac{1}{3x10^9}Cb}{\frac{1}{100}met} = 3.333x10^{-8}\frac{Cb}{met}$$

But, according to established physics, 1Volt$_{CGS}$=300Volt, 1Volt=3.333x10^{-3} VoltCGS and, 1Volt=10^{-10} Cb/met.

But standard physics, for the potential of the sphere, in SI, gives, V=q/4πε$_0$r and in dimensions, and, $1Volt = \frac{Cb}{\frac{Cb^2}{Ntmet^2}met} = \frac{Nt.met}{Cb} = 10^{-10}\frac{Cb}{met}Nt = 10^{-10}\frac{Cb^2}{met^2}$

We see that here, it is about 1/k constant, and that constant is predicted by established physics in Coulomb's law.

TO SEE THE DIMENSIONS AND SYSTEM MKS-stat.CB-stat.Amp

In CGS we have q=1stat. Cb and there is no constant. The capacitor, according to our theory, will have a capacitance C=q^2 /V, for a capacitor of parallel armatures distance l. As we found above, without dimensions, it will have, V=q/l. and C=ql CGS-Farad.

To 1Volt-CGS=q/r=3.16x10^{-5} MKS-stat.Cb/10^{-2}met^2 =3.16x10^{-3} Volt-MKS.stat.Cb

Ο πυκνωτής θα έχει C=ql=3.16x10^{-5}x10^{-2}=3.16x10^{-7} MKS.stat.Cb-Farad

And on a tubular coil of N turns, , $B = \frac{N\mu_0}{r}I^2$ μ_0=Weber/met. Amp^2

And, Φ=BE, so, NΦ $= \frac{N^2A\mu_0 I^2}{\frac{r\Delta I}{\Delta t}} = LI^2$ and,

$$L = \frac{N^2A\mu_0}{\frac{r\Delta I}{\Delta t}} = \frac{N^2A\mu_0}{\frac{r\Delta q}{(T)^2}} = \frac{N^2A\mu_0}{r\Delta q f^2}$$

$$f = \frac{1}{(LC)^{\frac{1}{4}}} = \frac{1}{\left(\frac{N^2A\mu_0}{r\Delta q f^2}\Delta q l_p\right)^{\frac{1}{4}}} = \frac{f^{1/2}}{\left(\frac{N^2A\mu_0}{r}l_p\right)^{\frac{1}{4}}} = \frac{r^{1/2}}{N(Al_p\mu_0)^{1/2}}$$

In our example, f=99.8 /$\mu_0^{1/2}$

μ_0 in the MKS-Stat.Cb system should be very small, for the MKS-Cb-Amp (SI) system, it is as arbitrarily defined by Ampere, it is $\mu_0=4\pi x10^{-7}$ Weber/met. Amp^2, while we in atomic physics below, will find again for SI, $\mu_0 = 9.1x10^{-8}$. And from this value it will be much less in MKS-stat.Cb. In this system we need to find the Thompson circuit frequency. It will be,

$$\mu_0 = 9.1x10^{-8}\frac{Weber}{met^2}met\frac{1}{Amp^2} = 9.1x10^{-8}\frac{Nt}{Amp.met}met\frac{1}{Amp^2} = 9.1x10^{-8}\frac{Nt}{Amp^3}$$

But, we found above, 1Cb=94936 MKS-stat.Cb, and 1Amp=94936 MKS-stat.Amp and,

$$\mu_0 = 9.1x10^{-8}\frac{Nt}{94936^3 MKS-stat.Cb^3} = 1.06x10^{-22}$$

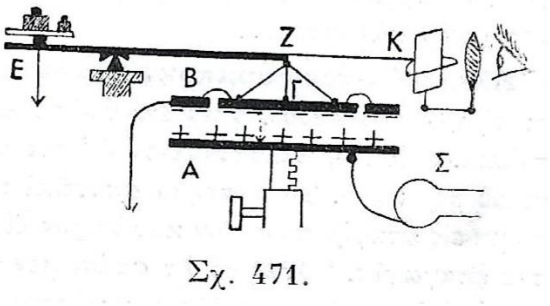
Consequently, f=9.67x1012 Hz

That is, 86.56 times greater than that calculated with standard physics, in the most consistent example and with the constant ε_0 , i.e. $f=1.12x10^{11}$.

