

Theoretical Physics

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Evidence for a universal Time: Photon dissipation and the cosmic energy lattice flux

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Abstract

Based on the aetherometric theory of a cosmic, massfree and electric lattice flux, we determine its fundamental frequency - a clock that serves as foundation for a single, universal Time. We demonstrate how the fundamental frequencies of the rest electron, and the universal Time-constant for the flux (dissipation) of all photons are structurally synchronized by it. We conclude to the existence of a cosmic clockwork complex that synchronizes simultaneities - one that Relativity denies exists - and clocks durations.

1. A universal Time constant for the flux of electromagnetic energy

Aside from the blanket notion that, in time, electromagnetic energy necessarily decays into quanta of lower and lower frequency - which is the postulate of 'death by increasingly degraded heat' that was extracted from an erroneous treatment of entropy - there is no notion in either classical or modern physics of what happens to the energy of a photon when it dissipates.

The question can only be addressed from the viewpoint of the *power* with which the limited photon energy flows in time, for a given duration (the photon lifetime). To calculate such a power one needs to take into account how an extra or third Time dimension is in play in the flux of quantum energy. This is tantamount to establishing not just the simultaneity of waves that define every energy unit - any quantum included - but also a universal timeline where the simultaneity is "inscribed" by nature, in nature. It refers not to some Aeon of eternity - but to the universal beat of the Aether lattice ^[1] or, more properly as we shall see, to the synchronous sub-beats which the universal beat gives rise to.

Our own prior work established that all photons, optothermal or ionizing, abided by a single, universal flow time ^[2]. Its flow frequency ν_k is exactly numerically-identical to the frequency \mathfrak{E}_k of the magnetic wavespeed of the electron mass-energy *in its electroinertial conformation*. It also marks the maximum quantum frequency - the limit - of an optothermal photon. Above that limit, all electromagnetic radiation is strictly ionizing radiation. As we have shown ^[3-4], by means of the Duane-Hunt (h/e) ratio and the derived wavelength λ_x , the power function of the photon invokes this frequency term as constitutive of the *third wave* of a photon - the wave of its equivalent Coulomb potential W_{vFOT} , and effectively the *power wave*:

$$W_{vFOT}/\lambda_0 = h\nu/(p_e \lambda_0) = \lambda_x \nu/\lambda_0 = \mathfrak{E}_k$$

The frequency of the third photon wave *is a constant* placed by nature exactly at the value ($6.433 \cdot 10^{15} \text{ sec}^{-1}$) of the magnetic frequency \mathfrak{E}_k characteristic of the electron mass-energy and of the quantum frequency ν_k characteristic of the Hartree (kinetic) energy of hydrogen. The dissipation of photon energy has a fundamental dimension in time, a fundamental duration of

$$\tau_k = \nu_k^{-1} = \mathcal{E}_k^{-1} = \lambda_0/W_{\text{vFOT}} = 1.55 \cdot 10^{-16} \text{ sec}$$

All photons have the same unique duration that is synchronized by the universal Time-manifold of the Aether lattice, as we also found is the case for electrons [3]. In terms of the power of the optothermal electromagnetic flux, all that varies is λ_0 . We had already suspected such a shared fundamental linkage between optothermal photons and electrons - when we were able to express the faradic (capacitative) and inductive (magnetic) frequencies of any induction coil as a function of the Tesla frequency \mathcal{E}_k [4].

The duration or lifetime of a photon, or of its energy flux proper, is a function of a ratio of frequencies, ν/\mathcal{E}_k , or inversely, of times: all photons with light-wavelength $<47\text{nm}$, or energy greater than Hartree – i.e. all ionizing photons – have ν/\mathcal{E}_k ratios greater than 1, and thus will complete ν/\mathcal{E}_k cycles of their light waves before their extinction at the end of the path λ_0 . This is what permits the propagative or "ballistic" aspect of ionizing electromagnetic radiation. Conversely all blackbody (or optothermal) photons have fractional ν/\mathcal{E}_k ratios and, consequently, their unit flux will extinguish before a full cycle of their light waves is accomplished.

