The Ultimate Unified Physico Mathematical Theory of Nature

M.S. El Naschie

Distinguished Professor, Department of Physics, Faculty of Science, University of Alexandria, Alexandria, Egypt.

Corresponding author email id: chaossf@aol.com

Abstract – **The present work argues for the logical existence of an ultimate unification theory for fundamental physics which is based on fundamental mathematics. In pursuing the above aim which we presumed it to be a daunting task, we must admit that we were more than struck by the unexpected simplicity of reducing what we thought to be a huge problem to what is essentially a relatively well known number system familiar to us from our extensive past work in applied nonlinear dynamics, deterministic chaos and random fractals. Even more surprising than that, although in the same general direction, was the realization that all those gained results were known a long time ago, namely since the great Plato and friends established the Pythagorean school of Mathematics, Arts and Philosophy in the famous Greek-Egyptian cosmopolitan city of Alexandria where the present Author works and conducts research for nearly the last three decades into how Art, Science and Consciousness could be combined into a single ultimate truth.**

Keywords – **Non-Commutative Geometry, Penrose Fractal Tiling Universe, D. Deutsch Constructor Theory, Loop Quantum Gravity, Witten's M- Theory, E-Infinity Theory, Golden Mean Number System, Plato and Pythagoras School, Ord-Nottale-El Naschie Fractal Spacetime, String theory, Scott Olsen Unification.**

I. Introducing the Essential Conclusions of the Ultimate Unification Theory and its Varied Categories of References Plus Literature

Unusual and unexpected findings necessitated unconventional formatting of the presentation. In fact, most of us know that extreme complexity could be tamed more often than not by extreme simplicity. Therefore, in want of a better and more conventional way, we decided here to admit rather than to deny or cover up the dilemma which we are facing. Thus we are focusing here on writing the present paper in an optimal way conventional or not without getting lost into details nor glossing over difficult points just because it is too simple to believe it is true. In fact, a deep truth is necessarily too simple by its very "nature" and not the opposite [1-57].

Seeing things in this right frame of mind, let us say it straightforwardly without much ado that the present paper is trying to show, using a relatively very large number of References (57 in all) that the non-commutative geometry of A. Connes [20, 43] with its backbone structure inherited from the "pointless" geometry of J. von Neumann as well as Sir Roger Penrose's fractal tiling universe [19, 48], D. Deutsch Constructor theory [49, 50], El Naschie's Cantorian space time as well as string theory, Witten's M-Theory [56], and the voluminous work of the Loop Quantum Gravity school [33] to mention only a fractional subset of many cutting edge recent research are all reducible to the Golden Mean Number System of Plato, Pythagoras and their followers [2, 34]. Here we couldn't do better than cite the relevant recent References [49-57] and assert that all the ideas discussed in these papers boil down to a strong proof of what we have just mentioned above, as well as anything else resulting from them in a smooth and complex but logically convincing way. In a single sentence resonating a very popular song by the Beatles: "All you need is the golden mean number system and the golden mean number system is all what you need." In fact, anyone who wants to connect the physics and biology of Nature

with Art and the pure logic of Mathematics as well as the subjectivity of Consciousness, then there is only one way to do that, namely via the theory of the golden section of cosmic music as taught in Alexandria hundreds of years ago.

II. A Do Loop Conclusion

The reader is advised to read section "one" again in conjunction with the relevant references and literature of section 3 then enter in a do Loop reading of all the three sections of the present paper.

Acknowledgement

References

[1] E. Witten. Einstein in Alexandria: The Scientific Symposium. Bibliotheca Alexandrina, Egypt, pp. 1-1, 2006.

[2] S. Olsen, A Grand Unification of the Sciences, Art & Consciousness: Rediscovering the Pythagorean Plato's golden mean number system. Copyrights Scott Olson 2021, P.O, Box 361, Ocala, FL 34478. USA, ISBN:978-1-7923-7633-7. 2021.

[3] M.S. El Naschie, Topological defects in the symplictic vacuum, anomalous positron production and the gravitational instant on. International Journal of Modern Physics E, 13(04), pp.835-849, 2004.

[4] M.S. El Naschie, On 'tHooft's dimensional regularization in E (∞) space. Chaos, Solitons & Fractals, 12(5), pp. 851-858, 2001.

[5] M.S. El Naschie, On a class of general theories for high energy particle physics. Chaos, Solitons & Fractals, 14(4), pp. 649-66, 2002.

[6] P. Weibel,Ord, G. and O. Rössler, Space time physics and fractality: Festschrift in honor of Mohamed El Naschie on the occasion of his 60th birthday. Springer, Vienna-New York, USA, 2005.

[7] L.M. Wapner, The Pea and the Sun: A Mathematical Paradox. AK Peters/CRC Press, 2005.

[8] Ji-Huan He. (Editor), International Journal of Electrospun Nanofibers and Applications, 1(1), pp.1-87, 2007.

[9] S. Olsen,The Golden Section: Nature's Greatest Secret. Bloomsbury Publishing USA, 2006.