The constant ε_0 that we saw is wrong, since the constant k=1 and without dimensions, but made it easier for established physics to determine small capacitance values in capacitors and thus calculate the frequencies produced by Thompson circuits that we know.

THE MEASUREMENT OF ELECTRICAL POTENTIAL

To measure electrical potential, W. Thomson's absolute electrometer, or electrostatic balance, was used[5].



Σχ. 471.

We have a capacitor, with two circular disks A and Γ. We hang Γ on one leg of the ZE balance. Disk B communicates with thin wire with Γ and is grounded. When we electrify disk A with electrified body Σ, it inductively charges Γ with negative electricity, while its positive charge through the wire passes to disk B and from there to earth. Disk A and Γ form an electric potential and the fixed disk A attracts Γ and we balance with weights of balance in equilibrium. The distance is small and the[6] force is assumed to be, $F=2\pi\sigma^2S$, and $\sigma S = \sqrt{\frac{FS}{2\pi}}$, σ= the surface charge density, S= the surface area of the disk Γ, l is the distance of the armatures of the capacitor. But it is assumed that $C=q/V=S\sigma/V=S/4\pi l$, so $S=4\pi lq/V$, and

F= and, V= $\frac{2\pi\sigma^2 4\pi lq}{V}\frac{2\pi\sigma^2 4\pi lq}{F} = \frac{8\pi^2 lq\sigma^2 S^2}{FS^2} = \frac{8\pi^2 lq^3}{2\pi q^2 S} = 4\frac{\pi lq}{S} = \frac{4\pi l\sigma S}{S} = \frac{4\pi l}{S}\sqrt{\frac{FS}{2\pi}}$

$$V = l\sqrt{\frac{8\pi F}{S}}$$

From this formula, they graded the electric potential.

But the surface charge density occurs under the influence of electric potential, and then $C=q_{OHM}/V=S\sigma_{OHM}/V=q^2/V$ and $CV= q^2$, then, because in the parallel armature capacitor, there is the electrical voltage V=q/l,

$$V = \frac{q^2}{C} = \frac{\frac{q^2}{l^2}l^2}{C} = \frac{Fl^2}{C}$$

[5] PHYSICS COMPENDIUM Athanasiadis, p. 685.
[6] EPITOME OF PHYSICS, E. Athanasiadis, p. 650-690. The theory comes from the spherical capacitor, where C=S/4πl is proved

And because the capacitance of the disk capacitor is,

$$C=\frac{q^2}{V}=\frac{\frac{q^2l^2}{l^2}}{\frac{q}{l}}=\frac{Fl^3}{q}$$

$$V=\frac{Fl^2}{C}=\frac{Fl^2}{\frac{Fl^3}{q}}=\frac{q}{l}=\frac{\sqrt{Fl^2}}{l}=l\sqrt{\frac{F}{l^2}}$$ (we are in the CGS-stat.Cb system)

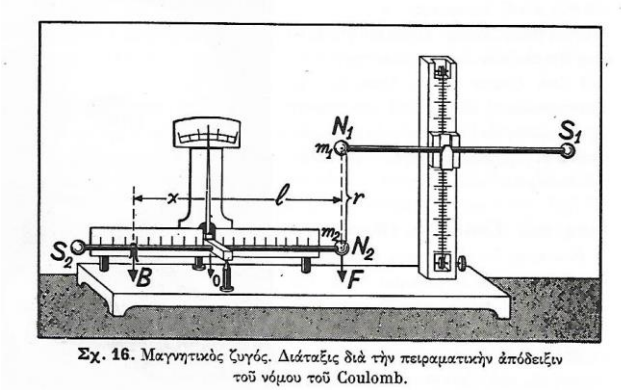
That is, in our theory, and with the same Coulomb law that applies to the CGS-stat.Cb system, but a different capacity, the one we indicate, we derived a different electric potential. The potential difference was not measured correctly. Capacitance should not be taken from the theory of the spherical capacitor, because in the absolute experiment we quoted, the capacitor is of circular parallel armatures. Again, the attraction of the armatures of the capacitor is not proportional to their surface charge density, σ. So, if the unit of electric potential V is correct, from somewhere they took it, it is given.

