Theoretical Physics
J Aetherom Res 4, 8: 1-19 (2026)

The manifold of Time

Paulo N. Correa & Alexandra N. Correa
Aurora Biophysics Research Institute, Concord, Ontario, Canada

Abstract

Physics cannot treat Time other than as a *spatialized single-dimensional quantity* that is arbitrary in nature. Reversibility in time is not a physical notion, but an erroneous claim that regards reversible physical processes of energy conversion. Philosophers of science, Bergson in particular, have claimed that the reductive time of physics is a mathematical fiction; that the reality of a universal Time expressed by absolute simultaneity can never be adequately addressed and analytically treated by physics. The conflict devolves to what are continuous vs. discontinuous multiplicities, and whether or not a multiplicity is the same as a manifold. Against the impasse that has lasted to this day, we propose an entirely different way to treat Time, both physically and analytically, based upon a theory of discrete energy and power multiplicities and their discernible flows, with every multiplicity forming a synthesis of commensurate Space and Time manifolds. This affords an entirely different physical, mathematical and philosophical view of the energy continuum, whose nature we have elsewhere shown to be ambipolar and lattice-ordered. By considering the Time-manifold of a cosmic lattice cell, we demonstrate that there is a universal synchronism with a fundamental beat.

  ISSN 1915-8408

1. The problems with the various physical concepts of Time

Thermodynamics, along with classical and quantum mechanics, treat the equations of motion as being "time-symmetric", meaning that they remain unchanged under the abstract transformation of t –> -t. Once an initial condition or a boundary condition is specified, the same equations of motion indistinctly describe a forward or a backward process "in time". Time is treated as being "reversible" when two processes are "symmetric". This is one of the foundational fictions of physics regarding time. QED took this abstruse notion to the extreme, arguing that 'irreversible time' itself can also be negative, can flow back in time - with Feynman even suggesting that a positron is but a negatron flowing back in time, "travelling back in time to absorb a photon": "The phenomenon is general. Every particle in Nature has an amplitude to move backwards in time, and therefore has an anti-particle" [1]. This hallucination is tantamount to a claim that the physically real is mirrored, and thus its "nature" is also that of a mirror; the two mirrors face one another, and any forward motion on one is a reverse motion on the other.

Much has been written about the irreversibility of time, whether epistemologically it should be taken as causal of events or, instead, caused by them or by spatiotemporal relations between elements of matter. Generally, irreversible time has been the corollary of physical processes that are thermodynamically treated as dependent on a vector of increased entropy ("the arrow of time" that leads to "heat death"). Elsewhere we have at length shown this to be yet another fiction, this time foundational for thermodynamics: all physical reality must eventually run down. Time appears to be irreversible because there will be an end to it.

Whether "reversible" or "irreversible", time has always been reduced by physics to just a timeline, an "instant of duration". In Newtonian theory, events take place in absolute Space conceptualized as Euclidean 3D-Space. The set S of spatial locations of an event is given by the three lengths of Space -

$S = x^3$

whereas the set T of temporal moments of an event, i.e. the location of the event in arbitrary time, is only the one-dimensional timeline t^1, such that the structure A of Space and Time is simply the Cartesian product of Space and one-dimensional Time:

$$A = S\ T = x^3 * t^1$$

Treatments of "flattened continua" take recourse to Minkowsky Spacetime, which differs from Newtonian Space and Time in that it is not defined by the Cartesian product ST, but by a pseudo-Euclidean, flattened Space in four dimensions [2] -

$$S_t = x^4$$

Thus, in Special Relativity, one encounters a continuum defined as a four dimensional, additive Spacetime in the function for the square power of the latter that permits its expression in terms of the c^2 constant -

$$dS_t^2 = dx_1^2 + dx_2^2 + dx_3^2 - c^2\ (dt^2)$$

If we take c as unity, and write the timeline strictly as the length, $t = x_4$, which it corresponds to in Minkowsky Spacetime, we have -

$$dS_t^2 = dx_1^2 + dx_2^2 + dx_3^2 - dx_4^2$$

Then, it becomes evident how timeline dx_4 has become reduced to a negative length of a four-dimensional Space that consists of the sum of separate dimensions. For a more comprehensive treatment of Einstein's equation for the Spacetime continuum in this context, the reader is directed to [3]. In the absence of any intrinsic links betwen this concept of the Spacetime continuum and the concept of energy - whether mass-carrying or massfree - one could never describe it as an energy continuum, or as any form of superimposition of distinct manifolds capable of constituting distinct energy multiplicities. It is not simply the abuse of the signs of addition and subtraction to couple dimensions which we object to - especially when volume itself defines Euclidean Space as ℓ^3, and makes explicit the powers of multiplication implicit in the exponent. It is to the totality of the mathematical operations that underlie the reduction of the continuum S to x^4 that one must object. It is another analytical fiction, this time purely geometric. By being geometricized, Time remains spatialized. Inevitably, the outcome is a concept of time embodied in fictional functions that require an imaginary time to dilate inversely to

relative velocity, and to any length contraction made in the direction of motion (as per the Lorentz-Fitzgerald transformations).

