On Classical and Quantum Objectivity

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Abstract

We propose a conceptual framework for understanding the
relationship between observables and operators in mechanics. To do so, we introduce a postulate that
establishes a correspondence between the objective properties permitting to identify physical states and the
symmetry transformations that modify their gauge dependant properties. We show that the uncertainty principle
results from a faithful -or equivariant- realization of this correspondence. It is a consequence of the proposed
postulate that the quantum notion of objective physical states is not incomplete, but rather that the classical notion
is overdetermined.

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