

Misconceptions in the Standard Field Theory

Temur Z. Kalanov

Home of Physical Problems, Yozuvchilar (Pisatelskaya) 6a, 100128 Tashkent, Uzbekistan

***Corresponding Author:** Temur Z. Kalanov, Home of Physical Problems, Yozuvchilar (Pisatelskaya) 6a, 100128 Tashkent, Uzbekistan.

Submitted: 22 May 2026

Accepted: 24 June 2026

Published: 30 June 2026

Citation: Kalanov, T.Z. (2026). Misconceptions in the Standard Field Theory. Journal of Advanced Physics and Interdisciplinary Science, 1(1), 1-9. DOI: doi.org/10.67927/JAdvPhysInterdiscipSci/2026(1)105.

Abstract

A detailed proof of the incorrectness of standard field theory (vector analysis) is proposed. The correct methodological basis for this proof is the unity of formal logic and rational dialectics. The errors are as follows: (1) field theory is based on differential and integral calculus, which is an incorrect theory; (2) field theory is based on vector calculus, which is an incorrect theory; (3) field theory is formulated within the framework of a geometric coordinate system. But mathematical and physical quantities have no dimension “meter” and cannot be presented (be defined, exist) within the framework of a geometric coordinate system; (4) at the point of view of formal logic and dialectics, the concepts “field in abstraction” and “mathematical field” are identical and meaningless concepts. “Field in abstraction” and “mathematical field” have neither physical properties nor geometric properties; (5) the standard definition of a field is: “A field is a part of space, each point of which corresponds (conforms) to a certain value of some physical quantity.” 6) a physical field has no points (i.e., values of a physical quantity) in a geometric coordinate system; (7) the absurdity is that a dimensionless (i.e., mathematical) quantity is identical to a dimensional (i.e., physical) quantity.

Keywords: Standard Field Theory, Rational Dialectics, Geometric Coordinate System, Mathematical Field, Dimensional Quantity.

Introduction

As is well known, field theory (vector analysis) is an important branch of mathematics based on differential and integral calculus, vector calculus, and Euclidean geometry [1-4]. Field theory (vector analysis) also represents a mathematical formalism of theoretical physics [5-13]. The origination and development of field theory (vector analysis) were conditioned by the needs of mechanics and physics. The early 19th century was characterized by significant advances in the application of field theory in mechanics, optics, electrodynamics, magnetism, thermodynamics, hydrodynamics, and continuous medium mechanics. Famous scientists worked in these fields: D. Bernoulli, L. Euler, J. d'Alembert, J. Lagrange, K. Gauss, J. Fourier, S. Poisson, A. Cauchy, P. Dirichlet, J. Green, M. V. Ostrogradsky, and J. Stokes. These scientists introduced a number of new concepts: level lines and vector lines, vector tubes, the gradient of a scalar field, circulation, divergence, and rotor (curl) of a vector field. Application of the vector analysis is widely used in physics (André-Marie Ampère, Charles-Augustin de Coulomb, Michael Faraday, Lord Kelvin, James Clerk Maxwell, Paul Dirac, Pascual Jordan, Eugene Wigner, Werner Heisenberg, Wolfgang Pauli, John Wheeler and Richard Feynman (Wikipedia), [5-13]). But, in my opinion, this does not mean that field theory (vector analysis) is a substantiated theory. Really, this theory is a synthesis of erroneous, absurd theories: differential and integral calculus, vector and tensor calculus. The absurdity is, firstly, that differential and integral calculus operate with dimensionless (i.e., non-physical) quantities which do not take numerical values. Secondly, the absurdity is that vectors and tensors have no geometric representation in the Cartesian (metric) coordinate system. Moreover, field theory does not contain a correct definition of a field, because famous scientists did not find the correct methodological basis of science: the unity of formal logic and rational dialectics. The unity of formal logic and rational dialectics is also the only correct criterion of truth. My contribution to science is that I found the correct methodological basis of science and critically analyzed the foundations of theoretical physics and mathematics [14-175]. The purpose of this work is to propose a critical analysis of the foundations of standard field theory (vector analysis) within a correct methodological basis.

Concepts and Relationships of Standard Field Theory

“A field is a part of space; each point of which corresponds (conforms) to a certain value of some physical quantity. If the physical quantity is a scalar quantity, then the field is called a scalar field, and if the physical quantity is a vector quantity, then the field is called a vector field.

A scalar field is considered to be given if a scalar quantity $u(P)$ (is called a field function) is defined at each of the point P of the field. (The notation $u(P)$ means that the quantity u is a function of the point P). If the scalar field is related (belongs) to the

coordinate system $XOYZ$, then assignment of the point P is equivalent to assignment its coordinates $x, y, z : u(x, y, z)$. The coordinates x, y, z have the dimension “meter”. Thus, this is the physical interpretation of the dimensionless function $u(x, y, z)$ of three variables” [1-4].

“The gradient of a function $u(x, y, z)$ is a vector whose projections are the values of the partial derivatives of this function:

$$\text{grad } u \equiv \nabla u = \frac{\partial u}{\partial x} \vec{i} + \frac{\partial u}{\partial y} \vec{j} + \frac{\partial u}{\partial z} \vec{k}$$

where the symbol ∇ is a nabla-vector (Hamilton operator); $\vec{i}, \vec{j}, \vec{k}$ are unit vectors that have no dimension.

