Qeios

Peer Review

Review of: "The Measurement of Superpositions"

Inge Svein Helland[1]

1. Department of Mathematics, University of Oslo, Norway

The core of the article is a theory of measurements. It is rightly stressed that all measurements are of the form xu, where x is a numerical value, and u is a unit. Uncertainty in measurement is then a result of uncertainty in x (termed 1/n in the paper) and uncertainty in the different units that determine the measurement (termed 1/m). The latter may be described by calibration of the units. If the different 1/m are independent, one can argue for an approximately normal distribution of the real measurement.

To me, it is somewhat unclear how this whole theory is related to superposition in quantum mechanics. I think that this point should be explained better in the core of the paper. I am unfortunately unable to understand the meaning of the following sentences in the concluding Section: 'Later Heisenberg's uncertainty made definite measurement results impossible in theory, but metrology measurement theory did not change. Then QM superpositions, when measured, generated distributions.'

As far as I understand, metrology means scientific measurement theory, so, to me, metrology measurement theory is not much different from just measurement theory.

Also, superposition requires at least two quantum states.

I think that the article could have benefited from a clearer discussion.

Declarations

Potential competing interests: No potential competing interests to declare.

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