

# QFT and 8T – Calculating Versus Understanding

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## Abstract:

General analysis of the innate difference between the two theories. One is well known and oriented toward probability calculations, the other is relatively new, has little to no calculation at all and oriented toward understanding of why things are the way they are. Which theory is better suitable to describe the most intimate ways of nature. In this short essay, the author will argue for the latter. The paper then involves a criticism about the modern system of education and the way education is being transmitted to students.

## Introduction

If one is to analyze the main questions physicists ask themselves during the development of physics, one can notice that the orientation was, and still is toward, questions of "what". Those questions then yielded equations to describe the answer. The equation of motion to the question of what is the motion, energy, momenta and so on. Let us analyze the Schrodinger equation, or the modern variation the Klein Gordon equation. Suppose one solved the equation and get the solution to the equation of motion. How much does he know about nature? About the reason such objects, electrons, photons and so on exist in the first place? The entire framework of QFT is oriented toward calculation and little to no understanding. How can there be an understanding when the notation is so complicated and the equations are so long and tiresome? Even if you calculate the probability of certain events, how much do you understand? In addition, QFT was the best theory we had up until recently. The point was that theory is shaped, first and foremost by the questions the scientist ask.

Now analyze the 8T, there is not a single calculation in it other than the calculation of the coupling constants series (and the masses series, not included in this paper as it is not relevant to the point).

$$F_{V=0} = 8 + (1) \tag{0}$$

$$F_R \# = \left( 8 * \prod_{V=1}^{V=R} N_V + (3) \right) + N_V = 30: 128: 850: 9254.. \tag{1}$$

$$N_V = 2 \left( V + \frac{1}{2} \right); V \geq 0 \tag{1.1}$$

$$N_V \in \mathbb{P} \cup (+1); \mathbb{P} \rightarrow \text{Set of Primes}$$

$$N_V = P_{max} \in [0, \mathbb{R}] \cup (+1); P_{max} \in \mathbb{P}$$

$$8 + (1): (24 + (3)) + 3: (120 + (3)) + 5: (840 + (3)) + 7 ... \tag{1.2}$$

The reason for such a lack is that the author did not ask himself questions of that sort. Rather the kind of question he tried to answer is of the sort of why. Why things are the way they are. Why those numbers? Why those magnitudes? Why three? Why four? The entire theory is constructed to answer such questions, as the author believed that these are the true pillars of great theory. Computers can calculate much better and faster, it does not mean they understand. To understand something you have to go beyond numerical results, i.e. to answer the question of why.

The second main point of this essay is the following argument: The educational systems from schools to universities are not sufficient, and it is a global problem.

Physics and all other subjects of study from schools to universities, from elementary schools to M.Sc are oriented toward such questions of what. For physics as an example the courses: CM, QM, EM, QFT, PP, SP, asks the same kind of questions leading to calculations and not toward true and profound understanding. Add to it the fact the students are passive during their education while the teacher is active, the teacher solves the questions, do the explanations, answers the questions, explain it repeatedly in different levels of rigor, gather the data, filter the data, represent the data in his own words and schemes while the student should to exactly that kind of immersion and preparation, and now formal education is even worse.

Moreover, it is the same everywhere. There is so much talent wasted in these educational systems, we must change it or at least discuss it.

If it was oriented toward understanding and pro-active search there could have been shorter stagnation between the unification of QM and GR. As it was a result of asking "why" questions alongside a proactive search for an answer. Two things educational system do not do, they never did and probably never will. They probably never will because of the grading system which makes it exclusively oriented toward the "what questions" and closed questions, so called "American" which one has to circle the right answer. i.e., the answer are already given to him. Overall, for those above reasons, one believes that entities of formal education are not sufficient and actually limit creativity and ideas, invariantly of place or ranking. The students are passive, the teacher is active and the orientation is toward calculation and memorization and not toward profound understanding and innovation.

As one's work now being read across the scientific enterprise and even beyond it by people without technical background, one felt obligated to write about such a topic. Precisely because one does not want to cultivate the image of a brilliant person, but rather a person in a constant proactive search for understanding. A constant proactive search for beauty and simplicity.

## References

- [1] O. Manor. "8- Theory – The Theory of Everything" In: (2021)