The definition of the divergence of the gradient of a function $u(x, y, z)$ is as follows:

$$\text{div grad } u \equiv \nabla \cdot (\nabla u) \equiv \nabla^2 u \equiv \Delta u = \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2}$$

where the symbol Δ is the Laplacian (Laplace operator).

The definition of the curl of a vector function is the following: the curl of a vector function $\vec{A}(P)$ is the vector product of the nabla-vector ∇ and the vector function:

$$\text{rot } \vec{A}(P) = \Delta \times \vec{A}(P) \text{ ” [1-4].}$$

Objections to Standard Field Theory

Objection 1

- A geometric coordinate system $XOYZ$ contains only the following geometric elements: a material point $M(x, y, z)$, a segment of a material line $L(x, y, z)$, and a material figure $F(x, y, z)$. The coordinates of the points of a segment of a material line and a material figure have the dimension “meter” and define (determine) the positions of these elements in the coordinate system.
- If a function $u(x, y, z)$ has no dimension, then the function $u(x, y, z)$ is neither a physical quantity nor a geometric quantity.
- If a function $u(x, y, z)$ has no dimension, then the definitions of gradient, divergence, and curl are meaningless.
- If the unit vectors $\vec{i}, \vec{j}, \vec{k}$ have no the dimension “meter”, then they cannot exist in the coordinate system $XOYZ$. (Unit vectors $\vec{i}, \vec{j}, \vec{k}$ cannot be on coordinate scales.)
- If the quantities $\vec{i}, \vec{j}, \vec{k}$ are vectors, then they cannot exist in the coordinate system $XOYZ$. (Generally, vectors cannot be on coordinate scales that have the dimension “meter”).

In the point of view of formal logic, a theory is a system of scientific concepts. All scientific concepts can be divided into separate types: general concepts, concrete concepts, individual concepts, and abstract concepts. The concept “physical field” is a general and concrete concept. The concepts “gravitational field” and “electromagnetic field” are individual concepts. Abstract concepts are concepts (of) about the properties of material objects (gravitational and electromagnetic fields) if these properties are considered as an independent objects of thought. These properties (as abstract concepts) represent the unity of qualitative and quantitative determinacy of material objects. The unity of qualitative and quantitative determinacy is expressed by the concepts of measure and physical quantity. The qualitative determinacy of a physical quantity is the dimension of the quantity. If a quantity has no dimension, then this quantity is not a physical quantity.

(For example, the quantity $\frac{\partial u}{\partial x}$ is meaningless because the dimension $\left[\frac{\partial u}{\partial x} \right] = \frac{\text{no dimension}}{\text{meter}}$ is meaningless).

The concept “field in abstracto” is meaningless because this concept has no essential feature (dimension).

- The standard definition of a field is as follows: “A field is a part of space, each point of which corresponds (conforms) to a certain value of some physical quantity”. In the point of view of formal logic, the first error in this definition is that the concept “space” is undefined.

The second formal-logical error is that the terms “correspondence”, “to correspond”, and the expression “physical interpretation of a dimensionless function” are meaningless. Really, the subject-predicate conjunction in the definition should be as follows: “is” or “is not”. However, the standard definition of a field and the “physical interpretation of a dimensionless function” contain the following contradiction: a dimensionless (mathematical) quantity is a dimensional (physical) quantity. This contradiction violates the formal-logical law of lack (absence) of contradiction:

“A dimensionless (mathematical) quantity
is not
a dimensional (physical, geometric) quantity”.

In other words, the replacement of a dimensionless quantity in mathematical expressions by a dimensional quantity is a gross formal-logical error.

Thus, the violation of the laws of formal logic is the essence of field theory.

Objection 2

As is well known, the Universe is an ordered, stable, and unlimited material system. A emptiness does not exist. This fact leads to the following statements.

- The Universe is a controlled system.
- The material elements (objects) of the system are finite (limited, bounded) objects.
- The elements are macroscopic solids (bodies), macroscopic liquids, macroscopic gases, microscopic particles, microscopic and macroscopic fields.
- The elements are connected (interact) with each other through material fields that are generated by the elements and connected with the elements.
- A field is a finite (limited, bounded) material object that has physical properties; a field without properties does not exist.
- The existence of physical properties of material fields is detected using sensors (detectors) created by people; the properties of fields are studied by people; the characteristics of fields are measured by people using instruments, devices.
- The existence of fields can be proven if only they interact with particles, bodies, sensors, instruments, and devices. In this case, the coordinate system $XOYZ$ can be used to study the geometric positions of particles and bodies interacting with the fields. The results of this geometric study are essential for research of the physical properties of the fields.
- Physical fields (for example, gravitational and electromagnetic fields) have no points (and coordinates) in the geometric system $XOYZ$, because physical fields are not geometric elements and have no the dimension “meter”. In other words, physical fields do not exist in the geometric system $XOYZ$.
- Geometric space does not exist without a material object. The space of a material object M is the set of positions (states) of the material object M in the geometric coordinate system $XOYZ$. A moving material object M as a material point in the metric system $XOYZ$ has values of coordinates $x_n^{(M)}, y_n^{(M)}, z_n^{(M)}, n = 0, 1, 2, \dots$ at different points in time t (t is a parameter). In other words, the position of the material point M is described by unique functions $x^{(M)}(t), y^{(M)}(t), z^{(M)}(t)$.
- The functions $x^{(M)}(t), y^{(M)}(t), z^{(M)}(t)$ can depend on a physical quantity as a parameter: .
- The function $u(x, y, z)$ and mathematical operations $grad u$, $div grad u$ and $rot \vec{A}(P) = \Delta \times \vec{A}(P)$ are meaningless because the quantity u has no dimension. Furthermore, replacement of the function $u(x, y, z)$ in mathematical relationships by a physical quantity ξ violates the formal-logical law of lack (absence) of contradiction.
- The description of physical phenomena within the framework of the geometric coordinate system $XOYZ$ is insufficient, inadequate.

