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Useless Quantum Mechanics: The Complex Untold Story

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Abstract:- ***If you don't understand quantum mechanics, ask yourself if I'm right, because others don't understand quantum mechanics either.***

Quantum mechanics is the newest science and therefore should be the most accurate, but unfortunately the opposite is true.

By unnecessary quantum mechanics we mean incomplete/inexact parts of quantum mechanics in the classical R^4 or 3D+t manifold that are completely inadequate for generating exact definitions and hypotheses as well as a refined understanding of time-dependent events.

Schrödinger PDE in particular and current quantum mechanics in general are incomprehensible.

It is well known that the Schrödinger PDE (SE), in its current classical form in 3D geometric space plus time as an external controller, is incomplete and misleading.

No wonder these definitions/assumptions are ugly and result in weak or intractable physics and mathematics, leading to all kinds of misunderstandings, from horrible notations to undisciplined length of theorems containing a considerable amount of magic black and ending with a gray nature of the mathematical result. got.

Moreover, it is obvious that any attempt to reform probabilistic ES in R^4 space by combining it with deterministic theories of 4D unit space such as the theories of special and general relativity would be absurd.

The proper reformulation of SE is simply to replace it with its square in the 4D x-t unit space.

We also believe that this reformulation is capable of extracting the brilliant properties of quantum mechanics in many areas, which is the subject of this article.

Fortunately, the present inaccurate assumptions that start with an ugly space for boundary conditions, initial conditions and source/sink term can be spotted and analyzed via 4D unitary numerical statistical theory called Cairo techniques in the format of transition chains of matrix B to complete what is missing.

By complex and untold history, we mean that useless and misleading mathematics dominated scientific research and teaching throughout the 20th century, to such an extent that the accumulated legacy of misconceptions became a huge and complex mountain, almost impossible to eliminate.

We present some of the most common incomprehensible, inaccurate, or false assumptions existing in current Schrödinger quantum mechanics, and show how to correct them via the new reformulation of the Schrödinger equation.

I. INTRODUCTION

Ideally, quantum mechanics, the newest science, should be the most perfect, but unfortunately the opposite is true.

So if you don't understand quantum mechanics, ask yourself if I'm right, because others don't understand quantum mechanics either.

In previous articles [1,2,3] we introduced and explained what is meant by useless parts of mathematics in different fields and showed how to correct or improve them via the 4D xt unit space of Laplacian theorem and the theory statistics of Cairo techniques.

Throughout this article we carry out the same improvement and reformulation of the famous Schrödinger PDE in particular and the whole of quantum mechanics in general and show how the Laplacian theorem and the numerical statistics of Cairo techniques are capable of reformulate SE in its square format and resolve the quantum properties of the resulting new quantum mechanics.

Physicists and mathematicians encounter great difficulties in defining the notion of real time t.

This difficulty is at the origin of all the inadequacies of classical and quantum physics and even of certain parts of mathematics such as statistics and calculus.

We assume that the following five errors in current quantum mechanics are the most common and misleading:

- The iron guards of the Schrödinger equation with the Bohr-Copenhagen interpretation claim that quantum mechanics is not useless but not always understandable.

*The practical answer is definitely no, since the incomprehensible subject means and results useless.

- The true meaning of the entanglement of two quantum particles in quantum mechanics is not understandable.
  **We can show that entanglement of the energy density system in 4D unit space exists in classical physics in the same way as in quantum mechanics.
- The Schrödinger equation has no role in classical physics.

But the Iron Guards claim that the Schrödinger equation is suitable for solving quantum and classical physics at all scales, from subatomic to interstellar distances.

***While the truth is that the Schrödinger equation was invented to solve the hydrogen atom and describe subatomic systems only on intermolecular scales.

A prominent example of a current problem situation is the digital calculation of sound energy density in audio rooms [4,5,6], which is not yet resolved.

- What do we mean by wave collapse and how does it block observation and measurements?

****In fact, the measurement and observation should be the same and correspond to the theoretical prediction of quantum mechanics which has never been justified.

- Which one is the most complete and the most understandable:
  The Schrödinger PDE or its Laplacian square?

***** It is quite striking that the square of the classical Schrödinger PDE includes the same quantum properties (entanglement, tunneling, quantization, etc.) of the Schrödinger PDE itself, which will be explained in detail in section II of the theory.

Additionally, the square of the classical Schrödinger PDE can resolve events in classical physics and much of pure mathematics.

The conclusion is that:

The square of the classical Schrödinger PDE is a unified field theory but not the Schrödinger PDE itself.

Fortunately, the numerical theory of Cairo techniques and the Laplacian theorem constitute an advanced and exhaustive form of the energy continuity equation and thus can create new logical physics and mathematics.

This also adds to the contribution of the Laplacian or square form of Schrödinger's famous time-dependent PDE.

The aggressive term useless quantum mechanics only appears because we have not found a better or gentler word to describe a full century of lies and denial.

It is worth mentioning that the majority of mathematicians and physicists do not know exactly what the Schrödinger square PDE is and therefore do not know that the square of Schrödinger equation is more complete and more understandable than SE itself.

Therefore, we briefly explain the appropriate reformulation of SE which is to rewrite its square in a Laplacian PDE form in the 4D x-t unit space and extract its new productivity in different domains [7,8,9].

We recall that the Laplacian partial differential equation has the format,

dU/dt)partial = α ∇^2 (U) + S. . . . …… (1)

Subject to Dirichlet boundary conditions.

Where U (x,y,z,t) is the quantum energy density J m^-3.

