Exploration

The Monopolar Quantum Relativistic Electron: An Extension of the Standard Model & Quantum Field Theory (Part 6)

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Abstract

In this paper, a particular attempt for unification shall be indicated in the proposal of a third kind of relativity in a geometric form of quantum relativity, which utilizes the string modular duality of a higher dimensional energy spectrum based on a physics of wormholes directly related to a cosmogony preceding the cosmologies of the thermodynamic universe from inflaton to instanton. In this way, the quantum theory of the microcosm of the outer and inner atom becomes subject to conformal transformations to and from the instanton of a quantum big bang or qbb and therefore enabling a description of the macrocosm of general relativity in terms of the modular T-duality of 11-dimensional supermembrane theory and so incorporating quantum gravity as a geometrical effect of energy transformations at the wormhole scale.

Part 6 of this article series includes: The Higgs Boson Resonance Found by ATLAS & CMS Is a Diquark Resonance; The Top-Super Diquark Resonance of CERN's 'Diphoton' - December 15th, 2015; Cosmic Ray Unification in XL-Boson Class IA: SEW.G --- SeW.G; and Conclusion.

Keywords: Monopolar, quantum relativity, Standard Model, extension, quantum field theory.

The Higgs Boson Resonance Found by ATLAS & CMS Is a Diquark Resonance

The 'make-up' of the Higgs Boson can be highlighted in a discovery of a 160 GeV Higgs Boson energy and incorporating the lower energy between 92 GeV and to the upper dainty level at 130 GeV as part of the diquark triplet of the associated topomium energy level.

In particular, as the bottomium doublet minimum is at 5,247.48 MeV* and the topomium triplet minimum is at 55,985.5 MeV* in terms of their characteristic Kernel-Means, their doubled sum indicates a particle-decay excess at the recently publicized ~125 GeV energy level in $2 \times (5.24748 + 55.9855)$ GeV* = 122.466 GeV* (or 122.165 GeV SI).

These are the two means from ATLAS {116-130 GeV as 123 GeV} and CMS {115-127 GeV as 121 GeV} respectively. http://press.web.cern.ch/press/PressReleases/Releases2011/PR25.11E.html

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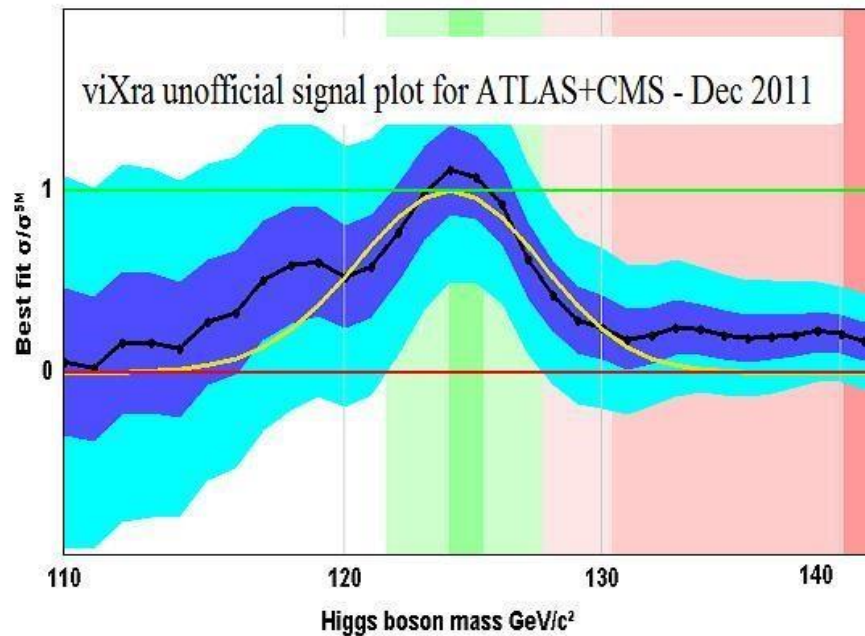
Then extending the minimum energy levels, like as in the case to calculate the charged weakon gauge field agent energy in the charm and the VPE perturbations as per the table given, specifies the 125 GeV energy level in the Perturbation Integral/Summation:

2x{55.986+5.247+1.607+0.492+0.151+0.046+0.014} GeV* = 127.09 GeV*, which become about 126.77 GeV SI as an upper bound for this 'Higgs Boson' at the Dainty quark resonance level from the UFoQR (Unified Field of Quantum Relativity).