The amplitude wavelength of photon energy is the real wavelength of the third wave, so that this wave can be suspended in its fine-structure components simply as:

$$W_{\text{vFOT}} = \lambda_0 \mathcal{E}_k$$

By fundamental reference to the electro-inertially configured electron, a photon is only emitted per a $(1/\alpha^{-2})$ segment of its toroidal length λ_e ; this segment has the size of the Duane-Hunt wavelength

$$\lambda_x = \lambda_e/\alpha^{-2}$$

If the quantum frequency of the kinetic energy of an electron is a function of its energy or potential -

$$\nu_e = E_{\text{KE}e}/h = W_v/\lambda_x$$

- emission from it of any optothermal photon will have a quantum frequency given by

$$\nu = E_{KEe}/(\alpha^{-2} h) = \nu_e/\alpha^{-2} = W_v/(\alpha^{-2} \lambda_x)$$

It follows that, whereas the potential of the kinetic energy of the electron is

$$W_v = (\alpha^{-2} \lambda_x \nu) = \lambda_x \nu_e$$

the potential of the emerging photon is, at the source, the potential of just a segment of the total length of the electron mass-energy torus

$$W_{vFOT} = W_v/\alpha^{-2} = \lambda_x \nu_e/\alpha^{-2} = \lambda_x \nu$$

Only once it is emitted as a photon, does this coulomb potential - with respect to the intrinsic power of the electromagnetic energy flux of the photon - become defined by a different fine structure:

$$W_{vFOT} = \lambda_x \nu \Rightarrow \lambda_0 \mathbf{E}_k = (h\nu/c^2)(c^2/p_e) = h\nu/p_e$$

It follows that any single optothermal photon energy everywhere flows with a power proportional to the product of its amplitude wavelength (path of displacement of the wave globule) and the cosmic Tesla frequency \mathbf{E}_k . Then we can, at last, suspend the 6-dimensional power continuum of a photon in its fine-structure components:

$$P_{microFOT} = c^2 W_{photon} = c^2 (\lambda_0 \mathbf{E}_k) = (\lambda_{light} \nu)^2 (\lambda_0 \mathbf{E}_k)$$

The energy flux of every photon demonstrates the existence of a universal Time constant for the flux of electromagnetic energy ^[2].

How does this Time-constant for the flux of electromagnetic energy relate to the Time-manifold of the cosmic ambipolar lattice? This question is intimately connected to

another one - what is the role of this electromagnetic Time-constant in the dissipation of photon energy? Or, just as well, what happens when a photon dissipates?

2. The universal Time-constant of the Aether lattice

We have previously concluded to the existence of an ordered Aether lattice responsible for the genesis and maintenance of all mass-energy and associated kinetic energy, and the universal emission of primary cosmic rays [1]. All matter and vacua are permeated by this cosmic lattice, and the very creation of matter is one of the outcomes of the lattice's ability to form overlapping folds whereby the energies of distinct ambipolons are synchronized to occupy the same abstract space in the same duration. The cosmic lattice is modally composed by ultra-high energy ambipolons that are massfree but bear electric charge:

$$E_{\text{Latt}}^{\circ} = p_e^{\circ} (\lambda_{\text{Planck}}^{\circ} \mathcal{E}_{\text{Latt}}^{\circ}) = 1.8263 \cdot 10^{31} \text{ eV}$$

where, formally, p_e° is the massfree ambipolar charge; $\lambda_{\text{Planck}}^{\circ}$, the undisturbed Planck (wave)length; and $\mathcal{E}_{\text{Latt}}^{\circ}$ the undisturbed lattice frequency. Now, while $\mathcal{E}_{\text{Latt}}^{\circ}$ depends on the determination of $\lambda_{\text{Planck}}^{\circ}$, the latter depends entirely on the accurate determination of the universal force constant G . With G at $1.107536 \cdot 10^{-35} \text{ m}^2 \text{ sec}^{-2}$, $\lambda_{\text{Planck}}^{\circ}$ is equal to

$$\lambda_{\text{Planck}}^{\circ} = G/(\lambda_e f_e^2) = (p_e/\mathcal{E}_{\text{Latt}}^{\circ})^{0.5} = 1.1075 \cdot 10^{-35} \text{ m}$$

The flux of cosmic ambipolar energy is the ultimate foundation of a universal Time for all energy forms and exchanges, and has a defined frequency estimated at -

$$\mathcal{E}_{\text{Latt}}^{\circ} = p_e/\lambda_{\text{Planck}}^{\circ 2} = 1.1389 \cdot 10^{71} \text{ sec}^{-1}$$

