Review of: "The correlation of classic and experimental measurement results with quantum measurement theory"

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Potential competing interests: No potential competing interests to declare.

Apparently, the author did not read my review of his Preprint 3. Had he done that, he would not have wasted time writing the new Preprint 4 based on the same false basis as the preceding preprint was.

Anyway, I can state once more time this: The premise that the Relative Measurement Theory (which claims relativism of all measurement systems and the necessity of calibration to a reference) can resolve the quantum measurement problem is false.

Theoretical physics (to which QM belongs) focuses not on accuracy or precision of experimental observations of physical quantities but on those quantities' true values. Therewithal, theoretical physics does not care that those physical values might never be known exactly.

What is more, even though physical quantities that have different dimensions (such as time and length) cannot be equated even if they are numerically equal, in theoretical physics this scruple is set aside by a process called *nondimensionalization*. The effective result is that many fundamental equations of physics, which often include some of the constants (such as the Planck constant $\hbar$), become equations where these constants are replaced by a 1.

It is true that all measurement systems are relative to intrinsic properties of physical systems. However, nondimensionalization determines the characteristic units of physical systems to use, without relying heavily on prior knowledge of the systems' intrinsic properties. In this way, nondimensionalization is able to propose the parameters which should be used for analyzing physical systems.

For example, after applying nondimensionalization to quantum mechanical variances ΔQ and ΔP, they are replaced with quantities scaled relative to $\hbar$. After that, $\hbar$ is chosen to be dimensionless and equal 1. Consequently, Heisenberg's uncertainty principle becomes the numerical relation $\Delta Q \cdot \Delta P \geq 1/2$. The last suggests that the variances ΔQ and ΔP could both be zero (and so any experiment might have a single result) if and only if number ½ would become 0.

On the other hand, there is no mathematical operation that can transform number ½ into zero without also transforming other numbers to null. So the question is: How do quantum variances ΔQ and ΔP turn out to be both zero after experiment? What compels them to do so? That's the measurement problem of QM, pure and simple.

Inasmuch as the Relative Measurement Theory has nothing to do with the resolution of that problem, the manuscript under review – in all of its incarnations – has no point.