

# GAMMA FACTOR - ELECTRON DYNAMIC PULSATE VELOCITY INVOLVING 2 PHOTONS

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The binding energy of 13.6 eV or ionization energy required to extract an electron from a Hydrogen atom can be explained by utilizing the Gamma factor  $\gamma$ . The electron in orbit has a frequency  $f$  which can be obtained from  $c = \lambda f$ . The Compton wavelength I have deconstructed as  $\lambda = 2\pi \times R \times 137.036$ .

There is a pulsation of the electron torus the lower radial limit at  $R$  and the upper radial limit  $R \times 137.036$ . Frequency remains constant resulting in two velocities namely light speed  $c$  and Bohr velocity  $v$  where  $v = c / 137.036$ . The change in velocity in this dynamic pulsation of an electron changes its measure of mass by the gamma factor 0.999946748 from  $9.1093826 \times 10^{-31}$  Kg to  $9.108897513 \times 10^{-31}$  Kg. The change in measured mass due to radial length change by a factor of 137.037 at a constant frequency  $f$  equals the **Two Photon Mass** pair of  $2 \times 2.425434789 \times 10^{-35}$  Kg or  $2 \times 13.6$  eV. The inverse wavelength associated with  $2.425434789 \times 10^{-35}$  Kg obtained from  $m c \lambda = h$  is the Rydberg constant or wave-number determined in the H-atom spectrum study.

The Bohr velocity of an electron in orbital motion is now shown to be the velocity of an oscillator about the center of a torus. Bohr's electron is just one type of oscillator specific to the hydrogen atom. Bohr and Einstein described the same event but neither knew it. Here follows the solution to Einstein's equation and Bohr's affirmation of the truth.  $E=mc^2$  is the description of the Bohr model. Einstein created an equation that backed the Bohr model.

Arnold Sommerfeld discovered the Fine Structure Constant in his spectral studies and Feynman coined the dimensionless constant – The Hand of God number or Alpha. The inverse of alpha is 137.036 and shown by me to be the measure of radial length increase of a torus to produce the measure of wavelength of light. Wavelength of light is the circumference of a torus that undergoes radial expansion by a factor of 137.036. So the upper expansion limit would yield lambda and the lower the circumference of a circle.

The Gamma Factor:  $\gamma = 1 - \frac{v^2}{c^2}$

$$v = \frac{c}{137.036}$$

$$\gamma = 1 - \frac{v^2}{c^2} = 0.999946748$$

Mass of an electron,  $m$  times the Gamma factor  $\gamma$  yields a new measure of electron mass,  $m^*$

$$9.1093826 \times 10^{-31} \times \left[1 - \frac{v^2}{c^2}\right] = 9.108897513 \times 10^{-31} \text{ kg} = m^*$$

### INTERPRETATION

#### Pair Production:

$$9.1093826 \times 10^{-31} \text{ kg} - 9.108897513 \times 10^{-31} \text{ kg} = 2 \times 2.425434789 \times 10^{-35} \text{ kg} \text{ Two Rydberg photons}$$

### Source of the Bohr Radius:

Two Rydberg photons each of mass  $2.425434789 \times 10^{-35}$  kg whose radius equals the Bohr Radius,  $r$

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

$$r = 5.291772108 \times 10^{-11} m \quad \text{Bohr radius}$$

### Source of the Rydberg constant:

DeBroglie Eq.  $m \times c \times \lambda = h$

$$2.425434789 \times 10^{-35} \times c \times \lambda = h$$

The inverse of wavelength is the Rydberg constant or the wave number of the Rydberg photon observed in H-spectra.

### Source of the CMBR: No Big Bang

DeBroglie equation I have deconstructed to another form as,

$$2.425434789 \times 10^{-35} \times 25812.8076 \times r = h$$

$r = 1.058354417 \times 10^{-3}$  m This spiral radius,  $r$  is the reason for the CMBR or supposed big bang relic radiation. No no big bang. The frequency  $f = r/c$  of the CMBR is from Hydrogen in stars.

See paper - A RYDBERG PHOTON PRECESSION IN STARS

The velocity component is from superconducting resistance of SQUID 25812.8076 Ohms,

$$Ohms = \frac{velocity}{1C} = \frac{25812.8076}{1C}$$

Einstein, Bohr, Sommerfeld, Planck, Von Klitzing, de Broglie, Newton, Rydberg were measuring different aspects of one phenomenon namely an oscillator in a torus.

Newton kept mass constant, Einstein varied mass. Von Klitzing measured electrical resistance for one Coulomb of photons and was awarded the Nobel prize. Bohr looked at the kinetic energy of an electron produced by pair production. Scientists looked at the nucleus as a sounding board for the electron to interact. I have proved the Rydberg photon 13.6eV introduced mass equivalent to be the mass which acts as the factor for the conservation of energy transfer when the electron is in dynamic pulsate motion from radius  $r$  to an upper radial length or  $r \times 137.036$ .