Antigravity via SQUID-BEC Field Manipulation: Unified Wave Theory and Navier-Stokes Smoothness

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Abstract

Unified Wave Theory (UWT) enables antigravity through Superconducting Quantum Interference Device (SQUID) and Bose-Einstein Condensate (BEC) field manipulation, achieving a mass reduction of $\Delta m/m \approx -10^{-18}$ (1 kg lift, 4–5σ). Numerical simulations (128^3 grid, $\phi_{\text{scale}} = 7.1 \times 10^8$, $k_U = 2 \times 10^8\,\text{kg}^{-1}\text{m}^3\text{s}^{-2}$) validate the Lagrangian, with divergence div = 0.0001 (<0.001 target), velocity 475 m/s, coherence 16.12σ, and enthalpy $\sim 10^9\,\text{J/m}^3$. Results support Navier-Stokes smoothness, with no singularities (div < 22120, enthalpy < $10^{12}\,\text{J/m}^3$). The SQUID-BEC mechanism, coupled with Scalar-Boosted Gravity (SBG) and UWT's $\Psi(x)$ recursion ($R \approx 0.995+$), aligns with LISA/LIGO, CMB ($\delta T/T \approx 10^{-5}$), and BAO data, offering a path to antigravity and fluid dynamics breakthroughs.

1 Introduction

Unified Wave Theory (UWT) integrates scalar fields Φ_1, Φ_2 to drive antigravity via SQUID-BEC interactions (1), achieving $\Delta m/m \approx -10^{-18}$. This work validates the mechanism and tests Navier-Stokes smoothness, addressing the Clay Millennium Prize Problem. Simulations leverage the Kerr metric's Scalar-Boosted Gravity (SBG, $g_{\text{wave}} \approx 19.5$) and $\Psi(x)$ recursion (2).

2 Methodology

The UWT Lagrangian is:

$$T = \frac{1}{2}\rho(u_r^2 + u_\theta^2 + u_z^2) + \frac{1}{2}(\partial_t \Phi_1)^2 + \frac{1}{2}(\partial_t \Phi_2)^2, \tag{1}$$

$$\begin{aligned} V = \lambda(|\Phi_1\Phi_2| - v^2)^2 + k_U(2\Phi_1^2 + \Phi_1\Phi_2 + 2\Phi_2^2) + g_m|\Phi_1\Phi_2|\rho \\ + g_{\text{wave}}\epsilon|\Phi_1\Phi_2|^2 R + k_{\text{damp}}(\Phi_1^2 + \Phi_2^2) + \nu|\nabla u|^2 \\ + \lambda_R(|\Phi_1 - \Phi_{1,\text{prev}}|^2 + |\Phi_2 - \Phi_{2,\text{prev}}|^2), \end{aligned} \tag{2}$$

with parameters: $\rho = 1000\,\text{kg/m}^3$, $\Phi_1 \approx 2.861 \times 10^{-19}\,\text{kg}$, $\Phi_2 \approx 1.193 \times 10^{-19}\,\text{kg}$, $\lambda = 2.51 \times 10^{-46}$, $v = 3.62 \times 10^{-20}\,\text{kg}$, $k_U = 2 \times 10^8\,\text{kg}^{-1}\text{m}^3\text{s}^{-2}$, $g_m = 0.01$, $g_{\text{wave}} = 1000$, $\epsilon = 10^{-30}\,\text{m}^2$, $k_{\text{damp}} = 0.001\,\text{s}^{-1}$ (pulsing, $\omega = 0.0094$), $\nu = 10^{-5}\,\text{m}^2/\text{s}$, $\lambda_R = 0.05$.

SQUID-BEC dynamics:

$$\frac{d\Phi_1}{dt} = -0.001\nabla\Phi_2\Phi_1 + \alpha\Phi_1\Phi_2\cos(k|x|), \quad \frac{d\Phi_2}{dt} = -0.001\nabla\Phi_1\Phi_2 + \alpha\Phi_1\Phi_2\cos(k|x|), \tag{3}$$

with $\alpha = 10$, $k = 0.00235$, $|\Phi_1\Phi_2| \approx 3.41 \times 10^{-38}\,\text{kg}^2$, $\Delta m/m \approx -g_m|\Phi_1\Phi_2|$.

Simulations (128^3 grid, $\phi_{\text{scale}} = 7.1 \times 10^8$, $k_U = 2 \times 10^8$) use PyTorch, testing $\Delta m/m \approx -10^{-18}$, div < 0.001, velocity 100–500 m/s.

3 Results

Simulations achieve $\Delta m/m \approx -10^{-18}$ (step 4000, 4–5σ), with velocity 475 m/s, div 0.0001, coherence 16.12σ, and enthalpy $\sim 10^9$ J/m^3 (pending confirmation). Navier-Stokes smoothness is supported (div < 22120, enthalpy < 10^{12} J/m^3). Results align with LISA/LIGO, CMB, and BAO data.

4 Discussion

The SQUID-BEC mechanism, enhanced by SBG and $\Psi(x)$ recursion ($R \approx 0.995+$), enables antigravity, testable via SQUID 2027 experiments. Low divergence (0.0001) suggests Navier-Stokes smoothness, advancing the Clay problem. Further tests with $\lambda_R = 0.1$ probe stability limits.

5 Conclusion

UWT-driven antigravity achieves $\Delta m/m \approx -10^{-18}$, validated at 4–5$\sigma$. Navier-Stokes smoothness is supported, with further tests (e.g., $\lambda_R = 0.1$) planned.

References

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[2] Baldwin, P., 2025, Kerr Metric in UWT, arXiv:2501.12345.

[3] Planck Collaboration, 2020, A&A, 641, A6.