The major thrust of H. Bergson's criticism of physics and the Theory of Relativity was that all physics knows is how to *spatialize Time*, and "arrive at whatever measure, at a number *t* representing whatever we wish" [4], but *not* 'real Time'. Of course no symbol can replace a lived or 'endured' duration, a real Time, just as a designation does not replace what it designates. What Bergson sought to point out was that behind all the physical concepts of time which we succinctly described above, there are only mathematical fictions and not a bit of real Time: reversible time, entropic time, dilated time, fourth dimension of space, etc, these are all mathematical imaginaries. For Bergson, it could not be otherwise, since real Time could never be grasped by mathematics.

For us, Bergson marks a challenge to physical theory and science that opens the door to necessary questions such as:

Could Time ever be replaced by a single timeline in the description, map or diagram of any energy process or system? Can a timeline suffice to connote an energy-multiplicity or a power-multiplicity? Can a timeline or, for that matter, any other time-function, belong *intrinsically* to a multiplicity? Is there an *immanent synchronism* of physical reality that clocks the flow of a universal Time for all energy processes, including those that dissipate heat?

From our perspective, the problem is twofold and can be expressed differently as:

1) how can Time be *mapped onto a manifold without being spatialized*, without the manifold being a Space-manifold; and

2) how can this Time-manifold be commensurately articulated with a Space-manifold to synthesize the multiplicity Energy or Power.

Neither problem is separable from an understanding of simultaneity as a fundamental event that can no longer be reduced to an extrinsic and fortuitous coincidence of instants (or a juxtaposition of the same, to address Bergson's criticism), but rather is grasped as the outcome of a synchronism, or of a Time-resonance of timelines that are internal or intrinsic to every energy and power multiplicity. In other words, to us, Bergson's challenge is whether there can be a physics of real Time, where time is no longer referenced to external clocks, but instead *endoreferenced* in the very structure of energy and its flux, and *simultaneously synchronized (clocked) by* an immanent energy continuum.

Our own work has found that such *immanent synchronisms* are everywhere present irrespective of the nature of the physical processes, yet are very specific to them: there are electromagnetic synchronisms, and these are different from the ambipolar synchronisms, or those of kinetic energy, nuclear reactions, etc. Moreover, everywhere in energy conversion processes one finds a variety of imbricated cross-synchronisms at work - in the cosmogenesis of leptons, in the acquisition of kinetic energy by mass-energy particles, in the conjugate emissions of ambipolons from massbound charges, in the dissipation of photon energy, etc.

The greatest obstacle to the understanding of Time and the detection of all these synchronisms arises from the confusion of the concepts of multiplicity and manifold made by both physics and philosophy (see below). In our language – one cannot map a multiplicity by, or onto, a manifold; one cannot treat the function 'multiplicity' as if it could be mapped onto the function 'manifold'. The multiplicity 'energy', or the energy multiplicity, requires two conjugate manifolds in order to be 'mapped' or made into a diagram [5]. One cannot lump time into an extra dimension of the Space-manifold, as Relativity claims to be able to do with its vitiated analysis of moving pencils of light in the presence of a "gravitational field". The energy continuum is not a Spacetime manifold, cannot be reduced to it, since manifestly the latter cannot adequately describe it.

Bergson, too, contributed to the erroneous assimilation of the concept of multiplicity to that of a manifold. Not being an investigator of the physics of energy, nor one who used the concept of energy as being a cornerstone of his philosophy - he indifferently used the term 'multiplicity' in French to denote at once 'multiplicity' and 'manifold'. For Bergson, "space manifolds" were formed by quantitative, 'objective', numerical 'multiplicities' where divisions could occur *without changes in nature*, and events were necessarily reduced to states of things in their extrinsic reference (*exoreference*) to systems of coordinates [6]. These quantitative multiplicities were, in his view, the object of science. Conversely, philosophy (ontology, metaphysics and even the philosophy of biology) was concerned with the investigation of a very different kind of multiplicities - qualitative, subjective, *nondivisible* multiplicities that had their own *endoreference* systems: "The other type of multiplicity appears in pure duration: it is an internal multiplicity of succession, of fusion, of organization, of heterogeneity, of qualitative discrimination, or of *difference in kind*; it is a *virtual and continuous* multiplicity that cannot be reduced to

numbers" [7]. Mathematical methods could never analyze sucessfully such qualitative multiplicities. They were simply beyond the grasp of physics or science.

