



PRELIMINARY RESULTS FOR MAGNETIC HYSTERESIS UNPARTICLE HOD-PDP CIRCUIT MECHANISM WITHIN SUPERLUMINAL PHYSICS

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ABSTRACT

Intriguing derivations have made it possible to gage Helmholtz decomposition matrix fields of a point (2×2) matrix into Iyer-Markoulakis-Malaver-O'Neill-Hodge-Zhang-Taylor Hod-PDP mechanism in a Superluminal Plenum quagmire in our work we have already published. Basis of [Hod] magnetic_pole_NS_Hysteresis_BH_loop_unparticle will be to get activated by distorted discontinuum energy fields within superluminal plenum magnetic quagmire, with mechanics cross-diagonally equivalent to [N, S] monopoles and diagonally equivalent to $[e^-, e^+]$ particles of PDP matrix, working like generator clocking with magnetic hysteresis loop unparticle operator. Gaging of IT equivalent four-vector matrix format wavefunction-gage modes of switches quantifiable analogs $\{\Psi_{\text{fermions}}, \Psi_{\text{bosons}}, \Psi_{\text{gluons}}, \Psi_{\text{quarks}}\}$ [0 off-on 1 on-off] represents throughput of Hod-PDP Superluminal circuit protocol. The whole operational circuitry Hod-PDP mechanism gets energy within Superluminal Plenum Magnetic Quagmire turbulence with having local distorted discontinuum energy field modulating ongoing random switching operations.

Keywords: Hod-PDP general circuitry, magnetic hysteresis loop, BH intensity loop flux, wavefunction switches, superluminal plenum Quagmire turbulence, distorted discontinuum energy fields, monopoles, clocking, particles, Quantum mechanism.

INTRODUCTION

The previous investigations by Iyer (2022a,b) and Iyer *et al.* (2020, 2022, 2023) provided comparisons of currently available theoretical framework per literature. Since this paper is primarily preliminary results, a full paper having literature surveys with international references will appear in later publications of written articles that will include essential references provided in (Iyer, 2022a, 2022b, 2023a, 2023b; Iyer *et al.*, 2020, 2022, 2023; Hodge, 2018; Randall, 2013; Markoulakis *et al.*, 2019; Iyer and Markoulakis, 2021; Zakharenko, 2005, 2016; Chikazumi, 1997; François-Lavet *et al.*, 2011; Gaillard *et al.*, 1999; d'Onofrio and Rummukainen, 2016; Hossenfelder, 2006; Higgs, 2007; Bernardi *et al.*, 2007). Higgs bosons: Theory and searches. Hypothetical particles and Concepts. Particle Data Group Review). Our previous work has also provided comparisons of currently available theoretical framework in papers (Iyer, 2022a, 2022b, 2023a, 2023b; Iyer *et al.*, 2020, 2022, 2023; Markoulakis *et al.*, 2019; Iyer and Markoulakis, 2021); see also the books by Randall (2013) and Hossenfelder (2006) and the key papers by Zakharenko (2005, 2016), as well as within (TEKNET EARTH GLOBAL SYMPOSIA TEGS website: All ongoing LIVE STREAM PHASE-II YOUTUBE RECORDINGS of EPISODES are available

at https://www.youtube.com/@teknet_earthglobal2923/streams. All videos of the PHASE-I YOUTUBE RECORDINGS of EPISODES are available at URL: https://www.youtube.com/@teknet_earthglobal2923/videos).

