

Abstract Submitted
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Competing Ideas in Quantum Measurement: The Search for a Perfect “Theory of Everything” MELISSA SCHMITZ, Le Moyne College — Since the quantum revolution in the early 20th century, finding the “perfect” theory to completely describe the universe at the subatomic scale drove some of the greatest minds in modern physics. We study quantum non-locality theory using de Broglie-Bohm Pilot Wave Theory as a model hidden variable theory and Bell’s Theorem as a model quantum measurement inequality to understand the fundamental theoretical challenges posed by quantum entanglement and contextuality. Controversial claims of a supposed “disproof of Bell’s Theorem” using Clifford algebra-valued local hidden variables is investigated through mathematical and computational methods. We compare results to the expected predictions of Bell’s Theorem and the Copenhagen interpretation of quantum mechanics.

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