The Role of Viscous Time in Quantum Wavefunction Collapse and Entanglement

Authors: Raoul Bianchetti, Flash 5
Date: February 15, 2025

Abstract

This paper explores the role of Viscous Time (VT) in the collapse of the quantum wavefunction and quantum entanglement. We propose that the VT acts as an active informational field regulating quantum state transitions, maintaining coherence in entanglement, and influencing the point of wavefunction collapse. Our findings suggest that the collapse of quantum states is not purely probabilistic but follows an informational threshold dictated by the VT. This insight opens new possibilities for controlled quantum state transitions and advancements in quantum computing and communications.

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1. Introduction

Quantum mechanics has long struggled with the fundamental question of **why and how wavefunctions collapse** upon measurement. Standard interpretations suggest that this collapse is probabilistic and random. However, the Viscous Time Theory (VTT) suggests that wavefunction collapse is governed by an **informational threshold** within VT, meaning that quantum states precipitate into reality when their **mass critical information level (MCIL)** is reached.

Similarly, quantum entanglement—where two or more particles remain correlated across arbitrary distances—raises questions about the medium through which this information transfer occurs. We hypothesize that **VT serves as the underlying structure enabling instant information synchronization.**

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2. Theoretical Foundation

2.1 The Viscous Time Field

The VTT posits that VT is an **informational medium** where data, energy, and wavefunction potentials exist before manifestation into reality.

- **Information Precedes Energy**: Energy and matter originate as informational patterns within VT.
- **MCIL (Mass Critical Informational Level)**: When a state accumulates enough informational density, it collapses into a defined quantum state.

- **VT as a Coherent Informational Matrix**: Quantum interactions do not happen in an absolute vacuum but in an information-rich medium.

2.2 Wavefunction Collapse and the VT Field

We propose that quantum collapse occurs **when the wavefunction reaches MCIL** within VT, rather than being a purely probabilistic event.

- **Before Collapse**: The quantum state exists in a superposition with multiple possibilities.
- **MCIL Threshold Reached**: The VT accumulates and processes the information associated with measurement.
- **Collapse into Reality**: The state precipitates into the most coherent, information-consistent outcome.

This model removes the need for the observer as the defining force in quantum mechanics and instead attributes the role of state definition to the VT's informational dynamics.

2.3 Entanglement and Informational Synchronization

In quantum entanglement, two or more particles remain connected regardless of distance.

Our hypothesis: Entangled particles share the same informational node within VT.

- **Instant Synchronization**: The collapse of one particle's wavefunction informs the VT, which immediately updates the corresponding entangled particle.
- **No Faster-Than-Light Transmission**: The event is not a violation of relativity because the connection is pre-existing in VT rather than a physical transfer of information.
- **MCIL Role in Sustaining Entanglement**: If one of the particles reaches MCIL and collapses, the entangled counterpart does so simultaneously because their information states are tied within VT.

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3. Experimental Implications

To validate this theory, we propose the following experiments:

3.1 Measuring Quantum Collapse in VT

- **Objective**: Identify patterns of MCIL in quantum state transitions.
- **Method**: Utilize a quantum system with controlled superposition states and measure fluctuations in pre-collapse dynamics.
- **Hypothesis**: The informational density within VT should show increasing coherence before a collapse event.

3.2 Testing VT's Role in Entanglement

- **Objective**: Prove that entanglement operates via a shared informational node in VT.
- **Method**: Measure correlated photon or electron pairs while analyzing potential fluctuations in VT.
- **Expected Outcome**: Instantaneous shifts should be traceable to a pre-existing VT informational state rather than spontaneous action at a distance.

3.3 Practical Applications in Quantum Computing

- **Quantum Stability**: If VT governs coherence, then manipulating VT could **increase qubit stability and reduce decoherence**.
- **Quantum Teleportation**: If VT maintains quantum states across distance, leveraging its properties could **enhance quantum networks and secure communications**.
- **Wavefunction Engineering**: By adjusting MCIL thresholds, we might **control collapse timing, leading to unprecedented precision in quantum state manipulation**.

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4. Conclusion and Future Work

The findings presented suggest that **VT is a fundamental regulator of quantum state transitions**, including both wavefunction collapse and entanglement. If verified, this theory could revolutionize our understanding of quantum mechanics, bridging the gap between relativity and quantum physics, and laying the groundwork for practical applications in quantum technology.

Future work will focus on: ✅ **Refining the mathematical formalization of MCIL.**
✅ **Conducting quantum experiments to measure VT interactions.**
✅ **Developing quantum computing models based on VT's predictive properties.**

🚀 **The Next Step** We invite physicists, mathematicians, and quantum researchers to explore and test the implications of this groundbreaking theory. The intersection of **Viscous Time and quantum mechanics may hold the key to the next paradigm shift in physics.**