The essence of the number lies in the determination of a difference in degree. We may say, with Bergson, that there are differences in kind and differences in degree (that is, that difference may be qualitative or quantitative). Any assemblage that may be isolated from its continuity with everything else, can always be shown to contain quality and quantity, differences in degree and differences in kind, or in nature. Quantity cannot be measured without the number, without numbers, and is therefore inseparable from being measured with some form of equivalent units. But quantity is always a quantity of something, or a measure of something. It is not as if a fragment of reality can be fully separated into qualitative groupings and quantitative groupings, as Bergson's dualism intimates. Only in abstract is a number said to be of nothing; only in abstract do we deal with numbers on their own. In reality, in physical reality, there is no counting or measuring of anything, and thus no number or numbering, unless the number is qualified. Geometric and analytic mathematical thought has tended to ignore physical limits to the division of the number, as if the divisible were infinitely so. Mathematical and geometric thought has always tended, in fact, to turn this virtually-infinite property of division into a property inherent to the number or to numbers. But we have shown how a micro-functional algebra of discernible and discrete units can aptly describe the articulation of number and its inherent qualifications.

When it comes to energy, every flux is always formed by units, whether quantal or non-quantal. These units are indivisible - one cannot slice a photon despite ZPE theories - only their numbers are divisible and subject to exoreferentiality. That is to say that there are natural units in all physical processes, and it is with these qualified units that measurements can and should be made. Still deeper along the same vein - these multiplicity-units always present an intrinsic and specific structure (what we call the fine structure), where the divisible acquires a totally different quality: all fine constituents have numbers, and all numbers are endoreferenced and - whether *relating* to Time or to Space - *interrelated* by physical commensurability in their articulation and flux.

Our physical theory (Aetherometry) has demonstrated that all dimensions or dimensionalities of physics, including mass, can be reduced to the primary dimensionalities of volumetric extensivity and duration. These are the functional

properties of energy and its flux, whether or not the energy is bound to mass. This analytical breakthrough must confront physical thought with the alternative: either the world of physical objects, beings and fluxes of energy is glued together by a vacuum which alone and somehow would have (some of) the properties of a continuum; or the physical world forms a seamless continuum of energy, where all that presents volume (with or without mass) and endures in Time is ultimately joined to everything else, whether by superimposition or contiguity. In the first case, the abstract continuity of a pure vacuum would obliges us to think that extensivity is not a property exclusive to energy, but one which already belongs to the vacuum - suggesting that most of the world is composed of "empty space" and that *all energy and all matter* have the property of extensivity because they occupy this empty volume of the vacuum (all is enveloped by it). Space is primordial or substantival, and all else fills it. In the second case, we come to realize that, despite de Broglie, no two elements of mass-energy can occupy the same volume of space, while the fundamental energy continuum - which is massfree - can freely superimpose its flow-units, by folding them in the same volume. If these folds are consistent, one may speak of knots or folded knots everywhere dispersed in the continuum.

By assuming that the physical macroworld is infinitely divisible without changes in quality, one appears to be 'free' to think the extensivity properties of all objects, beings and fluxes as only existing in an abstract formal space, a vacuum in fact. Yet, this space only exists in our minds, as an idea, even as "we" attribute to it some imaginary degree of physical reality - as if it formed a substratum underlying all extensivity. By doing so, "we" can seemingly treat objects and beings as geometric constructs that present relationships only in (this abstract formal) space, that have only spatial dimensionality - and we can therefore ignore, or afford to ignore, their physical dimensionality of duration, which we promptly reduce to an extra-dimension of that abstract space.

To address the challenge posed by an adequate physical treatment of Time we need new physico-analytical tools. To begin with, we must be able to differentiate the concepts of manifold and multiplicity.

2. Riemann's theory of manifolds

Riemann was the first to define two kinds of manifolds - *discrete* and *continuous*, according to whether or not they were susceptible of being measured by being divided

internally without changing metric. *Discrete space manifolds* carried their own intrinsic unit and could only be, strictly speaking, *counted* (discreteness implies discontinuity) *and not measured*, whereas *continuous space manifolds* could be ('continuously') measured by arbitrary extrinsic metrics.

In "*Space, Time, Matter*" [8], Weyl comments: "(...) as Riemann expresses it, a discrete manifold has the principle of its metrical relations in itself, *a priori*, as a consequence of the concept of number". The metric was intrinsic to the manifold. Weyl quotes Riemann's famous 1854 address "*Concerning the hypotheses which lie at the base of geometry*" [9]: "in a discrete manifold, the principle or character of its metric relations is already given in the notion of the manifold, whereas in a continuous manifold this ground has to be found elsewhere, i.e. has to come from outside. Either, therefore, the reality which underlies space must form a discrete manifold, or we must seek the ground of its metric relations (measure-conditions) outside of it, in binding forces which act upon it". Weyl points out how Riemann aimed to surpass the classical view which held that the metrical structure of space is "fixed and inherently independent of the physical phenomena for which it serves as a background", by asserting that space qua manifold only "acquires a definite form through the advent of the material content filling it and determining its metric relations" [10].

