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Building a Better Physics Paradigm

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Photo-Electric Conversions

The Corpuscles in a H-Atom

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PROOFS

- Ether mass of 1.86×10^{-9} kg unifies the Gravitational and Electric Force.
- Solution to the Hand of God Number.
- No Electron in a nascent H-atom.
- Ionization energy is Pair Production.
- The H-atom is comprised of Rydberg photons about a central 1.86×10^{-9} kg Ether mass whose intrinsic charge is Q .
- Experimental evidence for charge, Q , as Ether.
- Experimental data for q^2 as related to a photon.
- Thermodynamic Temperature, T , is Force.
- Voltage is Acceleration.
- Ampere squared is Force.
- Resistance is Velocity per unit charge.

THE ETHER MODEL

SLOWED VELOCITY

$$F = GMm / R^2 = mc^2 / R$$

$$c^2 / G = M / R = 1.346611109 \times 10^{27} \text{ kg/m}$$

$$R_e = \frac{3.794669746 \times 10^{12}}{1.346611109 \times 10^{27}} = 2.817940325 \times 10^{-15} \text{ m}$$

$$G = (R / M_{\text{ether}}) \times c^2 = (R / M_0 \text{ rest mass electron}) \times v^2$$

$$M_0 \times c^2 = M_{\text{ether}} \times v^2$$

$$9.1093826 \times 10^{-31} \times (2.99792458 \times 10^8)^2 = 3.794669746 \times 10^{12} \times v^2$$

$$v = 1.468852484 \times 10^{-13} \text{ m/s}$$

CHARGE SQUARED

If we assume the electrical force due to charge and centripetal force to be equal, then force,

$$F = k \times q \times q / R^2 = Mc^2 / R$$

Canceling and rearranging terms yields,

$$q^2 = M \times R \times 10^7$$

This equation holds true for photons and electrons alike as calculated below.

IN-SITU TWO MASS BODY BOLTZMANN RADIUS

$$M \times 1.468852484 \times 10^{-13} \times 2.42631022 \times 10^{-12} = 6.6260693 \times 10^{-34}$$

$$M = 1.859222909 \times 10^{-9} \text{ kg}$$

$$\frac{M}{R} = \frac{1.859222909 \times 10^{-9}}{1.380668038 \times 10^{-36}} = 1.346611109 \times 10^{27} \text{ kg/m}$$

