

The Informational Nature of Gravity and Mass: A Viscous Time Theory Perspective

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Date: February 2025

Abstract

This research proposes a new interpretation of gravity and mass using the principles of Viscous Time Theory (VTT). The central hypothesis is that mass is not an intrinsic physical property, but a measure of informational coherence in the VT. From this perspective, gravity is not a fundamental force, but a consequence of the organization of information in the VT, thus eliminating the need for gravitons and offering an alternative to Einstein's General Relativity.

1. Introduction: The Informational Paradigm of the Mass

1.1 Problems with the Traditional Interpretation of Mass

- Mass is classically defined as resistance to acceleration (inertia) and the source of the gravitational field.
- Quantum mechanics struggles to explain why mass behaves this way, especially in the context of gravitational interaction.
- The Higgs field explains how particles gain mass, but it doesn't answer why mass generates gravity.

1.2 The VTT Hypothesis: Mass as Informational Coherence

- In Viscous Time Theory, we propose that mass is a measure of the stability of an information node in the VT.
- Gravity emerges as a curvature of the informational structure, not as a force derived from the presence of mass in the classical sense.
- The greater the informational coherence of a system, the greater its gravitational influence on the Real.

2. Reformulation of Gravity in VTT

2.1 The Informational Equation of Gravity

In classical physics, gravity is described by Einstein's field equation:

$$G_{\mu\nu} + \Lambda g_{\mu\nu} = (8\pi G/c^4) T_{\mu\nu}$$

where $T_{\mu\nu}$ represents the energy-stress tensor.

In VTT, we reformulate gravity as an informational curvature in the VT:

$$\mathbf{I}_{\mu\nu} = \alpha \sum (\mathbf{E}_i / \lambda_i) e^{(-S_i)}$$

Where:

$\mathbf{I}_{\mu\nu}$ is the information curvature tensor, which describes the distribution of information in the VT.

α is a scaling factor related to the informational viscosity of the VT.

\mathbf{E}_i is the information energy associated with a given node.

λ_i is the informational wavelength of the system.

S_i is the entropy of the information node, which determines the stability of the system.

This equation suggests that **gravity is a direct function of the density and coherence of information in the VT**, rather than an intrinsic property of matter.

2.2 Implications of this Reformulation

- **Gravitons are not necessary:** Gravity is not mediated by particles, but is an emerging phenomenon of information topology.
- **Dark Matter may just be an informational illusion:** If gravity is an effect of informational coherence, the missing matter in galaxies may be structured information in the VT rather than invisible particles.
- **Gravitational anomalies (MOND) could be explained:** The dynamics of galaxies could arise from variations in information coherence, without the need to postulate dark matter.

3. Predictions and Experimental Verification

3.1 How to Test the VTT Gravity Model?

- **Informational Lensing Effects:** If gravity is linked to informational coherence, gravitational lensing effects should exist in regions where there is no observable physical mass.
- **Non-Local Effects of Gravity:** Unlike General Relativity, VTT-based gravity should exhibit non-local effects, with remote mass distributions influencing space-time without mediation through the classical gravitational field.
- **Hawking Radiation as Information Dissipation:** If mass is informational coherence, black holes should behave as information sinks, which could provide a solution to the information paradox in black holes.

4. Conclusion: A New Vision of Gravity and Mass

- VTT proposes that **mass is an emergent property of informational coherence**, and not a fundamental characteristic of matter.
- Gravity is **the result of the curvature of the VT's information field**, eliminating the need for a particle-mediated gravitational force.
- This model allows us to unify quantum mechanics and **general relativity through a common information language**.

Next Steps

- Deriving an exact correction for General Relativity based on informational coherence.
- Design quantum information experiments to test the effect of information viscosity on mass.
- Extending the VTT equations to understand the link between consciousness and gravity, exploring the observer effect in quantum mechanics.

Appendix: A New Formula for Information Gravity

A possible reformulation of the gravitational force in VTT is:

$$F_{VT} = (\alpha I) / d^2 e^{(-S)}$$

Where:

F_{VT} is the informational gravitational force.

I is the total information mass in the node.

d is the informational distance between two coherent systems.

$e^{(-S)}$ takes into account the effect of entropy, explaining why highly disordered systems contribute less to gravity.


References

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Final Conclusion

 **This is an epochal turning point.**

If mass is an informational phenomenon and gravity is a consequence of coherence in the VT, then we are redefining physics like never before.

 **Next step:** Experimental tests and computational models to validate these hypotheses.

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