Discussion

Thus, field theory represents a gross methodological error because field theory operates with dimensionless (non-metering, unmeasurable) quantities. The mathematical formalism of field theory was created by immature (young, unintelligent) scientists. Scientists can be divided into two classes: “early” scientists and “late” scientists. “Early” scientists are probably more capable (?) than “late” scientists. But “early” scientists are underdeveloped and limited scientists. The abilities (features) of “early” scientists are clearly evident in school age: they easily and quickly grasp the formalism of higher mathematics (for example, differential and integral calculus). However, they do not understand (do not comprehend) the essence (foundations) of higher mathematics. “Early” scientists remain infantile, underdeveloped scientists in mature age. They are unable to study formal logic and critically analyze the foundations of mathematics and theoretical physics. “Early” scientists become conservative (dullish, rather stupid) scientists in old age. Conservative scientists cannot think critically because they have a narrow (childish, underdeveloped) consciousness. Conservative scientists are not philosophers. The abilities (features) of “late” scientists are not fully and clearly evident in school age: “late” scientists cannot easily and quickly grasp the formalism of higher mathematics (for example, differential and integral calculus). “Late” scientists do not become conservative (dullish, rather stupid) scientists in old age because they have a broad (adult) consciousness and can think critically within the framework of formal logic. They are capable of analyzing the foundations of

mathematics and theoretical physics. They are philosophers. As practice shows, cooperation of the “early” and the “late” scientists leads to that the “early” scientists create new theories, while the “late” scientists refute these theories. Truth is not granted to Humanity. This is the dialectics of cognition of the World.

Conclusion

Thus, field theory (vector analysis) contains serious (gross) mathematical, physical, and methodological errors. The errors are as follows:

- Field theory is based on differential and integral calculus, which is an incorrect theory;
- Field theory is based on vector calculus, which is an incorrect theory;
- Field theory is formulated within the framework of a geometric coordinate system. But mathematical and physical quantities have no dimension “meter” and cannot be presented (be defined, exist) within the framework of a geometric coordinate system;
- In the point of view of formal logic and dialectics, the concepts “field in abstracto” and “mathematical field” are identical and meaningless concepts. “Field in abstracto” and “mathematical field” have neither physical properties nor geometric properties;
- The standard definition of a field is: “A field is a part of space, each point of which corresponds (conforms) to a certain value of some physical quantity”. In the point of view of formal logic, the term “correspondence” is meaningless. The subject-predicate conjunction in a definition must be either “is” or “is not”. Replacement of a dimensionless quantity in mathematical definitions and expressions by a dimensional quantity is an inadmissible operation;
- A physical field has no points (i.e., values of a physical quantity) in a geometric coordinate system. A material point has coordinates, but a material point is not a point of a physical field. The error is in the assertion that the coordinates of a material point determine (define, identify) the value of a physical quantity; that the value of a physical quantity determines (defines, identifies) the coordinates of a material point;
- The absurdity is that a dimensionless (i.e., mathematical) quantity is identical to a dimensional (i.e., physical) quantity.

References

1. Smirnov, V. I. (1974). Course in Higher Mathematics (Vol. II). Nauka, Moscow.
2. Bermant, A. F. (1963). A Short Course in Mathematical Analysis. Nauka Publishing House, Moscow.
3. Feynman, R. P., Leighton, R. B., Sands, M. (1963). The Feynman Lectures on Physics, Vol. II, Ch. 2: Differential Calculus of Vector Fields. Addison-Wesley.
4. Encyclopedia of Mathematics. (2001). Vector analysis. EMS Press.
5. Wilson, E. B. (1902). Vector Analysis: A Text-book for the Use of Students of Mathematics and Physics. Yale University Press.
6. Davis, H. F., Snider, A. D. (1995). Introduction to Vector Analysis. Wm. C. Brown Publishers, Dubuque, IA.
7. Rahman, M., Mulolani, I. (2001). Applied Vector Analysis. CRC Press, Boca Raton, FL.
8. Schwartz, M., Green, S., Rutledge, W. A. (1960). Vector Analysis with Applications to Geometry and Physics. Harper Brothers, New York, NY.
9. Young, E. C. (1993). Vector and Tensor Analysis. Marcel Dekker, New York, NY.
10. Crowe, M. J. (1967). A History of Vector Analysis. Notre Dame University Press.
11. Wilson, E. B. (1958). Vector Analysis. Yale University Press, New Haven, CT.
12. Spiegel, M. (1959). Schaum's Outline of Theory and Problems of Vector Analysis, and an Introduction to Tensor Analysis. McGraw-Hill, New York.
13. Davis, H., Snider, A. (1995). Introduction to Vector Analysis. McGraw-Hill, New York.
14. Kalanov, T. Z. (1990). Theoretical analysis of Einstein's relationship of detailed balance. I. Reports of the Academy of Sciences of the Republic of Uzbekistan, 11, 22-24.
15. Kalanov, T. Z. (1991). Theoretical analysis of Einstein's relationship of detailed balance. II. Reports of the Academy of Sciences of the Republic of Uzbekistan, 1, 21-23.
16. Kalanov, T. Z. (1991). On the statistics of the photon gas. Reports of the Academy of Sciences of the USSR, 316(1), 100.
17. Kalanov, T. Z. (1991). On the statistics of the electron gas. Reports of the Academy of Sciences of the USSR, 316(6), 1386.
18. Kalanov, T. Z. (1991). On the quantum-statistical theory of ideal monatomic gas. I. Reports of the Academy of Sciences of the Republic of Uzbekistan, 4, 20-22.
19. Kalanov, T. Z. (1991). On statistics of the systems with variable number of particles. I. Reports of the Academy of Sciences of the Republic of Uzbekistan, 7, 26-28.
20. Kalanov, T. Z. (1991). On statistics of the systems with variable number of particles. II. Reports of the Academy of Sciences of the Republic of Uzbekistan, 8, 23-25.
21. Kalanov, T. Z. (1991). On the quantum-statistical theory of ideal monatomic gas. II. Reports of the Academy of Sciences of the Republic of Uzbekistan, 8, 23-25.
22. Kalanov, T. Z. (1992). On the quantum-statistical theory of thermal radiation. Reports of the Academy of Sciences of the Republic of Uzbekistan, 2, 20-22.
23. Kalanov, T. Z. (1992). Physics without Boltzmann's statistical entropy. Reports of the Academy of Sciences of the Republic of Uzbekistan, 4-5, 43-45.
24. Kalanov, T. Z. (1992). On the problem of substantiation and formulation of unitary basic principles of statistical physics and physical kinetics. Reports of the Academy of Sciences of the Republic of Uzbekistan, 10-11, 44-46.
25. Kalanov, T. Z. (1993). On an approach to the problem of substantiation and formulation of unitary basic principles of statistical physics and physical kinetics. Reports of the Academy of Sciences of the Republic of Uzbekistan, 1, 24-26.
26. Kalanov, T. Z. (1995). The correct theoretical analysis of the Michelson-Morley experiments. Reports of the Academy of Sci-

