Global Scientific JOURNALS

GSJ: Volume 14, Issue 3, March 2026, Online: ISSN 2320-9186
www.globalscientificjournal.com

Can we think outside the box ****

Ismail Abbas, Sherif Ismail, Nora Abbas

Abstract

In previous articles entitled "How to Generate New Mathematics - Parts 1, 2, 3 and 4" and "How to Merge Quantum Mechanics and General Relativity - Parts 1 and 2", we introduced and defined the new concept of physical control volume proposed by the author in 2020. We demonstrated that quantum mechanics and general relativity can be precisely defined, described and merged within this volume, sometimes called the Abbas control volume.

The question arises:

Does Maxwell's electromagnetic theory need to be reformulated to fit into, or be compatible with, Einstein's general relativity?

This question was Albert Einstein's last thought, but his limited skills in physics and mathematics prevented him from bringing it to fruition.

Einstein's idea is generally considered that of an absolute genius, but how could it have been implemented? In this article, we study Maxwell's four equations of the electromagnetic field and examine the possibility of reformulating them to align with quantum mechanics and general relativity.

In reality, these three theories obey one and the same fundamental equation:

Energy density stress tensor × Spacetime curvature tensor = I . . . . (1)

It is clear that the combination of these three theories within the framework of this same universal equation (1) constitutes the ultimate theory, or the theory of everything.

In other words, how to unify Abbas's quantum mechanics, Abbas's general relativity, and Maxwell's theory of electromagnetic fields?

We assume that the theoretical framework of the statistical chain theory of B matrices can provide a rigorous answer to all these questions and, moreover, establish new rules and new theorems.

Furthermore, in this article, which extends our previous work, we use the same control volume (or inbox theory) to further our earlier statistical analysis by addressing five urgent unanswered questions:

1- Is it possible to think outside the box?

2- Does Maxwell's electromagnetic theory need to be reformulated to be compatible with Einstein's general relativity?

3- Is it true that the special relativity is the flat space limit of general relativity?

4- Is it true that Special Relativity is just a special case of General relativity?

5- Nature, is it reversible or irreversible?

This is the subject of this article.

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

Note: If you are not familiar with the universal laws of physics, please stop reading. This article is not intended for you.

1.Introduction

By "inside the box", we mean inside the closed physical control volume, sometimes called the Abbas control volume or Abbas box, introduced by the author in 2020.

Similarly, the phrase "outside the box" means outside the closed physical control volume, which is the spatial complement of the Abbas control volume or Abbas box and consists of the entire space.

Figure 1 below shows a schematic diagram of the size of the Abbas control element, or Abbas control box, in a two-dimensional geometric space enclosed by 9 Dirichlet boundary conditions when divided into 9 equal-dimensional free nodes.