And α is the diffusivity of the quantum energy density m^2 s^-1 of the medium in which the energy density field U lives and functions.

The subject of this article is to explain the quantum world via the square of Schrödinger equation 1 rather than the original Schrödinger equation 9 itself.

It is worth mentioning that the term S(x,y,z,t) in classical physics like the heat diffusion equation and Laplace and Poisson PDE is related to external or stimulated sources and Dirichlet boundary conditions while in quantum physics, this term is inherent or spontaneous (7,8,9) and is expressed as follows:

S(x, y, z , t)=Const. V(x, y, z, t) . . . ……..(2)

Equation 2 means that in the vacuum which is the seat of energy in quantum mechanics, potential energy can be converted into quantum matter and vice versa [7,8,9].

The Laplacian process or the Laplacian system itself can be described or defined in three different ways,

*1-It is defined by PDE 1.if and only if. [which means that the space-time process is called Laplacian if and only if it can be described by PDE 1].

*2-The spatio-temporal evolution of the Laplacian process is described by the recurrence relation,

U(x, y, z, t+dt) = B. U(x, y, z, t) . . ……... . . . (3)

if and only if.

Where I is the unitary matrix and B is the well-defined statistical transition matrix [7,8,9,10].

We can show that there exists a transfer matrix D(N) given by,

D(N)=B+B^2+B^3+ . . +B^N…….. . . (4)

Note that for N sufficiently large, we arrive at the steady-state time-independent solution given by,

D(N)= [1/(I-B)] – I. . . ……... (5)

And,

D(N)=E - I. . ……... . . (6)

Where E is the relayed transfer matrix expressed by the infinite series matrix of integers:

E=B^0+B+B^2+B^3+. . +B^N. . . ……. (7)

Note that,

B^0 = I

And

B^N tends to zero when N tends to sufficiently large values since the modulus of B is less than 1.

*3- the Laplacian process can also be defined as that having a spatio-temporal character,

U (x, y, z, t)= D(N). (b+S) + IC. B^N. . . ……... (8)

Equation 8 shows that there is some sort of inherent classical energy entanglement between free nodes and walls.

In other words, equation 8 displays or demonstrates not a relationship but a real entanglement between different solutions and the walls of the quantum system which come and go with the speed of light C as will be explained later in the theory.

In order not to worry too much about the details of the introductory rules and assumptions, let's move directly to the theory and its numerical results.

II. THEORY AND NUMERICAL RESULTS

In this Theory and Numerical Results section, we prove that ***unified field theory is not Schrödinger's wave equation but its square.***

We follow a question-and-answer approach that reveals and adjusts the top ten current useless and misleading claims of quantum mechanics in different areas of quantum physics and numerical statistics.

➢ *Q/A1*

Is there a so-called statistical proof or statistical refutation of a certain hypothesis? Does this also apply to quantum mechanics?

In other words, what do you mean by never-before-mentioned statistical evidence?

*It is worth mentioning that the Laplacian theorem and B-matrix statistical techniques are based on four universal statistical assumptions, each of which constitutes in itself a universal law or universal rule [1,2,3,7]. It is therefore logical to assume that Laplacian's theorem and statistical transition chains B for energy density U are universally true.

Needless to say, the Bohr relation and vacuum dynamics equation needed to complete the square of the Schrödinger equation in quantum mechanical events are also universal.

Therefore, the results of his numerical calculations for a given event in classical and quantum physics are also universally true.

In other words, we claim a so-called statistical proof which is the statistical solution derived from B-Transition-Matrix-Chains which has never existed before.

Theoretical statistical proof should not be confused with experimental statistical proof based on random sampling from a relevant statistical population space of equally probable elements.

It should be noted that the experimental statistical evidence by sampling remains an evidence regardless of the sample size, while the theoretical statistical proof remains a proof even for a small number of free nodes n.

We emphasize again that theoretical statistical proofs or inferences that have never been known before are now available via the Laplacian theorem and B-Matrix techniques.

It follows that the number of proof approaches now increases from 2 to 3 to take into account the newly added statistical proof.

Probably the most important application of statistical proof or refutation concerns the formation and explosion of the Big Bang millions of years ago.

This Big Bang physics/philosophy claim is not supported by the current state of science and is not supportable based on citations, and the only evidence here is B-matrix string statistics.

➢ *Q/A2*

Does entanglement exist in modern physics in the same way as in quantum physics?

*Nature has a face to show and a way of speaking to itself.

By modern physics here we mean classical universal physics plus the Laplacian or square theorem of Schrödinger's equation (equations 1,2,3).

There is ample evidence that entanglement exists in modern physics in the same way as in quantum physics and even more so [1,2,3,7].

The classic Schrödinger equation,

i h dΨ/dt)partial=-h2/2m . Nabla^2 Ψ+ V Ψ . . …….. (9)

OR,

H^Ψ = EΨ. …….. . . . (10)

reduced form, must be conveniently replaced by its square Ψ^2 [11,12,13] to conform to the Laplacian PDE, and the Laplacian theorem which is logical and makes sense.

Note that the square of the Schrödinger wave equation is given by,

ψ^2=ψψ*.

We therefore obtain,

dU/dt)partial=D.Nabla^2 U +S(x, y ,z ,t) . . ……... . (11)

where U=ψ^2=ψψ*.