The author has already generalized transformations with observable measurable parameters pulled out variables as gage unitarized normalized four-vector fields-wavefunctions generating "ket vector form" as follows:

$$\begin{pmatrix} 0 \\ \emptyset \\ 1 \\ \phi \end{pmatrix} \quad (1)$$

which may have to employ proper physics with referential calibration procedures to obtain experimental outputs (Iyer, 2022a,b; 2023a; Iyer *et al.*, 2023). In this scenario, "0" would refer to zero field; " $\emptyset = \emptyset$ " would refer to off-on field; "1" would refer to on fields; " $\phi = \pm$ " thereby would refer to on-off fields, such as encountered practically within quantum entangled fields, as well as shown per quarternion bit ("qnb") algorithm of global and local parametric quantum variables (q_g, q_l) (Iyer,

2023a). This scalar space gauge field can also be written in square bracket notation like: [0 off-on 1 on-off] switching analog form to indicate mode of switches, with 0 indicating no switches or vacuum; off-on indicating mostly off-mode but coming on or flickering; 1 indicating mode on condition switches; on-off indicating mostly on but mode coming off or fluctuating. Thereby, quaternion condition that will include quantum entanglement, superposition, quantum computing, analog switching signal processes, quantum waveform with particle interactivity, mathematically imaginary to real fields operator protocol, and Hod-PDP circuit mechanism activated by having distorted discontinuum energy fields vortex within superluminal Plenum turbulent quagmire extent phase may be characterized by this four-vector “ket” matrix (Iyer, 2022a, 2022b; Iyer *et al.*, 2020, 2022, 2023; Hodge, 2018).

The author has formally modeled time Rank4 tensor four-vector matrix leading to formalism physics giving gist of Algorithm Graphical Equation with a scalar quantum gauge fields quantum gravity gage transforms grand unifying micro-blackhole force field physics manifesting fiber transforms bundle strings that will portray gravity of space (Iyer, 2023a). Encouraging outputs of preliminary results of running computer algorithm generating plot of global and local quantum parameters (q_g, q_l) with 10,000 prime number factorizations (M1) and 100,000 prime number factorizations (M2) show striking crystal symmetric emanating patterns seemingly from origin vacuum zero time point intersecting structures manifesting with nodes of timeline weaving worldline effects exhibiting diffraction pattern typically of a perfect crystal; inertia quantum relativistic effect with various environments manifesting states of the clocks to characterize existing anomalies here on earth has also been highlighted schematically (Iyer, 2023a).

Quantification of gravity in terms of fiber transforms bundle strings appear with the author explaining modeling Strong gravity like rope braided closed bundle strings system having the stress tensor to pull object towards the center of gravity and the Weak gravity like the strands of open fiber transforms strings system stratified towards the center of the mass (Iyer, 2023b). Role of the quantum density matrix as masses spreading their spheres of influence spatially with gage_velocity linking weak gravity to strong gravity through the Equivalence Principle highlighting interactivity gravity on all objects of mass of the universe has been emphasized as well (Iyer, 2023b). Geometry of space in relation to possible dimensions of various entities making up the universe are listed to introduce dimensional range, entities, and their expected properties; the effect of gravity measurable as weight of an object is extended by the author to quantify discontinuum physics (DCP) parameter of proposed discontinuum energy field (DEF) having mesoscopic

observable examples (Iyer, 2023b; Iyer *et al.*, 2022) with string-gravity-fields analogized to stitching elements to quantify rigid string gradient with curvature of threading strings representing curl of gauge fields rotational aspects of the (2×2) point matrix tensor fields have been shown to help towards unified quantum gravitational physics fields (Iyer, 2023b; Iyer *et al.*, 2023; Iyer and Markoulakis, 2021).

The author will bring out advanced features with quantum magnetic energy generator mechanism that will sustain Hod-PDP circuit assembly originally explained elsewhere with many scenarios (Iyer *et al.*, 2020, 2022). The magnetic flux density, \mathbf{B} , and the magnetic field strength, \mathbf{H} , are related by the absolute permeability μ so that $\mathbf{B} = \mu\mathbf{H}$ (Chikazumi, 1997; François-Lavet *et al.*, 2011); the magnetic hysteresis activated by Hod (Hodge, 2018) acting like external field on PDP monopole-particle, together will presumably work like “unparticle” thereby causing Retentivity or Remanence having Residual Magnetism “memory”; this Residual Magnetism phenomenon is known in literature about magnetic effects (Chikazumi, 1997; François-Lavet *et al.*, 2011). Here in this paper, we will examine how a feedback circuit mechanism might be sustained by a process quantified four-vector matrix format of wavefunctions-switching modes $\{\Psi_{\text{fermions}}, \Psi_{\text{bosons}}, \Psi_{\text{gluons}}, \Psi_{\text{quarks}}\}$ [0 off-on 1 on-off] representing throughput of Hod-PDP Superluminal circuit protocol. The whole operational circuitry with Hod-PDP mechanism gets energy within Superluminous Plenum Magnetic Quagmire turbulence with locally activated distorted fields that modulate typically random switching operations.

