Title: Quantum Mechanics as the Disintegration of a Deeper Order
Author: Itzhexen
Date: August 24, 2025

Abstract

Quantum mechanics is widely regarded as the fundamental framework of physical reality, describing the probabilistic behavior of particles at microscopic scales. However, this paper proposes an alternative interpretation: that quantum phenomena are not fundamental, but emergent. Specifically, we explore the possibility that quantum behavior arises from the erosion or disintegration of a deeper, once-coherent order. Rather than quantum randomness being intrinsic, it may be the visible residue of information loss from a more structured past — a "surface noise" on the decaying edge of an underlying system. This perspective reframes entropy, decoherence, and the quantum-classical transition as side effects of progressive structural breakdown, offering a speculative but meaningful shift in how we conceive physical law and the arrow of time.

1. Introduction

Quantum physics, since its inception in the early 20th century, has served as the bedrock of modern physics. Its predictions — from the behavior of electrons to the entanglement of particles across space — have been confirmed to extraordinary precision. Yet, its interpretation remains unsettled. Why does nature appear probabilistic? Why does observation collapse possibilities into definite outcomes? What is the boundary between the quantum and classical worlds?

This paper proposes a reversal of the typical viewpoint. Instead of quantum mechanics being the foundation, perhaps it is the fading echo of a deeper, once-deterministic system — a high-order structure that has been disintegrating over cosmic time. The quantum world, in this view, is not the origin of uncertainty, but its consequence.

2. Entropy and Information Loss

Entropy, in both thermodynamics and information theory, reflects a trend toward disorder, uniformity, and the loss of distinguishable structure. The Second Law of Thermodynamics asserts that entropy increases over time in closed systems, meaning that usable information degrades, and complexity tends to dissolve into simplicity.

If the early universe began in a state of near-perfect order — as some cosmological models suggest — then everything we observe now is a consequence of increasing entropy. Classical systems degrade, structures collapse, and information is lost. What remains is noise — patterns stripped of their original meaning.

This loss of information may be exactly what we call quantum indeterminacy.

3. Quantum Mechanics as Residual Behavior

Quantum phenomena may be signs of epistemic gaps — not because nature is probabilistic, but because we are observing systems after a process of degradation. From this perspective:

Superposition reflects incomplete information about a previously defined state.

Wavefunction collapse represents the re-contextualization of a damaged signal into the most probable outcome.

Entanglement is not spooky action at a distance, but the last remaining thread of a higher-order structure that no longer exists in full.

In short: quantum weirdness might be the artifact of disintegration, not the fundamental law.

4. Implications for Time and Causality

Time, as experienced, has a clear arrow — from past to future. In physics, this direction is tied to entropy: systems evolve from low-entropy states to high-entropy ones. If we reverse the narrative, and see the universe as degrading from a fully ordered state, then the passage of time is equivalent to the process of unraveling.

Causality becomes statistical not because nature is indeterminate, but because the original causal chains have been erased. We are left reconstructing likely causes from incomplete fragments. The probabilistic framework of quantum mechanics is a map drawn after the terrain has crumbled.

5. Connections to Modern Physics

Several speculative theories echo this idea:

Emergent quantum mechanics proposes that quantum rules arise from deterministic substructures.

The holographic principle suggests that what we perceive in spacetime is a projection of deeper, information-based reality.

Black hole entropy implies that information is stored in ways we do not fully understand — or cannot recover once lost.

Decoherence demonstrates how entanglement with unseen environments creates the illusion of collapse.

All these support the view that what we see is a filtered, degraded version of what actually is — or was.

6. Conclusion

This speculative proposal — that quantum mechanics is not fundamental, but a side-effect of entropic erosion — invites a shift in our understanding of physics. Perhaps we are not at the bottom layer of nature, but instead surfing its collapsing edge. The indeterminacy, randomness, and statistical nature of quantum theory may reflect the last visible signals of a deeper, ordered system we can no longer access.

If true, then to understand the universe more deeply, we must stop digging downward — and start looking backward: not to simpler particles, but to more complete structures that have since dissolved.