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Isolated Iterating Fractal Independently Corresponds with Light and Foundational Quantum Problems

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Abstract : After nearly one hundred years of its origin, foundational quantum mechanics remains one of the greatest unexplained mysteries in physicists today. Within this time, chaos theory and its geometry, the fractal, has developed. In this paper, the propagation behaviour with an iteration of a simple fractal, the Koch Snowflake, was described and analysed. From an arbitrary observation point within the fractal set, the fractal propagates forward by oscillation—the focus of this study and retrospectively behind by exponential growth from a point beginning. It propagates a potentially infinite exponential oscillating sinusoidal wave of discrete triangle bits sharing many characteristics of light and quantum entities. The model's wave speed is potentially constant, offering insights into the perception and a direction of time where, to an observer, when travelling at the frontier of propagation, time may slow to a stop. In isolation, the fractal is a superposition of component bits where position and scale present a problem of location. In reality, this problem is experienced within fractal landscapes or fields where 'position' is only 'known' by the addition of information or markers. The quantum' measurement problem', 'uncertainty principle,' 'entanglement,' and the classical-quantum interface are addressed; these are a problem of scale invariance associated with isolated fractality. Dual forward and retrospective perspectives of the fractal model offer the opportunity for unification between quantum mechanics and cosmological mathematics, observations, and conjectures. Quantum and cosmological problems may be different aspects of the one fractal geometry.

Keywords : measurement problem, observer, entanglement, unification
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