Mathematical First Step for a Model that Integrates Classical Mechanics and Quantum Mechanics

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Abstract

I wrote this article as the mathematical first step of my previous article (Karanikola, 2019), which I mentioned as a different model. I questioned the interference pattern formation in the double-slit experiment, which is the simplest expression of the particle-wave duality, which is the most effective detection of classical and quantum mechanics. The resulting situation shows that the wave is not really a wave and the particle is not a particle in the real sense. So I tried to create a different definition and the mathematical first step of this definition.

Keywords: Vacuum field, Uncertainty, Quantum mechanics, Wave, Particle, Matter, Frequency, Holographic principle, Entropy, Arrow of time.

1. Introduction

In my previous article (Karanikola, 2019), I covered a different model in a very broad framework. In particle physics and cosmology, I have put forward assumptions with some examples in terms of classical mechanics and quantum mechanics. But without math, it doesn't get interesting and is not taken seriously. Those who develop ideas are constantly approaching the truth, but they cannot touch it, because there are still many problems that cannot be solved even though there is enough knowledge. Some seemingly unrelated detections are probably very related. Which ones should be considered together to find a solution? Whenever a different hypothesis is tried to be explained, different questions arise and the lack of resolution continues. Therefore, it should be tried to start with a different approach on the main issues. This will not be a waste of time, because physicists will reveal some different facts during their work, even if they do not reach the targeted solution when dealing with a different approach. Many studies have had similar results.

2. Imitation Wave Imitation Particle

Since the most confusing thing in quantum mechanics is the wave property and the structure of matter associated with it, I asked myself the question; Could there be a physical process that creates a wave-like interference pattern even though there is no wave? As an exaggerated analogy, can different thinking be prevented in physical processes that we consider as waves due to the facts that we

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overlook with shadows and light games, just like the magicians on the stage? Based on this assumption; What could be different about matter and wave? As I mentioned in the introduction, I mentioned this different approach in my previous article (Karanikola,2019), which is quite detailed and adapted to different situations. I want to share some details about Matter and wave in this article, as it is related to mathematical editing that I will write. When we say particle-wave duality, we are talking about two different effects of a single formation. As the wave disappears completely, the particle becomes more prominent, while in the wave state the particle becomes indistinct. The particle must be completely disappearing in waves! I'm talking about a real physical extinction. What happens in this unexplained process?

3. Competition Between Vacuum Field and Particle in Uncertainty

In the double-slit experiment with electrons, the interference pattern fits with the probability calculations. Considering the way the pattern was formed, it was considered a probability wave. In my earlier article (Karanikola,2019); that the particle is not a particle in the real sense, I expressed a different model, acting on the assumption that the wave is not really a wave. In theory, from the perspective of classical physics, positive energy and negative energy became the cornerstones of the model, as they neutralize each other out like a wave. The most important of the conservation laws in physics is the conservation of energy. In this model, I explain that the energy is in balance with the space field in which it is located. This field includes the particle or energy packet and the virtual layers formed around it. My last sentence leads me directly to energy-time uncertainty (Heisenberg, 1927);

$$\Delta E.\Delta t \geq \frac{\hbar}{2} \tag{3.1}$$

This formula must fit the model I mentioned. If we make arrangements;

$$\Delta E.\Delta t \geq \frac{h}{4\pi} \rightarrow \Delta(m.c^2)\Delta t.4\pi \geq h \rightarrow \Delta(m.c^2)\Delta t.4\pi \geq \frac{E}{f} \rightarrow m(\frac{\Delta x}{\Delta t})^2\Delta t.4\pi \geq \frac{E}{f} \rightarrow \frac{m.4\pi.(\Delta x)^2}{\Delta t} \geq \frac{E}{f} \tag{3.2}$$

Considering that the path is in a spherical space, the final state of the mathematical arrangement;

$$\frac{m.4\pi.(\Delta x)^2}{\Delta t} \geq \frac{E}{f} \rightarrow \frac{m.4\pi.r^2}{\Delta t} \geq \frac{E}{f} \tag{3.3}$$

m (mass) is inversely proportional to $4\pi.r^2$ (spherical area). It is directly proportional to Δt (elapsed time). If we interpret this part, the left side of the inequality, the spherical field needs to shrink as the mass increases. This relationship shows that the two situations affect each other. At the root of uncertainty is this relationship. Δt: this is the time spent during the relationship. On the right side of inequality; E: the amount of energy that can occur from this relationship, and f: shows the frequency of this relationship. I especially want to draw attention to frequency. Frequency indicates that the relationship is repetitive. With continuous spherical area, mass decreases and increases. The matter at the particle level is constantly disappearing and existing. The absolute vacuum creates matter and matter creates an absolute vacuum. Δt: is the process of existence of matter. As the mass increases, Δt increases, frequency increases. At the particle level, Δt is short, the frequency is low, so nothingness fields are formed at the particle level. Therefore, interference is observed in the double-slit experiment. In large mass, this is not possible, because Δt long, frequency is high. Time is insufficient for the formation of nothingness areas.

4. Natural Goals of The Model

This extraordinary relationship depends on the positive energy and negative energy that arise at the beginning of everything. I explained the details in my previous article (Karanikola,2019). The expression $4\pi.r^2$ emerging in inequality is in line with the idea of the holographic principle (Susskind, 1995). It fills matter and virtual layers together in the spherical field. This relationship brings a different perspective to holography and uncertainty. It can also add a different meaning to the time arrow and entropy process. If this model is studied carefully, it can be seen that it integrates classical mechanics with quantum mechanics. It can also be an answer to many more problems.

References

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