- ences of the Republic of Uzbekistan, 11-12, 22.
27. Kalanov, T. Z. (1996). Proof of non-correctness of the Lorentz transformation. Reports of the Academy of Sciences of the Republic of Uzbekistan, 1-2, 32.
 28. Kalanov, T. Z. (1997). On the theory of relative motion. Reports of the Academy of Sciences of the Republic of Uzbekistan, 12, 15.
 29. Kalanov, T. Z. (1998). On the theory of time. Reports of the Academy of Sciences of the Republic of Uzbekistan, 5, 24.
 30. Kalanov, T. Z. (1999). Kinematics of material point: Modern analysis. Reports of the Academy of Sciences of the Republic of Uzbekistan, 7, 9.
 31. Kalanov, T. Z. (1999). The most urgent problem of our time. Reports of the Academy of Sciences of the Republic of Uzbekistan, 5, 9.
 32. Kalanov, T. Z. (2001). Correct quantum-statistical description of ideal systems within the framework of master equation. Proceedings of the XXVth ICPIG, 3, 235.
 33. Kalanov, T. Z. (2001). On logical errors lying in the base of special theory of relativity. Bulletin of the American Physical Society (April Meeting), 46(2), 99.
 34. Kalanov, T. Z. (2002). On a solution of the problem of unitarization of the elementary principles of statistical physics and physical kinetics. Bulletin of the American Physical Society (April Meeting), 47(2), 163-164.
 35. Kalanov, T. Z. (2002). On the main errors underlying statistical physics. Bulletin of the American Physical Society (April Meeting), 47(2), 164.
 36. Kalanov, T. Z. (2002). On the essence of time. Bulletin of the American Physical Society (April Meeting), 47(2), 164.
 37. Kalanov, T. Z. (2002). On a new basis of quantum theory. Bulletin of the American Physical Society (April Meeting), 47(2), 164.
 38. Kalanov, T. Z. (2003). On the problem of the correspondence principle. Bulletin of the American Physical Society (April Meeting), 48(2), 153.
 39. Kalanov, T. Z. (2003). On a new theory of the system of reference. Bulletin of the American Physical Society (April Meeting), 48(2), 153-154.
 40. Kalanov, T. Z. (2003). On the essence of space. Bulletin of the American Physical Society (April Meeting), 48(2), 154.
 41. Kalanov, T. Z. (2003). On the problem of knowledge of the Universe. Bulletin of the American Physical Society (April Meeting), 48(2), 154-155.
 42. Kalanov, T. Z. (2003). The theory of relativity: An error of the transformation of coordinates. Bulletin of the American Physical Society (April Meeting), 48(2), 155.
 43. Kalanov, T. Z. (2004). On logical errors underlying the special theory of relativity. Journal of Theoretics, 6(1).
 44. Kalanov, T. Z. (2004). The correct theoretical analysis of the foundations of quantum mechanics. Journal of Ultra Scientists of Physical Sciences, 16(2), 191-198.
 45. Kalanov, T. Z. (2005). On the correct theoretical analysis of the foundations of quantum mechanics. Bulletin of the American Physical Society (April Meeting), 50(2), 65.
 46. Kalanov, T. Z. (2005). On a new theory of physical vacuum. Bulletin of the American Physical Society (April Meeting), 50(2).
 47. Kalanov, T. Z. (2006). On a new approach to the solution of the problem of quantization of energy. Bulletin of the American Physical Society (April Meeting), 51(2), 62.
 48. Kalanov, T. Z. (2006). On a new theory of the black hole. Bulletin of the American Physical Society (April Meeting), 51(2), 62.
 49. Kalanov, T. Z. (2006). The problem of the SETI: A methodological error in cosmology and astrophysics. Bulletin of the American Physical Society (April Meeting), 51(2), 60-61.
 50. Kalanov, T. Z. (2006). On the hypothesis of Universe's "system block". Bulletin of the American Physical Society (April Meeting), 51(2), 61.
 51. Kalanov, T. Z. (2006). On the correct formulation of the first law of thermodynamics. Bulletin of the American Physical Society (April Meeting), 51(2), 60.
 52. Kalanov, T. Z. (2006). The second law of thermodynamics: Mathematical error. Bulletin of the American Physical Society (April Meeting), 51(2), 60.
 53. Kalanov, T. Z. (2006). Bose's method: A logical error. Bulletin of the American Physical Society (April Meeting), 51(2), 61.
 54. Kalanov, T. Z. (2006). Dirac's theory of physical vacuum: Continuation of Bose's logical errors. Bulletin of the American Physical Society (April Meeting), 51(2), 61.
 55. Kalanov, T. Z. (2006). Bose-Einstein statistics and Fermi-Dirac statistics: A logical error. Bulletin of the American Physical Society (April Meeting), 51(2), 61.
 56. Kalanov, T. Z. (2006). On the correct analysis of Maxwell distribution. Bulletin of the American Physical Society (April Meeting), 51(2), 61-62.
 57. Kalanov, T. Z. (2007). On the correct analysis of the foundations of the special theory of relativity. Bulletin of the American Physical Society (April Meeting), 52(2), 120.
 58. Kalanov, T. Z. (2007). On the correct analysis of the foundations of theoretical physics. Bulletin of the American Physical Society (April Meeting), 52(2), 120.
 59. Kalanov, T. Z. (2007). On the hypothesis of control of the Universe. Bulletin of the American Physical Society (April Meeting), 52(2), 121.
 60. Kalanov, T. Z. (2007). Theoretical model of God: The key to correct exploration of the Universe. Bulletin of the American Physical Society (April Meeting), 52(2), 121.
 61. Kalanov, T. Z. (2007). Critical analysis of the special theory of relativity. Bulletin of Pure and Applied Sciences, 26D(1), 1-15.