It should be noted that the square of the classic Schrödinger PDE, which is equation 11, is not complete in itself and must be completed by the expression of the source term S via the rules of vacuum dynamics, namely:
S(x, y, z, t) =Constant * V(x, y, z, t) . . ……. (12)

Then the solution of PDE 12 proceeds in a simple way, analogous to the Laplacian heat diffusion equation, to obtain ψ^2. Finally Ψ itself can be found by calculating the square root of ψ^2[17,18,19,20].It is worth mentioning that the square of the classical Schrödinger PDE retains quantum properties such as entanglement, as clarified in the following situation. Consider the cooling curve of an infinitely long metal rod where the thermal energy T is presented as E(x) = ψ2(x).

The numerical results of this process is illustrated in Figures 1.a, 1.b below.

Figures 1.a, 1.b show ψ^2(x) and its square root ψ(x) for the energy density diffusion equation U in seven free nodes. 1D infinite free space, maximum probability.

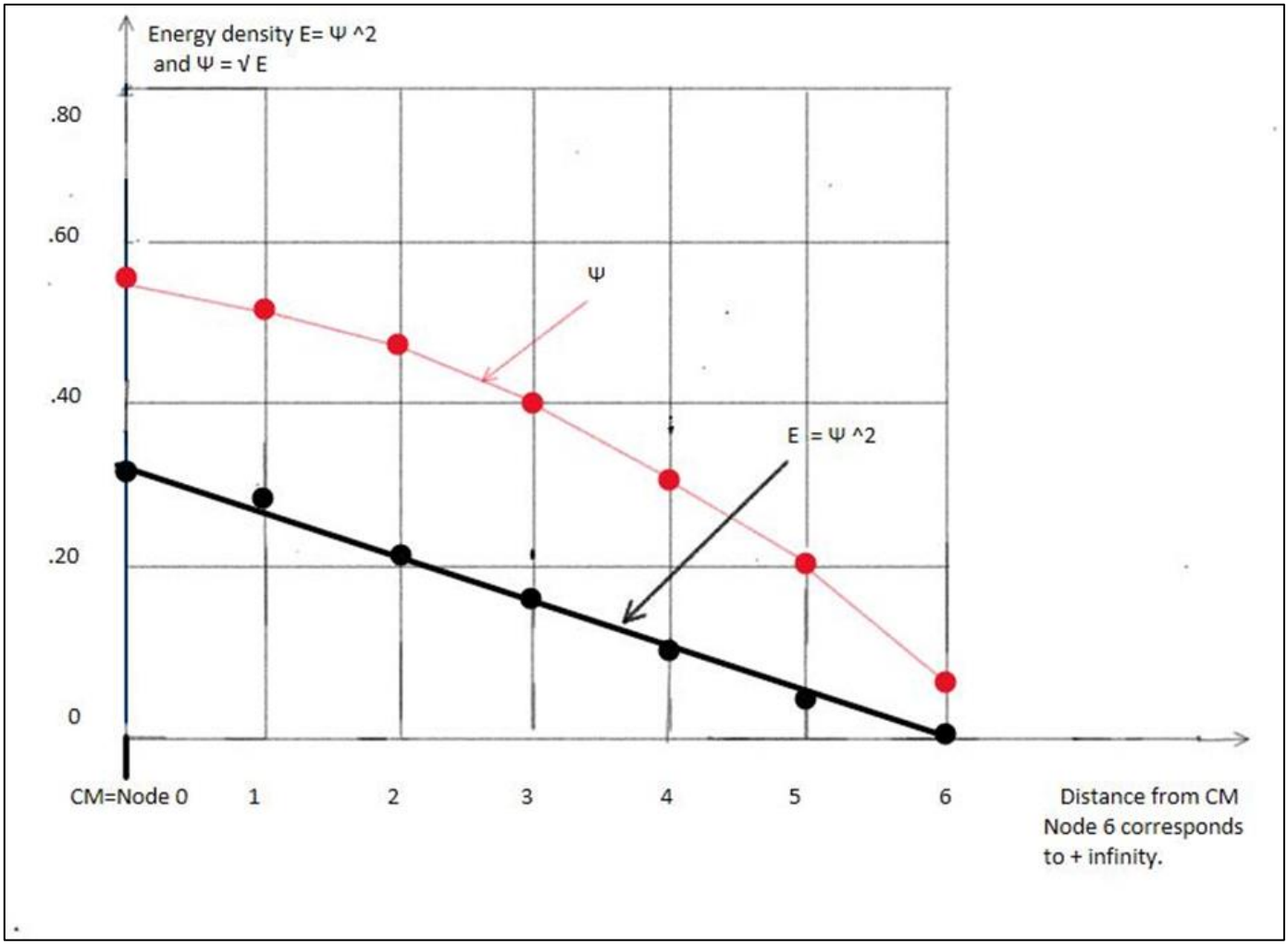

Fig 1(a): ψ^2(x) and its Square Root ψ(x).