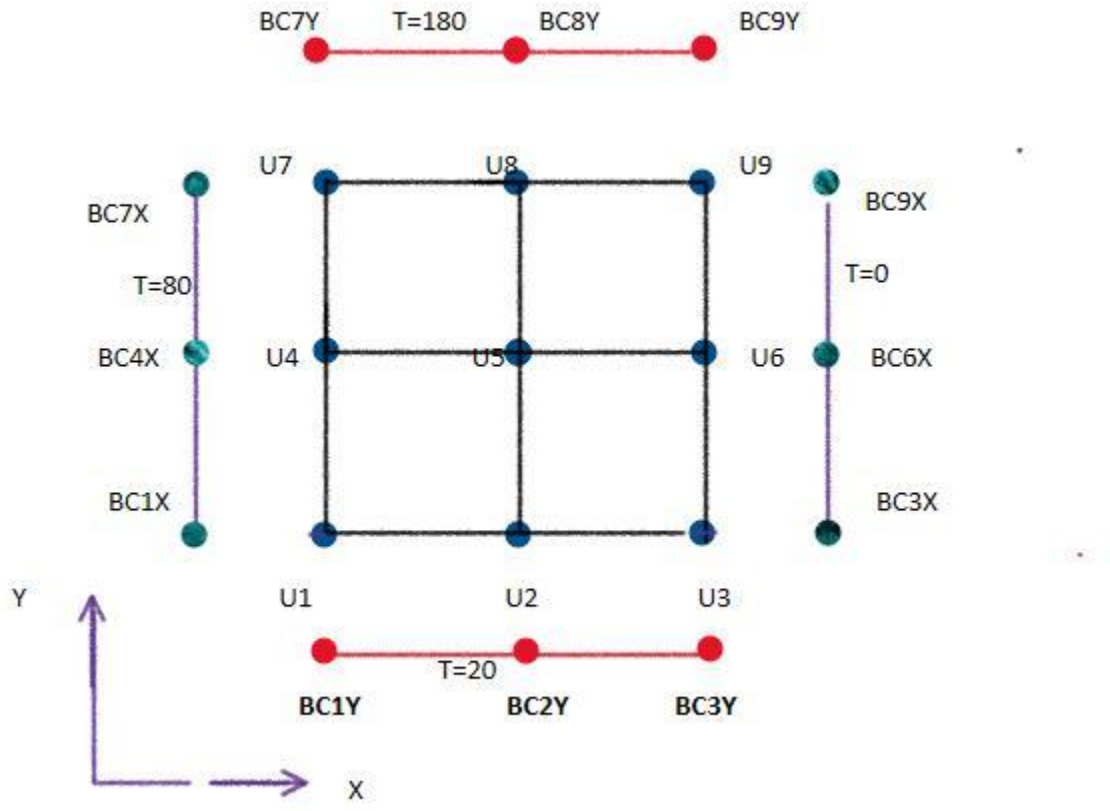

Figure 1 is a diagram of the size of the Abbas control element, or Abbas control box, in a two-dimensional geometric space bounded by 9 Dirichlet boundary conditions and divided into 9 free nodes of equal dimension.

Similarly, Figure 2 below shows a schematic diagram of the volume of the Abbas control, or Abbas box, in three-dimensional geometric space when divided into 27 equal-dimensional free nodes [1,2,3,4,5,6,7].