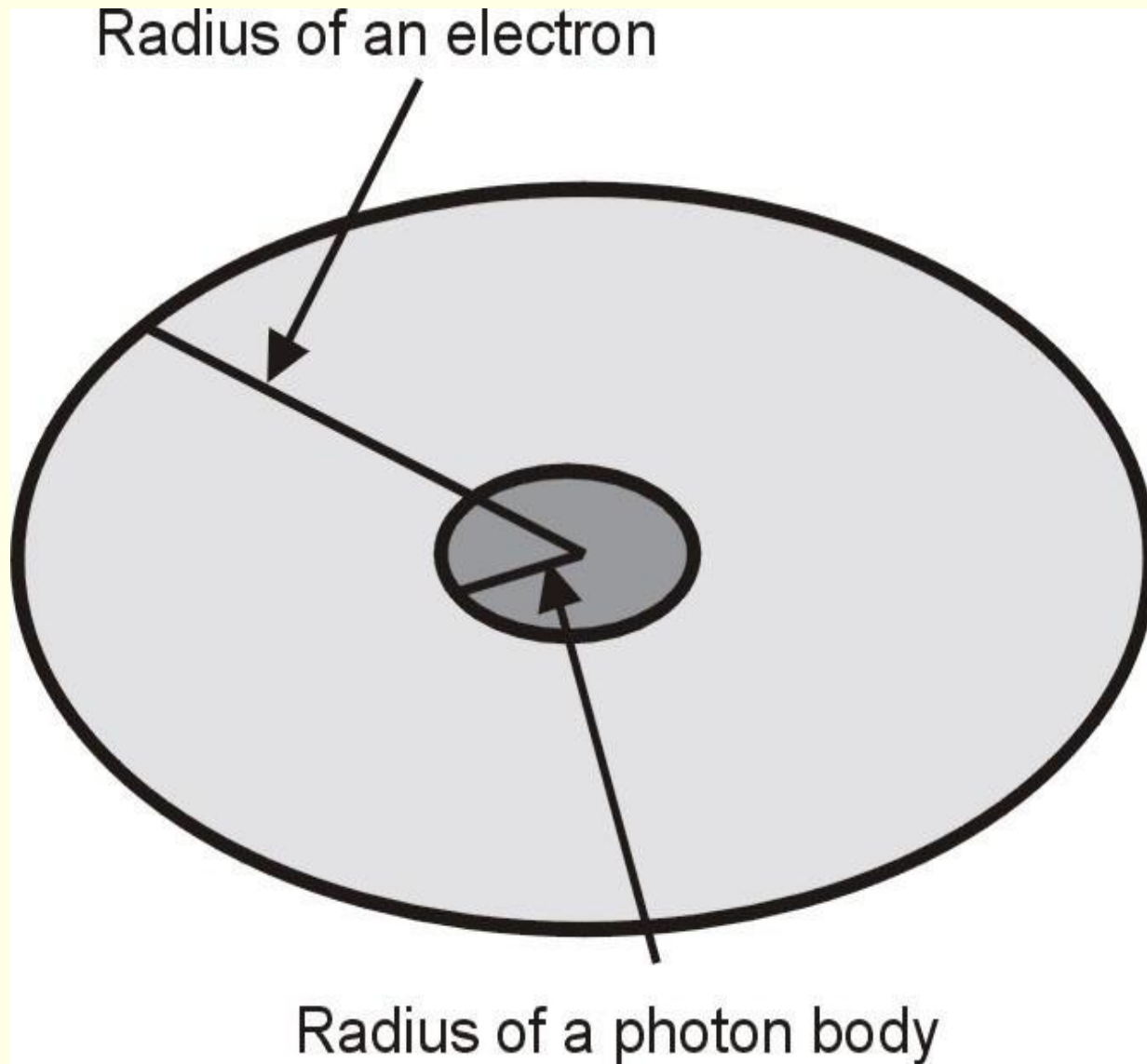
$$M / R = 1.346611109 \times 10^{27} \text{ kg/m}$$

$$q^2 = M \times R \times 10^7$$

$$(1.602176537 \times 10^{-19})^2 =$$

$$1.859222909 \times 10^{-9} \times 1.380668031 \times 10^{-36} \times 10^7$$

Model of Dynamic Photo-electric Conversions



ONE FORCE

Evidence Unifying Electrical and Gravitational Energies

Einstein's equation: $E = M_0 \times c^2$

$$E = 9.1093826 \times 10^{-31} \times 8.987551787 \times 10^{16} = 8.187104787 \times 10^{-14} \text{ J}$$

Coulomb's equation: $E = k \times q_1 \times q_2 / R$

$E =$

$$\frac{8.987551787 \times 10^9 \times (1.60217653 \times 10^{-19})^2}{2.817940325 \times 10^{15}} = 8.187104787 \times 10^{-14} \text{ J}$$

Newton's equation: $E = G \times M_1 \times M_2 / R$

$$E = \frac{(6.674199942)10^{-11} \times (1.859222909 \times 10^{-9})^2}{(2.817940325)10^{-15}} = 8.187104787 \times 10^{-14} \text{ J}$$

THE FORCE IN COUPLETS

$$\text{Force} = \frac{\text{Energy}}{\text{Radius}} = \frac{8.187104787 \times 10^{-14}}{2.817940325 \times 10^{-15}} = 29.05350661 \text{ N}$$

It was this force constant that enabled me to calculate the Rydberg photon body taken to be an electron.

Example 1: Charge squared of the rest mass of an electron.

$$(1.602176537 \times 10^{-19})^2 =$$
$$9.1093826 \times 10^{-31} \text{ kg} \times 2.817940325 \times 10^{-15} \times 10^7 \text{ m}$$

Example 2: Charge squared for photon mass extant in nascent atoms.

$$(1.602176537 \times 10^{-19})^2 =$$
$$1.859222909 \times 10^{-9} \text{ kg} \times 1.380668031 \times 10^{-36} \times 10^7 \text{ m}$$

THE BOHR MODEL

Current Understanding

An electron orbits a nucleus.

