Review of: "Consistent Interpretation of Quantum and Classical Mechanics"

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Potential competing interests: No potential competing interests to declare.

Comments

1. I like the goal of the paper, to find a consistent interpretation for quantum and classical mechanics. However, the paper fails to make a coherent case. There are several technical flaws that need attention.

2. The author uses the expression $r > \Delta \mathbf{r}$ throughout the paper in the context of the Heisenberg Uncertainty Principle. The "r" is referred to as the "scale of observation" but is never really defined. Bold characters are often used to indicate vectors. Is $\Delta \mathbf{r}$ a vector? How can it be compared with a scalar value r? This needs to be made precise, as it is at the foundation of the paper.

3. The Heisenberg Uncertainty principle has the form $\Delta x \Delta p > \hbar/2$. The author seems to be talking about something very different.

4. The author states section 1 p. 3 "Here, the size of a single photon should be defined by its wave packet. Therefore, for r>Δr, we can know the position of an electron, which is defined by the Bohr radius, or the position of a photon, but these positions are not known at a given Cartesian coordinate (x,y,z) because such a point-like position does not exist for any electron nor photon." This is the wave-classical-field interpretation Schrodinger held originally and has been shown to not hold up to experimental verification.

5. The discussion of the Hydrogen wave function as an example refers to the measurement of the entire radial range "in one go." The author should explain how that can be done. Quantum tomography allows construction of the wave function from many observations of the same state of a system, but it is not on one go.

6. I do not have access to Griffiths or Messiah or Levine, but I do have access to of Cohen-Tannoudji et al. at hand. The postulates numbering is not standard. Cohen-Tannoudji et al. have 6 postulates and two quantization conditions. The author should list in full the original postulate and his revision of it. It should be noted that postulates are short, typically one sentence. The revised postulates proposed by the author are length paragraphs that do not fit the designation of postulate.

   a. Revised postulate 1 on p. 7 is several paragraphs long and contains a lot of information secondary to any possible postulate.

   b. Similarly, many other revised postulates do not qualify as postulates.

   c. "new postulate 12," which is actually short, has another logical flaw: it contains "This means" which indicates a

conclusion from the first sentence. Hence the text contains a postulate, even if I agreed that the content of the first sentence is a valid postulate, and a theorem that should be derived from the postulate, not contained in it.