62. Kalanov, T. Z. (2007). The correct theoretical analysis of the foundations of classical thermodynamics. *Bulletin of Pure and Applied Sciences*, 26D(2), 109-118.
63. Kalanov, T. Z. (2009). The correct theoretical analysis of the foundations of classical thermodynamics. *Indian Journal of Science and Technology*, 2(1), 12-17.
64. Kalanov, T. Z. (2010). On the Boltzmann distribution. *Galilean Electrodynamics*, 21(Special Issue 1), 2.
65. Kalanov, T. Z. (2009). The correct theory of photon gas. *Indian Journal of Science and Technology*, 2(2), 1-10.
66. Kalanov, T. Z. (2009). On a new analysis of the problem of Planck constant. *Bulletin of the American Physical Society (April Meeting)*, 54(4).
67. Kalanov, T. Z. (2009). Theoretical model of God: Proof of existence. *Indian Journal of Science and Technology*, 2(3), 80-88.
68. Kalanov, T. Z. (2010). On a new analysis of the foundations of classical mechanics. I. Dynamics. *Bulletin of the American Physical Society (April Meeting)*, 55(1).
69. Kalanov, T. Z. (2010). The theoretical model of God: Proof of the existence and the uniqueness of God. *Scientific GOD Journal*, 1(2), 85-97.
70. Kalanov, T. Z. (2010). The modern analysis of the problem of multisectioning an angle. *Prespacetime Journal*, 1(3), 468-474.
71. Kalanov, T. Z. (2010). The crisis in theoretical physics: The problem of scientific truth. *Prespacetime Journal*, 1(5), 824-842.
72. Kalanov, T. Z. (2010). The critical analysis of the foundations of theoretical physics: Crisis in theoretical physics: The problem of scientific truth. LAP Lambert Academic Publishing.
73. Kalanov, T. Z. (2011). Analysis of the problem of relation between geometry and natural sciences. *Prespacetime Journal*, 2(1), 75-87.
74. Kalanov, T. Z. (2011). On the critical analysis of classical electrodynamics. *Bulletin of the American Physical Society (APS April Meeting)*, 56(4).
75. Kalanov, T. Z. (2011). Critical analysis of the foundations of differential and integral calculus. *MCMS*, 34-40.
76. Kalanov, T. Z. (2011). Logical analysis of the foundations of differential and integral calculus. *Indian Journal of Science and Technology*, 4(12), 1786-1789.
77. Kalanov, T. Z. (2011). Logical analysis of the foundations of differential and integral calculus. *Bulletin of Pure and Applied Sciences*, 30E(2), 327-334.
78. Kalanov, T. Z. (2012). Critical analysis of the foundations of differential and integral calculus. *International Journal of Science and Technology*, 1(2), 80-84.
79. Kalanov, T. Z. (2012). Critical analysis of Bose-Einstein and Fermi-Dirac statistics. *Elixir (Statistics)*, 45, 7657-7659.
80. Kalanov, T. Z. (2012). On rationalization of the foundations of differential calculus. *Bulletin of Pure and Applied Sciences*, 31E(1), 1-7.
81. Kalanov, T. Z. (2012). The Boltzmann distribution: A logical error. *Elixir (Adv. Pow.)*, 49, 9935-9936.
82. Kalanov, T. Z. (2012). The correct analysis of theory of photon gas. *Elixir (Nuclear Radiation Physics)*, 50, 10197-10205.
83. Kalanov, T. Z. (2012). On logical error underlying classical mechanics. *Bulletin of the American Physical Society (April Meeting)*, 57(3).
84. Kalanov, T. Z. (2013). Critical analysis of the mathematical formalism of theoretical physics. I. Foundations of differential and integral calculus. *Bulletin of the American Physical Society (April Meeting)*, 58(4).
85. Kalanov, T. Z. (2013). The critical analysis of the Pythagorean theorem and of the problem of irrational numbers. *Basic Research Journal of Education Research and Review*, 2(4), 59-65.
86. Kalanov, T. Z. (2013). The logical analysis of the Pythagorean theorem and of the problem of irrational numbers. *Asian Journal of Mathematics and Physics*, 2013, 1-12.
87. Kalanov, T. Z. (2013). The critical analysis of the Pythagorean theorem and of the problem of irrational numbers. *Bulletin of Pure and Applied Sciences*, 32(1), 1-12.
88. Kalanov, T. Z. (2013). On the logical analysis of the foundations of vector calculus. *International Journal of Scientific Knowledge, Computing and Information Technology*, 3(2), 25-30.
89. Kalanov, T. Z. (2013). On the logical analysis of the foundations of vector calculus. *International Journal of Multidisciplinary Academic Research*, 1(3).
90. Kalanov, T. Z. (2013). On the logical analysis of the foundations of vector calculus. *Journal of Computer and Mathematical Sciences*, 4(4), 202-321.
91. Kalanov, T. Z. (2013). On the logical analysis of the foundations of vector calculus. *Journal of Research in Electrical and Electronics Engineering*, 2(5), 1-5.
92. Kalanov, T. Z. (2013). The critical analysis of the Pythagorean theorem and of the problem of irrational numbers. *Global Journal of Advanced Research on Classical and Modern Geometries*, 2(2), 59-68.
93. Kalanov, T. Z. (2013). On the logical analysis of the foundations of vector calculus. *Research Desk*, 2(3), 249-259.
94. Kalanov, T. Z. (2013). The foundations of vector calculus: The logical error in mathematics and theoretical physics. *Unique Journal of Educational Research*, 1(4), 54-59.
95. Kalanov, T. Z. (2013). On the logical analysis of the foundations of vector calculus. *Aryabhatta Journal of Mathematics Informatics*, 5(2), 227-234.
96. Kalanov, T. Z. (2013). Critical analysis of the mathematical formalism of theoretical physics. II. Foundations of vector calculus. *Unique Journal of Engineering and Advanced Sciences*, 1(1).
97. Kalanov, T. Z. (2013). Critical analysis of the mathematical formalism of theoretical physics. II. Foundations of vector calculus. *Bulletin of Pure and Applied Sciences*, 32E(2), 121-130.
98. Kalanov, T. Z. (2014). Critical analysis of the mathematical formalism of theoretical physics. II. Foundations of vector calculus. *Bulletin of the American Physical Society (April Meeting)*, 59(5).

