Abstract

Two of the most important ideas that distinguish the quantum world from the classical one are Non-locality and Contextuality. Non-locality is concerned with two physical systems sharing correlations that can not in any way be described by a Classical(local) model. Contextuality on the other hand takes Quantum weirdness to a whole new level. This feature allows values of Observables to be pre-existing but only in a way such that these values have to change as we bring a different apparatus to measure the same Observable. These two attributes have become a signature of nonclassicality. A literature review on these foundational features majorly concerns either establishing new scenarios to test them or using them as resources in applications. These scenarios or use as resources have been established most-frequently by demanding Strong measurements of Observables on the quantum systems. But the fact that the Quantum framework allows a new form of measurement called Weak Measurement(WM) opens up a new gateway to test these features as well as this new measurement form. WMs are a more general class of measurements whose special case is the typical textbookintroduced Strong measurements. In WMs, the outcomes can no longer be labelled by eigenvalues and state no longer collapses to orthogonal states. This thesis is an attempt to explore the combination of WMs & these weird features. We found that there is a degree of weakness of measurements that we can afford, below which we loose these non-classical features.