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How to generate new mathematics? Part II.

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Abstract

In a previous article entitled "How to Generate New Mathematics" [1,2,3], We have demonstrated that the statistical numerical theory known as Cairo Techniques is capable of answering and solving almost all partial differential equations in classical and quantum physics, as well as in pure mathematics, probability, and statistics, such as:

1- Is the Schrödinger equation of 1927 adequate to describe the wave function of quantum mechanics or its square?

2- Is it true that Einstein's theory of special and general relativity are incomplete and misleading?

3- How to generate new mathematics?

4- What are the foundations of the theory and practice of artificial intelligence?

5- What is the theory and practice of audio rooms?

6- What is the theory of everything?

7-Why is information theory, which underlies the six previous topics, still in its infancy?

…etc.

In this article, we delve deeper into the generation and genesis of new mathematics, focusing on the following bold, urgent, and pressing questions:

1-Can we find link between Einstein's general relativity in 1915 and Schrödinger's quantum mechanics in 1927?

Furthermore, can it be proven that these two theories are in fact one and the same?

2-What is the truth of the Planck length Lp = $(\hbar G/c^3)^{1/2}$?

3. Does negative diffusion exist?

4. Is the heating curve of a given metallic mass identical regardless of its geometric shape?

5- Is it impossible for a nuclear power plant reactor to turn into a nuclear bomb?

6- Is time discrete and not continuous? What are the secrets of Cairo techniques?

7. What is the most disastrous theory in history? Is it still in use?

8-Did Einstein resort to dubious occult practices to develop his theory of relativity?

9- What is the truth about artificial intelligence?

Thanks to the Cairo technique and the resulting B matrix chains,

we arrive without hesitation at the exact answer to these nine questions: yes.

Finally, we explain:

What exactly are the secrets of spacetime discretization and those of the Cairo techniques, and what happens when both are mastered?

In reality, the answer to the nine questions above is not complicated, but as simple as you might imagine, and that is the subject of this article.

Finally, it should be clarified that this article is not intended to minimize the major contributions of great physicists such as Einstein, Schrödinger, Heisenberg, Minkowski, Hilbert, and Rieman, among others, but rather to address the main limitations of their theories, where applicable.

In reality, the answer to the nine questions above is not complicated, but as simple as you might imagine, and that is the subject of this article.

Note: If you are not familiar with the universal laws of physics, please stop reading.

This article is not for you.

I.Introduction

What is our disastrous legacy from the last century?

We believe that almost all of our scientific legacy from the last century is a disaster.

The most disastrous aspect is that this disastrous scientific legacy is the work of our idols, the greatest scientists of their time.

Believe it, when we read physics or mathematics today, we understand nothing, starting with the definitions.

But who complicated and ruined everything?

The names are shocking, but I dare mention the top five:1- A. Einstein

2- Nils Bohr

3- E. Schrödinger

4- Heisenberg

5- Max Planck

Believe it again, they never provided a single complete and not misleading definition. If they had, our lives would be flourishing today.

We assume that the main reason lies in the flawed Riemann spacetime defined by:

$$X^2 + Y^2 + Z^2 - C^2t^2 = 0 \ldots\ldots (1)$$

It is obvious that the correct equation must be corrected as follows:

$$X^2 + Y^2 + Z^2 + C^2t^2 = \text{Pythagoras}^2 = \text{Constant} \ldots\ldots (2)$$

Equation 2 is the Pythagorean theorem generalized to the four-dimensional unit space xyzt.

It is also clear that:

$X^2 + Y^2 + Z^2 - C^2t^2 = 0$ . . . . . (1)

constitutes a diabolical trap.

Equation 1 contradicts the fundamental Pythagorean theorem, but unfortunately, since Einstein fell into this satanic trap of spacetime in his special relativity and general relativity, it has become the norm.

Now, to complement the analysis mentioned in the introduction and the theory of this article, we must address and analyze the following topics:

1-Can we find link between Einstein's general relativity in 1915 and Schrödinger's quantum mechanics in 1927?

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In reality**, the 7 unsolved problems of the previoue rticle and the 9 unsolved problems of the present rticle show cleaely that the field of mathematics is more dynamic than ever**.

Recently, many innovative tools, rules, and theorems have been explored, and new structures and discoveries have been made, particularly in algebraic notation, systems theory, physics, mathematics, and some of the most beautiful expressions in mathematical physics, thanks to the use of the proposed four-dimensional discrete spatial unit xyzt [7,8,9].

Thus, the hypothesis that "original mathematical research has already been abandoned" is indeed true, but not for the reasons invoked by mathematicians. Regarding the "methods" proposed for "generating new mathematics," the suggested option evokes a new approach based on a discrete four-dimensional space or on topology to describe classical and quantum mechanical systems, and not an approach based on the space of classical general relativity of Einstein (1915) or on the Schrödinger equation (1927).

Tis is in fact the job of the method of Cairo techniques which is not entirely new and has proven capable of solving almost all partial differential equations in classical and quantum physics, as well as in pure mathematics, probability, and statistics, mentioned before.

II.Theory

We assume that nature is intrinsically statistical and that a statistical system is necessarily bounded.

In classical physics, the heating or cooling of a material object is limited by Dirichlet boundary conditions.

Quantum systems are also limited by appropriate boundary conditions.

Positive and negative diffusion are likewise limited.

