Review of: "Quantum Entities and the Nature of Time"

Shuchi Bisht[1]

1 Kumaun University

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The manuscript looks at the Quantum theory with innovative ideas wherein the properties of the elementary particles are thought to play a vital role in the development of the theory. These particles, the constituents of matter have been attributed role in temporal sense too, in addition to their role in spatial sense. Thus, it has been proposed that the relationship that the elementary particles have with the spatial domain should dictate the nature of quantum entities .The author has come up with the unique idea where he assumes that the relationship of these particles with the spatial domain is mediated by time where time has been taken as complex variable. Starting from the de Broglie phase factor of an elementary particle the author has introduced the concept of complex time. By showing the de Broglie phase wave and quantum jumps through a circle which has been drawn in a complex time plane in a distinct manner, the author has been successful in communicating his idea .The statement that by taking time as a complex variable, quantum jumps can be treated on the equal footing with the unitary propagation of the quantum amplitude seems convincing and .his proposal gives a very good explanation of the quantum jumps. Quantum discontinuity, such as quantum jumps or the "collapse" of the state vector, is viewed as a consequence of discontinuous and non-unitary interactions between elementary particles. This discontinuity ultimately leads to classicization. Rather than focusing on the dual nature (wave-like and corpuscular) of particles, the author emphasizes the dual nature (unitary and non-unitary) of their interactions, particularly those described by the Standard Model and gravitation. The author has also addressed the compatibility of this perspective with Einstein's principle of locality.

It is also very fascinating as well as convincing to grasp the idea that in the quantum jumps in which elementary particles are involved through their interactions defines a specific relationship between vacuum and space and the particles can be imagined as deformations of this vacuum, which manifest themselves in the usual temporal domain as oscillations. Moreover, the "corpuscular aspect" of the particles has been interpreted as the transients associated with the initiation and damping of the oscillation which occurs in imaginary time this innovative approach has the potential to demystify many of the enigmatic aspects of quantum phenomena, offering a new lens through which to understand these fundamental principles..