[10] M.S. El Naschie, Chaos Solitons & Fractals. The Interdisciplinary Journal for Nonlinear Science, Nano and Quantum Technology. 31,. Elsevier (Oxford UK and New York USA, 2007.

[11] L. Nottale, Fractal space-time and microphysics: Towards a theory of scale relativity. World Scientific, 1993.

[12] G. 't Hooft, . In Search of the Ultimate Building Blocks. Cambridge University Press, UK, 1997.

[13] P.S. Wesson, Five-dimensional physics: Classical and quantum consequences of Kaluza-Klein Cosmology. World Scientific. Singapore, 2006.

[14] L. Smolin, Three Roads to Quantum Gravity. Weidenfield and Nicholson, London,2008.

[15] Sidharth, B.G (Editor)., 2007. Frontiers of Fundamental Physics: Vol. 3. University Press (India) private Limited, Hyderabad [2007]. 367 pages.

[16] M.S. El Naschie, O.E. Rossler and I. Prigogine, (Editors), Quantum Mechanics, Diffusion and chaotic fractals. Pergamon Press. Copyright Elsevier Science, Oxford Ltd [2995]. ISBN 0080430373. 1995.

[17] S. Hawking, and R. Penrose, The Nature of Space and Time. Princeton University Press, Princeton, 1996.

[18] Nobel Laureate G. 't Hooft, Under the spell of the gauge principle. Advanced series in Mathematical Physics (Vol. 19). World Scientific. Singapore, 1994.

[19] Sir R. Penrose, The Road to Reality: A Complete Guide to the Laws of the Universe. Jonathan Cape-London, UK 2004.

[20] A. Connes, and M. Marcolli, M., Non-commutative Geometry, Quantum fields and motives. The American Mathematical Society. Colloquium Publications. vol. 55. The Hindustan Book Agency, New Delhi, India, 2008.

[21] M.S. El Naschie, Stress Stability and Chaos in the structural engineering and energy approach. McGraw--Hill Book Company (UK) ISBN 0-07-707310-X SC, ISBN 0-07-707248-0 HC. 1990.

[22] M.S. El Naschie, A Review of Applications and Results of E-infinity Theory. International Journal of Nonlinear Sciences and Numerical Simulation, 8(1), pp.11-20, 2007.

[23] S.L. Singh, S.L., B. Prasad,. and A. Kumar, Fractals via Iterated Functions and Multi functions. Chaos, Solitons & Fractals, 39 (3), pp.1224-1231, 2009.

[24] M.S. El Naschie, Is Quantum Space a Random Cantor Set with a Golden mean dimension at the core?. Chaos, Solitons & Fractals, 4(2), pp.177-179, 1994.

[25] M.S. El Naschie, On Certain "Empty" Cantor sets and their Dimensions. Chaos, Solitons & Fractals, 4(2), pp.293-296, 1994.

[26] M.S. El Naschie, Physics-like mathematics in four dimensions- Implications for classical and quantum mechanics. Computational and Applied Mathematics, II Differential Equations Selected and revised papers form IMACS 13th World Congress Dublin - Ireland, July 1991, pp, 15-23. Edited by W.F. AMES (USA) and P.J. VAN DER Houwen (Netherlands), 1991.

[27] L.P. Horwitz, and L.C. Biedenharn. Exceptional Gauge Groups and Quantum Theory. Journal of Mathematical Physics, 20(2), pp.269-298, 1979.

[28] A.M. Mukhamedov, The Two-Slit Gedanken Experiment in E-Infinity Theory. Chaos, Solitons & Fractals, 33(1), pp.1-4, 2007.

[29] M.S. El Naschie, From experimental quantum optics to quantum gravity via a fuzzy Kähler manifold. Chaos, Solitons & Fractals, 25(5), pp. 969-977, 2005.

[30] M.S. El Naschie, Non-Euclidean Spacetime Structure and the two-slit Experiment. Chaos, Solitons & Fractals, 26(1), pp.1-6, 2005.

[31] M.S. El Naschie, A Feynman path integral-like method for deriving the four dimensionality of spacetime from first principles. Chaos, Solitons & Fractals, 6(4) pp. 335-342, 2009.

[32] M.S. El Naschie, High Energy Physics and the standard model from the exceptional lie groups. Chaos, Solitons & Fractals, 36 (1), pp.1-17, 2008.

[33] M.S. El Naschie, Proving Superstring Theory using Loop Quantum Mechanics. Chaos, Solitons & Fractals, 26(1), pp. 43-45, 2005.

[34] M.S. El Naschie, Fuzzy Platonic Spaces as a Model for Quantum Physics. Mathematical Models, Physical Methods and Simulation in Science & Technology. 1(1), pp. 91-101. January-June 2008.

[35] M.S. El Naschie, Determining the temperature of the Microwave background radiation from the topology and geometry of Space time. Chaos, Solitons & Fractals, 14(7), pp.1121-1126, 2002.