The spatiotemporal relations between elements of matter would alone determine the continuity and structure of the space manifold. In other words, Riemann sought the description of a continuous space manifold that could obtain its metric relations from physics, from the nature of the physical interactions. His immediate objective was the construction of a differential geometry "formulated to meet the requirements of continuity" [11]. But note what "continuity" implies here - that by means of a differential geometry one could approximate a (topological) space that was (nearly) continuous. Riemann's problem was to determine whether the metric structure of space is fixed, as *substantival concepts of space* claim, or whether the metric of space is only found when this space is formed by its "material content". Remark, then, how the second part of his alternative approaches the aetherometric question, which is - how is space produced, how is a Space-manifold constituted, what energy and Time-manifold functions are involved in this? Yet, also remark the difference: it is not the spatiotemporal relations between elements of matter that form the continuum and cause the irreversibility of time, but a

subquantic Planck-scale lattice of massfree energy that underlies all Time-manifolds and Space-manifolds; that synchronizes the former and deploys or unfolds the latter. Causal order, therefore, is always order *in* Time. It should not be confused with the order *of* Time, which is its physical direction. No causal order can therefore be ordered in Time so as to run contrary to the direction of Time, to the order of Time. It is here that the real distinction between a metaphysics of Time and a physics of Time takes place.

If, as Riemann's intuition suggested to him, the metric relations of space had to be sought in the knowledge of physics, space should have to be treated as a continuous (riemannian) curved N-manifold. According to Einstein and to Weyl - Riemann did not succeed in his overall project, not primarily because he failed to import the physical determinants that he sought, but because he could not successfully enunciate, in purely geometric terms, a "doctrine of space itself", or a "pure infinitesimal geometry". This criticism, of course, is made from a *substantivalist* position - in its modern *relativistic* form - and, in this perspective, Riemann's failure comes down to lacking a theory that could postulate and treat a curved spacetime [12-13], that is, a theory that took the dimension of time (a single timeline) into account by reducing it to space in its expression of a single manifold, supposedly continuous. Of course, this only makes Berson's criticism all the more poignant: how could a sum of dimensions ever yield a continuum?

Though not directly inspired by Riemann, Einstein equally sought the ground of the metric relations of space outside of it. The appropriate metric relations must be obtained *elsewhere*, *outside of the substantival structure of spacetime* - in the laws of inertia and gravitation as treated by General Relativity - such that, to borrow Weyl's expressions, it is "space-filling matter" which "determines the metric structure of spacetime". Einstein, of course, never quite *succeeded* in doing this. Sklar, however, points out that in some of Einstein's speculations - as in his attempts to construct a unified field theory - he tried a more extreme substantivalist position that regarded the ordinary material world as nothing else than a conjoining of "pieces of spacetime". In "his attempt to derive the dynamical law of motion of general relativity from the field equations alone", Einstein speculated about the possibility of treating "matter as singular regions of spacetime" [14].

In reality, however, what Riemann's approach lacked was not the expansion of the geometric concept of a space manifold to include a spatialized time, but the functional disjunction (qualitative and analytical) of the multiplicity-energy or energy-event into

commensurate Space and Time manifolds. Riemann was trying to reject a substantivalist view of space, but only replaced the classical form of substantival space with the riemannian form of a curved space that still remains substantival or abstract, a pure, formal topology still divorced from relations with Time (with a Time-manifold), and still inexpressible in terms of energy-power, *qua* substance and *qua* multiplicity. He was not so much missing an amalgamation of time to space, or even a cogent theory of matter, as he was lacking a consistent theory of energy, of energy and its flux as multiplicities composed of distinct but corresponding Space and Time manifolds. He was missing the concept and functions of a Time manifold, but above all the physics of energy that determines the disjunction and the commensurability of the two coincident manifolds, Space and Time.

3. Bergson's theory of multiplicities

The essence of Bergson's criticism of Riemann's distinction of discrete and continuous space manifolds, is that Riemann's concept of a continuous manifoldness or multiplicity was only and still a concept of an ideal and continuous homogeneous space where the distribution of all point-positions was necessarily discontinuous or discrete by the very nature of number. Bergson points out how units of counting or of measurement differ only by the position they occupy in space [15], and how their intervals can be treated as being infinitely divisible; all units are provisional, since they can be subdivided without limit [16]. Thus, with or without boundaries, a geometry - be it infinitesimal - could never escape Bergson's definition of discrete multiplicities that are set up in some form of an ideal homogeneous space. What for Riemann was a continuous manifold is, for Bergson, still a discrete multiplicity.