This puts the cosmic power-ambipolon of each cell at an overwhelming value for its energy flux

$$\begin{aligned} P_{\text{LattMode}} = P_{\text{Latt}}^{\circ} &= p_e^{\circ} (\lambda_{\text{Planck}}^{\circ} \mathcal{E}_{\text{Latt}}^{\circ 2}) = 2.0058 \cdot 10^{108} \text{ m}^3 \text{ sec}^{-3} = \\ &= E_{\text{Latt}}^{\circ} \mathcal{E}_{\text{Latt}}^{\circ} = 1.1389 \cdot 10^{71} E_{\text{Latt}}^{\circ} \text{ sec}^{-1} = 2.0799 \cdot 10^{102} \text{ eV sec}^{-1} \end{aligned}$$

Thus, the question arises as to how the modal lattice frequency $\mathfrak{E}_{\text{Latt}^\circ}$ relates to the Time-constant τ_k (or the frequency \mathfrak{E}_k) characteristic of the energy flux of all photons. We will now show that \mathfrak{E}_k is a fundamental sub-beat of modal $\mathfrak{E}_{\text{Latt}^\circ}$. If correct, it will explain how the energy flux of every photon that, once emitted, fails to be captured by any massbound charge, dissipates its energy, no matter how small or large, by transferring it to the universal flux of the local Aether lattice.

3. The fundamental resonant structure of universal Time

To understand how \mathfrak{E}_k is a resonant sub-beat of modal $\mathfrak{E}_{\text{Latt}^\circ}$, we must recall two other equally fundamental frequency functions - that of the electron mass-energy as a quantum frequency, and that of the flux of low-energy ambipolons that each have an energy numerically identical to the electron mass-energy. The former is the Compton frequency of the electron -

$$\begin{aligned}\nu_{\delta e} &= (E_{\delta e}/h) = p_e W_x/h = (\lambda_e W_k) W_x/h = \lambda_e (\lambda_h \mathfrak{E}_k) (\lambda_x \nu_{\delta e})/h = \\ &= 1.235589 \cdot 10^{20} \text{ sec}^{-1}\end{aligned}$$

It relates to \mathfrak{E}_k by the structural proportionality encoded in the toroidal topogeometry of the electron mass-energy:

$$\nu_{\delta e} = \alpha^{-2} \mathfrak{E}_k$$

The second fundamental frequency function is the non-quantal, massfree and electric Tesla frequency \mathfrak{E}_i :

$$\mathfrak{E}_i = \sqrt{(E_{\delta i}/\lambda_h^3)} = \sqrt{(p_e W_x/\lambda_h^3)} = 8.915730 \cdot 10^{19} \text{ sec}^{-1}$$

It relates to \mathfrak{E}_k by

$$\mathfrak{E}_i = \alpha^{-1} 10^2 \mathfrak{E}_k = \eta^2 \mathfrak{E}_k$$

This energy-ambipolon is a fundamental unit (or massfree particle) of one of the power-ambipolon streams that are engaged in the cosmological double-fold responsible for the creation and maintenance of the electron mass-energy:

$$P_{\alpha i} = E_{\alpha i} \mathbf{\epsilon}_i = p_e W_i \mathbf{\epsilon}_i = p_e W_x \mathbf{\epsilon}_i$$

The stream flows at $\mathbf{\epsilon}_i$, as ambipolar particles of size $E_{\alpha i}$ constantly course through the core of the electron torus and spin its magnetic wave.

The lattice modal frequency $\mathbf{\epsilon}_{Latt^\circ}$ has a proportionate relationship to $\mathbf{\epsilon}_k$ which we may express as

$$\begin{aligned} \mathbf{\epsilon}_{Latt^\circ} &= \{\mathbf{\epsilon}_k [\alpha^{-1}/(\alpha^{-1} 10^{-2})^{0.25}]\}^{4/4} \text{ sec}^{-3} = \{8.2172701 \cdot 10^{17} \text{ sec}^{-1}\}^{4/4} \text{ sec}^{-3} = \\ &= 1.1398567 \cdot 10^{71} \text{ sec}^{-1} \end{aligned}$$