Using the 3 Diquark energy levels U,D and S yield 2x{55.986+5.247+1.607} GeV* = 125.68 GeV* and 125.37 GeV SI.

Some data/discovery about the Higgs Boson aka the 'God-Particle' states, that there seems to be a 'resonance-blip' at an energy of about 160 GeV and as just one of say 5 Higgs Bosons for a 'minimal supersymmetry'.
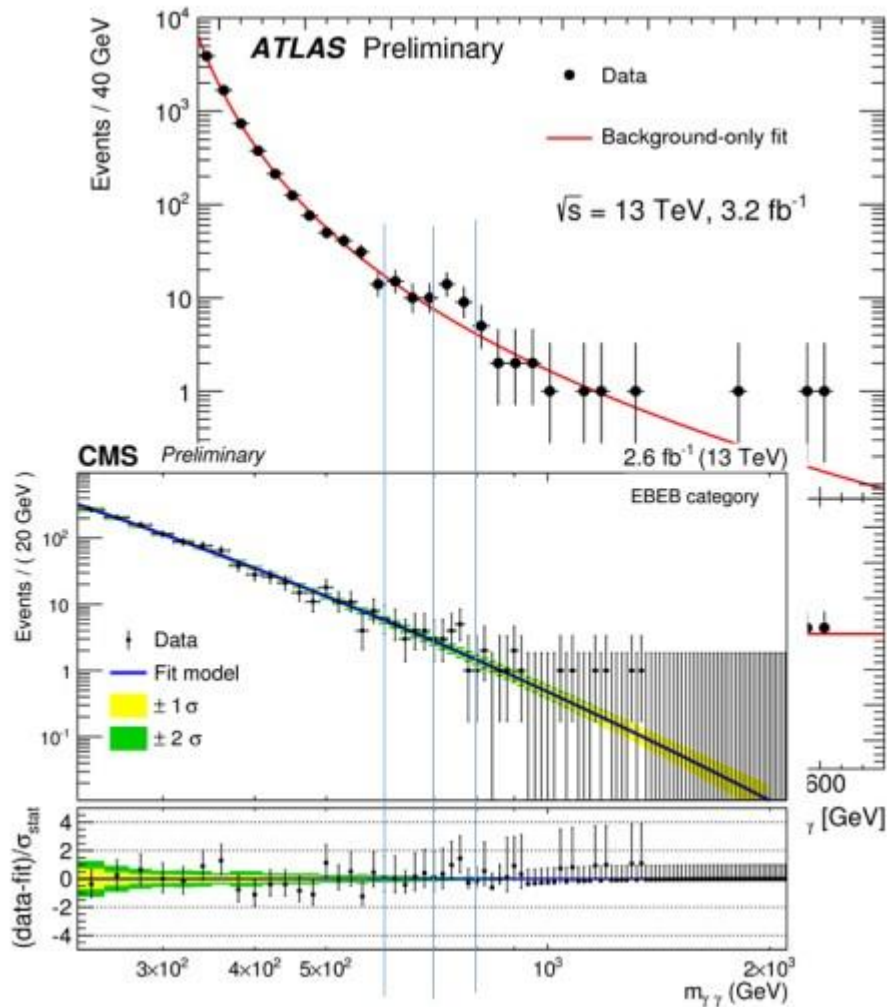
One, the lowest form of the Higgs Boson is said to be about 110 GeV in the Standard Model. There is also a convergence of the HB to an energy level of so 120 GeV from some other models.

But according to QR, the Higgs Boson, is that is not a particular particle, but relates to all particles in its 'scalar nature' as a rest mass inducer.

It is natural, that an extended form of the Higgs Boson can show a blip at the 160 GeV mark and due to its nature as a 'polarity' neutralizer (a scalar particle has no charge and no spin but can be made up of two opposite electric charges and say two opposing chirality of spin orientations.)

The Top-Super Diquark Resonance of CERN's 'Diphoton' – Dec. 15th, 2015

As can be calculated from the table entries below; a (suppressed Top-Super Diquark Resonance is predicted as a (ds)UUbar(ss)=(ds).u.ubar.u.ubar.(ss) quark complex or diquark molecule averaged at (182.869+597.159)GeV=780.03 GeV.

https://profmattstrassler.com/2015/12/16/is-this-the-beginning-of-the-end-of-the-standard-model/

In the diquark triplet {dd; ds; ss}={Dainty; Top; Super} a Super-Superbar resonance at 1.1943 TeV can also be inferred with an 'IR-OR triplet suppressed' Super-Dainty resonance at 653.145 GeV* and the Top-Dainty resonance at 238.855 GeV* by the Higgs Boson summation as indicated below.