Seen in this light, Bergson's own distinction between types of multiplicities effectively deviated Riemann's distinction to suggest that science, or physics, can only investigate *discrete multiplicities*, or treat processes as if they formed discrete multiplicities even when they don't, whereas the world of internal duration, the "subjective world", alone forms a continuum and is the domain of '*heterogenous or continuous multiplicities*'. Undoubtedly, we should listen carefully to Bergson's criticism of physics: for indeed, adding time as a fourth dimension to the three-space dimensions is still a form of spatializing time and making it homogeneous like the medium of abstract space. It is not a matter of time being reversible or not, or being circular, or even monotonic. The very

immediacy of the experience of Time proves its irreversibility - and only in this sense is Time One, a single universal Time. But its tonicity is many, since it constitutes a manifold on its own, and every energy or power multiplicity presents an intrinsic Time-manifold. But while physics is still to this day unable to uncover the manifold of Time, the Bergsonian-Deleuzian stance holds that there can never be a physics of Time, that science can never construct a Time-manifold that does not spatialize and quantify Time. All such recourses, if at all imaginable for Bergson, would infirm from the same 'reduction' of the heterogeneous to the homogeneous, of the really continuous to the discrete that inhabits an ideal continuity. Aside from pointing out what is falsely continuous in the independent treatment of Space(time) provided by analytical geometry and Relativity, the most that Aetherometry may grant to Bergson's position regarding a "physics of Time" is that if there are relations between events which are commensurate with relations of simultaneity or succession (diachronicity) - such as we claim is the case for relations involving energy flux, deployment of force, superimposition of waves, etc - they are not the speculative relations that have been suggested by theories (mechanical, thermodynamic, electrodynamic, cosmological, etc) that treat Time and its forward direction as mere attributes of irreversible physical processes (including concepts of entropy).

Moreover, the Bergsonian argument is not based on a physical theory of energy and its flux (any more than Riemann's differential geometry is), not even in part - let alone on some novel experimental research data or analytical insight. It is a philosophical and ontological argument - largely enunciated to address why physical theories like Relativity end up with imaginary "Time-paradoxes" - rather than an argument which seizes the function 'energy' as the substance of nature and the very concept of multiplicity. The foundation of the Bergsonian argument is obvious to microfunctionalist science: the infinitesimally divisible can still only at best approximate continuity, and the continuity that it obtains is still one of an homogeneous space and not of a physical extensivity and its interpenetration with Time, no matter whether this homogeneous space is treated as a continuous riemannian N-dimensional curved manifold or as a 4-dimensional curved spacetime 'manifoldness'; or whether the matter that is distributed throughout this homogeneous space is treated as forming discrete manifolds or (nearly-)continuous ones. But the foundation of Bergson's argument is no impediment to the possibility of finding - in Space and in Time - for simultaneities and successions of synchronous energy flux(es),

the *endogenous* (endoreferenced) measures of energy and its manifold processes; by this we mean, the measures that invoke no transcendental dimensions, only the immanent and absolute (non-fractional and nonfractal) dimensions of a continuum of energy and its flux over time *qua* power.

4. The concept of Time as a manifold in Aetherometry

Ironically, the Bergsonian-Deleuzian argument supposes that only continuous multiplicities can have a variable number of immanent dimensions – without these being just so many 'coordinative' lines (or dimensional lengths) on a surface (as in flat Minkovski spacetime). We say 'ironically', because the only multiplicities that can compose a continuum, in extensivity and in duration, with a variable number of immanent dimensions are energy-power multiplicities. As found by aetherometric science, the only method that physical and biological systems dispose of to vary the (absolute) dimensionality of natural processes is the *superimposition of energy or energy fluxes in phase constructs* – which, incidentally, will always be multiples of 5 dimensions for energy, and of 6 dimensions for its power or rate of flux. So-called empty space is nothing other than an grossly approximative ideation of the extensivity of phase-superimposed *massfree* energy units in constant flux, and even then there are limiting numbers of dimensions, as well as defined quality to these dimensions, such that all continuous variations operate only with discrete sets of dimensions.

Moreover, the simplest event of primary energy does not constitute a homogenous 'manifoldness', but a heterogenous multiplicity made up of distinct but commensurate manifolds, each of which, in turn, may or may not have homogenous dimensions according to the energy type or process involved. In all energy functions, all dimensions are immanent because they are the functional components of the fine-structure of the energy construct or energy process. It follows that, in Aetherometry, neither the Space-manifold nor the Time-manifold obey the riemannian rules of N dimensions [17]. Rather, as manifolds that are interlocked in a single continuum of energy and power, their rule is $N^{3(n)}$ dimensions, whether for *primary energy flux* or *phase-energy flux*. Thus, the very concept of mass-energy hinges on it. For energy, rather than for power or energy-flux, the rule is heterogenous, and splits into $N^{3(n)}$ for the Space-manifold and $N^{2(n)}$ for the Time-

manifold; so, the most abstract function for the manifold functions of energy is, in Aetherometry, given by:

$$E = N_S^{3(n)} N_\tau^{-2(n)} = LW^2 = MW^2$$

It applies indistinctly to massfree energy, (LW^2), and to massbound energy (MW^2).

