

THE VEDIC INTERPRETATION OF QUANTUM THEORY

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Abstract

The use of the Vedic Sciences allows a natural interpretation of quantum theory in which the universal understanding of the wave-function as referring to our knowledge of the system it represents, and not the system itself, finds its natural fulfilment. In developing the interpretation, specific use is made of the following: structure of Veda, including both mantra and brahmana portions of the texts, Vedanta (maya), Yoga (kaivalya) and Samkhya (mahat and triguna). Each contributes a specific, necessary understanding of the nature of reality, which enables completely new physics to be proposed and justified.

The Samhita of Rishi, Devata and Chhandas (the structure of Veda) is used to justify dropping the concept of 'objective reality' from the canons of modern science. Similarly, the relationship between pure knowledge (mantra) and its organising power (brahmana) is used to as a model for the relationship between the structure of the quantum field, and the organising ability which enables it to influence the unfolding of the reality of sensory experience and scientific measurement. Vedanta holds that the world of sensory experience is only an illusion, and that to treat it as having a purely objective existence is delusion, a result of being fooled by the illusion. Description of the illusion requires elements of other darshanas mentioned: Yoga is the source of the concept of singularity needed to describe singularities underlying fundamental laws of quantum complexity involved in processes of manifestation; Samkhya names the mahat tattwa as the supreme organising principle maintaining the world of manifestation in a state of perfect orderliness; it also shows how manifestation processes can only take place when there is a fundamental lack of equilibrium – between the three gunas, sattwa, rajas and tamas, which find a close correspondence to the thermodynamics of manifestation.

The whole approach is redolent with new physical concepts and new physics. The representation of manifest (i.e. macroscopic) reality in a non-objective fashion requires the development of a quantum theory of open systems. This can only be justified in terms of the Vedic interpretation since it requires the consistent interpretation of non-Hermitian processes: complex eigenvalues are shown to allow a new understanding of measurement in which random errors are incorporated as a fundamental concept, instead of being an experimental necessity, tacked on to a more idealised, but less realistic, theory of measurement; incompleteness of states is shown to have various correspondences e.g. the existence of collective modes of excitation,

different from the microscopic modes of interacting components; non-Hermitian time processes require complex valued time, where the imaginary part corresponds to temperature. The latter permits an integrated approach to quantum theory and statistical mechanics in which non-equilibrium processes play the fundamental role. In this way, lack of equilibrium between the three gunas turns out to correspond to (but is not restricted to) lack of thermodynamic equilibrium in physical processes, causing information to be generated, and the 'story of creation' to unfold..

When applied to processes of measurement, new insights result: all measuring apparatus depends on the existence of singularities in its physical processes to produce the amplification required to overcome randomizing thermodynamic influences; this in turn means that all measurements are multiple processes, allowing both real (normal quantum eigenvalue) and imaginary (its uncertainty) to be measured. All such processes now conform to the entropy principle of information at the quantum level. Singularities abound: in all processes initiating manifestation of any kind: at the origin of creation, in galaxy and star formation, and all bound states used in memory devices, and all creative, turbulence processes in fluids and plasmas etc.

Wider application of these concepts to all information production processes permits a new approach to the classical limits of quantum theory: macroscopic entities are illusions produced by pseudo-continuous information production, obeying the quantum form of the entropy principle of information; the structure of the laws of physics originates in Fisher information-production processes of manifestation. This reproduces in quantum form Frieden's derivation of the universal structure of the Lagrangians of physical theory as second order quadratic forms in their universal momenta. In the Vedic approach, these processes are Stapp wave-packet reduction processes independent of any physical observer. Their relationship to consciousness is clarified by adopting Vedantic insights that consciousness is a unitary reality, and that the concept of multiplicity is a delusion arising from the lack of integrated quantum coherence characteristic of lower states of consciousness. The structure of Brahmi Chetana, unity consciousness, and its insights into the structure of reality, is justified in terms of the holistic structure of physics that has been revealed in the Vedic interpretation of quantum theory. With this the circle is completed and the interpretation shown to be self-consistent.

It is immediately clear that the problems for previous interpretations of quantum theory originated in their lack of physics needed to produce a self-consistent and complete theory. Classical, macroscopic reality could not be described as a categorically different level of reality within the structure of the theory itself – the physics of maya was not available. Likewise, lack of the physics of kaivalya meant that the singularities dividing manifest from unmanifest could not be described. Now, quantized fluctuations enable the world to be seen holistically so consciousness plays a fundamental role in creation, rather than in the poverty stricken materialist-reductionist terms to which science has historically condemned itself. In this new vision, it is not the interactions between parts which are fundamental to structuring physical law, but the self-interaction of whole systems. These lead to the instabilities and their singularities, which underly all physical processes. Instability physics and corresponding singularity mathematics has to be fundamental in structuring physics at all levels. We use this to justify two speculations: the first by Josephson that biological processes are significant representations of the next physical paradigm; and the second by Weinberg that renormalization is a fundamental concept in structuring the laws of physics.

Reality is manifest, not objective. The apparent objectivity of matter is but an illusion. Wholes and wholeness are fundamental, not parts to which they are reduced. The universe is holistic not reductionist. Many body processes are fundamental, not single-bodies. They need quantum complexity to be described, not Schroedinger type equations. In biological feedback systems, the singularities lead to descriptions of a detachable life-force - the soul. At the origin of creation, the corresponding quantized fluctuations describe a life-force for the universe, a pure creative intelligence behind all processes of manifestation, the guiding spirit of the whole universe. Such spirit is fundamental, not matter. 'That' controls all.