Quantum Measurement Uncertainty: reading Heisenbergs mind or invoking his spirit?

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Heisenbergs famous uncertainty principle comprises two facets - preparation uncertainty and measurement uncertainty. While the former has become a canonical ingredient of virtually every textbook on quantum mechanics, the latter had remained elusive and controversial until very recently. The crux of this problem is found in the difficulties of conceptualising quantum measurement error and disturbance. It is the Heisenberg effect itselfthe fact that measurements are inevitably invasivethat renders the standard classical protocol of error estimation via root-mean-square (rms) deviations (say) inapplicable. In this lecture I review competing proposals for quantifying measurement errors and discuss their meanining and respective limitations. I also present a variety of novel measurement uncertainty relations. Claims of a violation of Heisenbergs error-disturbance relation made in recent literature are thus found to be untenable.