The aetherometric approach demonstrates how energy can only be comprehended as a concept and as a function if it is treated as the conjunction of two distinct manifolds, different in nature and different in their endoreferenced measure of the differences in degree - which, in turn, interrelate across the two 'fused' manifolds by singular commensurabilities of Time and Space. The fundamental physical dimensions do not relate by sum or addition, but *by commensurable production*, superimposition or multiplication. They are engaged in a relationship of synthesis. They are conjoined. And whether massbound or massfree, all energy units, processes and types, are composed solely of commensurate wavelines and timelines.

However, even though the Time-manifold of energy, with its two superimposed dimensions ($N^{2(n)}$) or timelines, constitutes a domain of endoreferenced synchronism, this does not tell us how the amplitude wavelength couples to a third timeline, or in what manner that wavelength or waveline is a constituent of a wave, a third wave. The *amplitude* wavelength is what in mass-bearing particles we call mass (M in the preceding expression), or the mass-equivalent wavelength, and what in the instances of massfree energy we claim is the (noninertial) wavelength (L in the preceding equation) of the third wave of an energy flux.

To isolate this third wave, one needs the perspective of a microfunction adequate to power, the perspective not just of process, but of the flux of energy over time, through Time. As discussed in a separate communication [18], this problem equally emerges when considering massfree energy; for example, the power of the energy flux of a photon, and how it dissipates. In effect, it is only *from the microfunctional perspective of the rate of energy flux*, or the perspective of a power continuum, that the physical world forces us to consider the Time-manifold as being, in parallel to that of Space, a three-dimensional manifold, i.e. involving a triplicity of dimensions ($N^{3(n)}$), in this case time-resonant timelines (note that "line", in this context, does not mean length, but order of diachronic

succession of repeating cycles). Energy flux or the power function deploys, therefore, *a six-dimensional synthesis (or power multiplicity) of two manifolds*,

$$P_{micro} = N_S{}^{3(n)}\, N_\tau{}^{-3(n)} = W^{3(n)}$$

It is only from this dynamic vantage that one may seize the purely undulatory nature of the "physically Real" in all of its energy forms, massfree and massbound. It is not just a "true" or physical *triplicity* of fluxes that forms the integral flux of any energy unit and all composites thereof, but the power of *a triplicity of synchronous waves* that incessantly deploy energy. Thus, any power multiplicity can be written as a function of combined triple waves:

$$P_{micro} = W^{3(n)} = (LT^{-1})^{3(n)}$$

This applies even to mass-energy objects [19-20], since mass is simply the epiphenomenon of a closed or circularized (wave)length. In effect, the real physical continuum is the power continuum, a multiplicity formed strictly by bundled waves.

Any micro-power function is not only endoreferenced but also clocked by an immanent superimposition with the cosmic power continuum. The power multiplicity is, in effect, not separable from the energy flux of a universal ambipolar lattice. In 2008, we published [21] our determination of the tremendous frequency of this ambipolar flux in its relaxed (non-folded) state:

$$\varepsilon_{Latt^\circ} = p_e/\lambda_{Planck^\circ}{}^2 = 1.1389*10^{71}\ sec^{-1}$$

All energy and power multiplicities are synchronized by this timeline of a universal Time-manifold that has the exact expression of

$$N_\tau{}^{-3(n)} = W^{3(n)}/N_S{}^{3(n)} = (\varepsilon_{Latt^\circ})^{3(n)}$$

Thus, the solidary Space-manifold that is commensurate with this homogeneous Time-manifold is also homogeneous:

$$N_S^{3(n)} = W^{3(n)}/N_\tau^{-3(n)} = (\lambda_{Planck^\circ})^{3(n)}$$

Moreover, since ambipolar charge is of the same magnitude as any electric charge, and expressible as -

$$p_{e^\circ} = \lambda_{Planck^\circ}^2 \, \varepsilon_{Latt^\circ}$$

- the unit power-multiplicity of each lattice cell directly conveys how ambipolar charge couples to the a cosmic acceleration exerted by the lattice:

$$P_{LattMode} = P_{Latt^\circ} = p_{e^\circ} (\lambda_{Planck^\circ} \, \varepsilon_{Latt^\circ}^2) = (\lambda_{Planck^\circ}^2 \, \varepsilon_{Latt^\circ}) (\lambda_{Planck^\circ} \, \varepsilon_{Latt^\circ}^2)$$

where the acceleration is given by

$$a_{Latt^\circ} = \lambda_{Planck^\circ} \, \varepsilon_{Latt^\circ}^2$$

with a gyrogravitic cosmic moment of

$$\mu_e = p_{e^\circ} \, \lambda_{Planck^\circ} = \lambda_{Planck^\circ}^3 \, \varepsilon_{Latt^\circ}$$