Rydberg's constant appears in Bohr's equation.

Kinetic energy of an electron, $\frac{1}{2} m_e v^2$

The angular momentum of the electron orbit is an integral multiple of $\frac{h}{2\pi}$

The energy of an orbit is proportional to $\frac{-1}{n^2}$

Unable to account for the Fine Structure.

An electron is bound by a proton.

Convergence of shells occurs away from the nucleus.

Electron transits between stable orbits.

Fernandes Model

The electron is actually a pulsating Rydberg photon.

Rydberg's constant is the wave number of the Rydberg photon.

The potential energy of the Rydberg photon.

The pulsate velocity of the Rydberg photon is $\frac{4\pi R}{t}$

The electron volt energy corresponds to an introduced photon mass which fuses with the Rydberg photon.

Relates photo-electric conversions with the Fine Structure Constant.

Pair production comes about by the fusion of two photons.

The shell shrinks with increased introduced electron volt energy.

The electron-positron pair pulsates by a volumetric factor of 137 cubed.

Photo-Electric Conversions & The Fine Structure Constant

$$E_n = -\frac{1}{2} m_e \left(\frac{kq_e^2 2\pi}{nh} \right)^2$$

$$E_n = -\frac{1}{2} m_e \left(\frac{c^2 \times 10^{-7} \times m \times r \times 10^7 2\pi}{n \times m \times c \times 2\pi \times r \times 137.036} \right)^2$$

$$E_n = -\frac{1}{2} m_e \left(\frac{c}{n \times 137.036} \right)^2$$

$$E_n = -\frac{1}{2} m_e \times c^2 \left(\frac{1}{n \times 137.036} \right)^2$$

$$E_n = m_{\text{Rydberg}} \times c^2$$

$$\frac{m_{\text{electron}}}{m_{\text{Rydberg}}} = 2 \times n^2 \times 137.036^2$$

A Summary of Equivalent Energies

$$E_n = m_{\text{Rydberg}} \times c^2$$

$$E_n = \frac{1}{2} m_e v^2 = \frac{kq_e^2}{2r}$$

The kinetic energy of the electron is in fact the *potential* energy of the Rydberg photon.

THE ACT OF



**SOLUTION TO THE FINE STRUCTURE
HAND OF GOD**

ALPHA, THE INVERSE OF 137

$$\alpha = \mu_0 \times c \times e^2 / 2h$$

$$\alpha = 4\pi \times 10^{-7} \times c \times M \times R \times 10^7 / 2(M \times c \times \lambda) = 2\pi R / \lambda$$

$$\lambda = 2\pi \times R \times 137.036$$

Wavelength of a Photon using the inverse of the Fine Structure Constant

$$\lambda = 137.036 \times 2\pi R = 137.036 \times 2\pi \times 1.058354422 \times 10^{-10}$$

$$\lambda_{\text{photon of H-atom}} = 137.036^3 \times 4\pi R_{\text{electron}} = 137.036^3 \times 4\pi \times 2.81794029 \times 10^{-15} \text{ m}$$

$$\lambda = 9.11267052 \times 10^{-8} \text{ m}$$

Inverse of λ is Rydberg's constant for the Hydrogen atom arrived from the electron radius

Wavelength of an Electron derived from 13.6 eV stress

$$\begin{aligned}\lambda_{\text{electron}} &= 137.036^3 \times 4\pi R_{\text{photon}} \\ &= 137.036^3 \times 4\pi \times 0.750295677 \times 10^{-19} \text{ m}\end{aligned}$$

$$\lambda_{\text{electron}} = 2.42631022 \times 10^{-12} \text{ m}$$

$$M_0 = \frac{6.6260693 \times 10^{-34}}{2.426310224 \times 10^{-12} \times 2.99792458 \times 10^8}$$

$$M_0 = 9.1093826 \times 10^{-31} \text{ kg}$$

PAIR PRODUCTION

A Theory-of-Knowledge Question

Why does the Hydrogen atom when ionized release an electron ?

During ionization, the Rydberg photon picks up the introduced eV photon and an electron-positron pair results.