REPLACING THE ELECTRICAL CHARGE WITH MAGNETIC

If you approach the positive battery pole to a south pole of a magnetic needle, it attracts it, while the negative pole repels it. The battery has an electric potential difference, electrical voltage and is like a magnetic dipole, i.e. the positive pole acts like a north pole of a magnet, or magnetic dipole. Note that the same pole of the magnetic needle, if you approach it to the center of the battery trunk, the pull is less, because the battery is metallic. Therefore, the electrical voltage of the electric element is a magnetic dipole. The attraction and repulsion from the electric battery poles is most noticeable in the battery that has its poles side by side (9 Volt).

QUANTITIES OF MAGNETISM

The physicists took two identical bar magnets and the rods ended in spherical poles of the magnets and created a magnetic balance, as in the figure.



Σχ. 16. Μαγνητικὸς ζυγός. Διάταξις διὰ τὴν πειραματικὴν ἀπόδειξιν τοῦ νόμου τοῦ Coulomb.

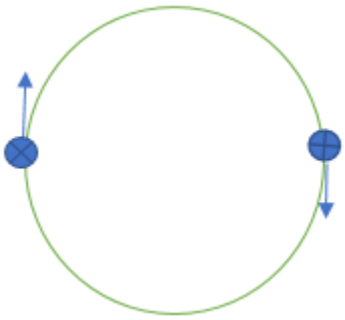
The moments Fl=Bx and B were the weight they put on the balance to balance the magnetic force. The experimental result was that the force F was inversely proportional to the square of radius r. They assumed that the magnetic pole has one magnetic quantity q_m and the other opposite and $F=-q_m^2/r^2$. In the electroscope, or Coulomb "electric balance", the same thing happens, these are quantities of magnetism and were considered electric charges. Here is the magnetic balance Coulomb. And these are almost stationary magnets, like the electrical charges of the Coulomb device, which we argue in both cases, are magnetic phenomena.

Apparently, at the spherical poles of the magnets, there were current rings perpendicular to the radius of the sphere. The rings were clockwise at one pole, where at the corresponding point of the other pole they were counterclockwise and repelled. The current rings, due to the rotation of the bubbles of dilute ether of atoms, form a magnetic field.

ETHER FLOW THE MAGNETIC FIELD

In a circular current loop, a magnetic dipole is formed. The ether, which has the property of a fluid, passes through the circular loop, moving from the south pole to the north, just like the dynamic lines, the magnetic field, the circular electric loop.

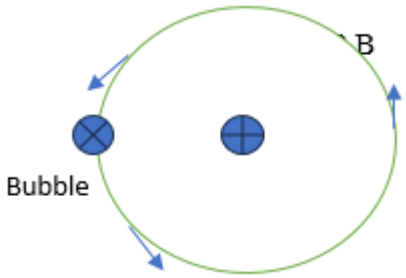
In one hydrogen atom, two equally massive bubbles of dilute ether orbit circularly at speed c, at baseline. In fact, each bubble rotates on its axis with great frequency (same-rotates) and the axis of rotation is parallel and congruent to the vector of the outer velocity of the bubble.



A hydrogen atom with the two bubble-particles rotating around their center of mass at speed c, it is a bound photon. Each bubble itself-rotates around an axis parallel to the velocity vector.

When the bubble rotates around its axis, it carries away the surrounding ether that has low viscosity and also rotates, like the magnetic field of a direct conductor of current or "electric charge" moving straight. This field was proved by Oersted by declining a magnetic needle perpendicular to a flowing current conductor.

The magnetic field of one bubble in the center of the circle, to the right and around it, and to the rotating other, is about this,



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Two rotating bubbles around center of mass in radius r., one directed towards the page and the other exiting the page. The rotation of the magnetic field of one center bubble around its axis is created by the flow of ether that drifts and vertically intersects the velocity vector of the other, as in the figure. Here you see the system of the atom, where one bubble is a privileged reference frame and the other orbits within radius R=2r

As you can see, here the magnetic field of a bubble-particle is created by its rotation around its axis, and is not like the circular conductors of the spherical poles of the magnet, which proved to be the law of inverse square of the radius of distance of the spheres. Here the two bubbles orbit in radius r around their center of mass circularly and each bubble orbits in radius R=2r around the other circularly, if we mean stationary the other bubble, i.e. if this is the privileged frame of reference.

