Quantum Puzzles in the Metaworld of Heisenberg, Clauser, and Horne

Durham, Ian (2005) Quantum Puzzles in the Metaworld of Heisenberg, Clauser, and Horne.

Abstract

This paper follows up on a recent pre-print (Durham [2005]) by first deriving a set theoretic relationship between the generalized uncertainty relations and the Clauser-Horne inequalities. The physical, metaphysical, and metamathematical implications and problems are then explored. The discussion builds on previous work by Pitowsky [1994] and suggests that there is a fundamental problem in quantum correlation that could potentially lead to a paradox. It leaves open the question of whether the problem is in experiment, theory, or phenomena.

Keywords:	Clauser-Horne inequalities; Heisenberg uncertainty principle; set theory; physical realism; mathematical realism
Subjects:	Specific Sciences: Mathematics General Issues: Experimentation General Issues: Realism/Anti-realism Specific Sciences: Physics: Quantum Mechanics
ID Code:	2401
Deposited By:	Durham, Ian
Deposited On:	11 August 2005
Additional Information:	Seeking constructive feedback!