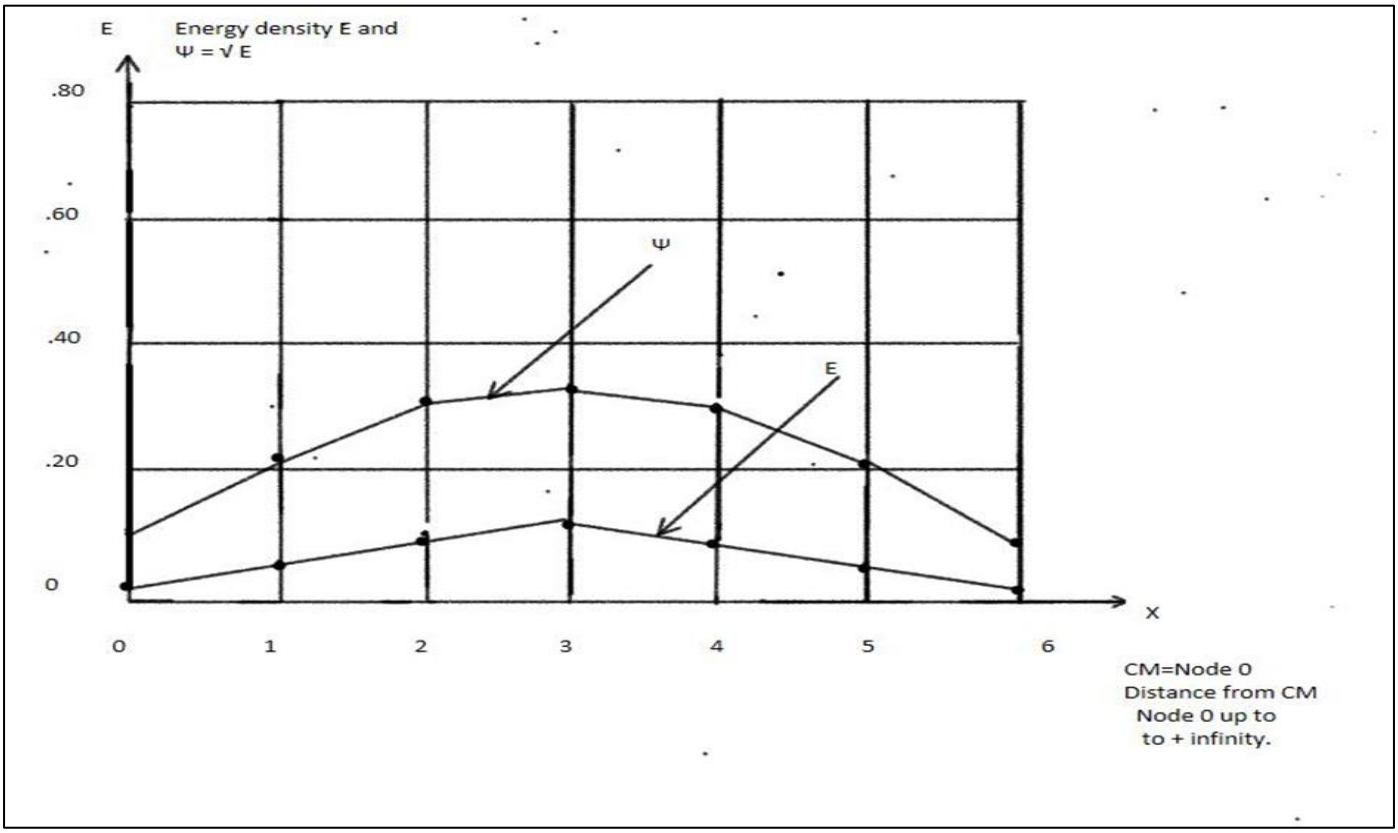

Fig 1(b): ψ^2(x) and its Square Root ψ(x).

This means that the classical Schrödinger square PDE that belongs to modern physics retains quantum properties such as entanglement.

Here, the state solution vector U is entangled with the wall boundary conditions vector b.

➢ *Q/A3*

What is the difference between mathematical R^4 space and physical 4D unit space?

* Note that the R^4 space (3D geometry plus time as external controller) is the space of the classical Schrödinger PDE describing ψ while the 4D unit space is the space of its square ψ^2.

We assume that the difference is huge and that it is not possible to compare the two spaces.

The mathematical space R^4 considers real time t as an external controller and the 3D geometric space x,y,z itself is independent and stationary.

On the other hand, the unit space 4 D x-t time t is woven into the 3D geometric space in the form of a dimensionless integer N.

The most important thing is that the time t is replaced by Ndt where dt is the time transition jump and N is the number of iterations or repetitions of the process.

Here, Mother Nature is modeled or simulated in her own language.

➢ *Q/A4*

Is unified field theory Schrödinger's wave equation or its square?

*We assume that the Schrödinger wave equation,

is incomplete and cannot be considered a unified field theory [13].

on the other hand, its square,

d/dt)partial U= D Nabla^2 U+ S. . …… (13)

Where U=Ψ^2=Ψ . Ψ*

and S is the source/sink term (extrinsic or intrinsic).

is more complete and more eligible to be a unified field theory.

Over the past four years, Equation 13 has been successfully applied to solve almost all classical physics situations such as Poisson and Laplace PDE, heat diffusion equation, and quantum physics problems such as quantum particles in a well of infinite potential or in a central field.

Additionally, Equation 13 has also been shown to be effective in solving pure mathematical problems such as numerical differentiation and integration as well as the sum of infinite integer series.

Finally, equations 13 and 14 below have also been applied to shed light on the mystery of the formation and explosion of the Big Bang.

Note that Ψ^2 is able to express classical and quantum energy density.

Therefore, we argue that the classical Schrödinger PDE should be replaced by the modern Schrödinger equation 13 which has the form of the famous energy density diffusion (Laplacian) PDE:

dU/dt)partial = D. Nabla^2 U+ Const. V(x, y, z, t)…. . . (14)

What is the required reformulation or correction of the Schrödinger partial differential equation.

Where U = Ψ^2 is the quantum energy density and S is the quantum energy density source/sink term.

The support of quantum mechanics is infinite free space imposing vacuum dynamics on the source term S(U), as expressed by equation3[5,6,7].

