Newton - Coulomb in XX century

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In XX century are found electron and a positron. Their masses and charges are precisely determined. What it is possible to find out with the help of mass, an electron charge and laws of force interactions of Newton-Coulomb?

We have laws of interactions $f = G\frac{m_1 \cdot m_2}{R^2};\ f = \xi\frac{q_1 \cdot q_2}{R^2};\ f = \eta\frac{м_1 м_2}{R^2}$. Here designations are accepted:

f - force of interaction of pairs objects with mass ***m***, with a charge ***q*** and with magnetic mass ***m*** on distance ***R***. Factors in formulas are changed so that the laws of Newton and Coulomb have identical views. For this purpose electric and magnetic permeability of vacuum are replaced with their return values:

$\xi = \frac{1}{\varepsilon_o};\ \eta = \frac{1}{\mu_o}$.

It is possible to pick up objects for all interactions of one distance in such a way, that forces of three kinds of interactions will be equal:

$$f = G\frac{m^2}{R^2} = \xi\frac{q^2}{R^2} = \eta\frac{м^2}{R^2} \qquad (1)$$

From (1) let's receive the equations

$$Gm^2 = \xi q^2 = \eta м^2 \qquad (2)$$

Let's substitute instead of an unknown charge ***q*** an elementary charge of electron: $e_o = 1{,}602176462(63)\cdot 10^{-19}$ *Coulomb*.

We shall find the value of mass $m_x = \sqrt{\frac{\xi}{G}}\,e_o = \mathbf{1{,}859448.10^{-9}}$ ***kg***. It is obvious, that the given unknown mass is connected to Planck's mass $\boldsymbol{m_{Pl}}$. It is entered by Maks Planck for the scientific

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constructions from point of view of dimensions. We have that $m_{Pl} = \sqrt{1/\alpha}\, m_x$. This connection is carried out through a constant of thin structure α.

Let's remind that

alfa*=1/137,035999** - a constant of thin structure which for the first time has been found in experiences on thin splitting lines of radiation of hydrogen. The information: the constant of thin structures ("alpha"), the dimensionless value formed from universal physical constants: ***e2/hc ~ 1/137, where **e** - an elementary electric charge, ***h*** - Planck's constant, ***c*** - speed of light in vacuum. The constant of thin structure determines thin structure of levels of energy of atom (the value of thin splitting is proportional to a square of "alpha"); the name of a constant also is connected to it. In quantum electrodynamics "alpha" is the natural parameter describing "force" of electromagnetic interaction (" The big Soviet encyclopedia ", 3 edition., M., 1977)

$m_{Pl} = 2{,}17671408 \cdot 10^{-8}$ ***kg*** - the Maks Planck mass.

$c = 2{,}997924580 \cdot 10^{8}$ ***m/s*** - speed of light, a fundamental constant in physics.

From the equation (2) it is received, that speed of light is under formulas:

$c = \sqrt{\xi\eta} = \eta\dfrac{\mathcal{M}}{e_o} = 2{,}99792458 \cdot 10^{8}$ ***m/s*** - speed of light in vacuum is determined, on the one hand, by electric and magnetic permeability- penetrability, on the other hand by the relation of magnetic mass quantum to an elementary charge.

Let's solve the received equation (2) concerning magnetic mass. We shall receive result, that $\mathcal{M} = 4{,}8032068 \cdot 10^{-18} = \Phi_q / \pi\alpha^{-1}$ ***weber***.

$\Phi_q = \dfrac{h}{2e_o} = 2{,}0678336 \cdot 10^{-15}$ ***weber*** - quantum of a stream of the magnetic induction, accepted in modern physics and taken from «the physical encyclopedia», 1998, under edition of academic Prokhorov. Definition of quantum of a stream of a magnetic induction includes a constant ***"h"***, a electron charge ***"eo"***, i.e. value which define many concepts of modern physics.

In formulas XVII and XVIII century's bases of quantum mechanics of XX century are incorporated!
Investigating more deeply solutions of the equation (1, 2), some are found out also others, so evident, parities of the physical value known now. Who knows, what is still covered in innocent simplicity of laws of Newton and Coulomb?