So, it is true[7], $F = m\frac{0.4v^2}{R} = \frac{0.4(mvR)^2}{mR^3} = \frac{k}{R^3}$

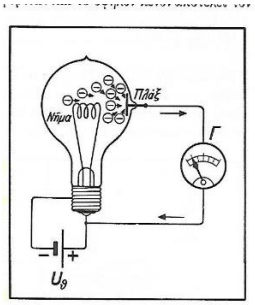
That is, in rotating bodies, the interaction force is inverse to the cube of their radius. So since we talked about quantities of magnetism as in Coulomb's magnetic balance, now, the magnetic amount of the bubble will be e_m and will be equivalent to the electric charge, and the current from the rotation of the bubbles with frequency f, will be, $I=e_mf$, and $I_1=I_2$ in the hydrogen atom. It will be the force of attraction of the orbiting charges of the hydrogen atom, the reverse of the cube of their radius.

THE HYDROGEN ATOM AT LOW PRESSURE

We took the spectra of the elements, as well as hydrogen, and the gaseous elements were at a pressure of less than 0.008 bar. The spectrum of hydrogen was described by Balmer with his empirical formula, $\lambda=\lambda_0\{(1/n_i^2)-(1/n_f^2)\}$, where λ is the wavelength of radiation with initial λ_0 wave and n_f = final level of the electron and n_i = initial level. Balmer gave his formula for the electrons of established physics. We use it for the ether bubbles-particles of the atom.

The existence of electrons was "proved" by Edison when he built an incandescent lamp and between the filament and another pole, he put a capacitor, created an electrical voltage and observed a small current flow.

[7] International Journal of Mathematics and Physical Sciences Research, volume 11 issue2 October 2023-March 2024



Σχ. 438. "Οταν ἡ πλάξ συνδέεται, μέσῳ τοῦ εὐαισθήτου γαλβανομέτρου, πρὸς τὸν θετικὸν πόλον πηγῆς συνεχοῦς τάσεως, τὰ ἠλεκτρόνια κινοῦνται ἐκ τοῦ διακένου νήματος πρὸς τὴν πλάκα.

He considered that the incandescent filament emits electrons, which make up the observed current. But only photons are emitted in the lamp, bound photons of ionized hydrogen atoms, which become carriers of the small current. There are no electrons and protons. Photons are electrical perturbations of the ether and the oscillating particles and flux transmit the oscillation to the ether and this to the next particle, is creation x small electric current!

Hydrogen is the simplest element, consisting of two smaller "particles"-bubbles, which ought to be equal and identical and opposite in magnetic amount of their flow. And the magnetic amount exists due to the rotation of the bubble around its axis. The magnetic amount is e_m and the two bubbles have an equal mass, to harmoniously perform movements in the hydrogen atom particle and its center of mass. This is a prerequisite for this to happen and it was set as a principle.

These two particles are bubbles of dilute ether in the surrounding denser. They move circularly about their center of mass, create a magnetic field B each and an electric current $I=e_mf$, f=frequency of rotation and the interaction of their electric charges with the magnetic field, create the mass of the bubble. The hydrogen atom is a bound photon, with a rotational velocity of the c-particles, in the elementary shell-position.

THE HYDROGEN ATOM

The above equation of centripetal force, with the force of attraction of parallel currents of charges for the hydrogen atom, is,

$$F = \frac{\mu_0 I_1^2 I_2^2 (2\pi R)}{2\pi R} = \mu_0 (e_m f)^4 = \frac{k e_m^2}{R^3} = m\frac{0.4c^2}{R} = \frac{0.4(mcR)^2}{mR^3}$$

$I_1=I_2=e_mf$.

and $R=1.45x10^{-8}$ m (according to Balmer's formula). And,

$\mu_0=9{,}11x10^{-8}\, B/I^2$ (1)

Αφού $f=c/\lambda_0=3.29x10^{15}$ Hz. Και, $e_m=1/f=3.03x10^{-16}$ Cbm

and Cb_m = unit of quantity of magnetism.