Preliminary results explaining interpretive physics

Figure 1 schematically shows how PDP circuit assembly (Iyer *et al.*, 2020, 2022) may be shown to be consisting primarily of the diagonal elements having $[e^-, e^+]$ particles and the cross-diagonal elements having $[S, N]$ monopoles of PDP matrix. This PDP matrix gets operational by high energy magnetic hysteresis activated by Hod (Hodge, 2018) acting like external field on PDP monopole-particle, together working like “unparticle” thereby causing “Retentivity” or “Remanence” having “Residual Magnetism”, i.e., “memory” like known in physics literature about typical magnetic effects (Zakharenko, 2005, 2016; Chikazumi, 1997; François-Lavet *et al.*, 2011). Figure 2 shows the fundamentally well-known \mathbf{B} - \mathbf{H} curve of the magnetic hysteresis (Chikazumi, 1997; François-Lavet *et al.*, 2011); here, \mathbf{B} is the magnetic flux density, and \mathbf{H} is the magnetic field strength. They are related by the absolute permeability μ so that $\mathbf{B} = \mu\mathbf{H}$ (Chikazumi, 1997; François-Lavet *et al.*, 2011). Typically, orthogonal fin element $[\text{Hod}]^*_{[e^-, e^+]} \mathbf{B}$ - \mathbf{H} _loop_unparticle_diagonal pivoting with its conjugate fin element $[\text{Hod}]_{[S, N]} \mathbf{B}$ - \mathbf{H} _loop_unparticle_cross-diagonal of PDP matrix essentially is proposed to be

working like generator fins circuitry pivoted assembly. They are proposed to be mechanically clocking like a vacuum function machine to the duration till spectrum of stable Standard Model particles are generated out of Superluminal phase to vacuum luminal phase onto subluminal matter phase, alike the Higgs mechanism spontaneously having symmetry breaking causing the gage bosons to acquire mass by tachyon condensation (Randall, 2013; Gaillard *et al.*, 1999; d'Onofrio and Rummukainen, 2016; Hossenfelder, 2006; Higgs, 2007; Bernardi *et al.*, 2007). Higgs bosons: Theory and searches. Hypothetical particles and Concepts. Particle Data Group Review).

PHYSICS CIRCUITRY Hod-PDP MAGNETIC HYSTERESIS LOOP MECHANISM

Schematic of Matrix Pauli Dirac Planck Circuit

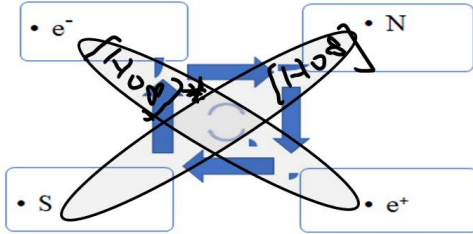


Fig. 1. The modelling of the Pauli-Dirac-Planck assembly matrix with the particles (one electron e^- and one positron e^+). Also, N and S stand for the north and south monopoles, respectively, and the blue arrows' flow shows the gradient vortex matrix circuit. This scheme also shows how PDP circuit assembly (Iyer *et al.*, 2020, 2022) may be shown to be consisting primarily of the diagonal dipole $[Hod]*_magnetic_pole_NS_Hysteresis_BH_loop_unparticle$ equivalently to the $[e^-, e^+]$ particles of PDP and $[Hod]_magnetic_pole_NS_Hysteresis_BH_loop_unparticle$ cross diagonally equivalent to $[S, N]$ monopoles of PDP matrix, working like generator clocking.