99. Kalanov, T. Z. (2014). Critical analysis of the mathematical formalism of theoretical physics. III. Pythagorean theorem. *Bulletin of the American Physical Society (April Meeting)*, 59(5).
100. Kalanov, T. Z. (2014). On the system analysis of the foundations of trigonometry. *Journal of Physics Astronomy*, 3(1).
101. Kalanov, T. Z. (2014). On the system analysis of the foundations of trigonometry. *International Journal of Informative Futuristic Research*, 1(6), 6-27.
102. Kalanov, T. Z. (2014). On the system analysis of the foundations of trigonometry. *International Journal of Science Inventions Today*, 3(2), 119-147.
103. Kalanov, T. Z. (2014). On the system analysis of the foundations of trigonometry. *Pure and Applied Mathematics Journal*, 3(2), 26-39.
104. Kalanov, T. Z. (2014). On the system analysis of the foundations of trigonometry. *Bulletin of Pure and Applied Sciences*, 33E(1), 1-27.
105. Kalanov, T. Z. (2014). Critical analysis of the foundations of the theory of negative number. *International Journal of Informative Futuristic Research*, 2(4), 1132-1143.
106. Kalanov, T. Z. (2015). Critical analysis of the mathematical formalism of theoretical physics. IV. Foundations of trigonometry. *Bulletin of the American Physical Society (April Meeting)*, 60(4).
107. Kalanov, T. Z. (2015). Critical analysis of the mathematical formalism of theoretical physics. V. Foundations of the theory of negative numbers. *Bulletin of the American Physical Society (April Meeting)*, 60(4).
108. Kalanov, T. Z. (2015). Where are the logical errors in the theory of Big Bang? *Bulletin of the American Physical Society (April Meeting)*, 60(4).
109. Kalanov, T. Z. (2014). Where are the logical errors in the theory of Big Bang? *Scientific GOD Journal*, 5(5), 432-433.
110. Kalanov, T. Z. (2015). Critical analysis of the foundations of the theory of negative numbers. *International Journal of Current Research in Science and Technology*, 1(2), 1-12.
111. Kalanov, T. Z. (2015). Critical analysis of the foundations of the theory of negative numbers. *Aryabhata Journal of Mathematics Informatics*, 7(1), 3-12.
112. Kalanov, T. Z. (2015). On the formal-logical analysis of the foundations of mathematics applied to problems in physics. *Aryabhata Journal of Mathematics Informatics*, 7(1), 1-2.
113. Kalanov, T. Z. (2016). On the formal-logical analysis of the foundations of mathematics applied to problems in physics. *Bulletin of the American Physical Society (April Meeting)*.
114. Kalanov, T. Z. (2016). Critical analysis of the foundations of pure mathematics. *Mathematics and Statistics*, 2(1), 2-14.
115. Kalanov, T. Z. (2016). Critical analysis of the foundations of pure mathematics. *International Journal for Research in Mathematics and Mathematical Sciences*, 2(2), 15-33.
116. Kalanov, T. Z. (2016). Critical analysis of the foundations of pure mathematics. *Aryabhata Journal of Mathematics Informatics*, 8(1), 1-14.
117. Kalanov, T. Z. (2016). Critical analysis of the foundations of pure mathematics. *Philosophy of Mathematics Education Journal*, 30.
118. Kalanov, T. Z. (2016). On the correct formulation of the law of the external photoelectric effect. *Journal of Review in Sciences*, 1(1), 1-9.
119. Kalanov, T. Z. (2016). On the correct formulation of the law of the external photoelectric effect. *International Journal of Informative Futuristic Research*, 4(1), 4801-4811.
120. Kalanov, T. Z. (2016). Man vs. computer: Difference of the essences. The problem of the scientific creation. *Journal of Review in Sciences*, 1(1), 10-34.
121. Kalanov, T. Z. (2016). Man vs. computer: Difference of the essences. The problem of the scientific creation. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, 1(2), 120-141.
122. Kalanov, T. Z. (2016). Man vs. computer: Difference of the essences. The problem of the scientific creation. *International Journal of Contemporary Research and Review*, 7(12).
123. Kalanov, T. Z. (2016). Man vs. computer: Difference of the essences. The problem of the scientific creation. *International Journal of Multidisciplinary Education and Research*, 1(9), 15-31.
124. Kalanov, T. Z. (2017). Man versus computer: Difference of the essences. The problem of the scientific creation. *BRAIN: Broad Research in Artificial Intelligence and Neuroscience*, 8(2), 151-178.
125. Kalanov, T. Z. (2017). On the correct formulation of the law of the external photoelectric effect. *Bulletin of the American Physical Society (April Meeting)*.
126. Kalanov, T. Z. (2017). On the formal-logical analysis of the foundations of mathematics applied to problems in physics. *Asian Journal of Fuzzy and Applied Mathematics*, 5(2), 48-49.
127. Kalanov, T. Z. (2017). On the correct formulation of the starting point of classical mechanics. *International Journal of Chemistry, Mathematics and Physics*, 1(1), 27-47.
128. Kalanov, T. Z. (2017). On the correct formulation of the starting point of classical mechanics. *Advances in Physics Theories and Applications*, 64, 27-46.
129. Kalanov, T. Z. (2017). On the correct formulation of the starting point of classical mechanics. *International Journal of Advanced Research in Physical Science*, 4(6), 1-22.
130. Kalanov, T. Z. (2017). On the correct formulation of the starting point of classical mechanics. *International Educational Scientific Research Journal*, 3(6), 56-73.
131. Kalanov, T. Z. (2017). The formal-logical analysis of the foundation of set theory. *Bulletin of Pure and Applied Sciences*,