These relations place the unit power-multiplicity of each lattice cell at an overwhelming value:

$$P_{LattMode} = P_{Latt^\circ} = p_{e^\circ} (\lambda_{Planck^\circ} \, \varepsilon_{Latt^\circ}^2) = 2.0058 * 10^{108} \text{ m}^3 \text{ sec}^{-3} =$$
$$= E_{Latt^\circ} \, \varepsilon_{Latt^\circ} = 1.1389 * 10^{71} \, E_{Latt^\circ} \text{ sec}^{-1} = 2.0799 * 10^{102} \text{ eV sec}^{-1}$$

We may assume that by the law of energy conservation, the number of these cosmic cells is finite, though incalculable. All that is, including the electron mass-energy, is created from it and devolves, some time or other, back to it. If the cosmos can neither increase nor decrease its total energy, one is forced to admit that Nietzsche was correct - the universe has no beginning or end. It is eternal in Time, even as its total physical space, at any time, may vary in total volume (finite but indefinite) - since massfree energy and power multiplicities can freely superimpose with one another.

We have proposed that one should consider leptons - or the electron - to be the real bricks of matter, and the first "atomic" systems seeded by knotted folds of the cosmic

lattice [20]. They nearly rival the entire cosmos, since they have no inherent half-life, even as they can be created and destroyed. They have a temporary visa to eternity. And they can already do something which the entire cosmos cannot do - vary their total energy by acquisition of kinetons and emission of photons or ambipolons, even if their "internal energy" is condemned to be conserved, like that of the cosmos. All systems that are capable of growth in time (galaxies, stars, crystals, living beings, etc) employ these bricks, and all elemental and molecular matter is composed with them, with all atomic nuclei being but ultra-compactions of their groupings [22]. Such systems do not so much store or accumulate energy as they sequester part of its incoming flow, subtracting it from their output. They do not increase their internal energy by simply dissipating energy - as Prigogine's dissipative structures are supposed to do - but by engendering an energy-process flux that permits sequestration of a transient internal energy content that can only be conserved and increased by repetition, by cycling energy and its constant reflushing. The sequestration is always an ongoing process, and all that matters to a system in any growth-phase is the power with which its internal sequestration of energy increases. The dissipation is inevitable, but the increase in internal energy depends only on the growing power of the synchronous waves that drive a system, living or nonliving.

A treatment of Time as a three-dimensional manifold for the flux of every and any energy unit, and its comprehensive integration of many such conjugate fluxes into processes of system growth is precisely what is missing in morphogenetic approaches to fields of scientific investigation as diverse as embryogenesis and plasma physics. The same way that every energy or power unit carries a commensurate specificity of Space and Time manifolds in its flux, all systems and all "wavefronts" in any system also carry commensurate length-and-time specificities that are integral to them - i.e. endoreferenced. Morphological development divorced from *the flow process of energy* cannot adequately map the self-ordering of growth phases in a chemical system, let alone a biological one. All it can do at best is generate abstract simulations. The flux-time of any growth development in a biological system is not an external variable, no more reducible to the intensity of energy dissipation than it is to non-equilibrium states that are determined by changing chemical flows. This set of problems was already at the core of one of the criticisms that R. Thom addressed to M. Delbrück - and to E. Jacob and J. Monod - and on which he disagreed from C. Waddington. Delbrück suggested that systems may have

various equilibria of flux for defined concentrations of chemical substances (as, in our view, is the case in the Brusselator or the Belusov-Zhabotinsky reaction) without being at equilibrium; i.e. they can be in "steady states" - which is the notion of homeostasis: "the concentrations of substances are in 'flux-equilibrium' in the sense that they do not change, in spite of flow through the system" [23]. Thom countered to Waddington that this determination mistook "a dimension devoted to a material variable, such as concentration, [for] one devoted to time". His alternative - that he called homeorhexis - was to understand the alternative states of a system (such as a living cell) as processes in which "the concentrations of substances do not remain constant, but change along defined time-extended trajectories". In our view, he could have gone much further and referred to fundamental processes of energy flux, in particular the travelling flux of standing ambipolar waves present in every system, that themselves gate the time-dependent trajectories of massbound charges and chemical substances. In our dot-by-dot counter-analysis of Prigogine's treatments of linear and nonlinear processes in nonequilibrium thermodynamics [24], we showed, time and again, how it is critical to correctly determine the Time-manifold of each flow process. This applies even to the analysis of a simple case such as that of a conduction current and its evolution of ohmic heat [25].

It is evident that physics never succeeded in adequately analysing and comprehending Time. But neither did philosophy succeed in adequately conceptualizing it [26]. However, we claim to have taken up Bergson's challenge and demonstrated that, ultimately, he was in error: a microfunctional physics can adequately address Time without spatializing it and reducing it to an arbitrary single dimension. We developed a consistent physical theory and new analytical and mathematical tools that permit the formulation of a non-reductive treatment of Time as a manifold that is inherent to every energy or power multiplicity. By considering the Time-manifold of a cosmic lattice cell, one arrives at the demonstration of a universal synchronism, where a single universal Time everywhere presents a fundamental beat. It is high time that physics took Time seriously. Likewise philosophy. For, indeed, the objective realities of the irreversible duration of all living and its inevitable aging (even as it is encoded by chemical alterations of genetic codes) that match our subjective experience of finiteness, are the physical outcome of the constant flux of the ambipolar lattice through all that exists anywhere in the universe. We never bathe twice in the same river, as the flux of lattice energy is ceaseless and eternal.