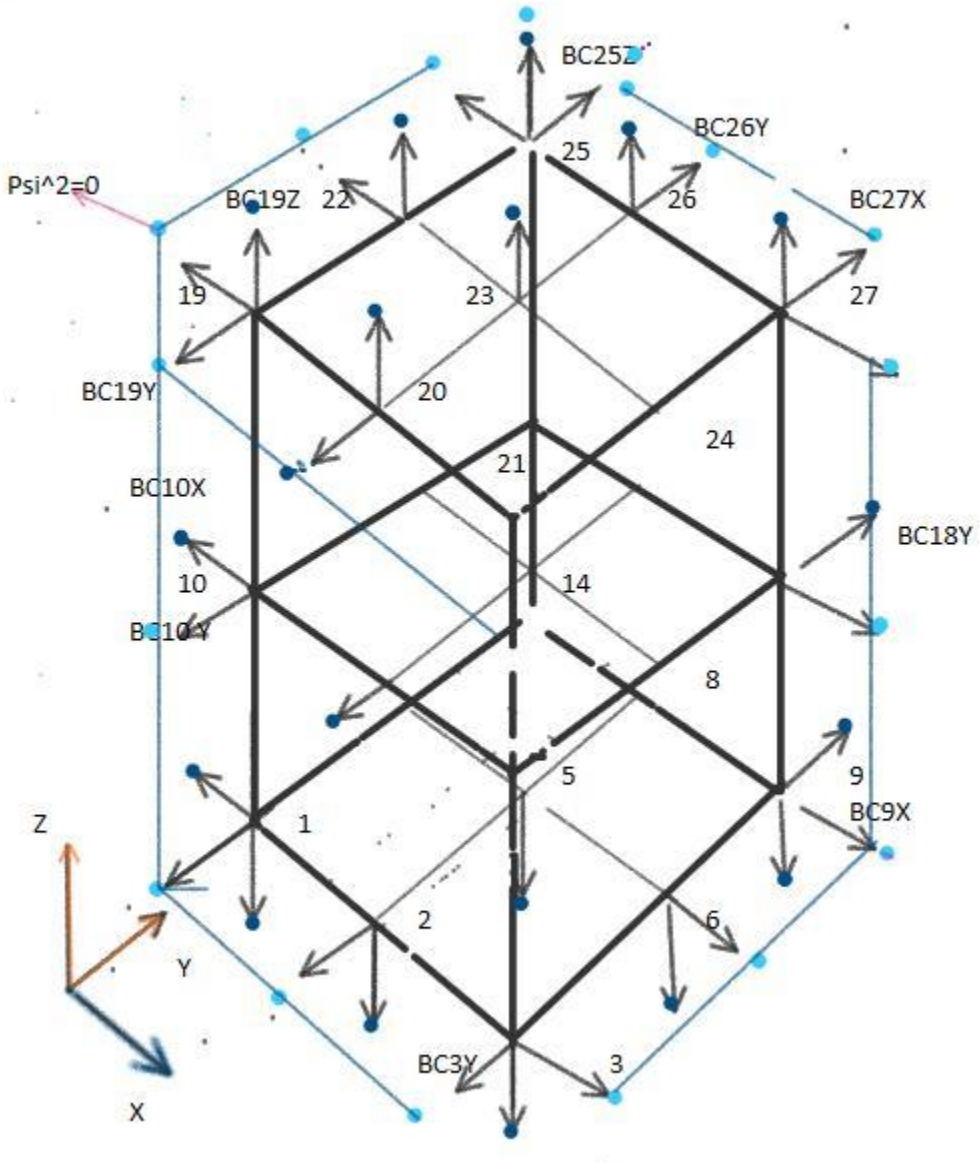

Figure 2. A schematic of the volume of Abbas' control volume, or Abbas box, in three-dimensional geometric space when divided into 27 equidistant free nodes.

Now, we assume that it is impossible to think or define rules and theorems outside of this box.

Any attempt to define or explain a physical situation in the opposite direction will be incomplete, misleading, and doomed to failure [2,3,4,5,6,7]

This assertion is justified by the fact that nature only acts in accordance with the universal laws of physics within this control volume (as demonstrated by the considerable successes achieved in classical and quantum physics, as well as in pure mathematics and statistics since 2020), because:

1- The total probability of the entire spacetime within the control volume is equal to 1 [12,14].

2- Outside the spacetime of this control volume, time is not intrinsically discrete and irreversible.

Note: outside this control volume, spacetime exists, but it is infinite.

3- It is difficult, if not impossible, to make the probability of the entire infinite space outside this control equal to 1.

4- It is difficult, if not impossible, to discretize infinite spacetime outside this control in accordance with the requirements of nature while preserving its irreversibility.

Finally, it is worth mentioning that Abbas' control volume is not a discovery, but rather one of the best models of nature.

It follows that Einstein's special relativity and general relativity are flawed and doomed to failure.

The classical Schrödinger partial differential equation of 1927 is partially flawed and doomed to failure [13,15,16].

Maxwell's four equations in electromagnetism are incomplete and require reformulation within this control volume box to align with the theory of everything.

…etc.

As a general rule:

Any rule or theorem that is not based on a clear and precise definition is neither physics nor mathematics and must be refuted.

Consequently, the thought experiments of Einstein and others, which we call black magic, constitute neither proof nor even a definition. Finally, this series of articles is motivated by our surprise at the large number of reads (nearly 100,000) and positive votes (nearly 2,500) that our articles have received in just a few years.

This large number of reads brings us recognition and a responsibility toward the younger generation of physicists and mathematicians,

encouraging them not to follow the iron guardians of conventional thinking in physics and mathematics.

These few guardians of conventional thinking, who refuse to stray from the beaten path, are certainly harmful, because they know that the science they propagate is flawed and doomed to disappear, but they also know that they will disappear with it.

Any attempt in this direction will be incomplete, misleading, and doomed to failure.

Comparing rules and theorems inside the control volume box with that outside the box is the subject of this article.

It is clear that the first is more precise and can generate new rules and theorems in physics and mathematics, while offering an experience full of beauty and elegance.

Thinking inside the box is much more exact and can generate new physics and mathematics [18,19].

For example, this can be deduced at first glance,

1-The vacuum is incompressible?

2-The energy density in vacuum (EM, Gravity, Quantum light waves etc) is not zero and can attain values corresponding to extremely elevated temperature.

The above statement supports the idea that the vacuum can explode and that this explosion was the origin of the Big Bang, which created our universe millions of years ago [17,19,20,21].

It is predicted that the infinite void of our universe can still heat up due to the accumulation of energy density and explode repeatedly, thus generating as many Big Bangs as possible [5,6,17].

It is important to clarify that the thought experiments of Einstein and others, which we refer to as black magic, constitute neither proof nor even a definition.

Finally, this series of articles follows our surprise at the large number of reads (nearly 100,000) and positive votes (nearly 2,500) our articles have received in just a few years.

