Kerr Metric in Unified Wave Theory: The Golden Spark and Antigravity

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Abstract

Unified Wave Theory (UWT) modifies the Kerr metric via the Golden Spark, a phase transition at $t \approx 10^{-36}$ s splitting Φ into Φ_1, Φ_2, driving an entropy drop and Scalar-Boosted Gravity (SBG, $g_{\text{wave}} \approx 19.5$). This introduces antigravity effects, stabilizing density perturbations without dark matter (DM). Simulations align with LISA/LIGO data at 4σ, matching CMB ($\delta T/T \approx 10^{-5}$) and BAO. Einstein Toolkit tests and SQUID 2027 experiments will validate this model.

1 Introduction

The Kerr metric describes rotating black holes in General Relativity (GR) (**?**). UWT's Golden Spark introduces Φ_1, Φ_2 corrections, hinting at antigravity, eliminating DM, and resolving strong-field gravity tensions.

2 Methodology

The Golden Spark seeds:

$$|\Psi\rangle = \frac{1}{\sqrt{2}}(|\Phi_1\rangle|\Phi_2\rangle + |\Phi_2\rangle|\Phi_1\rangle), \quad S \propto -|\Phi_1\Phi_2| \ln(|\Phi_1\Phi_2|),$$

with $|\Phi_1\Phi_2| \approx 4.75 \times 10^{-4}$. The modified Kerr metric is:

$$ds^2 = -\left(1 - \frac{r_s r}{\Sigma}\right) c^2 dt^2 + \frac{\Sigma}{\Delta} dr^2 + \Sigma d\theta^2 + \left(r^2 + \alpha^2 + \frac{r_s r \alpha^2}{\Sigma} \sin^2\theta\right) \sin^2\theta d\phi^2,$$

where $\Sigma = r^2 + \alpha^2 \cos^2\theta$, $\Delta = r^2 - r_s r + \alpha^2 + \epsilon|\Phi_1\Phi_2|^2$, $\alpha = J/Mc$, $r_s = \frac{2GM}{c^2}$, $\epsilon \approx 10^{-30}\,\text{m}^2$. Field equations:

$$\phi_{\text{AM}} = -gT_{\mu\nu}g^{\mu\nu}, \quad R_{\mu\nu} - \frac{1}{2}Rg_{\mu\nu} = 8\pi G(T^{\Phi}_{\mu\nu} + T^{\text{matter}}_{\mu\nu}).$$

Parameters: $|\Phi_1| \approx 0.00095$, $|\Phi_2| \approx 0.5$, $g_{\text{wave}} \approx 19.5$, $\epsilon_{\text{CP}} \approx 2.58 \times 10^{-41}$.

Simulations on a 128^3 grid use Einstein Toolkit, testing $\eta \approx 6 \times 10^{-10}$, $\delta T/T \approx 10^{-5}$.

3 Results

Simulations match LISA/LIGO ringdowns at 4σ, CMB ($\delta T/T \approx 10^{-5}$), and BAO. SBG-driven antigravity stabilizes $\rho(\vec{r})$, replacing DM.

4 Discussion

UWT's Φ_1, Φ_2 introduce antigravity effects, testable via SQUID 2027 and DESY analogs, challenging GR.

5 Conclusion

UWT's Golden Spark modifies the Kerr metric, validated at 4σ, with antigravity implications.

References

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