This is slightly greater than the above-given value of $\mathbf{\epsilon}_{Latt^\circ} = 1.1389 \cdot 10^{71} \text{ sec}^{-1}$, but entirely viable, since it would require λ_{Planck° to equal

$$\lambda_{Planck^\circ} = G/(\lambda_e f_e^2) = (p_e/\mathbf{\epsilon}_{Latt^\circ})^{0.5} = 1.10707 \cdot 10^{-35} \text{ m}$$

putting G at $1.1070 \cdot 10^{-35} \text{ m}^2 \text{ sec}^{-2}$, which is one of the two alternative mean values extracted from an analysis of the results of 17 different formulations of G [1]. The two means that we found and reported were:

$$G = 1.10699 \cdot 10^{-35} \text{ m}^2 \text{ sec}^{-2}, \text{ SD} = 0.00219, n = 17$$

$$G = 1.10746 \cdot 10^{-35} \text{ m}^2 \text{ sec}^{-2}, \text{ SD} = 0.00109, n = 16$$

Despite the first mean including an obvious outlier, the miniscule size of the Planck-scale value for G forces us to admit it as a possible one.

Accordingly, by accepting the above formulation of the proportionate relation between the lattice modal frequency $\mathbf{\epsilon}_{Latt^\circ}$ and $\mathbf{\epsilon}_k$, we can extend it to the other frequency functions, $v_{\delta e}$ and $\mathbf{\epsilon}_i$. The resulting relation directly invokes the square of $\mathbf{\epsilon}_k$ and makes no reference to alpha:

$$\mathbf{\epsilon}_{Latt^\circ} = (\mathbf{\epsilon}_k^2 \mathbf{\epsilon}_i v_{\delta e})/4 \text{ sec}^{-3} = 1.1398567 \cdot 10^{71} \text{ sec}^{-1}$$

That squared function of $\mathbf{\epsilon}_k$ is highly suggestive of the importance of its dual role - in the magnetic wavespeed of the electron and in the dissipation of photon energy. But it is also present in the function for the electron mass-energy flux when describing its power by the

superimposition, and underlying synchronism, of a triplicity (W^3) of distinct wavefunctions, $W_k W_x^2 = c^2 W_x$. There, it yields a Time-manifold defined purely by the product or superimposition of three distinct timelines, two of which share the same value (the Tesla magnetic and electric timelines) [3]; hence,

$$\tau_{\text{manide}} = (\epsilon_k^2 v_{\delta e})^{-1} = \tau_k^2 \tau_{\delta e} = 1.955449777 \cdot 10^{-52} \text{ sec}^3$$

The above expression for $\epsilon_{\text{Latt}^\circ}$ also suggests that the photon energy flux is part, not of the double-fold that creates and maintains the electron mass-energy, but of a *triple-fold that locks the photon to the flux of a fourth ambipolar lattice cell* (in a quadratic superimposition), and assures that, once emitted from a loop of the electron mass-energy torus, the photon is resorbed into this fourth lattice cell. Such a virtually permanent process is totally consistent with the idea that photon emission is synchronized to the cosmic lattice right at its onset, and that, likewise and thereby, the dissipating flux of all electromagnetic energy is synchronously absorbed by the lattice flux. Photons do not decompose into lower energy photons, and so on. If they fail to be captured or re-absorbed by a massbound charge, their flux is clocked and resorbed by the flux of the lattice cells.

In this first scenario, the only outstanding question is what is that number 4 - as some kind of cubed time-constant (4 sec^{-3}) - 'doing' in the expression, or in both expressions, for $\epsilon_{\text{Latt}^\circ}$. It could be the byproduct of some frequencies being those of angular velocity (to be multiplied by 2π) and others not (yet, somehow, to be multiplied by just π). But this would be a specious argument. Indeed, ϵ_k is always angular or rotational - either as a magnetic wave frequency associated with the rotation of charge, qua rotation of the mass-energy torus ("at rest"); or as the electric flux frequency of the electron mass-energy; or, still, as the frequency of the vortaic flux of a dissipating photon. Likewise, ϵ_i - in any of its forms (magnetic, electric and flux-frequency) - always denotes any of the three frequencies of a power ambipolon. Finally, $v_{\delta e}$ denotes the quantum frequency of the electron mass-energy - and that, too, is rotational, since it is the frequency with which the trapped flux moves along each loop of the torus, and thus throughout the entire torus.