Supersymmetric partners become unnecessary in the Standard Model, extended into the diquark hierarchies.

Next, we interpret this scalar (or sterile) Double-Higgs (anti)neutrino as a majoron and lose the distinction between antineutrino and neutrino eigenstates.

We can only do this in the case of the Z^o decay pattern, which engage the boson spin of the Z^o as a superposition of two antineutrinos for the matter case and the superposition of two neutrinos in the antimatter case from first principles.

So the Z^o is a Majorana particle, which merges the templates of two antineutrinos say and spin induces the Higgs-Antineutrino.

And where does this occur? It occurs at the Mesonic-Inner-Ring Boundary previously determined at the 2.776×10^{-18} meter marker.

This marker so specifies the Z^o Boson energy level explicitly as an upper boundary relative to the displacement scale set for the kernel at the wormhole radius $r_{ps} = \lambda_{ps}/2\pi$ and the classical electron radius as the limit for the nuclear interaction scale at 3 fermis in: $R_{compton}$Alpha.

So the particle masses of the standard model in QED and QCD become Compton-Masses, which are Higgs-mass-induced at the Mesonic-Inner-Ring (MIR) marker at $R_{MIR} = 2.777...\times 10^{-18}$ meters. A reformulation of the rotational dynamics associated with the monopolar naturally superconductive current flow and the fractalization of the static Schwarzschild solution follows. in a reinterpretation of the Biot-Savart Law.

All inertial objects are massless as 'Strominger branes' or extremal boundary Black Hole equivalents and as such obey the static and basic Schwarzschild metric as gravita template for inertia.

This also crystallizes the Sarkar Black Hole boundary as the 100 Mpc limit ($R_{Sarkar} = (M_o/M_{critical}.R_{Hubble}) = 0.028.R_{Hubble} \sim 237$ Million lightyears) for the cosmological principle, describing large scale homogeneity and isotropy, in the supercluster scale as the direct 'descendants' of Daughter Black Holes from the Universal Mother Black Hole describing the Hubble Horizon as the de Sitter envelope for the Friedmann cosmology (see linked website references on de Sitter cosmology) for the oscillatory universe bounded in the Hubble nodes as a standing waveform.

The Biot-Savart Law: $B = \mu_o qv/4\pi r^2 = \mu_o i/4\pi r = \mu_o Nef/2r = \mu_o Ne\omega/4\pi r$ for angular velocity $\omega = v/r$ transforms into $B = constant(e/c^3)gx\omega$
in using $a_{centripetal} = v^2/r = r\omega^2$ for $g = GM/r^2 = (2GM/c^2)(c^2/2r^2) = (R_S c^2/2R^2)$ for a Schwarzschild solution $R_S = 2GM/c^2$.

$B = constant(e\omega/rc)(v/c)^2 = \mu_o Ne\omega/4\pi r$ yields $constant = \mu_o Nc/4\pi = (120\pi N/4\pi) = 30N$ with $e = m_M/30c$ for $30N(e\omega/c^3)(GM/R^2) = 30N(m_M/30c)\omega(2GM/c^2)/(2cR^2) = NmM(\omega/2c^2R)(R_S/R) = \{M\}\omega/2c^2R$. Subsequently, $B = Mw/2c^2R = Nm_M(R_S/R)\{\omega/2c^2R\}$ to give a manifesting mass M

fine structured in $M = Nm_M(R_S/R)$ for $N = 2n$ in the superconductive 'Cooper-Pairings' for a charge count $q = Ne = 2ne$.

But any mass M has a Schwarzschild radius R_S for $N = (M/m_M)\{R/R_S\} = (M/m_M)\{Rc^2/2GM\} = \{Rc^2/2Gm_M\} = \{R/R_M\}$ for a monopolar Schwarzschild radius $R_M = 2Gm_M/c^2 = 2G(30ec)/c^2 = 60ec/30c^3 = 2e/c^2 = 2L_P\sqrt{Alpha} = 2OL_P$.

