

Review of: "An alternative foundation of quantum theory"

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Potential competing interests: No potential competing interests to declare.

This article deals with a mathematical model of the fundamental aspects of quantum mechanics. The quantum state is treated as a variable connected with the mind of an actor minds of communicating group of actors. The variable can be either accessible variable or inaccessible variable. The accessible variable is a theoretical variable and connected to an operator which gives a measurable value or an eigen value. The idea in the mind of an observer (actor) may be represented by a state and such state can be accessible or inaccessible. Thus, a state may be defined as a superposition of states representing accessible and inaccessible variables. the author elaborated accessible variables as the spin components or position and momentum coordinates. The inaccessible variables are the ones those follow Heisenberg uncertainty.

Author discusses mostly the maximal accessible variables through certain postulates and definitions. Every accessible variable has a self-adjoint operator connected to it. The eigen values of the operator are the possible values of the variable and the maximal variable is the one with simple eigen values. The text explains many previous published results with a lot of information on epistemological and ontological interpretations of quantum mechanics. The author mainly concentrated on the epistemological views.

In the case of particle states, like a free electron, quantum mechanics fails in the regions less than Compton wavelength. I think in this region the variables are inaccessible. The discreteness of quantum mechanics is mainly due to this inaccessible region. To explain the inaccessible regions, one may pursue sub-quantum theories which may give more fundamental aspects of the quantum theory like why operators at all and why variables are connected to the operators. The theoretical discussion of foundations of quantum theory based on excellent explanation in terms of mathematical logic or representations mostly give certain positive thought of certain abstract ideas.

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