This large number of reads brings us recognition and a responsibility toward the younger generation of physicists and mathematicians, encouraging them not to follow the iron guardians of conventional thinking in physics and mathematics.

These few guardians of conventional thinking, who refuse to stray from the beaten path, are certainly harmful, because they know that the science they propagate is flawed and doomed to disappear, but they also know that they will disappear with it.

etc .. . etc

Once again,

mathematics entered physics as a tool, but gradually, it became its master.

And yet, mathematics is more alive than ever [22,23].

Thousands of mathematical rules and theorems remain to be discovered [22,23].

We assume that this will be the role of mathematics and physics within the control volume system.

To avoid dwelling too much on the details of the introduction, let's move directly to section II, the theory and the numerical results.

II. Theory and Numerical Results

The foundation of the theory presented in this article rests on the following revolutionary equation:

Stress tensor × Strain or curvature tensor = I… (1)

For all free nodes located within the defined control volume of the physical problem under study.

Furthermore, we believe that Equation 1 allows us to solve all problems in classical and quantum physics, as well as in pure mathematics and statistics.

The physical significance of Equation 1 is that every case in physics or mathematics, up to 2 × 3 = 6, possesses its own energy density and its own spacetime curvature.

This means that spacetime xyzt is Lorentzian, in that it conserves its volume under the effect of motion, which is a necessary condition for physical entropy, according to the second law of thermodynamics.

At the extreme, one could say that Equation 1 is the only acceptable law in mathematics and physics. In this sense, any mathematical or physical law or rule compatible with Equation 1 must be accepted; any other would be refuted.

This fact was central to the research presented in the previous articles entitled "How to Generate New Mathematics" (parts 1, 2, 3, and 4), as well as in Article 5 (parts 1 and 2), which together constitute the present research [2, 3, 4, 5, 6, 7]. Most importantly, this remarkable equation is self-explanatory.

A striking example is the Pythagorean theorem in 3D xyz geometry, which is expressed as follows:

$$x^2 + y^2 + z^2 = hypeutenuse^2 = constant.$$

Equation 1 can be generalized to 4D unit space xyzt (control volume) as follows:

$$x^2 + y^2 + z^2 + C^2t^2 = ds^2 = constant. \ldots (2)$$

We believe that equation 2 defines the correct xyzt spacetime for the first time.

It should not be compared to the current erroneous Riemannian space,

$$x^2 + y^2 + z^2 = C^2t^2,$$ ***which is a diabolical trap and the source of all the evils attributed to Einstein.***

In a previous article entitled "How to Merge Quantum Mechanics and General Relativity?", we introduced and defined the physical control

volume proposed by the author in 2020. We demonstrated that quantum mechanics and general relativity can be precisely defined and merged within this volume, sometimes called the Abbas control volume.

In this article, we study Maxwell's four equations of the electromagnetic field and examine the possibility of reformulating them to align with quantum mechanics and general relativity.

In fact, these three theories obey the same fundamental equation.

It is clear that the combination of these three theories constitutes the ultimate theory, or the theory of everything.

This is the subject of this article.

In this section II of Theory and Numerical Results, we will use the question and answer method for greater clarity.

Finally, in the remainder of this article, we present and address five urgent questions that remain unanswered:

Q1

1-Is it possible to think outside the box?

A1-

No.

By "outside the box," we mean outside the closed physical control volume, sometimes called the Abbas box, introduced by the author in 2020.

We assume that it is impossible to think or define rules and theorems outside of this box.

Any attempt in this direction will be incomplete, misleading, and doomed to failure.

It follows that Einstein's special relativity and general relativity are flawed and doomed to failure.

The classical Schrödinger partial differential equation of 1927 is partially flawed and doomed to failure.

Maxwell's four equations in electromagnetism are incomplete and require reformulation within this box to align with the theory of everything.

…etc.

Any rule or theorem that is not based on a clear and precise definition is neither physics nor mathematics and must be refuted.

It should be noted that the thought experiments of Einstein and others, which we call black magic, constitute neither proof nor even a definition.

The question arises:

If the theory of control volume box is known and working efficiently since 2020 why it is not yet generally accepted by the scientific society?

The answer is simple, There exist few iron guardians of conventional thinking, who refuse to stray from the beaten path, are certainly harmful, because they know that the science they propagate is flawed and doomed to disappear, but they also know that they will disappear with it.

