Research Highlights: Micro-physics Verification Predictions of Universe Ontology

Key Contributions

1. **Falsifiable Predictions**: Presents five specific, experimentally testable predictions derived from Universe Ontology that diverge from standard quantum theory.
2. **Novel Quantum Boundary Theory**: Develops a mathematically rigorous framework connecting quantum and classical domains through information operations.
3. **Experimental Pathways**: Provides concrete experimental designs to test each prediction using current or near-future technology.
4. **Mathematical Innovation**: Derives new physical formulas from minimal axioms based on XOR and SHIFT information operations.
5. **Multi-domain Impact**: Connects fundamental theory to practical applications across quantum technology, gravitational physics, and quantum information science.

Significance to the Field

- First comprehensive set of experimentally verifiable predictions from an information-theoretic approach to fundamental physics
- Proposes resolution pathways for long-standing issues in quantum measurement, non-locality, and quantum-gravity integration
- Establishes quantitative boundaries for quantum effects based on information content rather than traditional physical parameters
- Opens new experimental directions for testing quantum foundations with precise, quantitative predictions

Technological Applications

- Enhanced precision in quantum technology through better understanding of decoherence mechanisms
- New protocols for quantum information transfer with optimized efficiency based on information-theoretic limits
- Improved designs for quantum sensors operating near gravitational gradient thresholds
- Potential applications in quantum communication, computation, and sensing technologies