- 36E(2), 329-343.
132. Kalanov, T. Z. (2017). The critical analysis of the foundations of mathematics: Mathematics: The Art of Scientific Delusion. LAP LAMBERT Academic Publishing.
 133. Kalanov, T. Z. (2018). On the correct formulation of the starting point of classical mechanics. *Physics Astronomy (International Journal)*, 2(2), 79-92.
 134. Kalanov, T. Z. (2018). On new foundations of theory of atom. *International Journal of Advanced Research in Physical Science*, 5(1), 1-9.
 135. Kalanov, T. Z. (2018). The formal-logical analysis of the foundation of set theory. *Scientific Review*, 4(6), 53-63.
 136. Kalanov, T. Z. (2018). The doctrine of reality: A new paradigm of science. *Journal of Metaphysics and Connected Consciousness*.
 137. Kalanov, T. Z. (2018). The doctrine of reality: A new paradigm of science. *Global Scientific Journal*, 6(12), 59-71.
 138. Kalanov, T. Z. (2019). The doctrine of reality: A new paradigm of science. *Scientific Review*, 5(1), 24-32.
 139. Kalanov, T. Z. (2019). The doctrine of reality: A new paradigm of science. *Scientific GOD Journal*, 10(1), 1-15.
 140. Kalanov, T. Z. (2019). Hubble law, Doppler effect and the model of "Hot" Universe: Errors in cosmology. *Open Access Journal of Physics*, 3(2), 1-16.
 141. Kalanov, T. Z. (2019). Hubble law, Doppler effect and the model of "Hot" Universe: Errors in cosmology. *Indian Journal of Physics and Application*, 4(1).
 142. Kalanov, T. Z. (2019). Definition of derivative function: Logical error in mathematics. *MathLAB Journal*, 3, 128-135.
 143. Kalanov, T. Z. (2019). Definition of derivative function: Logical error in mathematics. *Academic Journal of Applied Mathematical Sciences*, 5(8), 124-129.
 144. Kalanov, T. Z. (2019). Definition of derivative function: Logical error in mathematics. *Aryabhatta Journal of Mathematics Informatics*, 11(2), 173-180.
 145. Kalanov, T. Z. (2019). Vector calculus and Maxwell's equations: Logic errors in mathematics and electrodynamics. *Open Access Journal of Physics*, 3(4), 9-26.
 146. Kalanov, T. Z. (2019). Vector calculus and Maxwell's equations: Logic errors in mathematics and electrodynamics. *Sumerianz Journal of Scientific Research*, 2(11), 133-149.
 147. Kalanov, T. Z. (2020). Definition of work: Unsolved problem in classical mechanics. *Bulletin of Pure and Applied Sciences (Section D – Physics)*, 39D(1), 137-148.
 148. Kalanov, T. Z. (2020). Definition of work: Unsolved problem in classical mechanics. *Open Access Journal of Physics*, 4(1), 29-39.
 149. Kalanov, T. Z. (2018). The doctrine of reality: A new paradigm of science. *Global Scientific Journal*, 6(12).
 150. Kalanov, T. Z. (2021). Formal-logical analysis of the starting point of mathematical logic. *Aryabhatta Journal of Mathematics Informatics*, 13(1), 1-14.
 151. Kalanov, T. Z. (2021). On the problem of axiomatization of geometry. *Aryabhatta Journal of Mathematics Informatics*, 13(2), 151-166.
 152. Kalanov, T. Z. (2021). On the problem of axiomatization of geometry. *Chemistry Biology and Physical Sciences Academic*, 3(1), 8-25.
 153. Kalanov, T. Z. (2022). On fundamental errors in trigonometry. *Bulletin of Pure and Applied Sciences (Section E – Mathematics Statistics)*, 41E(1), 16-33.
 154. Kalanov, T. Z. (2022). Theory of complex numbers: Gross error in mathematics and physics. *Bulletin of Pure and Applied Sciences (Section E – Mathematics Statistics)*, 41E(1), 61-68.
 155. Kalanov, T. Z. (2023). Differential calculus: A gross error in mathematics. *Bulletin of Pure and Applied Sciences (Section E – Mathematics Statistics)*, 42E(2), 109-121.
 156. Kalanov, T. Z. (2023). Classical wave equation: A gross error in mathematics and physics. *Bulletin of Pure and Applied Science (Physics)*, 42D(2), 98-107.
 157. Kalanov, T. Z. (2024). Differential calculus: A gross error in mathematics. *Space Science Journal*, 1(1), 1-12.
 158. Kalanov, T. Z. (2024). Differential calculus: A gross error in mathematics. *Aryabhatta Journal of Mathematics Informatics*, 16(1), 1-18.
 159. Kalanov, T. Z. (2024). Mathematical logic: Gross formal-logical error in mathematics (Call to Debate). *Space Science Journal*, 1(1), 1-11.
 160. Kalanov, T. Z. (2024). Differential calculus: A gross error in mathematics. *Journal of Pure and Applied Mathematics*, 8(2), 1-9.
 161. Kalanov, T. Z. (2024). Classical wave equation: A gross error in mathematics and physics. *Journal of Pure and Applied Mathematics*, 8(2), 1-6.
 162. Kalanov, T. Z. (2024). Foundations of differential calculus: Does the theory satisfy the criterion of truth? *Journal of Mathematical Techniques Computational Mathematics*, 3(10), 1-14.
 163. Kalanov, T. Z. (2024). The Korteweg–de Vries equation: A gross error in physics. *Aryabhatta Journal of Mathematics Informatics*, 16(2), 205-210.
 164. Kalanov, T. Z. (2024). Differential calculus: A gross error in mathematics. *Space Science Journal*, 1(1), 1-12.
 165. Kalanov, T. Z. (2025). On the formal-logical analysis of the foundations of mathematics applied to problems in physics. *American Journal of Mathematical and Computer Applications*, 1(1), 1-2.
 166. Kalanov, T. Z. (2025). The formal-logical analysis of the foundation of set theory. *American Journal of Mathematical and Computer Applications*, 1(1), 1-13.
 167. Kalanov, T. Z. (2025). The Korteweg–de Vries equation: Where is the error? *American Journal of Mathematical and Computer*

