

# The causal story of the double slit experiment in quantum real numbers.

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## Abstract

A causal story of the double slit experiment for a massive scalar particle is told using quantum real numbers as the numerical values of the position and momentum of the particle. The quantum real number interpretation postulates an independent physical reality for the quantum particle. It provides an ontology for the particle in which its qualities have numerical values even when they have not been measured. It satisfies experimental tests to the same degree of accuracy as the standard quantum theory because the standard expectation values are infinitesimal quantum real numbers. Questions, unanswerable in the standard theories, concerning the behaviour of single particles in the experiment are answered.

**Keywords:** Quantum reality, ontological vs epistemological conditions of quantum particles, variable real number values.

**Subjects:** [Specific Sciences: Physics: Quantum Mechanics](#)

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