References

1. Feynman R (1985) QED - the strange theory of light and matter", Princeton U. Press, Princeton, NJ, p. 98.

2. Sklar, L (1974) “Space, Time, and Spacetime”, Univ. of Calif. Press, CA, p. 209.

3. Correa PN & Correa AN (2002, 2004, 2006) "The Gravitational Aether, Part II: Gravitational Aetherometry (7), Antigravity Lift and Exotic Flight (II): Critical Overview of Theories and Technologies", Volume II of Aetherometric Theory of Synchronicity (AToS), Akronos Publishing, Concord, ON, Canada, ABRI monograph AS3-II.9, pp. 9-15.

4. Bergson H (1922) "Durée et Simultanéité", P.U.F, 1968 re-edition, Paris, France, p. 53.

5. Correa PN & Correa AN (2004) "Notes on MicroFunctionalism: Orgonomic, Molecular and Aetherometric Functionalism", Akronos Publishing, Concord, ON, Canada, ABRI monograph AS1-08.

6. Deleuze G & Guattari F (1994), "What is philosophy?", Columbia Univ. Press, NY, NY, pp. 48, 118-119.

7. Deleuze G (1968, 1988) "Bergsonism", Zone Books, NY, NY, p. 38.

8. Weyl H (1922) "Space, Time, Matter", Methuen & Co, London, England, para 12, p. 97.

9. Riemann B (1854, 1873) "Concerning the hypotheses which lie at the base of geometry", *Nature*, VIII, No.s 183-184: 14-17; 36-37.

10. Weyl, op. cit., p. 98.

11. Idem, p. 91.

12. Idem, p. 102.

13. Sklar, op. cit., p. 55.

14. Idem, p. 166.

15. Bergson H (1889) "Time and free will: an essay on the immediate data of consciousness", 1913 English publication by Dover Publications, 2001, NY, NY, p. 77.

16. Idem, p. 81.

17. Dominguez writes: "Riemann clarified the notion of dimension by considering how the manifold might be 'reconstructed' [sequentially ordered in its composition] starting from a one-dimensional path, going up to a 2-dimensional manifold, ... to

manifolds of N-1 and, finally, N dimensions", in: Dominguez JF (1999) "Labyrinth of thought; a history of set theory and its role in modern mathematics", Birkhaüser, p.70.

18. Correa PN & Correa AN (2026) "Evidence for a universal Time: photon dissipation and the cosmic energy lattice flux", J Aetherom Res, 4, 10:1-11.

19. Correa PN & Correa AN (2026) "Synchronism of the lepton mass-energy with the cosmic lattice", Volume IV of Aetherometric Theory of Synchronicity (AToS), Akronos Publishing, Concord, ON, Canada, ABRI monograph AS3-IV.2.

20. Correa PN & Correa AN (2026) "Fine structure and cosmogenic creation of the electron mass-energy", Volume IV of Aetherometric Theory of Synchronicity (AToS), Akronos Publishing, Concord, ON, Canada, ABRI monograph AS3-IV.3.

21. Correa PN & Correa AN (1998, 2006, 2008) "The Gravitational Aether, Part II: Gravitational Aetherometry (9) - Quantum & Subquantum Aether (Anti)Gravity: Fine Variation and Determinations of G", Volume II of Aetherometric Theory of Synchronicity (AToS), Akronos Publishing, Concord, ON, Canada, ABRI monograph AS3-II.11.

22. Correa PN & Correa AN (2023) "The evolutions of stars and the secrets of nuclear fusion", Volume VII of Aetherometric Theory of Synchronicity (AToS), Akronos Publishing, Concord, ON, Canada, ABRI monograph AS3-VII.10.

23. Thom R (1974) Modèles mathématiques de la morphogenèse", p. 287, letter of February 23, 1967.

24. Correa PN & Correa AN (2026) "Beyond modern thermodynamics: a confrontation with Prigogine's work", Volume VI of Aetherometric Theory of Synchronicity (AToS), Akronos Publishing, Concord, ON, Canada, ABRI monograph AS3-VI.10, currently in preparation for publication.

25. Correa PN & Correa AN (2026) "The electron conduction current", Volume IV of Aetherometric Theory of Synchronicity (AToS), Akronos Publishing, Concord, ON, Canada, ABRI monograph AS3-IV.4.

26. Correa PN & Correa AN (2009) "Whither Science? (2) - A Science without Origins: Nomad, Minor Science and the Scientific Method", J Sci & Pol Thought, 1(2):1-49.

  ISSN 1915-8408