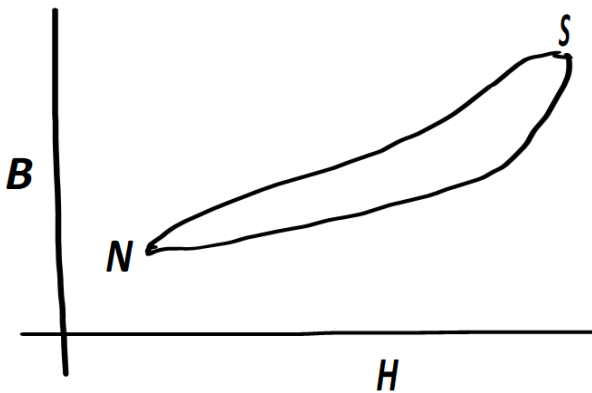


Fig. 2. The basis of $[Hod]$ magnetic pole (N-S) hysteresis (B-H) loop unparticle that is proposed to get activated by the distorted fields within superluminal plenum magnetic quagmire.

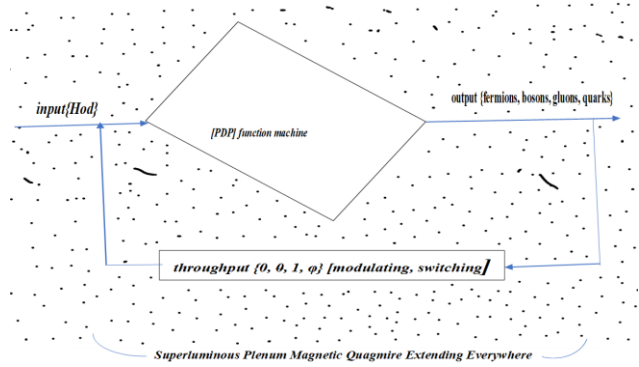


Fig. 3. The gaging IT equivalent four-vector matrix format $\{\Psi_{fermions}, \Psi_{bosons}, \Psi_{gluons}, \Psi_{quarks}\}$ $[0$ off-on 1 on-off] representing throughput of Hod-PDP Superluminal circuit protocol. The whole operational circuitry Hod-PDP mechanism gets energy within Superluminous Plenum Magnetic Quagmire turbulence with having local distorted fields modulating random switching operations. $\{0, \emptyset, 1, \phi\}$ curly bracket represents disordered form of "ket" vector (1) that exists within the Quagmire getting ordered by local process to represent observable measurable signal/noise matrix $(\Gamma_{\omega,gr})$ having resolved point-to-point profile density matrix intensity throughput (Iyer, 2022a, 2022b; Iyer *et al.*, 2023).

The whole mechanism considered above is proposed to get activated by distorted fields within Superluminal Plenum Magnetic Quagmire, with mechanics shown in Figures 1 and 2. Supposedly random events of Hod-PDP mechanism will presumably be taking place within infinite extent of the Quagmire, because there arises finite probability of monopole vectors aligning themselves at some locations within turbulent Superluminal Plenum Quagmire infinite extent phase. These Hod-PDP-hysteresis-unparticle matrix assemblies are hypothesized to operate like feedback circuit loop mechanism. Operational switching modulating circuitry with input, throughput, output, $\{Hod\}$ $[PDP]$, quantum Standard Model particles (Hodge, 2018; Randall, 2013; Gaillard *et al.*, 1999; d'Onofrio and Rummukainen, 2016; Hossenfelder, 2006; Higgs, 2007; Bernardi *et al.*, 2007). Higgs bosons: Theory and searches. Hypothetical particles and Concepts. Particle Data Group Review) with Superluminous Plenum Magnetic Quagmire physics mechanics (Iyer, 2022a, 2022b, 2023a, 2023b; Iyer *et al.*, 2020, 2022, 2023; Markoulakis *et al.*, 2019; Iyer and Markoulakis, 2021) has been shown via graphics in Figure 3. The feedback mechanism works by input $\{Hod\}$ -like external magnetic gauge fields activating function machine-like $[PDP]$ through hysteresis mechanics explained earlier. With stable Standard Model particles created out of this consistent energy generator mechanics, they string together wave-particle throughput quanta gaging IT equivalent four-vector matrix metrics of quantifiable parametric wavefunctions-

