

## Spacetime Units Unification

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**Introduction** -- The fact that the outflow of the electron is equal to the magnetic charge takes us to the unification of the electromagnetic units. The definition of the mass of the electron only with units of space and time takes us to a very simple units system. As the relations between outflow and magnetic charge and between electron mass and its wavelength and frequency are approximations this is just an hypothesis. But a close look at its results reveal interesting facts.

### Why the electron?

Because the values of the electron are almost equal in the relativity theory and in our theory of the absolute relativity ( see at <http://wbabin.net/saraiva/saraiva18.pdf> the paper -- Values of the mass and charge of the monopole and the mass of the neutrino ).

### Outflow of the electron $V_{z_e}$

The outflow is the volume of a fluid that passes in a pipe cross section in the unit of time:

$$V_{z_e} = n \cdot x_e^3 f_e \quad ; \quad ( n = 2.34199108 )$$

$$\Leftrightarrow \quad V_{z_e} = q_m = 4.13566743 \times 10^{-15} \text{ Weber}$$

$q_m$  -- magnetic charge;  $x_e$  -- electron wavelength;  $f_e$  -- electron frequency

Dimension formula:  $q_m = L^3 T^{-1}$  (  $L$  – space ;  $T$  – time ;  $M$  – mass )

And the electric charge:  $q_e = h / q_m \quad \Leftrightarrow \quad q_e = M L^{-1}$  , so:

Magnetic charge / magnetic flux –  $q_m = \Phi = L^3 T^{-1}$  ( outflow )

Electric charge –  $q_e = M L^{-1}$

Inverse permeability –  $1/\mu = M L^{-3}$  ( density )

Magnetic field –  $B = L T^{-1}$  ( speed )

Electric field –  $E = L^2 T^{-2}$  ( squared speed )

Electric intensity –  $I = M L^{-1} T^{-1}$

Dielectric constant –  $\varepsilon = M L^{-5} T^2$

Planck's constant –  $h = M L^2 T^{-1}$

Volt –  $V = L^3 T^{-2}$

Ohm –  $\Omega = M^{-1} L^4 T^{-1}$

Gravitational constant –  $G = M^{-1}L^3T^{-2}$

Frequency –  $f = T^{-1}$

Capacitance – *Farad* =  $ML^{-4}T^2$

Inductance – *Henry* =  $M^{-1}L^4$

For the electron:  $m_e \approx x_e^6 f_e^2$  so:

$$M = L^6 T^{-2} \Leftrightarrow M = q_m^2, \text{so:}$$

**Unified units**

Magnetic flux/magnetic charge –  $\Phi = q_m = L^3 T^{-1}$  (outflow)

Electric charge –  $qe = L^5 T^{-2}$

Inverse permeability –  $1/\mu = L^3 T^{-2}$  (density)

Magnetic field –  $B = L T^{-1}$  (speed)

Electric field –  $E = L^2 T^{-2}$  (squared speed)

Electric intensity –  $I = L^4 T^{-3}$

Permittivity –  $\epsilon = L$  (space)

Force –  $F = L^7 T^{-4}$

Planck's constant –  $h = L^8 T^{-3}$

Volt –  $V = L^3 T^{-2}$

Ohm –  $\Omega = L^{-2} T$

Gravitational constant –  $G = L^{-3}$  (inverse volume)

Capacitance – *Farad* =  $L^2$  (surface)

Inductance – *Henry* =  $L^{-2} T^2$  (inverse squared velocity)

Energy –  $E = L^8 T^{-4}$

Momentum –  $p = L^7 T^{-3}$

Power – *watt* =  $L^8 T^{-5}$

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**List of particles**

Particle	Mass $m$	Frequency $f$	Wavelength $x$	Speed $w$
Electron	$9.109383 \times 10^{-31}$	$1.234185 \times 10^{20}$	$2.427771 \times 10^{-12}$	$2.996220 \times 10^8$
Neutrino	$1.327455 \times 10^{-35}$	$4.7 \times 10^{27}$	$i8.190 \times 10^{-14}$	$i6.1 \times 10^{14}$
Proton	$1.672622 \times 10^{-27}$	$3.63091 \times 10^{21}$	$1.050909 \times 10^{-14}$	$3.792851 \times 10^7$
Neutron	$1.674927 \times 10^{-27}$	$3.68993 \times 10^{21}$	$i1.03547 \times 10^{-14}$	$i3.820812 \times 10^7$
Bottom Quark	$7.6651 \times 10^{-27}$	$3.654 \times 10^{21}$	$4.864 \times 10^{-15}$	$1.777 \times 10^7$
W Boson	$1.43319 \times 10^{-25}$	$3.65997 \times 10^{21}$	$1.13717 \times 10^{-15}$	$4.162 \times 10^6$
Z Boson	$1.625478 \times 10^{-25}$	$3.6606 \times 10^{21}$	$i1.06363 \times 10^{-15}$	$i3.8936 \times 10^6$
Monopole/Higgs/Top Qk.	$3.003164 \times 10^{-25}$	$3.6605 \times 10^{21}$	$i7.9678 \times 10^{-16}$	$i2.8434 \times 10^6$
Graviton	$7.882873 \times 10^{-13}$	$3.66 \times 10^{21}$	$i4.7569 \times 10^{-22}$	$i1.75406407$

Electric photons:  $f = \frac{-h + \sqrt{h^2 + 4km^2c^2}}{2mk}$  ;  $x^2 = h \frac{h + \sqrt{h^2 + 4km^2c^2}}{2m^2c^2}$  ;  $w = \sqrt{c^2 - kf^2}$  ;  $w = xf$

Magnetic photons:  $f = -\frac{h + \sqrt{h^2 + 4km^2c^2}}{2mk}$  ;  $x^2 = h \frac{h - \sqrt{h^2 + 4km^2c^2}}{2m^2c^2}$

( According our theory the quarks u, d, c, and s, as they are defined by classical theory, don't exist. The monopole, higgs and top quark can be, or not, the same particle. We have presented only one neutral particle as the monopole. )