Application of the Charge Squared Formula

For an electron:

$$(1.602176537 \times 10^{-19})^2 = 9.1093826 \times 10^{-31} \text{ kg} \times 2.817940325 \times 10^{-15} \times 10^7 \text{ m}$$

For the Rydberg photon:

$$(1.60217653 \times 10^{-19})^2 = 2.425434789 \times 10^{-35} \times R \times 10^7$$

$$R = 1.058354422 \times 10^{-10} \text{ m}$$

Photon Mass Equivalent of 13.6 eV Ionization Energy

$$E = 13.6056923 \times 1.60217653 \times 10^{-19}$$

$$E = 2.179872088 \times 10^{-18} \text{ J}$$

$$E = F \times R$$

$$2.179872088 \times 10^{-18} = 29.05350661 \times R$$

$$R = 0.7502956931 \times 10^{-19} \text{ m}$$

$$q^2 = M \times R \times 10^7$$

$$M = \frac{(1.60217653 \times 10^{-19})^2}{0.7502956931 \times 10^{-19} \times 10^7}$$

$$= 3.421277314 \times 10^{-26} \text{ kg}$$

Pair Production

$$q^2 = \text{mass of photon} \times \text{radius of photon} \times 10^7$$

$$q^2 = 2.425434789 \times 10^{-35} \times 1.058354422 \times 10^{-10} \times 10^7$$

[for Rydberg photon]

$$q^2 = 3.421277314 \times 10^{-26} \times 0.7502956931 \times 10^{-19} \times 10^7$$

[for 13.6 eV photon]

$$q^4 = 2.425434789 \times 10^{-35} \times 1.058354422 \times 10^{-10} \times 10^7 \times \\ 3.421277314 \times 10^{-26} \times 0.7502956931 \times 10^{-19} \times 10^7$$

$$q^2 = \pm [9.1093826 \times 10^{-31} \times 2.81794029 \times 10^{-15} \times 10^7]$$

Pair Production at $9.382723128 \times 10^8 \text{ eV}$

Mass [X] is nearly equal to the proton mass

$$q^2 = m \times R \times 10^7$$

$$q^2 = 1.672622216 \times 10^{-27} \times 1.534697799 \times 10^{-18} \times 10^7$$

[for mass [X]

$$q^2 = 4.961123308 \times 10^{-34} \times 5.1741702 \times 10^{-12} \times 10^7$$

[for $9.382723128 \times 10^8 \text{ eV}$ photon]

$$q^4 = 1.672622216 \times 10^{-27} \times 1.534697799 \times 10^{-18} \times 10^7 \times \\ 4.961123308 \times 10^{-34} \times 5.1741702 \times 10^{-12} \times 10^7$$

$$q^2 = \pm [9.1093826 \times 10^{-31} \times 2.81794029 \times 10^{-15} \times 10^7]$$

The Corpuscular Nature of an H-Atom

The ratio of mass [X] to the Rydberg photon is,

$$\frac{1.672622216 \times 10^{-27}}{2.425434789 \times 10^{-35}} = 6.896174754 \times 10^7$$

The ratio of the 9.382723128×10^8 eV to the 13.6056923 eV is,

$$\frac{9.382723128 \times 10^8}{13.6056923} = 6.89617471 \times 10^7$$

SOURCE OF ELECTRICITY

Ampere Squared is Force

$$q = I \times t$$

$$I^2 = \frac{q^2}{t^2}$$

$$I^2 = \frac{M \times R \times 10^7}{t^2}$$

$$I^2 = \frac{M \times R \times 10^7}{t^2}$$

$$a = \frac{R \times 10^7}{t^2}$$

$$I^2 = M \times a$$

$$I^2 = F$$

Voltage, V , is Acceleration

$$eV \times e = J$$

$$V = \frac{J}{e^2}$$

$$V = \frac{Mc^2}{M \times R \times 10^7}$$

$$V = \frac{c^2}{R \times 10^7}$$

$$V = a \times 10^{-7}$$

Resistance, R , is Velocity per Unit Charge, q

$$V = a \times 10^{-7}$$

$$I^2 = F$$

$$V = IR$$

$$V^2 = I^2 R^2$$

$$(a \times 10^{-7})^2 = \text{force} \times R^2$$

$$(a \times 10^{-7})^2 = m(a \times 10^{-7}) \times R^2$$

$$\frac{\text{velocity}, v^2 \times 10^{-7}}{R \times m} = R^2$$

$$\frac{\text{velocity}, v^2}{q^2} = R^2 = \frac{\text{velocity}, v^2}{m \times R \times 10^7} = \frac{a}{m}$$

