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Quantum Ontology and Epistemic Boundaries: Deciphering the Paradoxes and Interpretations of Subatomic Reality

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Modern scientists describe the universe in terms of two basic partial theories: firstly, the general theory of relativity proposed by Albert Einstein, and secondly, the theory of quantum mechanics. This theory introduces an immense reality and simultaneously creates complex questions for the world of physics. Quantum mechanics is an incompletable knowledge however scientists are finding the basic theories from this theory. They propose complex mathematical expressions from quantum mechanics to prove the basic law of atoms. Quantum mechanics is the entire knowledge of subatomic particles such as electrons, protons, and neutrons.

Quantum mechanics reveals that what we see is just a part of a deeper reality. Then we can grasp from this theory that the material world is not the completed reality; there are other things beyond human physical senses.
The concept of quantum mechanics describes particles that can exist in multiple states.

The concept of quantum mechanics is directly proportional to contemporary world technologies. The super specialty of this theory is that scientists cannot be explained universe without quantum mechanics.

The uncertainty principle of Heisenberg in quantum mechanics suggests that there are limits to what we can know about a particle state of an atom. Humans cannot yet find out what it looks like and how we can imagine the existence of subatomic particles in an atom. That was an unseen dynamite for humans' perspective observation of the material world.

Probability curve in quantum mechanics

In the aspect of large material things, we can predict very easily their existing area with the help of classical physics more accurately and precisely. But in the case of subatomic particles, we cannot predict their behavior and their roving method exactly. Here we can say with more probabilities the basis of many theories like the Copenhagen interpretation and Schrödinger's theory of quantum mechanics. That was one of the basic concepts in quantum mechanics. In the logical context of quantum mechanics, say that subatomic particles express their existing situations with more probabilities. This is an interpretation paving the way into a popular theory known as the many-worlds interpretation (MWI).

The Copenhagen interpretation states that when we observe an electron from a special point, then they return to their normal behavior for that moment. They collapse their wave function into a single line that was the basic principle of the Copenhagen interpretation. But this theory paves the way to complex questions in quantum mechanical theory. Also, in that time, Schrödinger came up with his popular theory, “Schrödinger’s wave mechanics.” This theory made it a special influence in the world of quantum mechanics. It helps in finding the average behavior of an electron with partial probabilities. Also, Schrodinger's wave mechanics paved the way into the theory of “parallel universal theory.”

The limitation of the Copenhagen interpretation He couldn't describe the logical aspect of his observation concept of subatomic particle behavior. Also, he didn't give an exact answer for the complex questions

from his special interpretation.

In conclusion, quantum physics is a partially metaphysical knowledge. in quantum mechanics, we assume a particle is a wave function. Here the specialty of the wave is not a physical movement; the scientist describes it as a mathematical wave. This is also a basic concept of quantum mechanics. Many people have misunderstood this. The wave concept is only an imaginary wave in mathematical expression; this was the highly complex discussion in quantum mechanics.