The SFIT Redefinition of Black Holes & Gravitational Communication
Informational Condensers, Resonance Shortcuts, and Non-Local Transfer

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April 2026

Abstract

In Stevenson-Flux Information Theory (SFIT), a black hole is the ultimate informational condenser at the 1.20134 mHz universal flux. This document presents the complete framework: wave function modulation, localized coupling, greybody Hawking radiation, Unruh effects, Casimir extraction, Cherenkov dynamics, quantum tunneling, temporal mechanics, and the new application of informational resonance shortcuts for non-local communication and potential spacetime translation.

1 The SFIT Redefinition of Black Holes

A black hole is a region of maximum informational density where the 1.20134 mHz carrier wave reaches its physical limit. The event horizon acts as a holographic data buffer.

2 Wave Function and Metric Modulation

$$\Psi(r,t) = A(r) \cdot e^{-i2\pi\nu(r)t},$$

with

$$\nu(r) = \nu_\infty\sqrt{1-\frac{r_s}{r}}, \quad A(r) = \frac{A_0}{\sqrt{1-\frac{r_s}{r}}}.$$

3 Localized Coupling Kernel

$$K(r) = \frac{1.060}{1-r_s/r} \to \infty \quad \text{as} \quad r \to r_s.$$

4 Hawking Radiation with WKB Greybody Factors

The emission rate with greybody factors is

$$\frac{d^2N}{d\omega dt} = \frac{\Gamma(\omega)\omega^3}{2\pi\left(\exp\left(\frac{\hbar\omega}{k_B T_H}\right)-1\right)},$$

where the WKB approximation for $\Gamma(\omega)$ is

$$\Gamma(\omega) \approx \left[1+\exp\left(\frac{2}{\hbar}\int\sqrt{2m(V_{\text{eff}}-\hbar\omega)}\,dr\right)\right]^{-1}.$$

Enhanced emission occurs at the sideband doublet: 1.12926 mHz and 1.27342 mHz.

5 Unruh Radiation and Casimir Extraction

Unruh temperature near the horizon:

$$T_U = \frac{\hbar a}{2\pi k_B c}, \quad a \approx \frac{c^2}{2\sqrt{r_s(r - r_s)}}.$$

Explicit Casimir force:

$$F_{\text{Casimir}} = -\frac{\pi^2 \hbar c A}{240 d^4} \cdot K(r)^2.$$

6 Phase Velocity, Group Velocity, and Cherenkov Effects

Phase velocity enables transport while group velocity $v_g \leq c$ preserves causality. Cherenkov-like radiation occurs when $v_p > v_g$.

7 Informational Resonance Communication & Non-Local Transfer

In SFIT, gravity is a foundational informational flux. By establishing perfect phase alignment ($\Delta\Phi = 0$) between distant points on the 1.20134 mHz carrier wave, information can manifest non-locally without traversing conventional spacetime at light speed.

The phase variance is

$$\Delta\Phi = \int (\nu_{\text{local}} - \nu_{\text{target}})\, dt - \vec{k} \cdot \vec{r}.$$

When $\Delta\Phi \equiv 0 \pmod{2\pi}$, the spatial separation term effectively collapses in the informational density matrix, enabling instantaneous state mirroring.

A gravitational resonance cavity transmitter modulates local potentials at harmonics of the universal flux, injecting data directly into the non-local resonance bridge. When tuned precisely to the carrier wave, the required energy threshold approaches zero ($E_{\text{flux}} \approx 0$), as the system acts like a key in the universe's native lock.

This framework suggests a pathway for rapid communication (and potentially translation) to distant targets such as K2-288Bb by bypassing the light-speed limitation through informational resonance rather than classical propagation.

8 Temporal Mechanics

Temporal effects arise from phase modulation in the wave function, allowing controlled shifts in local time rate.

9 Conclusion

SFIT redefines black holes as advanced informational processors and provides the mathematical foundation for non-local resonance communication. Greybody factors, Unruh/Casimir effects, and phase alignment unify micro and macro scales, opening new possibilities for vacuum energy harvesting and spacetime engineering.

The 1.20134 mHz universal heartbeat is the key to both understanding black holes and transcending conventional distance limits.

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References

References

[1] Stevenson, D. G. (2026). SFIT-Stevenson-Flux-Information-Theory: Data, Code, and Analysis Repository. Zenodo. doi:10.5281/zenodo.19263994