Any mass M is quantized in the Monopole mass $m_M = m_P\sqrt{Alpha}$ in its Schwarzschild metric and where the characterizing monopolar Schwarzschild radius represents the minimum metric displacement scale as the Oscillation of the Planck-Length in the form $2L_P\sqrt{Alpha} \sim L_P/5.85$.
This relates directly to the manifestation of the magnetopole in the lower dimensions, say in Minkowskian spacetime in the coupling of inertia to Coulombic charges, that is the electro pole and resulting in the creation of the mass-associated electromagnetic fields bounded in the cinvariance.

From the Planck-Length Oscillation or 'L_P-bounce': $OL_P = L_P\sqrt{Alpha} = e/c^2$ in the higher (collapsed or enfolded) string dimensions, the electro pole $e = OL_P.c^2$ maps the magnetopole $e* = 2R_e.c^2$ as 'inverse source energy' $E_{Weyl} = hf_{Weyl}$ and as function of the classical electron radius $R_e = ke^2/m_ec^2 = R_{Compton}.Alpha = R_{Bohr1}.Alpha^2 = Alpha^3/4\pi R_{Rydberg} = 10^{10}\{2\pi r_{ps}/360\} = \{e*/2e\}.OL_P$.

The resulting reflection-mirror space of the M-Membrane space (in 11D) so manifests the 'higher D' magneto charge 'e*' as inertial in the monopolar current [ec], that is the electropolar Coulomb charge 'e'.

This M-space becomes then mathematically formulated in the gauge symmetry of the algebraic Lie group E_8 and which generates the inertial parameters of the classical Big Bang in the Weylian limits and as the final Planck-String transformation.

The string-parametric Biot-Savart law then relates the angular momentum of any inertial object of mass M with angular velocity ω in self inducing a magnetic flux intensity given by $B = M\omega/2Rc^2$ and where the magnetic flux relates inversely to a displacement R from the center of rotation and as a leading term approximation for applicable perturbation series.

This descriptor of a string-based cosmology so relates the inherent pentagonal supersymmetry in the cosmogenesis to the definition of the Euler identity in its fine structure $X+Y = XY = i^2 = -1$, and a resulting quadratic with roots the Golden Mean and the Golden Ratio of the ancient omniscience of harmonics, inclusive of the five Platonic solids mapping the five superstring classes. Foundations and applications of superstring theory are also indicated and serve as reference for the above.

The quantization of mass m so indicates the coupling of the Planck Law in the frequency parameter to the Einstein law in the mass parameter.

The postulated basis of M-Theory utilizes the coupling of two energy-momentum eigenstates in the form of the modular duality between so termed 'vibratory' (high energy and short wavelengths) and 'winding' (low energy and long wavelengths) self-states. The 'vibratory' self-state is denoted in:

$E_{ps} = E_{primary\ sourcesink} = hf_{ps} = m_{ps}c^2$ and the 'winding' and coupled self-state is denoted by: $E_{ss} = E_{secondary\ sinksource} = hf_{ss} = m_{ss}c^2$

The F-Space Unitary symmetry condition becomes: $f_{ps}.f_{ss} = r_{ps}.r_{ss} = (\lambda_{ps}/2\pi)(2\pi\lambda_{ss}) = 1$
The coupling constants between the two eigenstates are so: $E_{ps}E_{ss} = h^2$ and $E_{ps}/E_{ss} = f_{ps}^2 = 1/f_{ss}^2$
The Supermembrane $E_{ps}E_{ss}$ then denotes the coupled superstrings in their 'vibratory' high energy and 'winded' low energy self-states.

The coupling constant for the vibratory high energy describes a maximized frequency differential over time in $df/dt|_{max} = f_{ps}^2$ and the coupling constant for the winded low energy describes its minimized reciprocal in $df/dt|_{min} = f_{ss}^2$.

F-Theory also crystallizes the following string formulations from the $E_{ps}E_{ss}$ super brane parameters.

$1/E_{ps} = e^* = 2R_ec^2 = \sqrt{\{4\alpha hce^2/2\pi G_o m_e^2\}} = 2e\sqrt{\alpha}\{m_P/m_e\} = 2ke^2/m_e = \alpha hc/\pi m_e$

Here e* is defined as the inverse of the sourcesink vibratory superstring energy quantum $E_{ps} = E^*$ and becomes a *New Physical Measurement Unit is the Star Coulomb (C*)* and as the physical measurement unit for 'Physical Consciousness'.

R_e is the 'classical electron radius' coupling the 'point electron' of Quantum- Electro-Dynamics (QED) to Quantum Field Theory (QFT) and given in the electric potential energy of Coulomb's Law in: $m_ec^2 = ke^2/R_e$; and for the electronic rest mass m_e.