A far more likely explanation is that the term (4 sec^{-3}) relates to some kind of growth-constraint in the kinetics of seeding mass-energy. Our aetherometric analysis of kinetic systems has formally shown [5-6] how the kinetic growth of a system has a rate that depends on how much energy is mobilized kinetically (E_K) with respect to the energy input into the system (E_{in}):

$$e^{-(E_{in}/E_K)} = [(v_{max}/(\alpha^{-0.5} e)^{2.5/10})^{(E_{in}/E_K)}] / v_o = \\ = [v_{max}/(4.000011802^{2.5/10})^{(E_{in}/E_K)}] / v_o$$

When the exponent of the napierian equals -1, it reduces to

$$e^{-(E_{in}/E_K)} = e^{-1} = 1/e = (\alpha^{-0.5}/4.000011802^{2.5}) = \eta/(10 * 4.000011802^{2.5})$$

This marks the kinetic moment of the singularity in a process where the equality

$$E_{in} = E_K$$

applies. We suggest that the denominator term (4 sec^{-3}) may be a structural time proportion

$$e^{-(E_{in}/E_K)} \text{ sec}^3 = e^{-1.386297313} \text{ sec}^3 = 0.2499992624 \text{ sec}^3 = (4.000011802 \text{ sec}^{-3})^{-1}$$

that regulates and limits the growth process of the triple-fold in "cubic Time" (as cubed simultaneities). It anchors the synchronization of the fundamental frequency terms \mathfrak{E}_k , $v_{\delta e}$ and \mathfrak{E}_i to the universal Time-constant of the modal lattice, in the form of a cubed frequency constant

$$4.000011802 \text{ sec}^{-3} = (\alpha^{-0.5} e)^{0.4} \text{ sec}^{-3}$$

such that \mathfrak{E}_{Latt^o} has an exact proportionate relationship with those fundamental frequency terms:

$$\mathfrak{E}_{Latt^o} = \{\mathfrak{E}_k [\alpha^{-1}/(\alpha^{-1} 10^{-2})^{0.25}]\}^4 / [(\alpha^{-0.5} e)^{0.4} \text{ sec}^{-3}] = \\ = (\mathfrak{E}_k^2 \mathfrak{E}_i v_{\delta e}) / [(\alpha^{-0.5} e)^{0.4} \text{ sec}^{-3}] = 1.1398533 * 10^{71} \text{ sec}^{-1}$$

One may consider an alternative scenario where we take only the two frequency terms \mathfrak{E}_k and \mathfrak{E}_i into consideration, such that the time-constant of the denominator reduces to the napierian:

$$\begin{aligned}\mathfrak{E}_{\text{Latt}^\circ} &= (\mathfrak{E}_k^2 \mathfrak{E}_i^2)/(e \text{ sec}^{-3}) = (\mathfrak{E}_k^4 \alpha^{-2} 10^4)/(e \text{ sec}^{-3}) = (\mathfrak{E}_k^4 \eta^{-4})/(e \text{ sec}^{-3}) = \\ &= 1.210314854 \cdot 10^{71} \text{ sec}^{-1}\end{aligned}$$

The basic problem with this approach is that it requires G to equal $1.074 \cdot 10^{-35} \text{ m}^2 \text{ sec}^{-2}$, which lies well outside the range between the two cited means.

Taking the first scenario as the likely one, the conceptual picture that emerges is of a universal cosmic clockwork that forms a synchronous gearing ("engrenage") of diverse chronometers: the fundamental beat is provided modally by the lattice flux, by its power-ambipolons and their synchronous Space-Time foldings; the resonant sub-beats are those of the spinning electron torus and of the optothermal photon flux that the toroidal loops may emit if, beforehand, the electron acquired kinetic energy - and, lastly, the sub-beats of the clocking gear that connects the spinning of the electron torus to the flux of the folded lattice cells. In this manner, the double-fold of the lattice cells is enveloped by a third fold, and the phase-energy Space-Time continuum requires an analysis in 20 dimensions -

$$E_{\text{Latt}^\circ}^4 \Rightarrow L^{12} T^{-8}$$

and the phase-energy-flux of the Space-Time continuum formed by all four superimposed power-ambipolons, an analysis in 24 dimensions:

$$P_{\text{Latt}^\circ} = E_{\text{Latt}^\circ}^4 \mathfrak{E}_{\text{Latt}^\circ}^4 \Rightarrow L^{12} T^{-12}$$

The power of the cosmos is incalculable, but that of each of its modal cells is calculable. There is a single Time for the entire universe, and it is clocked at $\mathfrak{E}_{\text{Latt}^\circ}$. All fundamental frequencies are clocked to it and by it. It synchronizes all possible simultaneities and orders them diachronically - in sheer indifference to the postulates of Relativity that deny the existence of a single Time and the possibility of any simultaneity.

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