S(U(x, y, z ,t))=Cons. V(x ,y ,z ,t) . …….. . (15)

Once again, the potential energy V has two intrinsic or spontaneous components V1 and an extrinsic or stimulated component V2.

Obviously V=V1+V2, therefore,

S(U(x ,y, z ,t))= Cons 1. V1(x ,y ,z ,t) + Cons 2. V2(x ,y ,z ,t) …….. (15*)

In equation 15*, we assumed that the voltage applied to the quantum particle in free space is composed of two components V1 and V2.

The two components of S are linearly proportional to the inherent spontaneous voltage V1 and the applied external potential voltage V2.

Equations 14, 15 show that the energy density in the modified Schrödinger PDE in empty space is very unstable where the potential energy density can be instantly transformed into the quantum particle density and vice versa.

We emphasize again that the total potential energy density V is composed of two components V1 and V2.

V1 is the spontaneous or self-applied voltage and V2 is the external applied voltage. Both V1 and V2 are subject to the transformation relation 15[13]

- *Q/A5*

Can we find a statistical numerical solution for the original time-independent Schrödinger equation by solving its Laplacian square PDE 1?

*****The answer is yes and the details of this topic are explained in detail in ref 14,15 and so there is no point in repeating it.

- *Q/A6*

Can we find a statistical numerical solution for the original time-dependent Schrödinger equation?

*****The answer is yes and the details of this topic are explained in detail in ref 16 and so there is no point in repeating it.

- *Q/A7*

Does Planck's law of black body radiation belong to quantum or classical physics?

**** It is quite striking that Planck's revolutionary hypothesis of energy quantification E=nhf, n=1,2,3,..infinity which led to the famous Planck's law, on the stationary distribution of harmonic quantum oscillators for black body radiation, can be completely neglected.***

It was a “battle for the world” at the time.

This particular unanswered question where classical mechanics and quantum mechanics meet and interact in an equation is still of great importance and helps in understanding both subjects.

Consider Max Planck's formula, which replaced the complete failure of those of Wien and Rayleigh Jeans. , for the black body thermal radiation density u (f, T):

du(f,T) = {(2hf^3/c^2). 1 / (e ^(hf /kB.T) -1)} df. . . . . (16)

with h = Planck, s constant and f = radiation frequency, kB = classical statistical constant of Boltzmann and T = classical thermodynamic temperature.

A first look at the exponent hf/kB.T shows that [17] the numerator hf is pure quantum mechanics QM while the de-numerator is purely classical physics without forgetting that a quantum temperature is not yet defined in a unique way.

And now, should we call Equation 16 Classical, Quantum, or Half and Half?

In modern physics, the container of the blackbody harmonic oscillator can be thought of as a control volume where Laplacian's theorem applies,

Laplacian theorem in mathematical language [1,2,3],

∫∫∫closed volume ∇^2 U(x ,y ,z ,t) dV = ∫∫closed surface U(x ,y, z, t).C dA

Therefore implies:

The number of harmonic oscillators of wavelength λ and frequency f=C/λ is equal to (L/λ)^3.

In other words, the density number of harmonic oscillators of frequency f is given by a constant * f^3/c^2.

Which is the proof of the first part of the so-called Planck's law.

In order to proceed with the derivation of the second part of Planck's formula for black body radiation, we propose the following:

The spectral density of the electromagnetic energy U(λ,T) radiated per unit volume by a cavity of a black body BB in the wavelength interval λ and (λ + dλ) can be written in terms of Planck constant (h), speed of light (c), Boltzmann constant (k) and absolute temperature (T):

I(λ,T)= 2 h c^2/λ^5 *{ 1/[exp hc/ λ.K.T)]-1} . . . . …….. . (17)

Where λ is the wavelength of the emitted radiation.

Max Planck derived equation (1) via his postulate of quantizing the energy of the quantum atomic oscillator:

E(Osc.)=n. h. f, that is to say,

E(Osc.)= hf, 2hf, 3hf, . . infinity. . …….. . (18)

in the form of non-continuous but discrete or quantized energy values.

Planck's hypothesis led to a revolutionary correction of the classic Rayleigh Jeans formula and Wiens' law for BB radiation.

However, it is rarely mentioned that the author, among other physicists, intuitively ignored Planck's postulate on energy quantization and proposed a brilliant alternative to derive Planck's formula of black body radiation [17].

➢ *we Propose the Following:*

Planck's law for the spectral electromagnetic energy U(λ,T) radiated per unit volume by a cavity of a black body BB in the wavelength interval λ and (λ + dλ) can be written as terms of Planck's constant (h), speed of light (c), Boltzmann's constant (k) and absolute temperature (T):

I(λ,T)= 2 h c^2/Lambda^5 *{ 1/[exp hc/ λ.K.T)]-1} . .. . . (19)

Where λ is the wavelength of the emitted radiation.

Max Planck derived equation (19) via his postulate of quantizing the energy of the quantum atomic oscillator:

E(osc)= hf, 2hf, 3hf, . . infinity. …… . . (20)

in the form of non-continuous but discrete or quantized energy values.

Equation 20 proposed by Max Planck is by nature a statistical hypothesis and the calculation of Planck's radiation law could be carried out by replacing his proposal with other suitable statistical approaches.

Albert Einstein discovered the laser theory of atomic spectral lines in 1916, which presents the appropriate statistical approach required [17].

Consider two quantized electron levels 1, 2 subject to spontaneous emission and absorption (well known before Einstein) and stimulated emission of SER radiation (discovered by Einstein).

