Review of: "The new partitional approach to (literally) interpreting quantum mechanics"

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The paper hag presented the math Of Quantum mechanics with the math of partitions. The idea is interesting and may provide a new insights that may prove useful in understanding the fundamentals of Quantum mechanics. The author have represented the math of quantum states, observables and measurement with the corresponding operations in partitions.

I have a few queries:

1. The author have represented all the pure states with a corresponding partition. As mentioned by the author, this is many-to-one mapping. However, if it is so, it treats all the pure states at the same level. Given this, what would be its implications on various applications in which these states are used as resources? For example, Quantum key distribution.

2. This mapping between pure states of QM and corresponding mapping to partitions does not involve any phase information between say the basis states. The relative phase between the basis states is the essential feature that has proven to be useful. In this light, is it really the complete equivalence between the two or an equivalence in special cases?

3. The author have discussed the analog of projective measurements in QM in the language of partitions. However, there exist more generalized measurements such as POVM. What will be the corresponding analog?

I think, an answer to these questions will help in a clear understanding of the two approaches.