



Exploring Quantum Mechanics through Advaita Vedānta and Śūnyavāda: A Clarification on the Interaction between Two Seemingly Unrelated Fields – Physical Science and Philosophy

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Abstract

This paper aims to reveal the point of contact between modern science and ancient Indian philosophy, namely quantum mechanics and Advaita Vedanta and Sunyavada in particular. Modern quantum research discloses the essential characteristics of quantum mechanics that disprove classical determinism and find out the relations between energy, entropy, and observations, wave-particle duality, and entanglement. These ideas have some similarity with Advaita Vedanta's non-dualism (Maya) and Buddhism's relational existence (Sunyavada) yet there lacks investigation of how either paradigms interface to develop their conceptual epistemology and ontological nexus. This paper recognises the issue of the bridging of these two perspectives, suggests Energetic Relational Ontology as a solution, and presents a new concept, Quantum-Metaphysical Cohesion, through which energy, consciousness and reality can be seen as one.

Keywords: Quantum Mechanics; Energy; Entropy; Advaita Vedanta; Sunyavada; Consciousness; Reality

Introduction

Currently when the physical sciences and philosophy meet they offer very deep insights into reality. Among these principles namely wave-particle duality, quantum entanglement and observer effect, the conventional deterministic understanding of the universe as postulated by Newton is replaced with a probabilistic model that includes an active role of the observer [1,2]. It seems the principles of such an approach are familiar of Indian metaphysical thoughts like Advaita Vedānta or Sunyavada. Advaita Vedanta recognises the principle of Brahman as the fact, and Maya and perception as the appearances. Likewise, the Sunyavada considers the existence as well as relation al ontology of existence based on the Principle of Dependent Origination or 'Pratityasamutpada' [3]. Despite such overlaps, the current literature on these paradigms is largely segregated and cross

fertilization of ideas is not given much attention. This paper will therefore aim at presenting a theoretical integration of quantum mechanics and Indian philosophy in an effort at providing the unification between energy, entropy and consciousness. As a result of systematic literature review, research question identification and idea generation, it connects physical sciences and metaphysical philosophy with solutions to various present-day problems in both domains.

Quantum Mechanics

Wave-Particle Duality: Wave particle duality of particles which behaves as wave when observed and as particle when measured violates classical objectively and deterministic causality [4]. Much of the development of quantum mechanical theory as well as the active role of measurement in the definition of the nature of reality owes its foundation

to this principle [1].

Quantum Entanglement: This and many other similar experiments in the field break the locality in the classical sense and present a holistic view of the universe [5].

Observer Effect: Concerning the observation replacing collapse of wave functions makes consciousness a central feature to reality construction indicating the balance between energy, entropy and measurement [6].

Advaita Vedānta

Non-Duality: Advaita Vedanta specifies, the empirical world, is Maya, which essentially means it is an illusion, and the reality is that there is no second reality, there is only ultimate reality which is Brahman, beyond perception [3]. **Role of Consciousness:** Consciousness (Chit) is not an emergent property but the ground of being, the ground of existence, the ground of both physical and experiential existence [7].

Śūnyavāda

Emptiness and Relational Ontology: Sunyavada claims that all phenomena are without self-characteristic reality and they are existentially conditioned through dependent origination [3]. This view is compatible with relationship characteristics found in quantum structures.

Philosophical Insights into Zero: The Indian mathematical concept of zero (Sunyavada) is used as a symbol of emptiness, which is at the same time, void and the source of phenomena [8].

Identifying the Problem

Despite the deep resonance between quantum mechanics and Indian philosophy, existing studies lack an integrated framework that connects these paradigms to address:

The Nature of Reality: To what extent it is possible to connect quantum mechanics' probabilistic reality and philosophy's non-dual and relational ontology?

The Role of Energy and Entropy: What role does energy transfer, transformation, and entropy play in the metaphysical construction of phenomena?

Consciousness as a Participatory Element: As the title of the paper suggests, the major questions are how the observer effect in quantum mechanics might relate to Chit or relational emptiness on the philosophical plane.

Solving the Problem: To address these challenges, this paper develops a framework that integrates quantum mechanics, Advaita Vedanta, and Sunyavada.

Energetic Relational Ontology

This new framework posits that:

Energy as the Basis of Relational Existence: Borrowing

from quantum mechanics, energy exchange and disorder as the two processes by which relational phenomena come into existence. This is in line with pratīyasamutpada in Sunyavada where phenomena are produced dependently [3,5].

Consciousness as a Field of Unity: Chit of Advaita Vedanta and observer effect in quantum mechanics are integrated to propose that consciousness is the participatory ground in which energy emerges as relational existence [3,6].

Entropy and Emptiness: The entropy of quantum systems is similar to Sunyavada (emptiness), which is the potentiality in chaos [8,9].

Generating a New Idea

Building on the Energetic Relational Ontology, this paper introduces the concept of Quantum-Metaphysical Cohesion:

Unified View of Reality: Reality is both physical and metaphysical because it consists of energy entropy and psyche of consciousness.

Application in Modern Physics: Born's probabilistic interpretation of quantum phenomena, entangled quantum states or non-locality, and observer-induced collapse of the quantum wavefunction can all be clearly seen as arising naturally within the framework proposed here.

Ethical Implications: I always correlated ethic responsibility, compassionate actions as well as sustainable behaviors with understanding that everything is interrelated and everything we do affects the whole relational network of existence [3,7,10].

Conclusion

Thus, using principles of quantum mechanics, Advaita Vedanta and Sunyavada this paper explains various philosophical and scientific issues related to reality, energy and consciousness. The proposed Energetic Relational Ontology provides a coherent account of the participatory character of being and links physics and philosophy. It is recommended that similar approaches should be carried out in future with an expansion concerning other fields and areas like artificial intelligence, cosmology, or ethical realms. This work also shows that it is possible to find ontological bridge between science and religion and bring light to people with the different vision of the world and humankind's place in it.

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Physical Science & Biophysics Journal

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