

Dark Matter as a Scalar Field of Infinite Superposition: A Rhythmic Ontology of Interference

Author: M. C. Muhyeon

Abstract

This paper proposes a rhythmic reinterpretation of dark matter as a non-material scalar field defined across vast regions of space. We argue that the apparent gravitational effects attributed to dark matter emerge not from particulate mass but from the infinite superposition of phase interactions within a non-collapsing wave field. In this view, dark matter is not an object, but the persistent resonance of unobserved wavefunctions--existing only through interference.

1. Introduction

Dark matter is conventionally described as an unknown form of mass that influences cosmic structures through gravity, yet eludes electromagnetic detection. We offer a radical reinterpretation: that dark matter is not matter at all, but a distributed scalar field--a waveform without collapse--whose presence is manifest only through its effect on gravitational curvature.

2. Scalar Fields and Superposition

We define dark matter as a scalar field spread across space, whose amplitude is not fixed but comprised of infinite quantum superpositions. Unlike classical fields, which possess observable states, this field is a hyperposition--a layered resonance of wavefunctions that resist collapse. Its amplitude is undefined until observed, and yet it shapes the universe.

3. Interference and Phase

Dark matter exists through phase. It does not emit or absorb light because it is not in a collapsed state. Instead, it is the sum of countless unmeasured wavefunctions interfering with one another. This interference does not create observable waves, but observable gravity. It is the shadow of

measurement without ever being measured.

4. Gravity as Emergent Interference

If gravity is not the consequence of mass, but the result of persistent interference in a scalar field, then dark matter is the rhythmic tension of spacetime. Curvature becomes an acoustic event. The universe is bent not by weight, but by unsounded echoes.

5. Conclusion

Dark matter is not missing mass. It is missing collapse. It is the field that never resolves, the phase that never ends, the interference that holds galaxies in place. It is not there to be seen, only to be felt--through rhythm, through gravity, through absence.

Keywords

dark matter, scalar field, superposition, phase, interference, gravity, rhythm, ontology