
Ramanujan's Formula, Einstein's Guiding Principle and Unification

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Abstract – The paper deals with a thoroughly ingenious formula by the legendary Indian master of number theory, Srinivasa Ramanujan which expressed the golden mean $\phi = 1.618\dots$ in terms of a continued fraction involving the two most prominent mathematical constants (e) and (π). In a flash-like recognition, the preceding connections were not surprisingly amplified to an extent allowing the discovery of the intimate deep relationship between the remarkable pure mathematical formula of Ramanujan on the one hand and Einstein's long-standing search for a guiding formula to enable him to fulfill his dream of finding a general universal theory for unification on the other. We will argue that A. Einstein has had all the time, the right intuitive hunch that his efforts were not in vain and he may have not formally found the equation of the "Theory of Everything" per se but he was even closer to something simpler and more profound. He did not find the "Godly golden equation". However we recognize here with utter astonishment bordering on disbelief that Einstein had indirectly rediscovered the Godly golden mean number system which was found centuries ago in Alexandria, Egypt in the school of Plato and Pythagoras. This system was extensively used in recent times in the Cantorian spacetime theory of quantum high energy physics and cosmology.

Keywords – Ramanujan's Formula, Golden Mean Number System, Einstein's Guiding Principle, Unification of Fundamental Forces, R. Feynman, Wolfgang Pauli. Plato and Pythagoras, Cantorian Spacetime, Quantum Entanglement.

I. BACKGROUND INFORMATION

The historical development of the idea of unification is a highly engaging subject in its own right [1-27]. Adding to that, the controversy created by the scientific giants of Theoretical Physics, the idea automatically and understandably ignited and stirred interest irrespective of the names and fame of these great scientists.

Finally, when one realizes that firstly two of the contributors to the debate are nothing less than Albert Einstein and Wolfgang Pauli, then one would not be surprised that they drew into the fierce discussion Werner Heisenberg, Erwin Schrodinger and even Niels Bohr who is one of the main founders of quantum physics [3-9] and secondly and quite unexpectedly all those luminaries have not settled the discussion in a clear-cut way. That is why the present task is both exciting as well as slightly daunting to have to admit that we simply failed to see the obvious [5].

The point, believe it or not, is simply the following: Let's take the "Godly equation" which we were desperately seeking [1-25] and replace it with the "Godly number system" which we have known for centuries as the Golden mean number system and the problem is immediately solved. It may be slightly over the top to cry "Hurrah, we have finally found it [27] but this is what the Author genuinely feels [5-11]. For that reason we must stress the importance of the short character of the present communication.

II. QUINTESSENCE AND BASIC IMPORTANT REMARKS

Being able to demonstrate that (e) and (π) may be converted to phi (Φ) [26] when adding deterministic chaos

via continued fraction [26, 27] is tantamount to pointing out the quintessence of chaotic fractals and its inherent connection to the golden mean number system as being effectively the organizing and guiding principle which Einstein was searching for to achieve his unification program [5, 11, 14, 18, 20, 21, 23, 26]. It is written in the Bible that what “God” has united let no one put asunder. That is an old English saying which is quite similar to the German phrase: Aus-Ein-Ander. Wolfgang Pauli with his marvelous Semitic wit turned the table on Einstein and wrote to H. Weyl: “let no man unite what God has put asunder”.

The Author for one knows of course of Bohr’s objection to a certain Einstein- Schrodinger theory being not sufficiently crazy to be right and he felt therefore that the same thing may be said about his present golden mean number system proposition [7-14]. Now, as sure as one might be, only time can tell what will survive the test of time.

III. CONCLUSION

Strictly speaking the present work is the conclusion of an almost a quarter of a century of research done by not only the present Author but also a large number of highly gifted pioneers such as A. Connes, R. Penrose, L. Hardy, E. Witten, L. Smolin, D. Deutsch, G. ’tHooft, D. Gross and F. Wilczek as well as their co-authors and students including the Author’s dedicated colleagues and supporters particularly G. Ord, L. Nottale, S. alAthel, Ji Huan He, L. Crnjac. S. Olsen, M. A. Helal, N. Okko, S. Nada and O. Rossler.

The final word is that at the beginning there was not only God’s golden equation but even deeper there was God's golden mean number system.

The 2022 Nobel Prize in Physics was awarded to the experimental work underpinning Hardy's quantum entanglement testifying eloquently for all what is mentioned in the present work.

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AUTHOR'S PROFILE



First Author

Professor M.S. El Naschie, was born in Cairo, Egypt on 10th October 1943. He received his elementary education in Egypt. He then moved to Germany where he received his college education and then his undergraduate education at the Technical University of Hannover where he earned his (Dipl-Ing) diploma, equivalent to a Master's degree in Engineering plus being a professional chartered engineer. After that he moved to the UK where he enlisted as a post graduate student in the stability research group of the late Lord Henry Chilver and obtained his Ph.D. degree in structural mechanics under the supervision of Professor J.M.T. Thompson, FRS. After his promotions up to the rank of full professor, he held various positions in the UK, Saudi Arabia and USA and was a visiting professor, senior scholar or adjunct professor in Surrey University, UK, Cornell, USA, Cambridge University, UK and Cairo University, Egypt. In 2012 he ran for the Presidency of Egypt but withdrew at the final stage and returned to academia and his beloved scientific research. He is presently a Distinguished Professor at the Dept. of Physics, Faculty of Science of the University of Alexandria, Egypt. Professor El Naschie is well known for his research in structural stability in engineering as well as for his work on high energy physics and more recently for his work in cosmology and elucidation of the secret of dark energy and dark matter as well as for proposing a dark energy Casimir nanoreactor and a fuelless interstellar spaceship. He is the creator of E-infinity theory, which is a physical theory based on random Cantor sets and can be applied to micro, macro and mesoscopic systems. Professor El Naschie is the single or joint author of about one thousand publications in engineering, physics, mathematics, cosmology and political science. His current h-index is 86 and his i-10 index is 809 and total citations are 40010 according to Google Scholar Citation.