Another thought experiment was added to his two remarkable thought experiments on the theories of general and special relativity.

He considered a cavity with two-level atomic systems N2 and N1 filled with a radiation energy density of frequency f where u(f) is in thermodynamic equilibrium with the occupation of the energy levels.

The absorption rate of the upper level N2 must be equal to its emission rate (Continuity of the number of particles in steady state).

The rate equation for the Einstein laser is:

U(f) dN1 / dt] absorption = dN2 / dt] spontaneous emission + B21 u (f) N2,

SO,

U(f) . B21 N1 = A12 N2 + U(f) B12 N2

B21 is the Einstein coefficient of stimulated emission of radiation where it is logical to assume B21=B12.

The above equation reduces to,

U(f)= A12 / { B21 N1/N2 - B12 .1}

Or,

U(f)= A12/B12 / {N1/N2 - 1}

By replacing N1/N2 = Exp -(E2-E1)/h

which is the so called Bohr relation, we obtain,

U(f)= A12/B12 / { Exp -(E2-E1)/h - 1} . …… . . . (21)

Eq. 21 is called the laser equation.

Equation 21 leads to Planck's radiation law in one simple step as follows:

Now, one should be excited when you observe that Planck's law of quantization of black body radiation 19 can be obtained from equation 21 by the simple substitution,

A21=8 π h f ^3 B21/ c^3.. . . ……..... . (22)

Equation (22) is the formula for the number of standing waves in a 3D blackbody box derived by Max Planck and later by A. Einstein.

#The question arises:

Does the fact that the exact value of Planck's constant h = 6.626 E-34 J s is a universal constant describing the quantum universe deserve further study?

➢ *Q/A 8*

Can the B-matrix statistical theory explain the formation and explosion of the Big Bang?

*We emphasize again that theoretical statistical proofs or inferences that have never been known before are now available via the Laplacian theorem and B-Matrix techniques.

One of the most brilliant and common-sense examples is the Big Bang explosion millions of years ago.

This assertion of Big Bang philosophy as fact is not supported by any citations and is not justifiable based on the current state of science.

but only what is called statistical proof or statistical refutation of a certain hypothesis (Q/A 1).

B-matrix statistical string theory can explain numerically the formation and explosion of the Big Bang, as shown in Figures 2a, 2b [18].

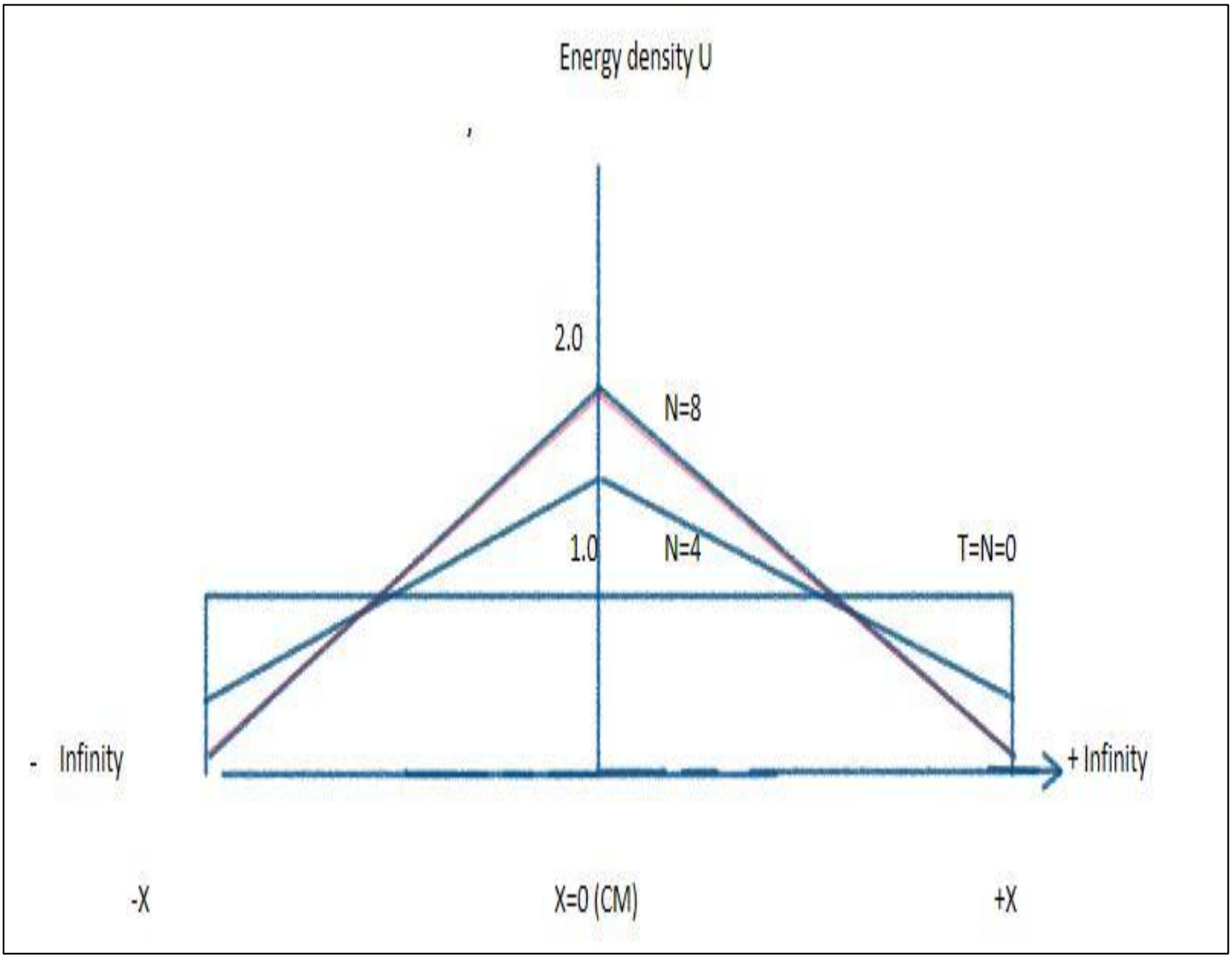

Fig 2(a): Formation and Explosion of the Big Bang at the Center of Mass Point C.M.- Early Stages

