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On the accuracy and approximate repeatability of quantum measurements

We illustrate some procedures for describing imprecise measurements by positive operator measures. Their properties and use is demonstrated.

Since only discrete observables admit repeatable measurements, there has been proposals to consider approximately repeatable measurements. We show that the accuracy of a quantum observable gives a criterion for the existence of approximately repeatable measurements.

Finally, the case of position and momentum observables is discussed. We show that these quantities can be measured together if and only if the measurement accuracy is not too high.