Review of: "Relation Between Quantum Jump and Wave Function Collapse"

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Potential competing interests: No potential competing interests to declare.

This manuscript details an approach to better understand the notion of state collapse in quantum mechanics.

My issue in reviewing this paper is that I am a physicist, while this work looks more philosophical to me, essentially because, in my opinion, the author provides arguments only toward the interpretation of the process of quantum measurements.

In fact, no modification of the known rules and formulae of quantum mechanics is proposed, and, as a matter of fact, there are virtually no calculations at all in the whole paper (except for some numerical estimates).

In my humble opinion, the true issue regarding wave-function collapse and the measurement problem is connected to the nature of the bra in Dirac's Bra-Ket notation. It seems to me that the author of this work claims that we can do without bras by carefully accounting for every interaction and that the classical world in which we make measurements is the result of what he calls an amplification process. Namely, in the attempt to localize the position of an electron, this interacts with photons, which in turn interacts with the apparatus, entangling them all until a macroscopic result we can read is produced, and at that point, the original electron wavefunction is effectively collapsed because of its entanglement with a macroscopic (classical) output.

However, this is not explicitly written in this paper, and I do not think that this is completely the thought of the author either. Since he keeps speaking of wave function collapse as an ontological thing, happening in stages during the measurement. One additional issue is that, although (to me) vague terms and notions are introduced to explain the measurement process, they all seem to be related to specific processes, and it is not clear if these concepts can be extended to any kind of measurement...

In conclusion, as a scientific paper, this reads more like a series of considerations and notes, and I did not manage to extract a scientific result. Moreover, the bulk of the author's ideas regarding quantum measurements was already presented in Ref. [1], and this manuscript seems to be fine-tuning some concepts and elaborating a bit more on the many-body amplification process that leads to a classical outcome. Although I found the later considerations quite obvious.

All in all, the ideas discussed by the author are interesting and possibly suitable for a philosophical paper, but this judgment is outside the scope of my expertise.

Regardless, I should point out that the introduction and abstract coincide almost verbatim, and this is not acceptable to

me. The abstract does not contain the information it should to entice and explain the paper's content to the reader, and the introduction is too short and hardly understandable without having read Ref. [1]. In general, this paper relies too heavily on Ref. [1], since even figures and experimental set-ups for the thought experiments discussed in this paper are explained in [1] and not repeated here.

Finally, there is a lot of confusion between scientific fact and interpretation. The author constantly writes as if his idea of how quantum mechanics works is factual and corresponds to an ontological reality, while this contradicts any basic epistemological approach.

In conclusion, although I think that some ideas of this work are worth pursuing, I do not support the publication of this paper as a scientific work, and I do not think that any revision can reverse this opinion, unless truly new content is added and the writing severely reconsidered.