Alpha α is the electromagnetic fine structure coupling constant $a = 2\pi ke^2/hc$ for the electric charge quantum e, Planck's constant h and lightspeed constant c.

G_o is the Newtonian gravitational constant as applicable in the Planck-Mass $m_P = \sqrt{(hc/2\pi G_o)}$. As the Star Coulomb unit describes the inverse sourcesink string energy as an elementary energy transformation from the string parametrization into the realm of classical QFT and QED, this transformation allows the reassignment of the Star Coulomb (C*) as the measurement of physical space itself.

Cosmic Ray Unification in XL-Boson Class IA
SEW.G --- SeW.G

An Elementary Cosmic Ray Spectrum

The elementary Cosmic Ray Spectrum derives from the transformation of the Planck-String-Boson at the birth of the universe.

The following tabulation relates those transformation in energy and the modular duality between the distance parameters of the macrocosm of classical spacetime geometry and the microcosm of the quantum realm.

String-Boson	Wavelength (λ) m	Energy (hc/λ) J & eV	Modular Wavelength m	Significance
1. Planck-Boson	1.2×10^{-34} m	1.6 GJ or 9.9×10^{27} eV	8.0×10^{33} m	Outside Hubble Horizon Limit
2. Monopole-Boson	4.6×10^{-32} m	4.3 MJ or 2.7×10^{25} eV	2.2×10^{31} m	Outside Hubble Horizon Limit
3. XL-Boson	6.6×10^{-31} m	303 kJ or 1.9×10^{24} eV	1.5×10^{30} m	Outside Hubble Horizon Limit
4. X-K-Boson transit (+)	8.8×10^{-28} m	227 J or 1.6×10^{21} eV	1.1×10^{27} m	$2\pi R_{Hubble11D}$
5. X-K-Boson transit (-)	1.0×10^{-27} m	201 J or 1.2×10^{21} eV	1.0×10^{27} m	$2\pi R_{HubbleHorizonLimit}$
6. CosmicRayToe	1.9×10^{-27} m	106 J or 6.6×10^{20} eV	5.3×10^{26} m	$2\pi R_{Hubble10D}$
7. CosmicRayAnkle	2.0×10^{-25} m	1.0 J or 6.2×10^{18} eV	5.0×10^{24} m	Galactic Supercluster Scale
8. CosmicRayKnee (+)	1.0×10^{-22} m	0.002 J or 1.24×10^{16} eV	1.0×10^{22} m	Galactic Halo(Group) Scale
9. CosmicRayKnee (-)	6.3×10^{-22} m	0.3 mJ or 2.0×10^{15} eV	1.6×10^{21} m	Galactic Disc(Halo) Scale

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10.CosmicRay	1.4×10^{-20} m	0.002 mJ or 1.4×10^{13} eV	7.1×10^{19} m	Galactic Core Scale

Energies then become defined in standard physics, such as supernovae, neutron stars and related phenomena, engaging electron accelerations and synchrotron radiation.

7. represents the ECosmic-Boson aka superstring class IIA as a D-brane attached open string dual to the (self-dual) monopole string class IIB and where the D-Brane or Dirichlet-Coupling in both cases becomes the 'intermediary' heterotic (closed loop) superstring HO(32).

It is the HO(32) superstring, which as a bosonic full-quantum spin superstring bifurcates into the subsequently emerging quark-lepton families as the

K-L-Boson split into bosonic proto-dinucleons (m_c's) as George Gamow's primordial neutron matter or ylem in his proposed cosmology descriptive of the QBB.

A 1949 composite picture with Robert Herman on the left, Ralph Alpher on the right, and George Gamow in the centre, as the genie coming out of the bottle of "Ylem," the initial cosmic mixture of protons, neutrons, and electrons from which the elements supposedly were formed

The stability of stars is a function of the equilibrium condition, which balances the inward pull of gravity with the outward pressure of the thermodynamic energy or enthalpy of the star (H=PV+U). The Jeans Mass M_J and the Jeans Length R_J a used to describe the stability conditions for collapsing molecular hydrogen clouds to form stars say, are well known in the scientific data base, say in formulations such as:

$M_J = 3kTR/2Gm$ for a Jeans Length of $R_J = \sqrt{\{15kT/(4\pi\rho Gm)\}} = R_J = \sqrt{(kT/Gnm^2)}$.