$$R = \frac{\text{velocity}, v}{q}$$

Volt, V , as Energy per Unit Charge, Disproved

$$V = \frac{J}{Q}$$

$$V_{\text{volt}} = \frac{13.6\text{eV}}{e} = \frac{13.6056923}{1.60217653 \times 10^{-19}}$$

$$V_{\text{volt}} = 8.492005747 \times 10^{19} \text{ m} \cdot \text{s}^{-2} = a \times 10^{-7}$$

$$V_{\text{volt}} = 8.492005747 \times 10^{19} \text{ m} \cdot \text{s}^{-2}$$

$$V_{\text{volt}} = a \times 10^{-7}$$

$$a = 8.492005747 \times 10^{26} \text{ m} \cdot \text{s}^{-2}$$

$$m = \frac{F}{a} = \frac{29.05350661}{8.492005747 \times 10^{26}} = 3.421277314 \times 10^{-26} \text{ kg}$$

Ether as Charge, Q

Electrolysis of Water

Current, $I = 0.068$ amps

Time, $t = 18,000$ s

Equation: $2\text{H}_2\text{O} \rightarrow \text{O}_2 + 4\text{H}^+ + 4\text{e}^-$

Charge, Q , current, I , and time, t , are equated as,

$$Q = I t$$

$$Q = 0.068 \times 18000$$

$$Q = 1224\text{C}$$

Ether as Q

$$Q = ne$$

$$n = \frac{Q}{e} = \frac{1224}{1.60217653 \times 10^{-19}}$$

$$n = 7.639607603 \times 10^{21}$$

$$mass_g = \frac{QMr}{FZ} = \frac{1224 \times 32}{96485.33829 \times 4}$$

$$moles = \frac{mass_g}{Mr} = \frac{0.101486922}{32.0} = 0.003171466313 mol$$

Ether as Q

n , Number of protons: Where a proton is associated with an elementary charge that is **not an electron**.

$$4 \times moles \times L = 4 \times 0.00317146633 \times 6.022141536 \times 10^{23}$$

$$n = 7.639607603 \times 10^{21}$$

$$mass_{H^+} = 1.27781774 \times 10^{-5} \text{ kg}$$

$$\frac{mass_g}{Q} = \frac{1.27781774 \times 10^{-5}}{1224.0} = \frac{1.672622216 \times 10^{-27}}{1.60217653 \times 10^{-19}} \text{ kg/C}$$

$$(1.602176537 \times 10^{-19})^2 =$$

$$1.859222909 \times 10^{-9} \times 1.380668031 \times 10^{-36} \times 10^7$$

Ether as Q

Experimental Evidence Unifying Electrical and Gravitational Energies:

$$\frac{GMm}{R} = \frac{kQq}{R}$$

$$M^2 = \frac{kQQ}{G} = \frac{8.987551787 \times 10^9 \times 1224.0^2}{6.6742 \times 10^{-11}}$$

$$M = 1.420373341 \times 10^{13} \text{ kg}$$

$$\text{Ether}_{\text{kg}} = \frac{1.420373347 \times 10^{13}}{7.639607603 \times 10^{21}}$$

$$\text{Ether}_{\text{kg}} = 1.859222909 \times 10^{-9} \text{ kg}$$

$$(1.602176537 \times 10^{-19})^2 =$$

$$1.859222909 \times 10^{-9} \times 1.380668031 \times 10^{-36} \times 10^7$$

Kelvin, T , is Force

$$mc^2 = nRT$$

$$mc^2 = 1.420373347 \times 10^{13} \times 8.987551787 \times 10^{16} J$$

$$nRT = 4 \times 0.00317146633 \times 8.314578297 \times 10^{-13} \times T$$

$$mc^2 = 1.276567901 \times 10^{30} J$$

$$T = 1.210273708 \times 10^{44} N$$

$$E = mc^2 = 1.346611109 \times 10^{27} \times 8.987551787 \times 10^{16} J$$

$$E = 1.210273708 \times 10^{44} N.m$$

Theory of Knowledge

The two most important theory of knowledge questions a scientist must ask are:

- What is the **evidence** for the knowledge I have received or encountered?
- Why must I believe or **accept** this information as true?

