



SDI Review Form 1.6

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| Journal Name: | <u>Physical Science International Journal</u> |
| Manuscript Number: | Ms_PSIJ_31668 |
| Title of the Manuscript: | Explaining the Born rule in the intuitionistic interpretation of quantum mechanics |
| Type of the Article | |

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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PART 1: Review Comments

| | Reviewer's comment | Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here) |
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| Compulsory REVISION comments | <p>There is nothing new in this paper which repeats and retrieves the following well-known facts about quantum mechanics:</p> <ol style="list-style-type: none"> 1. The dynamical variables of quantum mechanics cannot all be defined simultaneously with infinite accuracy. 2. An orthodox quantum theory does not specify whether an object plus apparatus system undergoes a deterministic transformation in accordance with Schrodinger's time-dependent equation or whether it undergoes a probabilistic transformation associated with the reduction of wave- packets. It is this inability of the orthodox quantum theory to specify precisely such mutually exclusive conditions that lies at the root of insolubility of the measurement problem. The immense diversity of opinions and the endless variety of theories concerning quantum measurements are but a reflection of the fundamental disagreement as to the interpretation of quantum mechanics as the whole. 3. Schrodinger' time-dependent equation or the Heisenberg's formulation or the concept of quantum probability is not applicable to a macroscopic system because any effort to apply any of these quantum formalisms to a typical macroscopic system (like the apparatus) causes to many other controversies and insurmountable paradoxes besides the existence of mathematical entities that are incapable of being computed by any deterministic algorithm in a finite time. 4. Furthermore, there are several typographical errors and grammatical mistakes in this paper and some | <p>I would like to thank the reviewer for the in-depth analysis of my manuscript.</p> <p>Regarding the reviewer's comments, I would like to say in response the following:</p> <p><u>To the comments ## 1 and 2</u></p> <p>I agree with the reviewer that no current interpretation of quantum mechanics is consistent with experiment, resolves the measurement problem, and is completely free from logical deficiencies or fine-tuning problems.</p> <p><u>To the comment ## 3</u></p> <p>In my opinion, it is incorrect to simply state that Schrödinger's equation is not applicable to the description of macroscopic systems because such description would lead to paradoxes and controversies. The main difficulty is that certain physical processes (measurements) seem to induce collapse (definite properties) but these processes cannot be calculated (decided) by means of the mathematical machinery of the theory. To express this difficulty in precise mathematical form was the aim of my manuscript.</p> |



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| | <p>uncommon, rather meaningless, phrases, like 'non-local in general magnitudes'; 'with the a priori probabilities'; and 'intuitionistic interpretation' have been used.</p> <p>5. In view of these comments, this paper cannot be recommended for publication in its present form. It is suggested that this paper should be revised, rather rewritten, removing these lacunas and precisely mentioning the specific contribution of the author(s), if any.</p> <p>6. Before revising this paper, the attention of the author(s) may be drawn toward the following recent papers written to resolve the difficulties encountered in the non-statistical interpretation of wave function: B.S. Rajput, Can. J. Phys. 89 (2011)185-191; Journ. Mod. Phys. 3(9) (2012) 989-998</p> | <p><u>To the comment ## 4</u></p> <p>I would be in reviewer's great debt if the reviewer were so kind to directly point me out to any typographical errors and grammatical mistakes found in the manuscript since I cannot see any.</p> <p>For example, the phrase "non-local in general magnitudes" is absent in my text. As to the term "a priori probabilities", it is completely legit and means probabilities not based on prior study or examination in contrast to a posteriori probabilities based upon actual observation.</p> <p>Also, the term "intuitionistic interpretation" is used in the manuscript for brevity in accordance with established rules and stands for "the interpretation of quantum mechanics based on the use of constructive (intuitionistic) logic".</p> <p><u>To the comment ## 6</u></p> <p>I appreciate your bringing to my attention the paper by Rajput, I will read it thoroughly.</p> <p>Once more, thank you very much for your time and consideration.</p> |
| <u>Minor</u> REVISION comments | | |
| <u>Optional/General</u> comments | Paper should be thoroughly revised, rather rewritten. | |