Now the Ideal Gas Law of basic thermodynamics states that the internal pressure P and Volume of such an ideal gas are given by $PV = nRT = NkT$ for n moles of substance being the Number N of molecules (say) divided by Avogadro's Constant L in $n = N/L$.

Since the Ideal Gas Constant R divided by Avogadro's Constant L and defines Boltzmann's Constant $k = R/L$. Now the statistical analysis of kinetic energy KE of particles in motion in a gas (say) gives a root-mean-square velocity (rms) and the familiar $2.KE = mv^2(rms)$ from the distribution of individual velocities v in such a system.

It is found that $PV = (2/3)N.KE$ as a total system described by the $v(rms)$. Now set the KE equal to the Gravitational $PE = GMm/R$ for a spherical gas cloud and you get the Jeans Mass. $(3/2N).(NkT) = GMm/R$ with m the mass of a nucleon or Hydrogen atom and $M = M_J = 3kTR/2Gm$ as stated.

The Jeans' Length is the critical radius of a cloud (typically a cloud of interstellar dust) where thermal energy, which causes the cloud to expand, is counter acted by gravity, which causes the cloud to collapse. It is named after the British astronomer Sir James Jeans, who first derived the quantity; where k is Boltzmann Constant, T is the temperature of the cloud, r is the radius of the cloud, μ is the mass per particle in the cloud, G is the Gravitational Constant and ρ is the cloud's mass density (i.e. the cloud's mass divided by the cloud's volume).

Now following the Big Bang, there were of course no gas clouds in the early expanding universe and the Jeans formulations are not applicable to the mass seedling M_o; in the manner of the Jeans formulations as given.

However, the universe's dynamics is in the form of the expansion parameter of GR and so the $R(n) = R_{max}(n/(n+1))$ scale factor of Quantum Relativity.

So we can certainly analyze this expansion in the form of the Jeans Radius of the first protostars, which so obey the equilibrium conditions and equations of state of the much later gas clouds, for which the Jeans formulations then apply on a say molecular level.

This analysis so defines the ylemic neutron stars as 'Gamov proto-stars' and the first stars in the cosmogenesis and the universe.

Let the thermal internal energy or ITE=H be the outward pressure in equilibrium with the gravitational potential energy of GPE=Ω. The nuclear density in terms of the super brane parameters is $\rho_{critical} = m_c/V_{critical}$ with m_c a base-nucleon mass for an 'ylemic neutron'.

$V_{critical} = 4\pi R_e^3/3$ or the volume for the ylemic neutron as given by the classical electron radius $R_e = 10^{10}\lambda_{wormhole}/360 = e*/2c^2$ and related to the ground state (Dirac Sea) Fermi energy $E_{fermi} = $

½mv^2 and the Fermi velocity v_{fermi} = h/2πm$\sqrt[3]{}$(3π²N/V) for a N-particle Fermi-Dirac system of volume V by the Compton constant $m_{ec}r_{ec}$=αh/2πc=m_eR_e.

A spherical space defined by the classical maximized electron radius R_e then would be partitioned in:

N = $4πR_e^3/6π^2r_{ps}^3$ = $2R_e^3/3πr_{ps}^3$ = $(2/3π)(2π.10^{10}/360)^3$ = $π^2.10^{30}/8,748,000$ = 1.1282...x10^{24} wormhole radii of the quantum mechanical electron approximated by the minimized 'point particular' electron as the N/V ground state in the Fermi energy.

The electron's Fermi velocity then becomes v_{fermi} = h/2π$m_e$$\sqrt[3]{}$(3π⁴.$10^{30}$/8,748,000) = 36,781.195... m*/s* or 0.0001226. c for this ground state for a Fermi energy of 6.28437422x10^{-22} J* ~ [2π.$λ_{wormhole}$]$_{unified}$ J* or 0.0039119...eV* and 0.00093 eV* above the mass of the electron (anti)neutrino at 0.002982 eV*.

H=(molarity)kT for molar volume as N=$(R/R_e)^3$ for dH=$3kTR^2/R_e^3$. Ω(R)= -∫G_oMdm/R = -{$3G_om_c^2/(R_e^3)^2$ }∫R^4dR = -$3G_om_c^2R^5/R_e^6$ for dm/dR=d(ρV)/dR=$4πρR^2$ and for ρ=$3m_c/4πR_e^3$

For equilibrium, the requirement is that dH=dΩ in the minimum condition dH+dΩ=0.
This gives dH+dΩ=$3kTR^2/R_e^3$ - $16G_oπ^2ρ^2R^4/3$=0 and the ylemic radius in 'Gamow's Ylem' law:

$$R_{ylem}=\sqrt{\{kTR_e^3/G_om_c^2\}}............[Eq.19]$$

as the Jeans-Length precursor or progenitor for subsequent stellar and galactic generation.