switching modes $\{\Psi_{\text{fermions}}, \Psi_{\text{bosons}}, \Psi_{\text{gluons}}, \Psi_{\text{quarks}}\}$ [0 off-on 1 on-off]. The feedback mechanism proceeds till the error signals are minimized to output Standard Model particles of fermions, bosons, gluons, and quarks (Gaillard *et al.*, 1999; d'Onofrio and Rummukainen, 2016; Hossenfelder, 2006; Higgs, 2007) and Bernardi *et al.* (2007). Higgs bosons: Theory and searches. Hypothetical particles and Concepts. Particle Data Group Review) explained systemically (Fig. 3). The whole operational circuitry Hod-PDP mechanism gets energy within Superluminal Plenum Magnetic Quagmire turbulence with the local distorted fields modulating random switching operations. $\{0, \emptyset, 1, \phi\}$ curly bracket represents disordered form of “ket” vector (1) that exists within the Quagmire getting ordered by local process to represent observable measurable signal/noise matrix $(\Gamma_{\omega,gr})$ having resolved point-to-point profile density matrix intensity throughput (Iyer, 2022a, 2022b, 2023a; Iyer *et al.*, 2023).

CONCLUSION

The author explains preliminary results schematically bringing out how PDP circuit assembly may be shown to be consisting primarily of the diagonal elements having $[e^-, e^+]$ particles and the cross-diagonal elements having $[S, N]$ monopoles of PDP matrix. This PDP matrix gets operational by high energy magnetic hysteresis activated by Hod acting like external field on PDP monopole-particle, together working like “unparticle” thereby causing “Retentivity” or “Remanence” having “Residual Magnetism”, i.e., “memory”, like known in literature about magnetic effects. The fundamentally well-known **B-H** curve of the magnetic hysteresis quantified equation $\mathbf{B} = \mu\mathbf{H}$ provides quantitative methodology to understand the operation of Hod-PDP quantum mechanism, with **B** (magnetic flux density) and **H** (magnetic field strength) having μ (absolute permeability). The conjugate orthogonal elements $[\text{Hod}]^*_{[e^-, e^+]} \mathbf{B-H}_{\text{loop_unparticle_diagonal}}$ pivoting with its counterpart element fins $[\text{Hod}]_{[S, N]} \mathbf{B-H}_{\text{loop_unparticle_cross-diagonal}}$ of PDP matrix are proposed to be working like generator fins circuitry pivoted assembly. They will mechanistically clock like a vacuum function machine to the duration till spectrum of stable Standard Model particles are generated out of superluminal phase. Then they pop out through vacuum luminal phase onto subluminal matter phase, like the Higgs mechanism spontaneous symmetry breaking causing the gage bosons to acquire mass by tachyon condensation process.

The whole mechanism considered above is proposed to get activated by the random discontinuum process generating distorted fields within infinite extent phase turbulent Superluminal Plenum Magnetic Quagmire. These Hod-PDP-hysteresis-unparticle matrix assemblies are hypothesized to operate like feedback circuit loop mechanism with input = {Hod}, throughput = [0 off-on 1

on-off], output = quantum Standard Model particles. Random fields $\{0, \emptyset, 1, \phi\}$ having curly bracket represents disordered form of “ket” gauge fields vector that exists within the Quagmire getting ordered by local process to represent observable measurable signal/noise matrix $(\Gamma_{\omega,gr})$ having resolved point-to-point profile density matrix intensity throughput.

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