

Abstract Submitted
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Unified in theory? A theory of quantum gravity supported by the double slit experiment and sonoluminescence BECKY BRASFIELD, University of Illinois, Urbana-Champaign — One of the greatest challenges in modern physics is to successfully unify general relativity and quantum mechanics. The primary objective of this paper is to present a theory which integrates the foundations of general relativity and quantum mechanics. The secondary objective is to present a causal theory of matter, and the tertiary objective is to demonstrate experimental support for the proposed theory. The methods for this paper involve three steps. First, four major points of contention in physics and cosmology are reviewed in order to identify and examine contested issues from the past and present. Unexplained or contested phenomena include: (1) Dark matter, dark energy, and the cosmological constant; (2) Definitions of gravity and force; (3) Wave-Particle duality; (4) Black holes. The second step re-theorizes the previous frameworks to present a unified theory of quantum gravity as a space-time causal model. The third step applies the proposed unified theory to the double slit experiment and sonoluminescence for empirical support. A theoretically consistent model is proposed for further review.

Becky Brasfield
University of Illinois, Urbana-Champaign

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