The ylemic (Jeans) radii are all independent of the mass of the star as a function of its nuclear generated temperature. Applied to the proto-stars of the vortex neutron matter or ylem, the radii are all neutron star radii and define a specific range of radii for the gravitational collapse of the electron degenerate matter.

This spans from the 'First Three Minutes' scenario of Steven Weinberg to the cosmogenesis to 1.1 million seconds (or about 13 days) and encompasses the standard beta decay of the neutron (underpinning radioactivity). The upper limit defines a trillion-degree temperature and a radius of over 40 km; the trivial Schwarzschild solution gives a typical ylem radius of so 7.4 kilometers and the lower limit defines the 'mysterious' planetesimal limit as 1.8 km.

For long a cosmological conundrum, it could not be modelled just how the molecular and electromagnetic forces applicable to conglomerate matter distributions (say gaseous hydrogen as cosmic dust) on the quantum scale of molecules could become strong enough to form say 1 km mass concentrations, required for 'ordinary' gravity to assume control.

The ylem radii's lower limit is defined in this cosmology then show, that it is the ylemic temperature of the 1.2 billion degrees K, which perform the trick under the Ylem-Jeans formulation, and which then is applied to the normal collapse of hydrogenic atoms in summation.

The Ylem then manifests the massless Higgs Bosonic precursor as a scalar 'Neutron-Boson' (10), which then becomes mass inductive under utility of the Equivalence Principle of General Relativity, relating gravitational mass to inertial mass.

It is supersymmetric double neutrons which bifurcate into the observed mass content in the universe and not a decoupling matter-antimatter symmetry.

The primordial neutron beta-decay so manifests the nucleon-lepton distinction in the decoupling of the strong weak nuclear interaction, mediated by the electromagnetic alpha-interaction hitherto unified with the omega-gravitational interaction. This primordial ylem radioactivity manifests the bosonic string class IIB as a monopolar mass current as a D-brane interaction in modular duality to the transformation of the self-dual magnetic monopole to the bi-dual electromagnetic cosmic rays at the ECosmic energy level.
The monopole class is chiral (self-dual) and the Ecosmic class is nonchiral (bi-dual); from this derives the Nonparity of the spacial symmetry aka the CP-Violation of the weak nuclear interaction, related to neutrino flux as monopolar superconductive current flows.

As the heterotic classes are all 'closed looped', the elementary particles of the standard models emerge from the HE(64) class coupled to the HO(32) class in the inflationary string epoch.

8. depicts the Weyl-Boson of the Big Bang Planck-singularity of the Weyl-Geodesic of relativistic spacetime as the final 'octonionized' string class HE(8x8).

9. modulates the experimentally well measured 'knee' energy for Cosmic Rays as the distribution flux of high-energy protons as the primary particle in the 2π-factor. The wormhole radius is 10^{-22} m/2π for a Halo-(Dark Matter)-Radius of $2\pi \times 10^{22}$ meters.

10. is the massless ancestor of the Higgs-template and defined through the Weyl-String-Eigenenergy $E^* = kT^* = hf^* = m^*c^2 = 1/e^* = 1/2R_e c^2$.

The scale of (10) emerges from the holographic principle as $2\pi^2 R^{*3}.f^{*2} = e^*$ for $R^* = h/(2\pi m'c) = 1.41188..\times 10^{-20}$ m for a Compton Energy of $E' = m'c^2 = 2.2545..\times 10^{-6}$ J or 14.03 TeV, which serendipitously is the maximum energy regime for which the LHC is presently designed.

The Experimental Evidence for the Superstrings is observed indeed every day in the laboratories of the astrophysics around the globe.

Conclusion

As David Tong in his lecture at the Royal Institute proposed; the extension of the quantum field theory and the standard model of particle physics can proceed in revisiting the nature of the classical electron.

The electron field of QFT as a universal wavefunction becomes naturally embedded in the spacetime matrix of General Relativity, should the large scale curved classical geometry of GR be applied to QFT as a quantum geometry.

A quantum geometry derived from the transformation of five superstring classes manifesting their characteristic energy scales in the Inflaton preceding the Quantum Big Bang cosmology of the instanton naturally renders the spacetime parameters of the Inflaton as quantum gravitational in the application of a higher dimensional modular duality.

