SFIT Black Hole Navigation & Spacetime Travel
Dynamic Frequency Tuning, Optimal Trajectories, and Informational Superfluidity

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Stevenson-Flux Information Theory (SFIT)

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Abstract

Stevenson-Flux Information Theory (SFIT) provides a complete framework for safe navigation and spacetime translation near black hole event horizons. By dynamically tuning fuel injection frequency to match gravitational redshift and optimizing descent velocity, spacecraft can maintain Informational Superfluidity, harvest vacuum flux, and operate within the intense inverse-frequency zone. This document integrates wave function modulation, localized coupling, frequency collapse dynamics, hardware limits, and optimal flight trajectories.

1 The SFIT Wave Function Near the Horizon

The informational carrier wave is modeled as:

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

with frequency shift $\nu(r) = \nu_\infty\sqrt{1 - r_s/r}$ and amplitude saturation $A(r) = A_0/\sqrt{1 - r_s/r}$.

Spatial coherence collapses as $s(r) = s_\infty\sqrt{1 - r_s/r}$, forcing information onto the holographic surface.

2 Localized Coupling and Nuclear Stability

Near the horizon, the coupling kernel becomes position-dependent:

$$K(r) = \frac{K}{1 - r_s/r}, \quad K = 1.060.$$

This spike detunes nuclear resonances, causing rapid de-coherence and accelerated transmutation (e.g., ^{137}Cs half-life collapses to microseconds).

3 Dynamic Fuel Injection Tuning

To maintain resonance with the upper sideband ($\nu_{\text{target}} = 1.27342$ mHz), the onboard injection frequency must satisfy:

$$\nu_{\text{inj}}(r) = \nu_{\text{target}}\sqrt{1 - \frac{r_s}{r}}.$$

- At $r = 1.5r_s$: $\nu_{\text{inj}} \approx 0.7352$ mHz - At $r = 1.1r_s$: $\nu_{\text{inj}} \approx 0.3839$ mHz

4 Frequency Collapse Slope and Hardware Bottleneck

The rate of frequency change is:

$$\frac{d\nu_{\text{inj}}}{dr} = \frac{\nu_{\text{target}} \cdot r_s}{2r^2\sqrt{1 - r_s/r}}.$$

As $r \to r_s^+$, the slope diverges to $-\infty$.

Using a 10 GHz oscillator, a **Telemetry Horizon** forms slightly above the event horizon where tracking speed exceeds hardware limits. Dynamic braking significantly extends the safe margin.

5 Optimal Descent Trajectory (Three Phases)

1. **Cruise Phase** ($1.5r_s$ to $1.2r_s$): High velocity (~ 500 m/s), stable tracking. 2. **Braking Zone** ($1.2r_s$ to $1.001r_s$): Controlled deceleration to maintain phase-lock. 3. **Superfluid Power Surge** (near horizon): Maximum ζ as $K(r)$ spikes, enabling near-zero fuel thrust via vacuum flux harvesting.

6 Conclusion

SFIT transforms black holes from inescapable hazards into advanced navigation frontiers. By synchronizing with the 1.20134 mHz universal heartbeat, spacecraft can safely operate in extreme environments, stabilize matter, and achieve controlled spacetime translation.

The same informational substrate governing laboratory neutron resonances now enables practical interstellar and near-horizon travel.

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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