Physics and mathematics today is dominated by science deniers.

However, The large number of reads of our articles, brings us recognition and a responsibility toward the younger generation of

physicists and mathematicians, encouraging them not to follow the iron guardians of conventional thinking in physics and mathematics.Q2

Does Maxwell's electromagnetic theory need to be reformulated to be compatible with Einstein's general relativity?

Q2

2- Does Maxwell's electromagnetic theory need to be reformulated to be compatible with Einstein's general relativity?

A2

In 2020, the author solved the time-dependent Laplace and Poisson partial differential equations (PDEs) in 3D in the most general case, without resorting to the four Maxwell PDEs inside the control volume.

In other words, by completely neglecting the four Maxwell equations, as if they did not exist.

This means that the geometry and energy density of the Laplace and Poisson PDEs are inherent to Equation 1 and the control volume.

$\int dE^2/dt = (b+S) .D(N) + B\hat{}N . IC$

Where B is the transition matrix of classical physics, $D(N) = B+B^2+B^3+...B\hat{}N$, and b and S are respectively the Dirichlet boundary condition vector and the source term vector.

It is easy to demonstrate that the required reformulation is:

$$(d/dt)\int[E^2] = \text{Constant}.(J+d/dt)\int(D+S) \quad \ldots . (3)$$

where S is the source/sink term expressed in units of Coulomb m^{-3} s

Q3

3- Is it true that the special relativity is the flat space limit of general relativity?

A3

Is it true that the special relativity is the flat space limit of general relativity?

No. This is a common mistake found in all textbooks of general relativity.

Assuming GR in 4D unitary x-t space is:

dxdydzdt=dx*dy*dz*dt* . . . . (3)

Then the SR derived from GR in 1D unitary x-t space is:

dxdt=dx*dt* . . . . . (4)

Equation 2 shows that the spacetime in SR is curved in x direction. Moreover, the amount of curvature in SR can be calculated from the statistical B-matrix chains.

Two opposing questions arise:

1. If special relativity is indeed the limit of the flat space of general relativity, how could Einstein himself have missed it?

2. If Einstein couldn't deduce special relativity from general relativity simply by flattening spacetime through the cancellation of acceleration, who else could have?

Special relativity and general relativity remain, to this day, two distinct theories.

Q4

Is it true that Special Relativity is just a special case of General relatvity?

A4

We wonder how Einstein could have failed to grasp general relativity by introducing the obscure strain and curvature tensors.

No one understands the stress or strain tensor in general relativity, not even Einstein.

However, if we compare Einstein's tensor to the transition matrix tensor B or the

transfer matrix D(N) tensor, we obtain:

The values 0, 1, 2, and 3 correspond respectively to time t and the x, y, and z axes.

Therefore,T00, T11, T22, and T33 correspond respectively to Ttt, Txx, Tyy, and Tzz in Cartesian space-time coordinates.

In matrix form, the correct expression for the Einstein stress tensor M1* is:

$\nabla^2 xx\ \nabla^2 xy\ \nabla^2 xz\ \nabla^2 xt\ ]U(x,y,z,t)$

$\nabla^2 yx\ \nabla^2 yy\ \nabla^2 yz\ \nabla^2 yt\ ]U(x,y,z,t)$

$\nabla^2 zx\ \nabla^2 zy\ \nabla^2 zz\ \nabla^2 zt\ ]U(x,y,z,t)$

$\nabla^2 tx\ \nabla^2 ty\ \nabla^2 tz\ \nabla^2 tt\ ]U(x,y,z,t)$

Combined with the proposed expression for the strain/curvature tensor C*:

$\nabla^2 xx\ \nabla^2 xy\ \nabla^2 xz\ \nabla^2 xt$

$\nabla^2 yx\ \nabla^2 yy\ \nabla^2 yz\ \nabla^2 yt$

$\nabla^2 zx\ \nabla^2 zy\ \nabla^2 zz\ \nabla^2 zt$

$\nabla^2 tx\ \nabla^2 ty\ \nabla^2 tz\ \nabla^2 tt$

and the appropriate formula becomes:

M1 . C* = I . . . . (1)

This formula allows us to formulate general relativity and special relativity in a single sentence.

Furthermore, this same formula (1) allows us to generate solutions for quantum mechanical systems without resorting to the Schrödinger equation.

Q5

- Nature, is it reversible or irreversible?