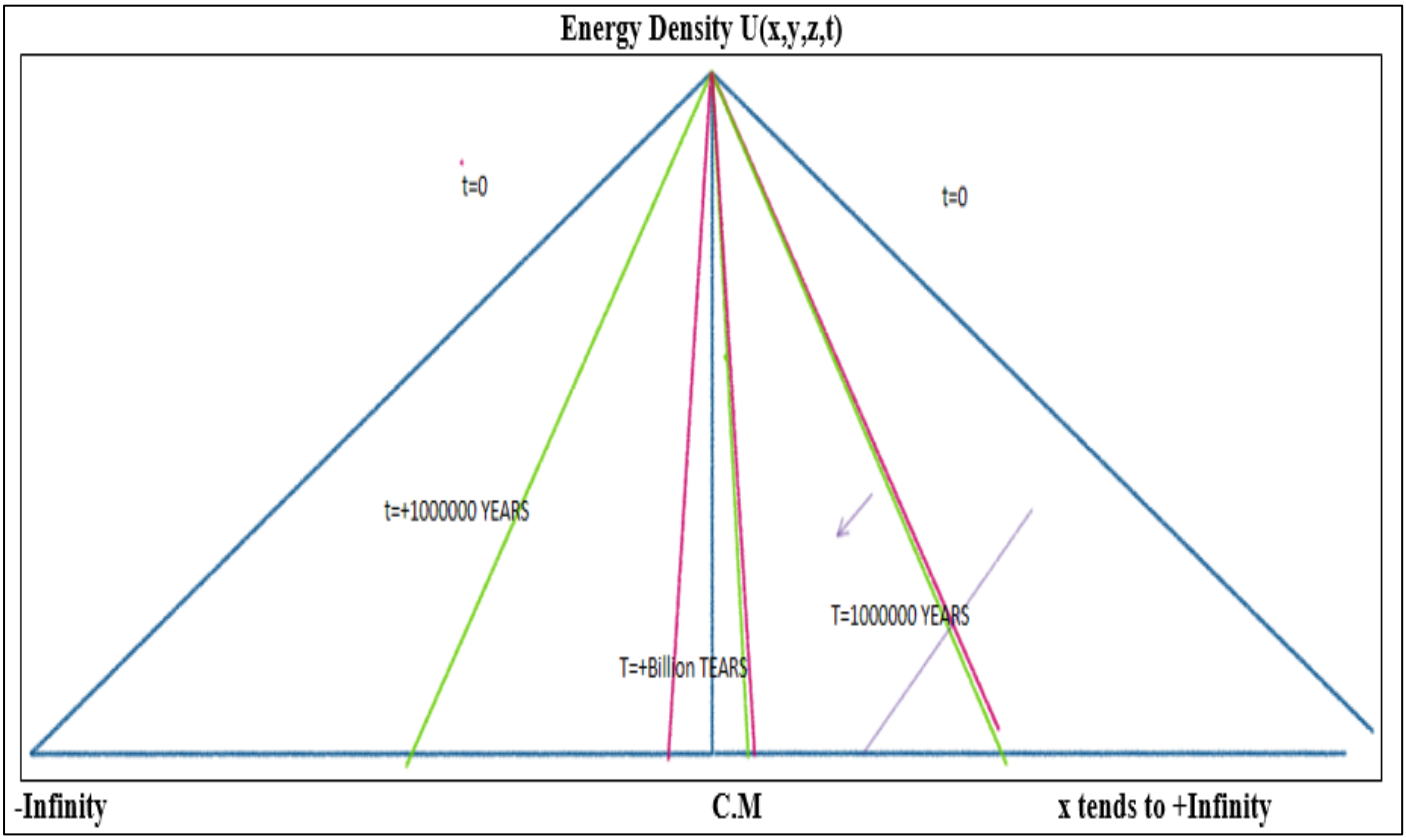

Fig 2(b): Formation and Explosion of the Big Bang at the Center of Mass Point C.M. Creation Developed

Once again the Laplacian theorem and the Cairo techniques can correct for many of the present idle quantum mechanics and can generates an infinite number of integer series formulas.

The details of this topic are explained in detail in ref 15 and so there is no point in repeating it.

Is it true that quantum tunneling can be explained via classical physics?

- *Q/A 9*

Is it true that quantum tunneling can be explained via classical physics?

- *Q/A 10*

Is it true that quantum reflection and transmission via a potential barrier can be explained via classical physics?

*The short answer to both questions 9 and 10 is yes.

Both questions 9 and 10 are interconnected and can be answered as follows:

Tunneling and quantum reflection and transmission via a potential barrier are not just a quantum mechanical phenomenon but rather a statistical phenomenon that precisely obeys modern statistical techniques.

Statistics from modern physics techniques (classical physics plus transition probability) show that quantum tunneling exists and that its description formula by the classical Schrödinger PDE is also correct.

