

A Christian Primer on the Quantum Conundrum
Understanding God's Marvelous Creation
Colossians 1:9-18

I. Experience

A. Philosophy and Science

1. **Metaphysics:** The branch of philosophy concerned with principles of reality. Metaphysical theories try to explain the fundamental nature of being and the world.
2. **Physics:** The branch of science concerned with the study of matter and its motion through space and time and all that derives from these, such as energy and force.

B. Observations of our World

1. Classical Physics

- a) Sir Isaac Newton (1642 – 1727)
 - (1) First Law of Motion – Every object in a state of uniform motion tends to remain in that state of motion unless an external force is applied to it.
 - (2) Second Law of Motion – The relationship between an object's mass m , its acceleration a , and the applied force F is $F = ma$.
 - (3) Third Law of Motion – To every action there is an equal and opposite reaction.
- b) These simple laws accurately describe the behavior of systems whose motion is slower than the speed of light and whose size is greater than the atomic scale.

2. Quantum Physics

- a) Classical Physics cannot explain atomic level phenomena
 - (1) stability of individual atoms
 - (2) emission spectra of atoms
 - (3) molecular bonds
- b) The strange behavior of light and atomic particles.
 - (1) Double-slit experiment
 - (2) Interference patterns and the photoelectric effect
 - (3) All atomic particles (and some small molecules) also behave like light.
- c) The interaction of different elements of matter can be described as waves or particles.
- d) Albert Einstein's theory of quanta of light
- e) Quantum Mechanics is a mathematical theory consisting of a set of principles describing physical reality at the atomic level of matter (molecules and atoms) and the subatomic (electrons, protons, and even smaller particles). These descriptions include the simultaneous wave-like and particle-like behavior of both matter and radiation ("wave-particle duality").

3. Conceptual challenges

- a) By its nature, quantum mechanics describes matter in a statistical nature.
- b) The state of a particle, such as its simultaneous location and velocity, can never be described with complete certainty.

4. Einstein's Paradox

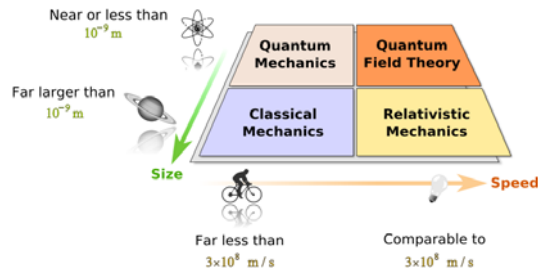
- a) EPR paradox (1935): Quantum Mechanics shows that entangled particles appear to communicate instantaneously at a distance.
- b) Einstein said there must be "hidden-variables" that explained the differences.
- c) "God does not play dice with the Universe," Albert Einstein, 1935

C. The struggle with meaning

1. Metaphysics to bridge the gap

- a) Copenhagen theory (1925)- Collapse of the wave function caused by observation
- b) Hidden Variables (1935)– Einstein's EPR paradox solution
- c) Many Worlds Interpretation (1955) – Every possibility actually happens
- d) Decoherence (~1995) – Environment is the observer and influences the outcomes

2. Keeping it all in perspective



II. Reason - From the Lab to the Temple

A. Quantum Spirituality

1. Quantum Spirituality is a term used to imply that New Age beliefs are informed by the mathematical model of the universe presented in quantum mechanics.
2. Emphasis is placed on general “truths” derived from a metaphysical interpretation of quantum mechanics.
3. Quantum Spirituality seems to have some basic tenets
 - a) A unity of all – based on entanglement
 - b) The collective universe is God, including man – based on the universal state vector
 - c) Power of thought – based on the importance of observation.

B. Nanometers to nonsense

1. Beginning with a very crude understanding of what physicists are saying about the mathematical constructions needed to describe the behavior of atomic particles, man builds a theory of life.
2. Each version of quantum spirituality takes a mixture of “truths” from quantum mechanics mathematic interpretation of atomic physics and develops a metaphysical interpretation.

C. Counting on Chaos and Fumbling with Fractals

1. Chaos theory and Fractals are not directly compatible with quantum mechanics
2. To be consistent with today’s scientific understanding, a metaphysical understanding can either be informed by linear Quantum Mechanics or non-linear chaotic Classical Mechanics, but not both.

III. Revelation - The Ultimate Reality

A. Founded in the sand

1. Natural man begins with physical understanding as a foundation for metaphysics.
2. The focus of natural man’s efforts is by definition an abomination to God.
3. Human endeavor not informed by a literal Biblical understanding ends-up in the sandbox.
 - a) Albert Einstein (1879-1955) – (Pantheist)
 - b) John Archibald Wheeler (1911-2008) – (Atheist)
 - c) Hugh Everett (1930-1982) – (Atheist)

B. Founded on the Rock

1. Redeemed man has his heart and mind opened to the truth that the chief end of man is to glorify God and enjoy Him forever.
2. With an enlightened heart, a redeemed man starts with the revealed metaphysics of the reality of God and interprets all physical observations in harmony with the revealed nature of God and His creative sovereignty.
3. All human endeavor that is pleasing to God is consistent with a literal interpretation of the Bible.

C. Revelation, then Reason, then Experience

1. Physics is a branch of science concerned with the study of matter and its motion through space and time and all that derives from these, such as energy and force.
2. The study of physics, as with any activity in life, can lead to self-centeredness and pride; but it is compatible with a strong Christian faith.
3. Revelation is the ground of all knowledge. Reason guides us to apply revelation to our life and to understand our experiences as working out the will of God.
4. We do not need science to prove God. We need integrity to include God in every aspect of life.

As ye have therefore received Christ Jesus the Lord, so walk ye in him: Rooted and built up in him, and established in the faith, as ye have been taught, abounding therein with thanksgiving. Beware lest any man spoil you through philosophy and vain deceit, after the tradition of men, after the rudiments of the world, and not after Christ. Colossians 2:6-8