But $\mu_0 I^4 = 0.4mc^2/R$ and, $\mu_0=2.48x10^{24}m/I^4$,

Also, with (1) or above, $m=3.3x10^{-15}B/I^2c^2=3.67x10^{-32}\, B/I^2$.

And because, $ke_m^2/R^3=\mu_0 I^4$, $\mu_0=3.03x10^{-8}k/I^4$

So with (1), $k=3B/I^2$

Valid, $\frac{ke_m^2}{R^3} = m\frac{0.4c^2}{R}$ and, m =1.22x10-32 k, kgr.

Ισχύει, $ke_m^2/r^3=\mu_0 I^4$ και, I=1 Amp, 3b=k, k=3, b=1T

$m=3.67x10^{-32}$

The "electric" potential of one bubble is $V_m=ke_m/R^2=4.32$ $Volt_m$.

But in the hydrogen atom between the bubbles that roam,

$F=e_mV/R= ma=mR/(\Delta t/4)^2$, because in $\Delta t/4=T/4$ the force is exerted and

$V_m=(m/e_m)16R^2/T^2=(m/e_m)c^2(4/\pi^2)=4.32$ $Volt_m$

But, because the distances are small, we follow the flow of the circular magnetic field of the moving charge and,

$$F=e_m V_m /\pi R= ma=mR/(T/4)^2$$

$$V_m =(m/e_m)\pi 16R^2 /T^2=(m/e_m)c^2(4/\pi)=13{,}6\ Volt_m$$

In the Frank-Hertz experiment the hydrogen atom was ionized at 13.57 volts and we conclude that 1 volt = 1 $volt_m$.

1 Amp, one Cb and 1 Volt, work together with 1 met, 1kgr, 1 sec of SI (MKS-Amp), through the law of the inverse cube. This means that the size of these units is correct, even if Coulomb's law does not apply with constant and rotating charges, but the inverse cube law of their radius applies.

The resistance in the atom was, when N=1,

$$R = k\frac{m}{e}\frac{L^2}{N^2e^2} = k\frac{3.67x10^{-32}}{3.03x10^{-16}}\frac{(2\pi x1.45x10^{-8})^2}{(3.03x10^{-16})^2} = 10.8k = \frac{V}{I^2} = 4.32$$

and k=2.5

$R=\rho A/L=\rho 7{,}25x10^{-9}$

FIND THE ELEMENTS OF STANDARD RESISTANCE

The standard resistance of 1 Ohm is a tube with cross section A=1 mm^2, length L=106,3 cm, filled with mercury. It is

$$R = k\frac{m}{e}\frac{L^2}{N^2e^2} = k\frac{3.67x10^{-32}}{N^2 3.03x10^{-16}}\frac{(1.063)^2}{(3.03x10^{-16})^2} = 1, \quad k=7{,}6x10^{-16}N^2$$

If k=2.5 again, $N=5.7x10^7$ oscillating charges on resistance.

EPILOGUE

Ohm's law is an experimental fact, but it is proved by solid mathematical arguments, that the electrical voltage is proportional to the square of the current, i.e. $I_{OHM} = I^2$.

Faraday arbitrarily chose his constant in electrolysis, and the result was to define the correct size of the unit of current, Amp, as we prove in our atomic physics to be correct. And the question is, how?

With the absolute electrometer, and with the current theory, the wrong formula is derived, and therefore the voltmeter was not rated correctly. But, as we proved in our atomic physics, the unit of electrical voltage Volt is correct, which means that it is not a coincidence.

With the electricity we advocate, the frequency in a Thomson circuit is different from that of established physics. If we accept Coulomb's law with the constant and arbitrary constant of magnetic vacuum permeability, defined by Ampere, then it is 2.5 times greater than current physics.

It turns out that there must be no constant in Coulomb's law, and we create the measurement system MKS-stat.Cb, with Coulomb's law without the constant, as in the CGS-stat.Cb system. In this system, we must apply the formula we found for the frequency of a Thompson circuit, because there the constant of magnetic permeability is very small. And a frequency greater than calculated by established physics is calculated.

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