-
- Applications, 1(1), 1-6.
168. Kalanov, T. Z. (2025). Classical wave equation: A gross error in mathematics and physics. *American Journal of Mathematical and Computer Applications*, 1(1), 1-6.
169. Kalanov, T. Z. (2025). Formal-logical analysis of the starting point of mathematical logic. *American Journal of Mathematical and Computer Applications*, 1(1), 1-11.
170. Kalanov, T. Z. (2025). The Korteweg–de Vries equation: The starting-point of gross errors in physics. *Global Scientific Journal*, 13(2), 1720-1726.
171. Kalanov, T. Z. (2024). Mathematical logic: Gross formal-logical error in mathematics (Call to Debate). *Space Science Journal*, 1(1), 1-11.
172. Kalanov, T. Z. (2025). De Broglie hypothesis and the Schrödinger equation: Gross errors in mathematics, physics, formal logic and dialectics. *Journal of Theoretical Physics Mathematics*, 3(1), 1-8.
173. Kalanov, T. Z. (2025). De Broglie hypothesis and the Schrödinger equation: Gross errors in mathematics, physics, formal logic, and dialectics. *International Journal of Quantum Technology*, 1(1), 1-10.
174. Kalanov, T. Z. (2025). Special theory of relativity: A gross error in physics (A lesson for physicists). *Aryabhata Journal of Mathematics Informatics*, 17(2), 223-232.
175. Kalanov, T. Z. (2025). Special theory of relativity: A gross error in physics (A lesson for physicists). *Novel Journal of Applied Sciences Research*, 2(5), 1-6.

Copyright: ©2026 Temur Z. Kalanov. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.