A5

The arrow of time is the concept that time has a single direction, moving from the past to the future, largely driven by the increase of entropy in the universe, as indicated by the second law of Thermodynamics (dS.GE dQ/T in standard terminology).

The above statement indicates that time is irreversible in both classical physics and quantum physics.

Furthermore, we assume that every mathematical or physical rule must respect the direction of time, otherwise it is doomed to failure. This explains the failure of Einstein's theory of general relativity and the incompleteness of the classical Schrödinger partial differential equation in quantum mechanics.

III-CONCLUSION

Nature is statistically symmetric, irreversible, and finite.

It is subject to the golden rule of time reversibility, as stated in the second law of thermodynamics .

Every problem in physics or mathematics, classical or quantum, possesses a natural statistical solution that applies to a suitable bounded control volume; this volume itself constitutes the theory of Cairo techniques.

The closed physical control volume CV contained in the closed volume V, determined by the closed surface area A subject to the Dirichlet boundary conditions, is the core of the statistical Cairo theory of techniques.

In this article we answered 5 important and urgent questions:

1- Is it possible to think outside the box?

2- Does Maxwell's electromagnetic theory need to be reformulated to be compatible with Einstein's general relativity?

3- Is it true that the special relativity is the flat space limit of general relativity?

4- Is it true that Special Relativity is just a special case of General relativity?

5- Nature, is it reversible or irreversible

The numerical solution results shown are stable and accurate.

Finally, it should be clarified again that this article does not aim to minimize the major contributions of the great physicists and mathematicians of their time such as Einstein, Schrödinger, Heisenberg, Minkowski, Hilbert and Riemann, among others, but rather to address the main errors and limitations of their theories, where applicable.

Note: If you are not familiar with the universal laws of physics, this article is not intended for you.

Aknowledgement

The author expresses his gratitude to the Military Technical College, a distinguished joint venture of Cairo University where he began his career at the college as a lecturer assistant in physics and mathematics, in collaboration with an extremely distinguished group of Czechoslovak and Russian experts.

An experience that was both enjoyable and rewarding until he later became a professor and head of the Department of Basic Sciences, which comprises experimental and theoretical physics aswell asbpure mathematics.

During this long experience, he worked at theCentre for Atomic and Nuclear Physics in Toulouse, France, where he obtained his doctorate, then as a professor at the universities ULP and UPS, as well as a research director at the CNRS in France.

The last experience, as with the first, was an opportunity to collaborate with the best leaders and the latest scientific knowledge.

NB. The author uses his own double precision algorithm in Fortran language, such as that of references 30,31,32,33.

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

It should be noted that the basic requirements for studying the B-transition matrix technique and Cairo techniques in general are:

1. Proficiency in matrix operations and calculations as presented in reputable reference books such as references 25 and 26.

2. Proficiency in algorithms and programming languages such as C++ and Fortran [24,27,28,29,30,31].

3. A thorough knowledge and understanding of the laws of general physics [4, 5, 6,25,26].

References

1-Google and Wikipedia search.

2-I.Abbas et al , How to generate new mathematics-

Part I, ResearchGate, GSJ Journals, 2025.

3-I.Abbas et al , How to generate new mathematics-Part II,ResearchGate, GSJ Journals, 2025.

4-I.Abbas et al , How to generate new mathematics-Part III, ResearchGate, GSJ Journals, Feb 2026.

5-I.Abbas et al , How to generate new mathematics-Part IV, ResearchGate, Feb, 2026.

6-I. Abbas et al., How to merge quantum mechanics and general relativity, parts I, II, ResearchGate, GSJ reviews, March 2026.

7- I. Abbas, Using matrix algebra, how to show thatthe infinite power series [(1+2x)/3]^N is equal to(1+2 x)/(2-2 x), ∀x∈[0,1[.https://www.researchgate.net/publication/397658317

8,9-The Theory of Everything, October 2025 Quality Engineering GSJ:Volume13, Issue 9,September2025,(GSJ: Volume 13, Issue 9,September2025)Lab: Ismail Abbas's Lab.

