Reconciling Spacetime and the Quantum: Relational Blockworld and the Quantum Liar Paradox

Stuckey, William Mark and Silbserstein, Michael and Cifone, Michael (2007) Reconciling Spacetime and the Quantum: Relational Blockworld and the Quantum Liar Paradox.

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Abstract

The Relational Blockworld (RBW) interpretation of non-relativistic quantum mechanics (NRQM) is introduced. Accordingly, the spacetime of NRQM is a relational, nonseparable blockworld whereby spatial distance is only defined between interacting transtemporal objects. RBW is shown to provide a novel statistical interpretation of the wavefunction that deflates the measurement problem, as well as a geometric account of quantum entanglement and non-separability that satisfies locality per special relativity and is free of interpretative mystery. We present RBW's acausal and adynamical resolution of the so-called "quantum liar paradox," an experimental set-up alleged to be problematic for a spacetime conception of reality, and conclude by speculating on RBW's implications for quantum gravity

Keywords:	blockworld, non-relativistic quantum mechanics, entanglement, nonlocality, measurement problem, quantum liar paradox
Subjects:	Specific Sciences: Physics: Symmetries/Invariances Specific Sciences: Physics: Relativity Theory Specific Sciences: Physics Specific Sciences: Physics: Quantum Mechanics Specific Sciences: Physics: Quantum Field Theory
ID Code:	3776
Deposited By:	Cifone, Michael
Deposited On:	30 December 2007
Additional Information:	To appear in Foundations of Physics

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