This is most likely the reason for the failure of the Schrödinger paradox of the cat in a transparent box.

This is why the statistical theory of Cairo techniques or any other adequate statistical theory must begin with the appropriate choice of an adequate control volume (limit of the physical situation considered) in 1D, 2D or 3D and discretize it into n equidistant free nodes.

It is worth mentioning that the unit space x-t of the Cairo statistical theory of technique is Lorentzian in the sense that:

$$X \cdot t = x^* \cdot t^* \quad \ldots (10)$$

In one dimension,

And,

$$X\,Y\,Z\,T = X^*Y^*Z^*t^* \quad \ldots . (11)$$

In the generalized 3D Lorentz transformation.

It is striking to note that equation 10, which represents the conservation of space x-t under the effect of motion, leads to Einstein's special relativity in a single sentence.

Even more striking, equation 11, which represents the conservation of space xyzt under the effect of motion, expresses Einstein's general relativity in a single sentence.

Step 1

Find the appropriate control volume for the physical or mathematical problem under consideration, along with its actual Dirichlet boundary conditions, and discretize it into n equidistant free nodes.

Note that the number of equally free nodes n is arbitrary, but as n increases, the accuracy also increases.

Step 2

Step 2 is just as important and crucial as step 1, if not more so.

Calculate the transition matrix Bnxn, which is well and unique [999].

The main difficulty in step 2 lies in the prior choice of input elements for the main diagonal of the transition matrix B, symbolized by RO.

Note that:

RO = 1 - U(residual) / U(initial)

After incremental time dt.

Where U(i,i) is the energy density at free node i.

It is clear that U belongs to the interval [0,1].

The physical meaning of RO is the ratio of the residual energy to the initial energy density after a time interval dt.

In general, RO = 0 for the scattering of electromagnetic waves in a closed enclosure, as well as for mathematical integration and differentiation:

For heating or cooling low-carbon Russian steel, RO = 0.22

For heating or cooling low-impurity Egyptian aluminum, RO = 0.26

Etc.

Step 3

Step 3 simply involves calculating the transfer matrices D(N) and E(N) defined by the following expressions:

$$\mathbf{D(N) = B + B^2 + B^3 + \ldots + B^n \quad (12)}$$

And:

$$\mathbf{E(N) = B^o + B + B^2 + B^3 + \ldots + B^n \quad (13)}$$

Note that equations 12 and 13 imply that:

$$\mathbf{E(N) = I + B(N) \text{ for any number of iterations N, since } B^o = I}$$

where I is the identity matrix.

Also note that:

$$\mathbf{E(N) = I/(I - 1/B) \text{ for a sufficiently large time or number of iterations.}}$$

The element N represents the number of iterations or steps Ndt and should not be confused with n, the number of free nodes.

Now,

The question arises: if the statistical theory of Cairo Techniques is so effective at solving almost all problems in classical and quantum physics, as well as in pure mathematics, probability, and statistics, why hasn't it been widely accepted by the scientific community for over five years?

The answer is simple.

The scientific community is controlled and led by indoctrinated science deniers who know that the statistical theory of Cairo Techniques will eventually prevail, but this means they will be venturing into uncharted territory.

It is worth noting that the false Riemann spacetime expressed as,

X^2+y^2+z^2-C^2t^2 =0 . . . . . (1)

Is a satanic trap but since unfortunately Eistein used it in SR in 1905 and in GR in 1915, it became the norm.

Equation 1 is antiphythagoeean and its correct expresiion is,

X^2+y^2+z^2+C^2t^2 =hypoteneuse^2=Constant . . . . . (2)

To avoid dwelling too much on the details of the theory, let us move directly to section III of the applications and numerical results.

III. Applications and numerical results

In this section, we explain in more detail the theory and applications of each element mentioned in the introduction, through a series of questions and answers covering a wide range of areas in physics and mathematics.

Discrete timespace theory

IV-Conclusion

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known as Cairo Techniques is capable of answering and solving almost all partial differential equations in classical and quantum physics, as well as in pure mathematics, probability, and statistics, such as:

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1-Is the Schrödinger equation of 1927 adequate to describe the wave function of quantum mechanics or its square?

2- Is it true that Einstein's theory of special and general relativity are incomplete and misleading?

As shown in previous article(How to generate new mathematics?)

Note: If you are not familiar with the universal laws of physics, please stop reading.

introduced the numerical statistical theory called Cairo techniques with its resulting transition B-matrix chains.

Note that nowadays we know only two transition matrices, the well known Markov mathematical transition matrix and the proposed B-transition matrix resulting from the statistical theory of Cairo techniques.

The superiority of the transition matrix B over the Markov transition matrix M is evident since the matrix B leaves room for the boundary condition vector b and the source term vector S while the Markov matrix does not.

Also note that the Heisenberg matrix is neither transitional nor statistical.

The essential prerequisites for studying the B-transition matrix technique and the Cairo techniques as a whole are:

1- **mastery of matrix operations and calculations.**
2- **mastery of algorithms and programming languages such as C++ and Fortran.**
3- **A perfect knowledge and understanding of the universal laws of physics[4,5,6].**

This suggests that the graviton should theoretically exist, but in cosmic space, not on Earth.

NB. The author uses his own double precision algorithm, such as that of references 27,28,29,30.

No ready-to-use Python or MATLAB algorithms are needed.

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