RECAP OF FINDINGS

- Newton's equations are proven to work at the atomic scale.
- Gravitational and Electro-magnetic forces are unified.
- Mathematical proof is presented for an extant photon (rather than an electron) in a nascent Hydrogen atom.
- Charge squared is photon mass pulsating about a mean volumetric radius.
- An electron is shown to be a type of photon.
- A two-mass body is at the heart of an atom, with a radius that corresponds to Boltzmann's constant.
- Heisenberg's uncertainty principle is challenged.

- Photo-electric conversions occur by a factor of 137 cubed.
- Photons do have mass. A mass-less photon particle in a state of momentum is a contradiction in terms. Similarly, ether replaces a mass-less trampoline.
- Ionization energy is redefined as pair production
- Rydberg photons comprise the H-atom.
- Voltage is acceleration of a photon.
- Ampere squared is force.
- Resistance is velocity per unit charge.

KEY OUTCOMES

BOHR MODEL

Essentially correct and an affirmation of the presence of the Rydberg photon in a nascent Hydrogen atom.

No electron in a nascent H-atom.

ONE FORCE-EQUAL ENERGIES

Newton's equation holds up perfectly on the **atomic scale** even as it does on the galactic.

An *in situ* two-mass body at a slowed velocity affords a solution for a unification of electromagnetic and gravitational force.

HAND OF GOD

Richard P. Feynman speculates that this dimensionless number has to do with pi , π , and refers to it as written by the *hand of God*. Feynman made the famous remark that every physicist will have *alpha* tacked onto the wall as a worry, as a reminder, that is, to try to understand what it is all about.

137

Photo-electric conversion derivations prove pair formation: two photon masses fuse, and the Rydberg photon of the Hydrogen atom *shrinks* from twice the Bohr Radius to that of the electron classical radius. Similarly, the 13.6 eV generated photon *dilates* to the dimension of the electron classical radius. There is a concomitant exchange of mass and an electron-positron pair is produced. Shrinkage and dilation occurs by a factor of *137 cubed* for each photon respectively.

WAVE-PARTICLE DUALITY

- Particle: $q^2 = M \times R \times 10^7$
- Wave: $\lambda = 2\pi R \times 137.036$

1.86x10⁻⁹ kg Ether

Unifies Electric & Gravitational Fields

Gravitational Field Source

$$\frac{M}{R} = \frac{1.859222909 \times 10^{-9}}{1.380668038 \times 10^{-36}} = 1.346611109 \times 10^{27} \text{ kg/m}$$

Electric Field Source

$$(1.602176537 \times 10^{-19})^2 =$$
$$1.859222909 \times 10^{-9} \times 1.380668031 \times 10^{-36} \times 10^7$$

Kelvin, T , is Force

- For Ether: $mc^2 = nRT$

$$T = 1.210273708 \times 10^{44} \text{ N}$$

- For Photons:

$$\text{Force} = \frac{\text{Energy}}{\text{Radius}} = \frac{8.187104787 \times 10^{-14}}{2.817940325 \times 10^{-15}} = 29.05350661 \text{ N}$$

Pair Production: Two Solutions

A useful outcome of this research is the mathematical capability of quantifying a new entity like an electron-positron pair from the union of two photons, by the formula,

$$q^2 = \text{mass of a particle} \times \text{radius of a particle} \times 10^7$$

The Corpuscular Nature of a H-Atom

J. J. Thomson thought of an atom as being comprised of corpuscles.

Rydberg photons comprise the proton and Hydrogen atom.

SOURCE OF ELECTRICITY

A PHOTON

- Ampere Squared is Force
- Voltage, V , is Acceleration
- Resistance, R , is Velocity per Unit Charge

Ether mass comprising
multiples of
 $1.859222909 \times 10^{-9}$ kg

is

The source of the Gravitational Field and Charge, Q .

Electron volt, eV , is associated with photon mass.

Charge, Q , is charge associated with Ether.

THANK YOU AUDIENCE

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