The difference is that the description of classical physics techniques is understandable, while Schrödinger's classical PDE is not.

This is indeed the case.

It is quite striking that Schrödinger's revolutionary PDE, which led to the quantitative explanation of the phenomena of reflection and transmission (sometimes called tunneling) can be completely ignored and replaced with B-matrix string statistics.

However, it is rarely mentioned that the author, among other physicists, intuitively ignored Schrödinger's PDE on energy quantization and proposed a brilliant alternative to derive a reflection and transmission formula on the coefficients of a quantum energy barrier (R, T), as shown in Figure 3.

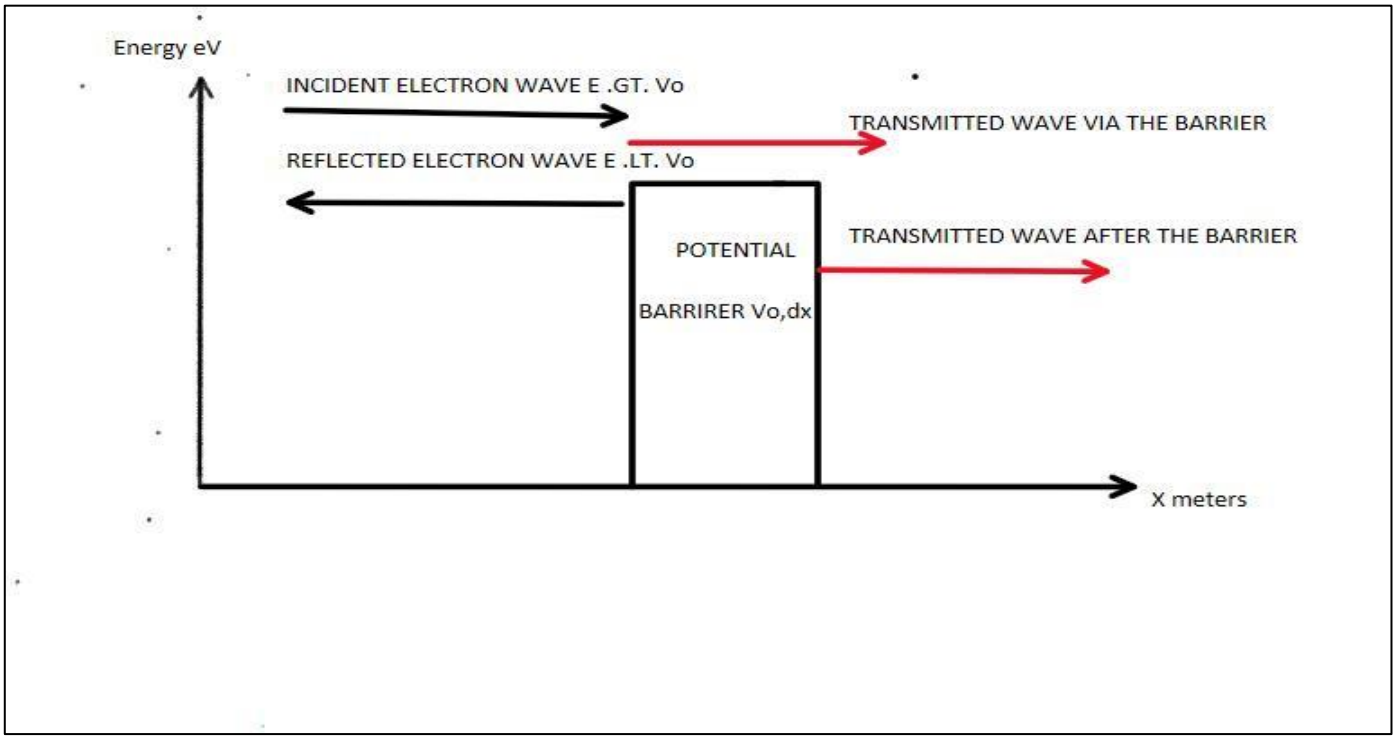

Fig 3: Reflection and Transmission over a Quantum Energy Barrier

➢ *We Propose the Following Stationary Solution:*

- *Zone I:*

✓ U(x) = E eV - R E eV

- *Zone II:*

✓ U(x) = E Exp (-a x)eV

from x=0 to x=dx

Note that the exponential decay in zone II comes from the fact that this is the case for this initial value problem imposed by the statistics of matrix B.

- *Zone III:*

✓ U(x) = E Exp (-a dx)eV

from x=dx to x=infinity

If we apply the continuity equation on Ψ^2 to the limit between zones I, II then again we apply the continuity equation to the limit between zones II, III then finally the Bohr formula E=Nhf we arrive to the same formula for the reflection coefficient (R) and transmission coefficient (T) as those obtained from the classical Schrödinger equation.

NB: at the two boundaries I-II and II-III correspond respectively y=0 and y=dx.

III. CONCLUSION

The numerical theory of Cairo techniques and the Laplacian theorem constitute an advanced and exhaustive form of the energy continuity equation and thus can create new physics and mathematics.

In this article, we have successfully dealt with various illustrative quantum situations via Laplacian theorem and statistical theory of Cairo techniques while quantum mechanics (Schrödinger equation and its derivatives) remains immobile or useless.

In fact, B-matrix statistical chain theory and the Cairo technique, combined with the Bohr relation, constitute the required unified field theory.

- *NB. The Author uses his own double precision algorithm like that of ref 19,20,21.*
- *No Python or MATLAB algorithms are needed.*

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