10-I.Abbas et al,101 Authors Against Einstein:Universal laws of physics, ResearchGate, 2025.GSJ:

Volume 13, Issue 12, December2025ISSN 2320-91861485GSJ©2025www.globalscientificjournal.com

11-ResearchGate Q/A, Nov 2025 – February2026.GSJ: Volume 14, Issue 2, February 2026ISSN2320-91862042GSJ©2026www.globalscientificjournal.com

12-I.Abbas, Using matrix algebra, how to show thatthe infinite power series [(1+2x)/3]^N is equal to(1+2 x)/(2-2x),∀x∈[0,1[, ResearchGate, November2020.

13-I.Abbas, What is Missing in Mathematics, IJISRT- Theoretical Physics , Volume 8, Issue 3,March – 2023

14-I. Abbas, A numerical statistical solution for Laplace and Poisson PDE, ResearchGate, International Journal of Innovative Science and Research Technology, October2020.

15-I.Abbas, Fundamentals of Artificial Intelligence, Book, Amazon.

16- Is unified field theory Schrödinger's wave equation or its square? Question on ResearchGate Q/A section, July 7, 2024

17-I. Abbas, Quantum Puzzle, Vacuum Dynamics and the Big Bang, Volume 9,Issue 6, June 2024,International Journal of Innovative Science and Research Technology, ISSN:

2456-2165,https://doi.org/10.38124/IJISRT24ijisrt.com, 2185.

18-I. Abbas et al, The Theory of Everything October2025, Quality Engineering GSJ: Volume 13, Issue 9,September 2025,(GSJ: Volume13, Issue9,September 2025)

19-I.Abbas et al, Is Time Continuous or Discrete? December 2025,International Journal of Innovative Science and Research Technology DOI:10.38124/ijisrt/25dec699

20- I. Abbas, How to transform B matrix chains into Markov chains and vice versa, ResearchGate, IJISRT journal, 2023.

21-I.Abbas, Fall and Rise of matrix mechanics, Volume 9, Issue1,January2024, International Journal of Innovative Science and Research Technology, ISSN No:-2456-2165IJISRT24JAN569www.ijisrt.com 57.

22- SINEFITTING: ROBUST CURVATUREESTIMATION ON SURFACE TRIANGULATION, July2013, Jérôme Charton, Stefka Gueorguieva, PascalDesbarats22

23- Digital anthropology for effective retrieval ofthe anterior fontanelle, Conference Paper, June2009, Pascal Desbarats, Stefka Gueorguieva, RémiSynave, Bruno Dutailly

24- I. Abbas, IJISRT, ResearchGate, How to generate new mathematics, October 2025Lab: Ismail Abbas's Lab

25- J. Mathews, Numerical Methods for

mathematics, science and Engineering, Book1995.

26-L. Landau, Theoretical physics, Translatedfrom Russian, Pergman press, Australia,.

27- I. Abbas et al, The Theory of Everything GSJ: Volume 13, Issue12, December 2025ISSN 2320-91861486GSJ©2025www.globalscientificjournal.comOctober2025Quality Engineering GSJ: Volume 13,Issue 9,September2025,(GSJ: Volume 13, Issue 9,September 2025)

28- I. Abbas, A rigorous reform of mathematics and physics, ResearchGate, January 202521- and Information Theory, RG, Q/A2025.

29-I . Abbas, A numerical statistical solution for Laplace and Poisson partial differential equations, ResearchGate, International IJISRT: Volume 13,Issue 12, December 2025ISSN 2320-91861487GSJ©2025www.globalscientificjournal.com28-I.Abbas, A Rigorous Reformulation of Einstein derivation of the special relativity, IJISRT, DOI: https://doi.org/10.5281/zenodo.6324421,Feb 1922.

30- I. Abbas, A rigorous reform of mathematics and physics, ResearchGate, International Journal of Innovative Science and GSJ: Volume 14, Issue 2, February 2026ISSN 2320-91862044GSJ©2026www.globalscientificjournal.com

TechnologyDOI:10.38124/IJISRT/25mar506Lab:IsmailAbbas's Lab

31- I. Abbas, BOOK, Foundations of Artificial Intelligence, Theory and Practice. GSJ: Volume 13,Issue 12, December 2025ISSN 2320-91861488GSJ©2025www.globalscientificjournal.com

32-I.M. Abbas et al, A critical analysis of the propagation mechanisms of ionizing waves in the event of a breakdown, I. Abbas, P Bayle, Journal of Physics D:Applied Physics13 (6),8-

33-I.M. Abbas et al, IEEE.1996, Pseudo sparkdischarge, Plasma Science Transactions 24(3):1106-1119,DOI:10.11