[36] M.S. El Naschie, An irreducibly simple derivation of the Hausdorff dimension of spacetime. Chaos, Solitons & Fractals, 41(4), pp.1902-1904, 2009.

[37] M.S. El Naschie, A few hints and some theorems about Witten's M-theory and T-duality. Chaos, Solitons & Fractals, 25(3), pp.545-548, 2005.

[38] M.S. El Naschie, On gauge invariance, dissipative quantum mechanics and self-adjoint sets. Chaos, Solitons & Fractals, 32(2), pp.271-273, 2007.

[39] M.S. El Naschie, Banach-Tarski theorem and Cantorian micro space-time. Chaos, Solitons & Fractals, 5(8), pp.1503-1508, 1995.

[40] M.S. El Naschie, Young double-slit experiment, Heisenberg uncertainty principle and Cantorian space-time. Chaos, Solitons & Fractals, 4(3), pp.403-409, 1994.

[41] M.S. El Naschie, On the uncertainty of Cantorian geometry and the two-slit experiment. Chaos, Solitons & Fractals, 9 (3), pp.517-529, 1998.

[42] Y. Tanaka, Space–time symmetry violation, configuration mixing model and E-infinity theory. Chaos, Solitons & Fractals, 39 (3), pp.1064-1072, 2009.

[43] M.S. El Naschie, Penrose universe and Cantorian spacetime as a model for non-commutative quantum geometry. Chaos, Solitons & Fractals, 9(6), pp.931-933, 1998.

[44] M.S. El Naschie, Four as the expectation value of the set of all positive integers and the geometry of four manifolds. Chaos, Solitons & Fractals, 9(9), pp.1625-1629, 1998.

[45] M.S. El Naschie, COBE satellite measurement, Cantorian space and cosmic strings. Chaos, Solitons & Fractals, 8(5), pp.847-850, 1997.

[46] M.S. El Naschie, Kolmogorov turbulence, Apollonian fractals and the Cantorian model of quantum spacetime. Chaos, Solitons & Fractals, 7(1), pp.147-149, 1996.

[47] M.S. El Naschie, On the topological ground state of E-infinity spacetime and the super string connection. Chaos, Solitons & Fractals, 32(2), pp.468-470, 2007.

[48] M.S. El Naschie, Foreword – Quantum mechanics and chaotic fractal. Chaos, Solitons & Fractals, 4(3), pp.307-309, 1994.

[49] M.S. El Naschie, S. Olsen, M. Helal, L. Marek-Crnjac and Ji-Huan-He, The Interplay between Numerics and Physical Concepts in E-Infinity cantorian spacetime, Wild topology, Constructor theory and recent trends in Unifying Mathematics, Physics and Consciousness. International Journal of Innovation in Science and Mathematics. Volume 10, Issue 3, ISSN (Online): 2347–9051. pp.31-35, 2022.

[50] M.S. El Naschie, On the possibility of a Deutsch-Marletto constructor theory based Pythagorean-Plato Number System. International Journal of Innovation in Science and Mathematics. 10(2), ISSN (Online): 2347–9051. pp.26-30, 2022.

[51] M.S. El Naschie, Fuzzy Wilson Loops, Witten's topological field theory and the golden mean number system theory as the deep roots of hardy's quantum entanglement. International Journal of Innovation in Science and Mathematics, 9(4), ISSN (Online): 2347–9051. pp.70-77, 2021.

[52] M.S. El Naschie, The answer to life, the Universe and everything is not the forty two of D. Adam's Hitchhiker's Guide to the Galaxy but it is the Golden Mean Square Root of Five Minus one Divided by two of S. Hawking's Micro Black Hole. International Journal of innovation in Science and Mathematics, 9(2), ISSN (Online): 2347–9051. pp.14-17, 2021.

[53] M.S. El Naschie, M.A. Helal, Ji-Huan He, and L. Marek-Crnjac, Super Unification of Physics and Mathematics. Journal of Progressive Research in Mathematics, 18(4), pp.22-27, 2021.

[54] M.S. El Naschie, M.S., Cellular automata based on the golden mean number system as a foundation for artificial intelligence and artificial life. International Journal of Artificial Intelligence and Mechatronics, 8(6), pp.22-27, 2020.

[55] M.S. El Naschie, Fluid turbulence Batchelor's law implies spacetime unification of classical and quantum physics. International Journal of Applied Science and Mathematics, 7(3), pp.85-91, 2020.

[56] M.S. El Naschie, Symmetria Massima of the fractal M-theory via the golden mean number system-A new language for a deep dialogue between man and nature. International Journal of Artificial Intelligence and Mechatronics, 7(3), pp.11-14, 2018.

[57] M.S. El Naschie, Spinoza' s God, Leibniz's monadology and the universal music of Einstein' s Cantorian nature. International Journal of Innovation in Science and Mathematics, 7(1), pp.33-39, 2019.

AUTHOR'S PROFILE

M.S. El Naschie, Distinguished Professor, Department of Physics, Faculty of science, University of Alexandria, Alexandria, Egypt.