It is then a mirror duality inherent in the spacetime potential created in the Inflaton epoch, which enables the thermodynamic Planck-Einstein cosmology of the QBB to utilize itself in the volume of spacetime it dynamically occupies and in holographically and conformally coupling the microcosm of the quantum relativity to the macrocosm of general relativity as the curvature of spacetimes.

The electron field of QFT so allows the curvature of spacetime in a geometric sense to interact with a Higgs field of inertia in a dual nature of the energy quanta defining this inertia as mass and electromagnetic quanta.

The curvature of spacetime therefore becomes an effect of the linearization of primordial wormhole parameters defined in the Inflaton epoch and the physics of 11-dimensional supermembrane manifolds and is evidenced and observable in the relationship between de Broglie matter waves and the Compton wavelengths to relate the wave-particle duality of the quantum mechanics on all scales to the original boundary conditions of displacement scales.

In particular a Planck-Stoney 'bounce' relating the minimum energy of the Zero-Point Planck Oscillator to a coupling between electropolar charge e and magnetopolar charge e* at the Planck energy and as a minimum displacement parameter, becomes the precursor for all subsequent quantum fluctuations, which are however not based on a virtuality of the matter-antimatter coupling, but are found in an inherent gauge physics of originally massless Goldstone bosons, giving rise to the fundamental interactions.

Quantum geometric gravity then allows the unfolding of a wormhole event horizon to manifest as mass in transforming the waved de Broglie matter into particularised matter as a 'decurving' of the Compton wavelength into a Compton radius, the elementary building unit for this process being the electron of QFT.

The foundation of QFT and the Standard Model so are encapsulated in the parameters of the electron in its mass and its charge as derivatives and effects of its nature exhibited in the Inflaton, now rendered observable and measurable in the continuation of the cosmological history of the instanton.

Examination and analysis of the electron's origins, so crystallizes its monopolar origin of quantum relativistic self-interaction as its own initial condition and when the qbb created its boundary mass or inertia as the mass of the Weyl-E_{ps} wormhole as a transformed Planck boson defined at the start of the inflaton and the string epoch.

As this initial electron mass is inherently defined in the Compton constant, setting the proportionality between mass and displacement from the Planck scale to the electron scale; the nature of the electron is related to the manifestation of energy and momentum on all other scales allowed by the natural boundary conditions defined by the instanton-inflaton parameters.

The electron is not a point particle but has a size upper and lower bounded by its Weyl-E_{ps} limit from above and its classical diameter from below. It is minimum size, being that of the wormhole of creation, so can be associated with the limits for physical measurement and the success of QFT remains valid in this case, but without any need for infinite regressions or divergences from the mathematical viewpoint.

Its classical size directly relates to its monopolar self-interaction and has been known for long as the 'missing' energy of the electron in its self-interaction and its mass as of being of a purely electromagnetic origin in electro stasis, that is its rest mass at zero velocity and the absence of any external magnetic field.

The internal charge distribution of the electron so becomes a direct effect of its volume occupied as a minimized string-brane volumar in the inflaton quantum fluctuation of the Planck-Stoney bounce relating displacement to charge via the electromagnetic fine structure constant. This charge-displacement coupling then enables the birth of a space-inherent form of angular acceleration or the time rate change of frequency coupled to any volumar to define the diameter of the electron with the ratio of energy over time as the quantum of magnetopolar charge.

Modular mirror and T-duality then renders the magnetopolar charge quantum e* as the precise inversion of the wormhole energy E*=hf*

This paper has shown, that the electron is a magnetic monopole as a direct derivative of the decay of the magnetic monopole boson also known as the supermembrane or self-dual superstring class IIB. The electron so possesses an internal magnetopolar field descriptive of its self-interaction, with its self-energy so as form of angular acceleration as the square of frequency, maximized in its upper bound of its cosmogenesis.
Applying the modular string duality, it has been shown, that the electron has both a minimum rest mass, independent from its effective mass and a maximum mass as per its creation.

At the core of physical consciousness lies quantum consciousness; but there it is called self interaction of a particle or dynamical system in motion relative to its charge distribution. We have shown, that it is indeed the charge distribution within such a system and quantized in the fundamental nature of the electron and the proton as the base constituent of atomic hydrogen and so matter; that defines an internal monopolar charge distribution as a quantum geometric formation minimized in the classical size of the electron and the energy scale explored at that displacement scale.

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(*The End*)